GODDEN
MACKAY

BAY 1 SOUTH

V3

Item Name: Rootes No.5 Blower | **Item No.** 41

Name Plate: NSWGR No. 751 THWAITES BROTHERS LTD ROOTES BLOWER No.5 BRADFORD YORKSHIRE 1903 PATTERN

Associated Items:

Individual	☐	
Assemblage	☐	
System	☑	Steam
Collection	☑	Blowers 41, 42, 61.

Description: The Rootes Blower is a single piston steam engine with twin shafts operating a counter-rotating vane air pump. The Blower supplies high volume low pressure air to the blacksmiths forges. The power pack is a simple vertical steam cylinder with a single shaft which is connected to a cross-head which has twin crank shafts. Each of the crank shafts is fitted to a driving wheel, direct coupled to a vane shaft.

History: The Rootes Blower was installed in 1904 to supply low pressure air to the Blacksmiths Forges. It is believed it was located in this position and has remained here since installation.

Function and Operation: The blowers supply air at low pressure compared to the air compressors which supply high pressure air. High pressure air is unsuitable for forges. When operating, the blower was turned on by opening the steam valve. The air was supplied to the furnaces or directed to exhaust.

Location: Bay 1 South 15W

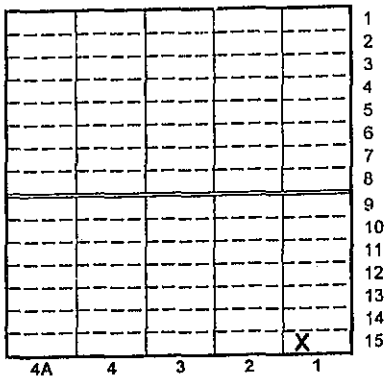
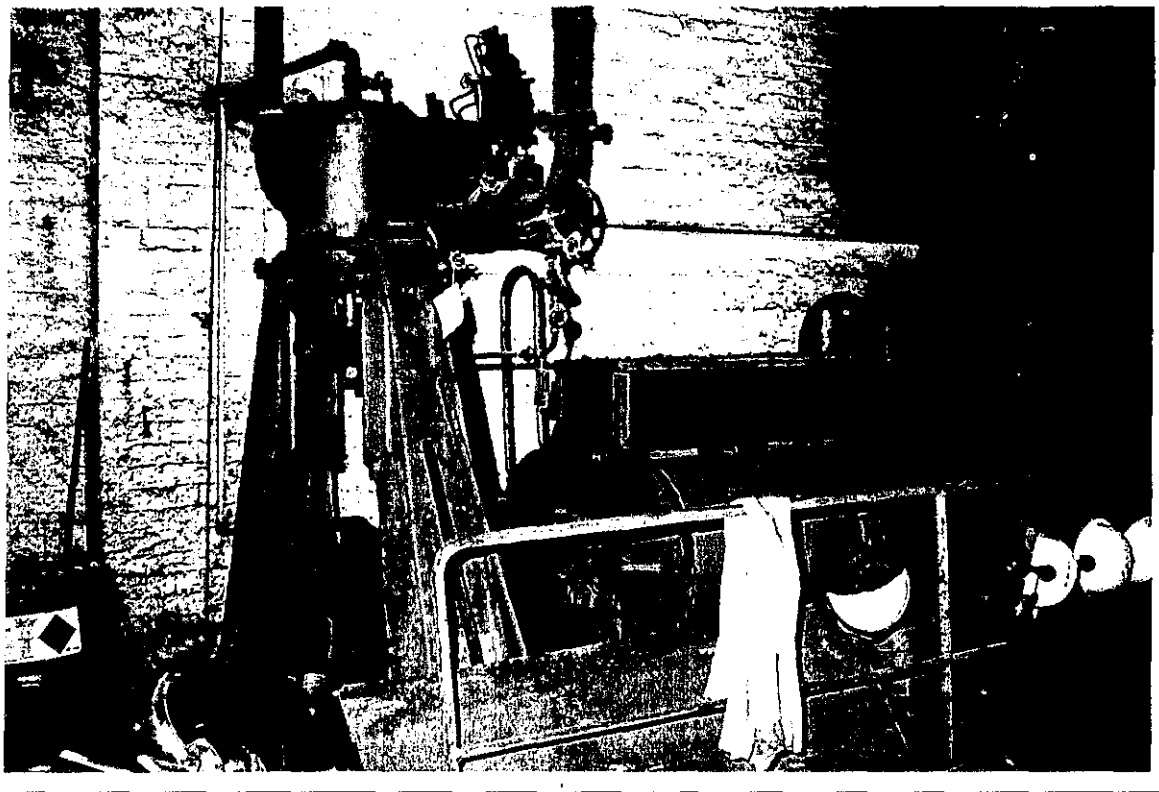


Photo: **FILM No.** 95-169-1-8 **Photographed and inspected December 1995**



3855 7872

EVELEIGH LOCOMOTIVE WORKSHOPS MACHINERY CONSERVATION 1996

Item Name: Rootes No. 6 Blower	**Item No.** 42

Name Plate: NSWGR No. 755 THWAITES BROTHERS
No.6 ROOTES PATENT BLOWER BRADFORD YORKSHIRE

Associated Items:

Individual	☐	
Assemblage	☐	
System	☑	Steam
Collection	☑	Blowers 41, 42, 61.

Description: The Rootes Blower is a single piston steam engine with twin shafts operating a counter-rotating vane air pump. The Blower supplies high volume low pressure air to the blacksmiths forges. The power pack is a simple vertical steam cylinder with a single shaft which is connected to a cross-head which has twin crank shafts. Each of the crank shafts is fitted to a driving wheel, direct coupled to a vane shaft.

History: The Rootes Blower was installed in 1911 to supply low pressure air to the blacksmiths forges. It is believed it was located in this position and has remained here since installation.

Function and Operation: The blowers supply air at low pressure compared to the air compressors which supply high pressure air. High pressure air is unsuitable for forgers as the amount of air going through is disruptive. When operating, the blower was turned on by opening the steam valve. The air was supplied to the furnaces or directed to exhaust.

Location: Bay 1 South 15W

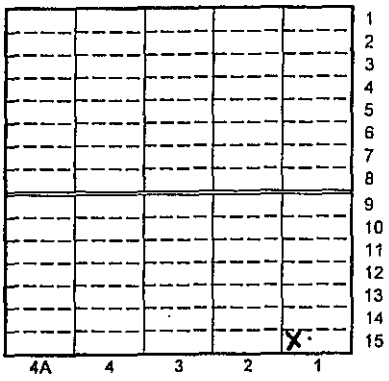
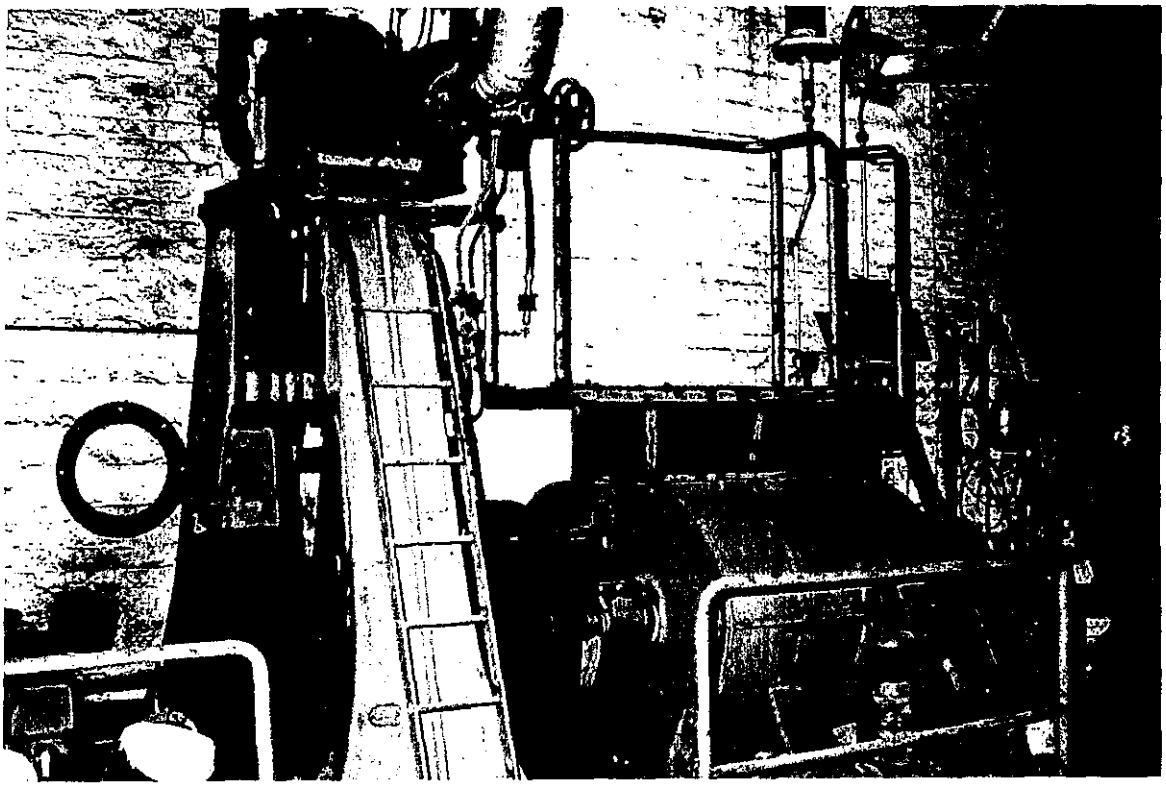


Photo: **FILM No.** 95-169-1-9 **Photographed and inspected December 1995**



Item Name: Blacksmiths Forge | **Item No.** 44

Name Plate: NSWTD FB 12 50 -

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A.
System	☐	
Collection	☑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99.

Description: This forge varies from other forges in the shop in that it is constructed from angle iron and sheet steel for the canopy while the forge itself is brickwork. The tuyere which supplies the air to the forge is water cooled. It is not known why this forge is located in this position but it is possible that the previous standard cast-iron railway pattern forge reached the end of its life. Rather than move another forge, this one was constructed specifically for this location.

History: The history of the item is unknown.

Function and Operation: The forge is operated in precisely the same way as the other blacksmiths forges with the hearth having a bottom entry for the air and the water cooled tuyere entering from the rear. The amount of air supplied to the forge is controlled by the blacksmith through a small lever.

Location: Bay 1 South 14W

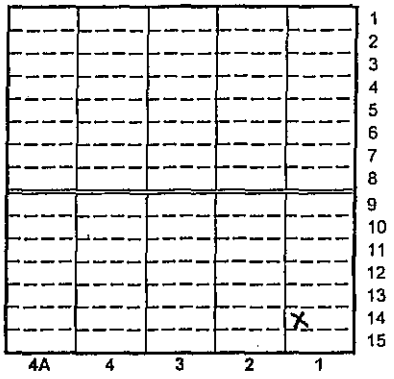
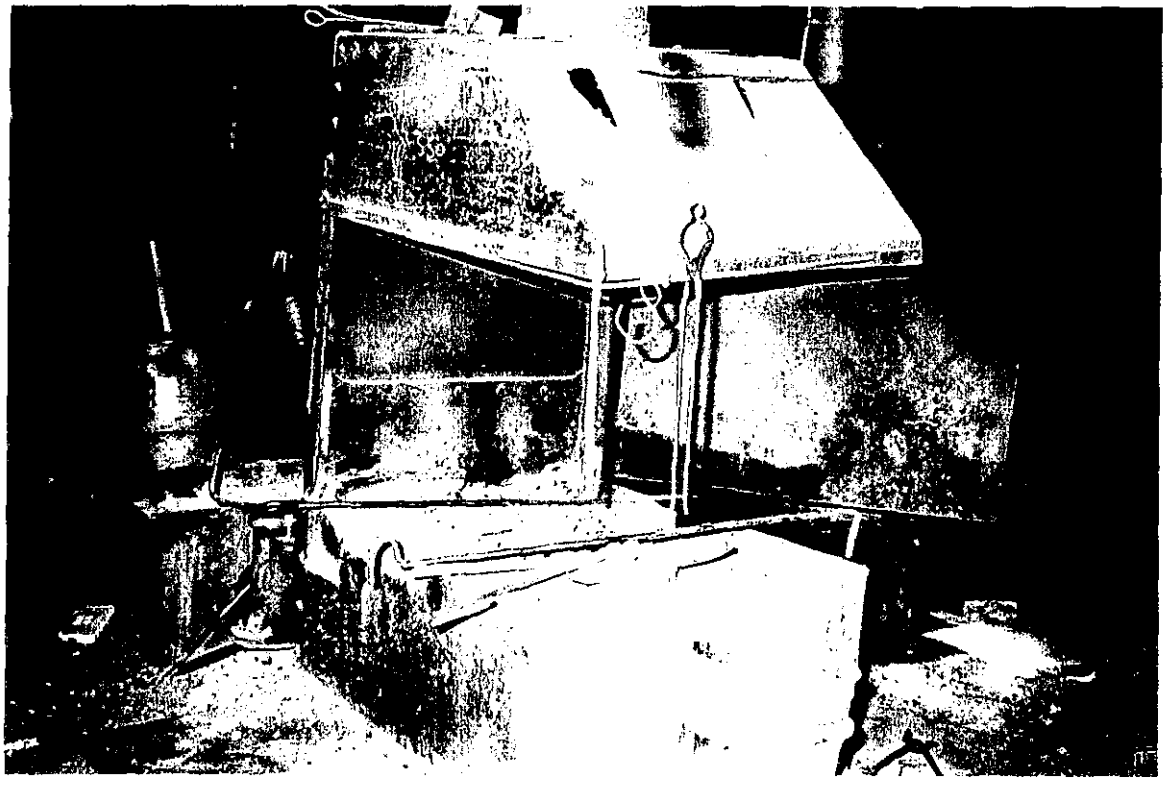


Photo: **FILM No.** 95-169-1-11 **Photographed and inspected December 1995**



Item Name: 7CWT Crane | **Item No.** 45

Name Plate: L499 LOAD NOT TO EXCEED 7CWTS

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A.
System	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195.

Description: This small crane is of the jib-type. It has a kingpost constructed of C-Section steel. The jib is universal section and the jib is counter-weighted at its rear end. The jib is braced front and rear by twin steel straps. The jib carries a small carriage on rollers which is moved manually and from which is suspended an adjustable chain holder which held balanced tongs for gripping work which was being forged under the electropneumatic hammer.

History: The history of the item is unknown but it was erected in this position prior to World War II.

Function and Operation: The tongs in which the material was held were passed through the chain loop and the material was manipulated under the electro-pneumatic hammer.

Location: Bay 1 South 14W

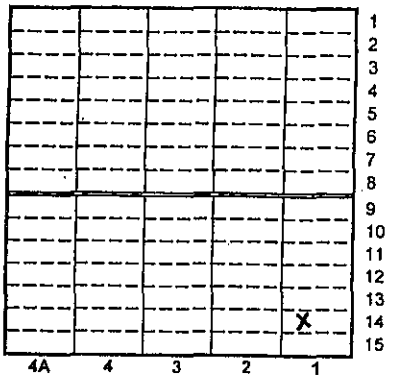
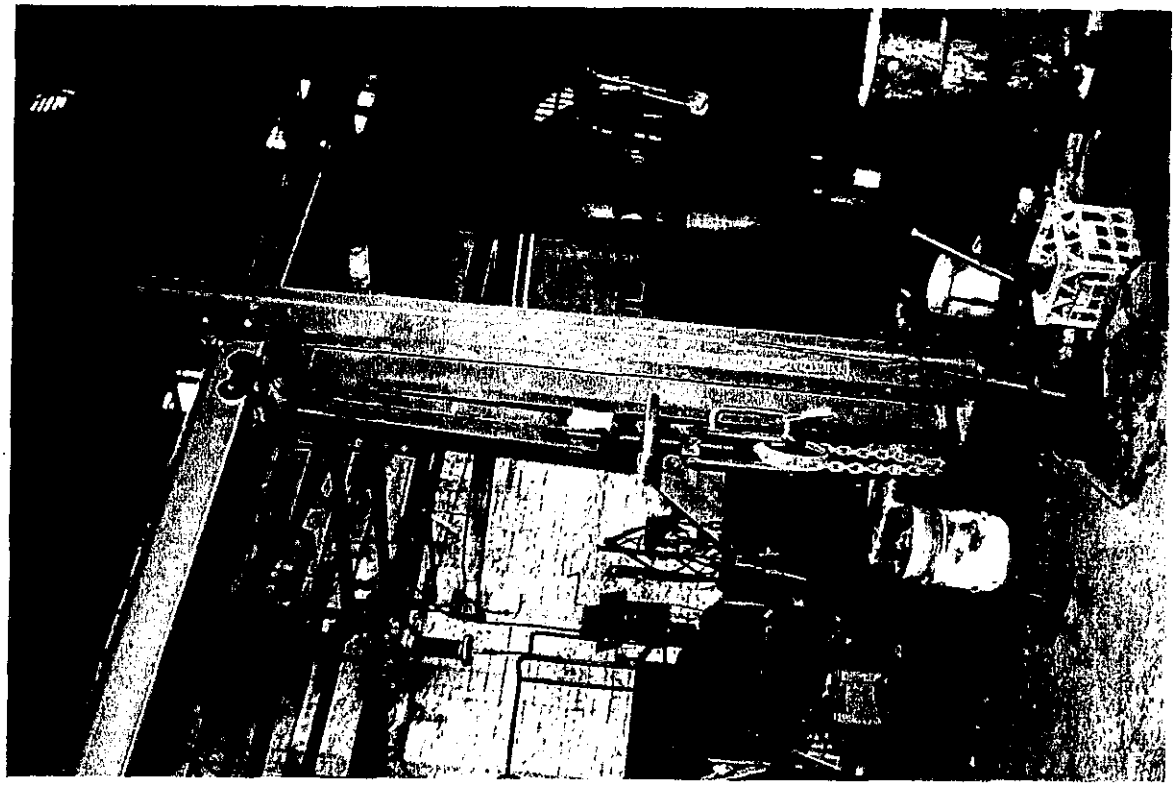


Photo: **FILM No.** 95-169-1-12 **Photographed and inspected December 1995**



Item Name: 10CWT Jib Crane **Item No.** 46

Name Plate: LC 498 CLASS 3 S.W.L. 10CWT

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 20 CWT 46, 47, 57, 66E, 71.
System	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195.

Description: This very early jib crane has a cast-iron kingpost and a wrought iron or mild steel jib. It is stayed front and rear, the rear being stayed to a point close to the bottom of the king post. This crane relies for its stability on its footing. The jib crane is a superb example of late nineteenth century design.

History: The crane was located in this position prior to World War 1. It could be one of the earlier machines erected at the Workshops.

Function and Operation: The slewing is done manually by dragging the jib. The carriage is also moved forwards and backwards manually while the lifting is done through a crank attached to the cast iron hoisting drum at the base of the King Post.

Location: Bay 1 South 12-13W

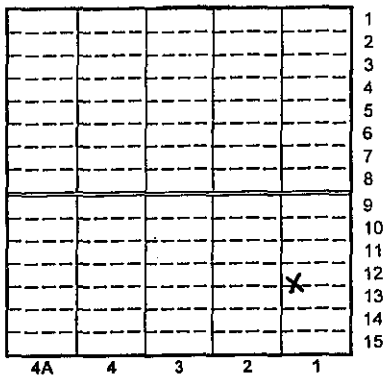
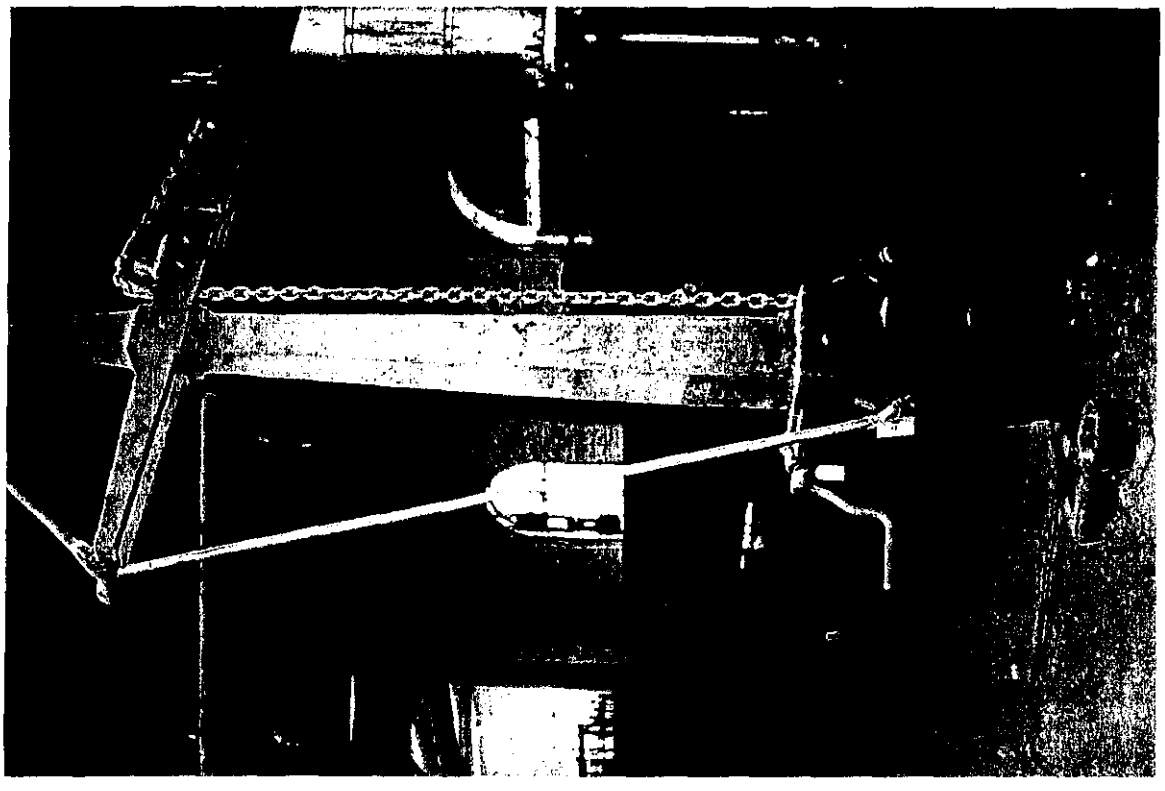


Photo: **FILM No.** 95-169-1-13 **Photographed and inspected December 1995**



Item Name: Oil Furnace **Item No.** 47

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53. Steam Hammer 20 CWT 46, 47, 57, 66E, 71.
System	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198.

Description: There are two large oil furnaces in Bay 1 South. Both were for heating large billets which were to be worked under the 40CWT Steam Hammer or the 20CWT Steam Hammer. The furnaces are in excess of 2 metres wide, 3 metres long and stand about 2 metres high. Each is fitted with a heavy steel framed, fire-brick lined door which is counter-weighted by a chain to the rear. The door is lifted by a chain driven wheel. Initially, it is believed that these furnaces were fired by gas and they were later converted to oil. The furnaces are braced with universal section members and in-fill cast-iron and sheet steel sheathing. The interior is lined with fire brick. Air for the furnaces, because of the quantity required, is supplied from air compressors.

History: The history of the item is unknown but it is believed that it was installed in this position prior to World War II. However, as with many furnaces, this one may have been re-built on a number of occasions.

Function and Operation: This furnace originally supplied indirect or reflected heat through a reverberatory style roof. The oil is supplied from an elevated external reservoir. The air is now supplied from a specially introduced air compressor.

Location: Bay 1 South 11-12W

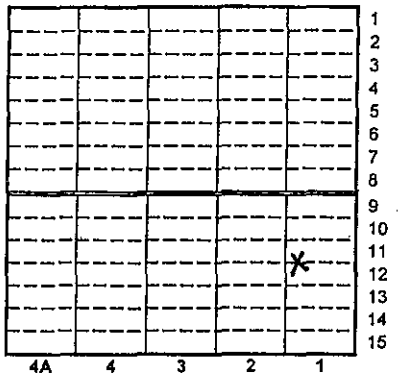
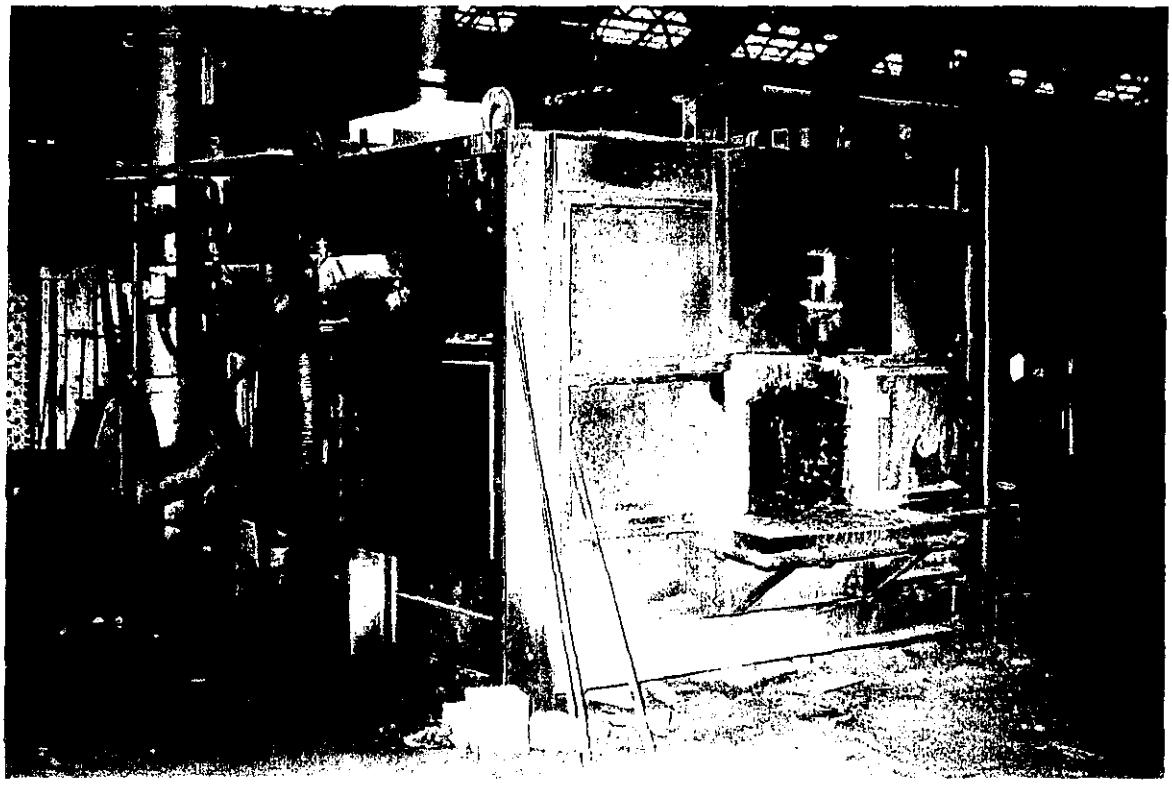


Photo: **FILM No.** 95-169-1-14 **Photographed and inspected December 1995**



Item Name: Furnace **Item No.** 48

Name Plate: NSW TD PP 14 S.O. -

Associated Items:

Individual ☐
Assemblage ☐
System ☐
Collection ☑ Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198.

Description: This relatively small gas furnace was used for heating items to be forged on the steam hammers or to be worked under the hydraulic press. The frame is cast iron and sheet steel lined with fire brick. The heavy front door is counter-weighted on both sides and is lifted by manipulating or by pressing on the counter-weights.

History: The history of the item is unknown but a furnace has been in this location since 1917.

Function and Operation: The furnace was operated on the direct heat principle.

Location: Bay 1 South 10-11W

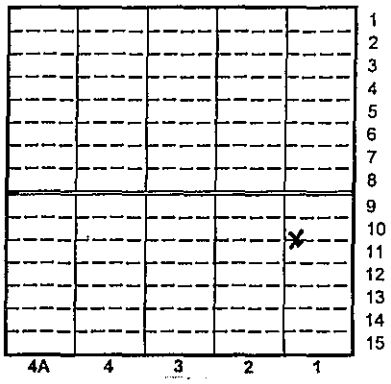
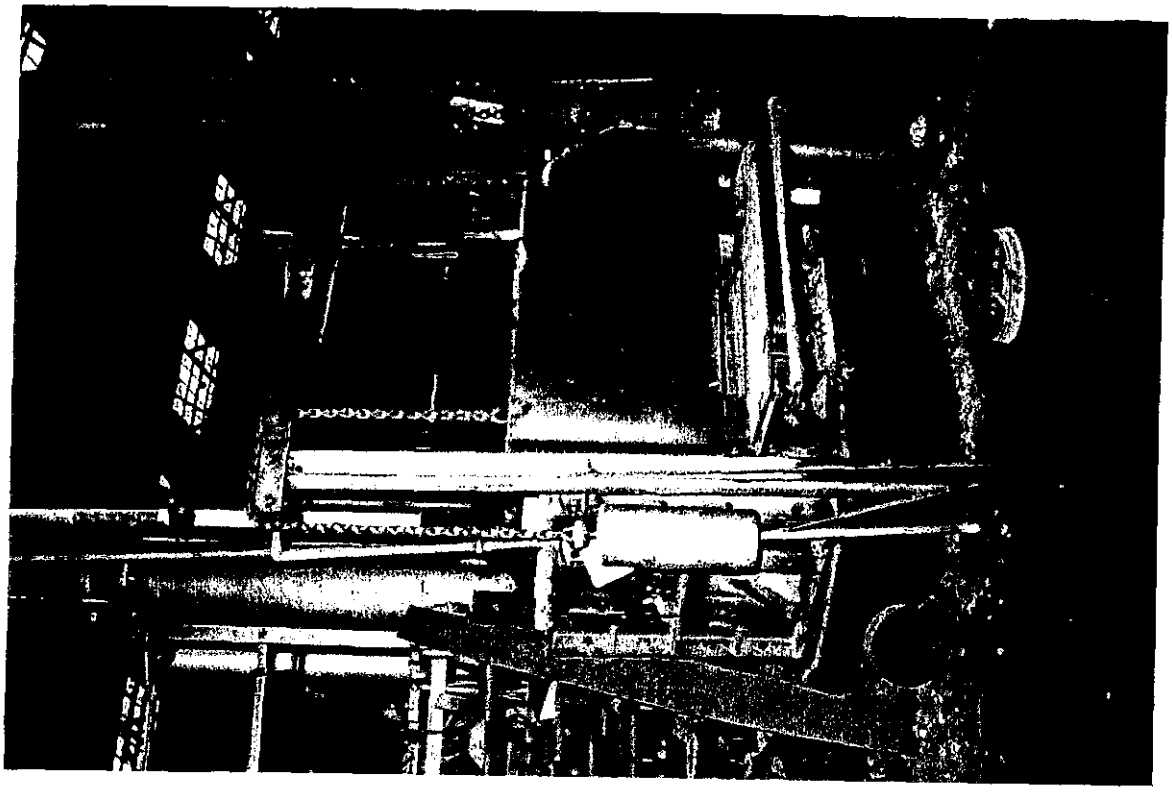


Photo: **FILM No.** 95-169-1-15 **Photographed and inspected December 1995**



Item Name: 18" Hydraulic Ram Press | **Item No.** 49

Name Plate: P.T.C. NSW PF - 643 EVE S/O TANGYE BROS BIRMINGHAM
PATENT WOODBURY TYPE PRESS

Associated Items:

Individual	☐	
Assemblage	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213.
Collection	☐	

Description: This small press of the Patent Woodury type was manufactured by Tangye Brothers of Birmingham in 1888. It exhibits all of the hallmarks of the extremely simple and very effective machinery of the nineteenth century that was used by the railways up until the late twentieth century. The ram press consists of a massive cast-iron footing from which there are four threaded shafts extending vertically for about 1.8 metres. A fixed head is attached to these shafts by massive nuts, one above and one below the head. The head can be raised or lowered to any height and fastened into place by the dexterous use of a massive spanner. Items to be pressed are placed on the platen and hydraulic pressure is introduced through a simple lever. The platen then raises and presses the item against the head. It is possible to use dies above and below the piece being worked.

History: The item was installed in the workshops in 1888. It is believed that it has been located in this position since that time.

Function and Operation:

Location: Bay 1 South 10-11W

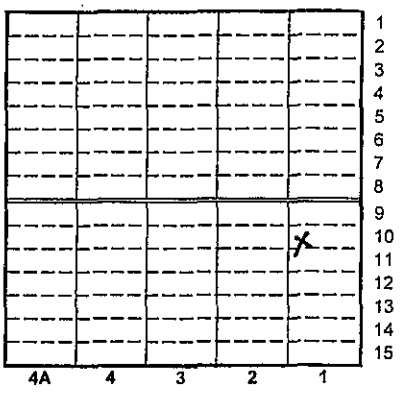
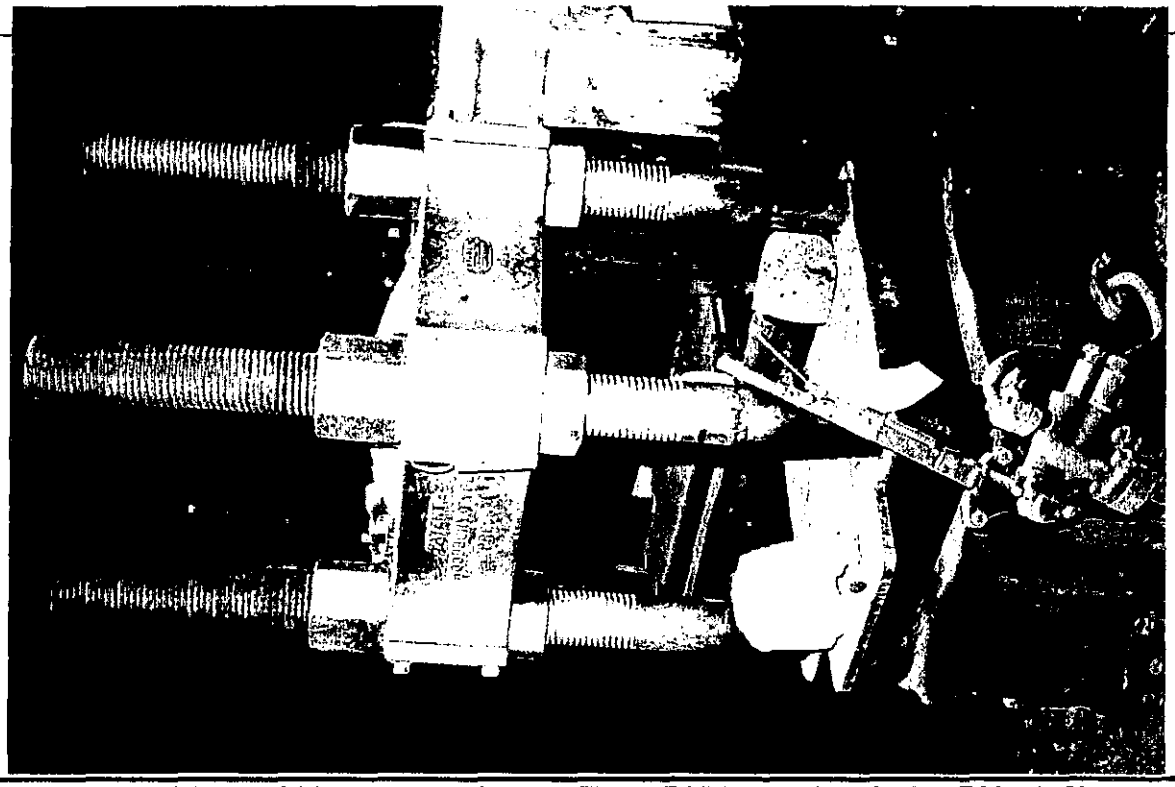


Photo: **FILM No.** 95-169-1-16 **Photographed and inspected December 1995**



Item Name: Jib Crane | **Item No.** 50

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	/
System	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195.

Description: This fairly modern jib crane has a king post which is made from angle section steel and is of a robust construction. The crane is believed to have been manufactured prior to World War II as sections of the crane are riveted and bolted together.

History: Unknown.

Function and Operation: The Jib Crane is used for moving hot material from the furnaces to the steam hammers.

Location: Bay 1 South 10W

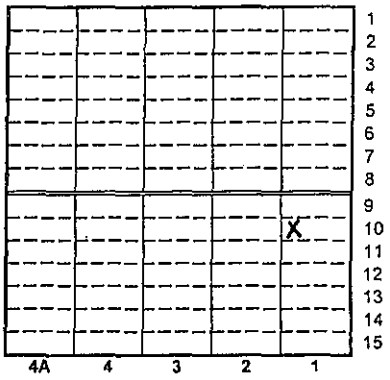
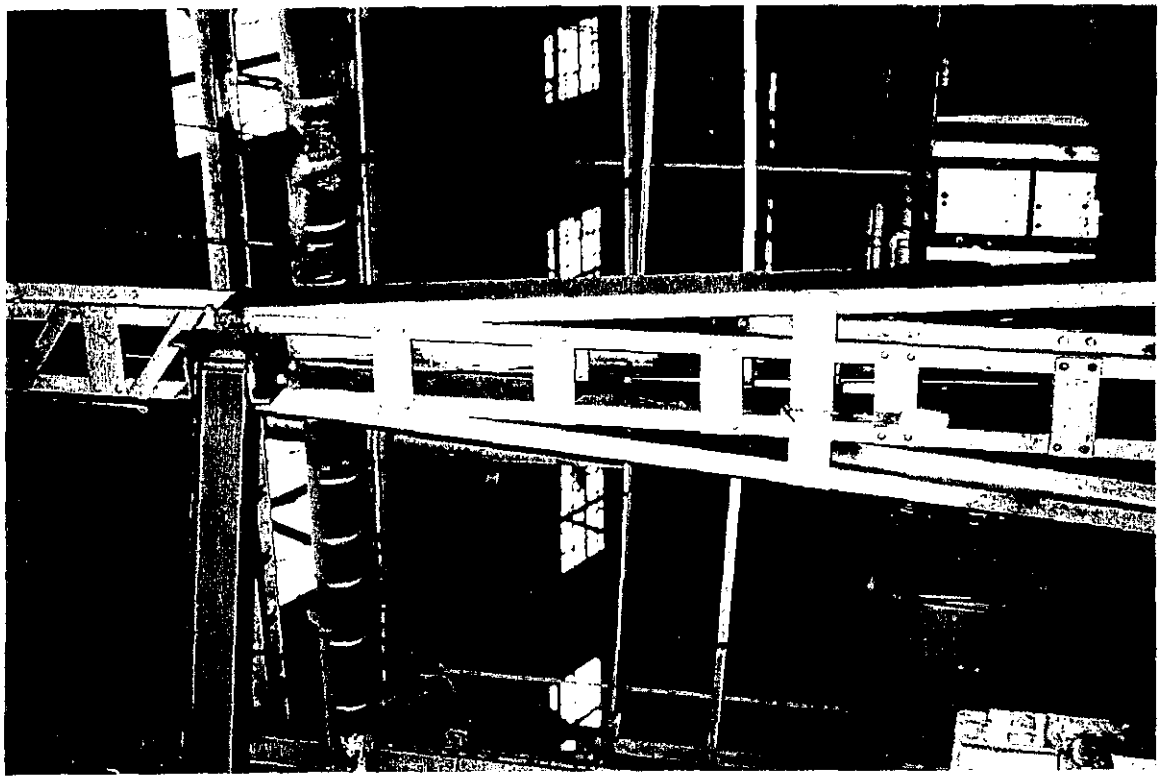


Photo: **FILM No.** 95-169-1-17 **Photographed and inspected December 1995**



Item Name: Brett Type Impact Punch | **Item No.** 51

Name Plate: NSWTD 28 883 SO RW 4227 BRETTS PATENT TYPE AD SIZE No.8 COVENTRY PATENT No. 710

Associated Items:

Individual ☐
Assemblage ☑
System ☐
Collection ☐

Description: This massive shear and punch has an extraordinarily heavy cast-iron frame in two sections which is bolted together both top and bottom. It has a centrally located fly wheel which is direct coupled to the shearing or punching ram located on each end of the shaft. The item is almost two metres wide, in excess of three metres long and almost three metres high. It was originally powered from an overhead line shaft but a stand-alone electric motor of about 2-horsepower has been attached to a specially constructed platform on the head of the machine.

History: The history of the item is unknown but it is believed to have been installed in the workshop prior to World War I. It is not known if this was the items original location.

Function and Operation: The Brett Punch operated through inertia. The massive fly wheel which would weigh several tonne is attached by a belt to a pulley driven by the electric motor through a gear box. Once the fly wheel reaches its running speed, the jaws with their dies located directly below are automatically operated. Because of the slow speed of the machine items can be placed beneath the punch and moved as the punch is raised and lowered relatively slowly.

Location: Bay 1 South 9E

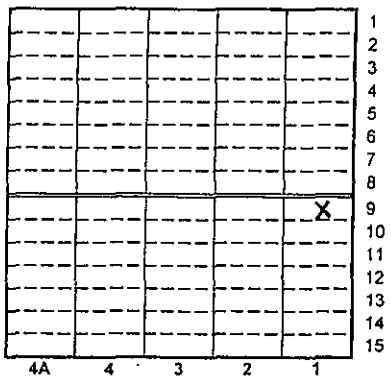
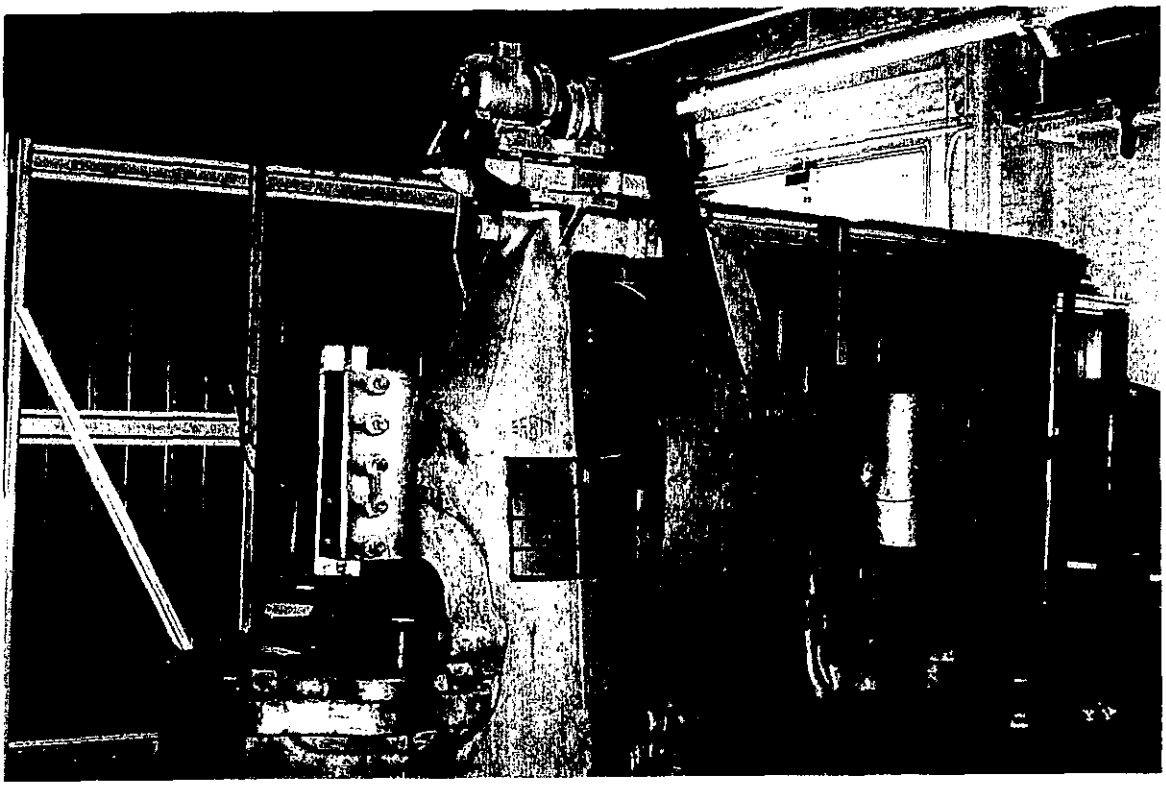


Photo: **FILM No.** 95-169-1-18 **Photographed and inspected December 1995**



Item Name: Hydraulic Press	**Item No.** 52

Name Plate: RWY No. 817

Associated Items:

Individual	☐	
Assemblage	☑	52, 53, 68C
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213.
Collection	☐	

Description: This item is similar in design to the Tangye Hydraulic Press, Item No. 49. It consists of a massive cast-iron platform which supports four vertical shafts in excess of two metres long. The shafts are partially threaded which allows the massive cast-iron head to be raised or lowered. A series of dies can be fitted to the head through T-slots. The bed can also take a number of dies again through T-slots. This machine has specially cut threads which allow the head to be raised and lowered and the bolts on these heads are round rather than being faceted and are raised or lowered by means of a tommy bar rather than a spanner. The machine shows considerable refinement over the Tangye Press although its operating principle is precisely the same.

History: The machine was installed in this location in 1949. It is not known when it was manufactured or if this was the first location in which it was erected.

Function and Operation: The operation is extremely simple. Fluid under hydraulic pressure is allowed into the base of the ram and the bed is forced towards the head of the machine, compressing hot metal either between platons or in a die.

Location: Bay 1 South 9E

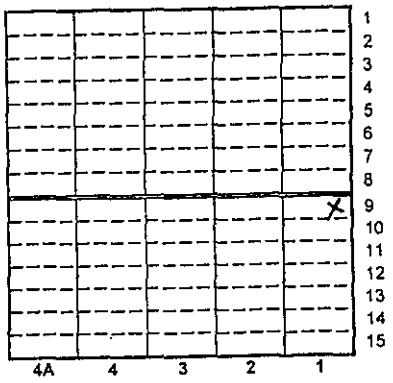
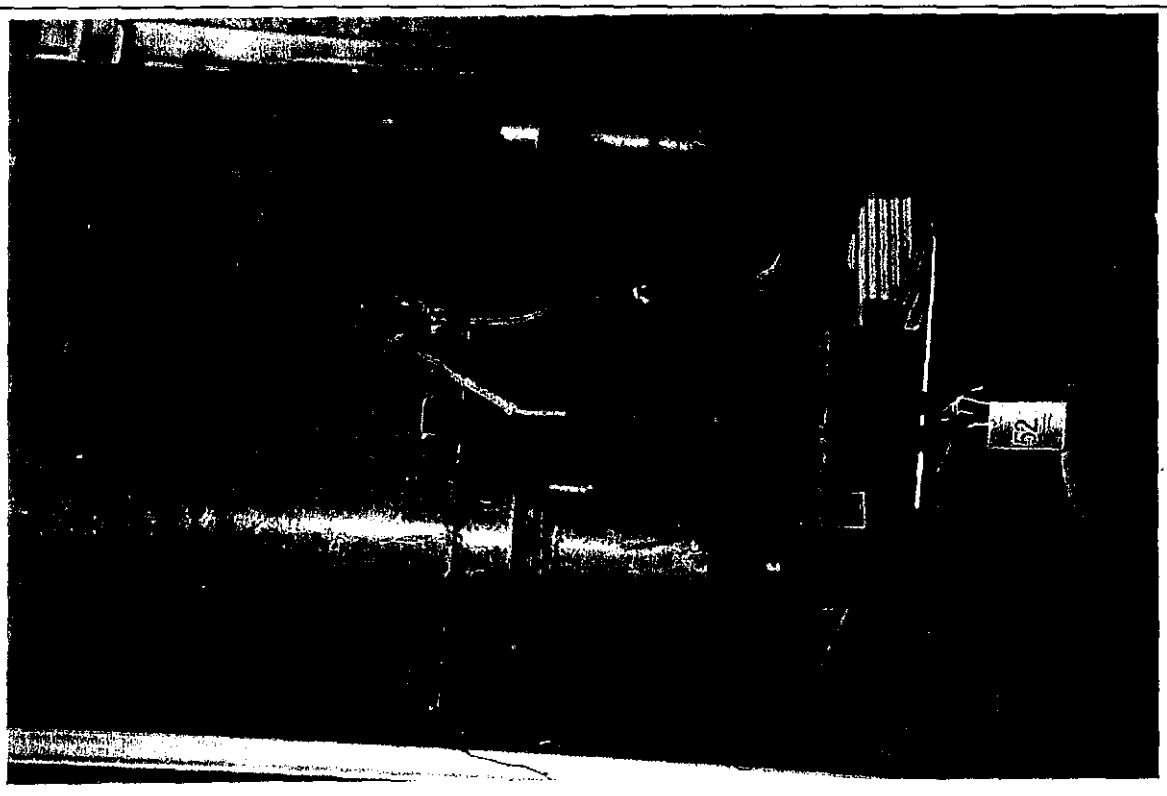


Photo: **FILM No.** 95-169-1-19 **Photographed and inspected December 1995**



Item Name: Furnace FR 13 | **Item No.** 53

Name Plate: NSWTD FR13

Associated Items:

Individual	☐	
Assemblage	☑	
System	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198.

Description: This small reverberatory type furnace was used for heating material for the Hydraulic Press. It is gas-fired about 1.2 metres deep, stands about 1.6 metres high and is 1.2 metres wide. It is composed of a cast iron and sheet steel or plate frame lined with fire brick. Double sided rail has been attached to the front of the machine from which the front door has been suspended. The door was originally counterweighted and opened by pressing the counterweights suspended from the twin head rail portal.

History: The history of the item is unknown.

Function and Operation: Materials were simply placed in the furnace and heated by the introduction of gas and air.

Location: Bay 1 South 9-10E

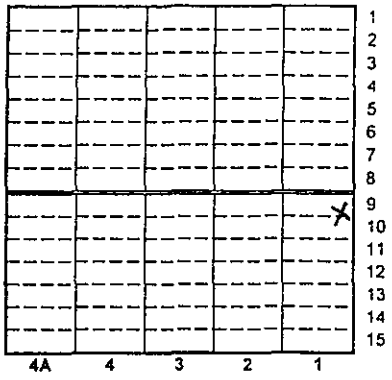


Photo: **FILM No.** 95-169-1-20 **Photographed and inspected December 1995**

Item Name: 40CWT Arch Steam Hammer | **Item No.** 54

Name Plate: NSW GR No. 664 Class HS 4867 (on machine)

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Collection	☑	Steam Hammer 28, 29, 31, 32, 54, 57

Description: This massive, arch framed steam hammer is one of the oldest pieces in the workshop. It is over 3 metres long, a metre wide and stands in excess of 4 metres high. The massive frame supports the steam chest and the weighs or slides for the hammer itself. The hammer is double-acting and it is used predominantly for forging using only flat dies and anvils. The machine could only be used by specialists/blacksmiths/forgers.

History: The Arch Hammer was installed in 1887 as part of the original steam hammer shop. It has remained in this location ever since. It is shown in some of the earliest interior photographs of the workshops. The steam hammer was the largest ever to be erected at Eveleigh and was continuously used for 100 years. It is believed that almost all of the hammer remains, as originally installed, although some oiling mechanisms and some modification may have taken place to the steam chest.

Function and Operation: The steam hammer was operated by a foreman striker, or blacksmith through the use of a single lever. The lever determined the length of the blow and hence the weight and also the frequency of the blow. The operation lever is attached directly to linkages at the steam chest. Material which was being forged was held in large balanced tongs similar to the tongs used for the Davey Press. These tongs were placed through a chain loop attached to a carriage on the Jib Crane.

Location: Bay 1 South 10-11

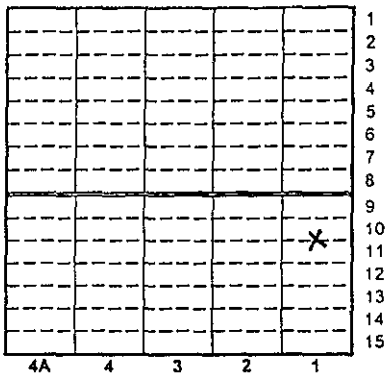
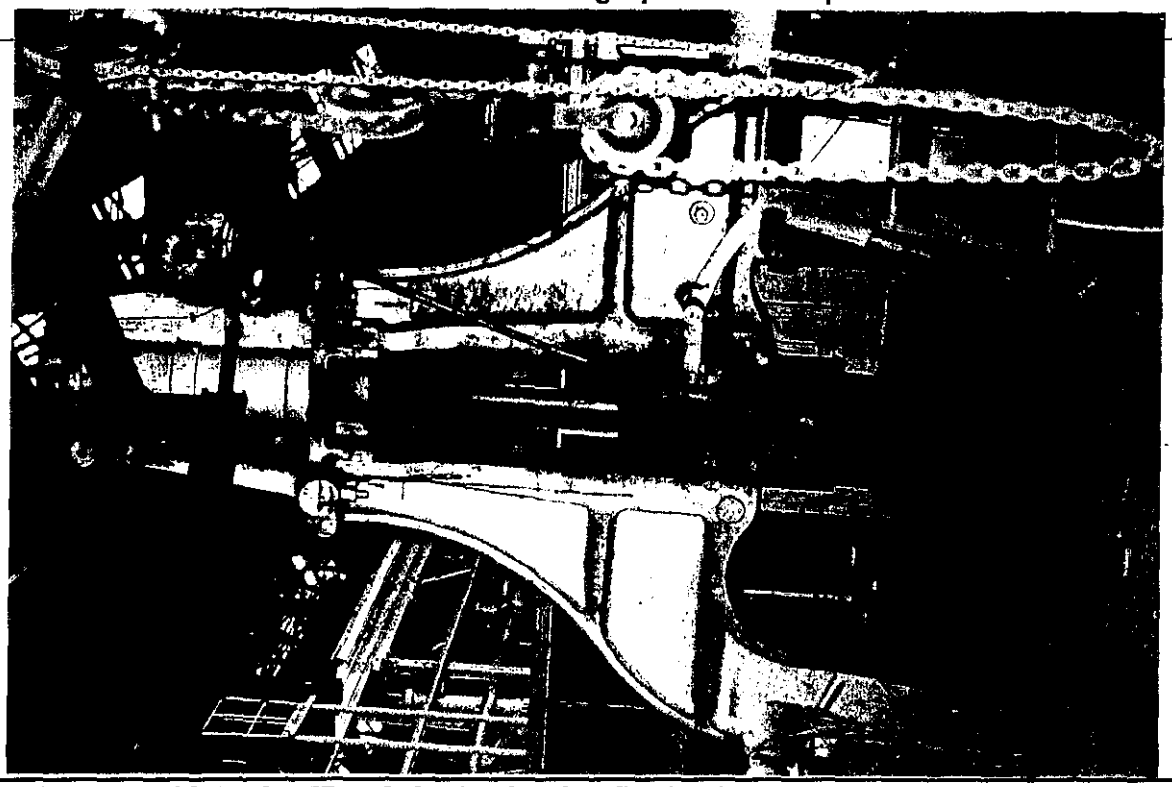


Photo: **FILM No.** 95-169-1-21 **Photographed and inspected December 1995**



Item Name: 10CWT Jib Crane **Item No.** 55

Name Plate: LC497 Class 3 S.W.L. 10 CWT

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 20 CWT 46, 47, 57, 66E, 71
System	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195

Description: This very early jib crane has a cast-iron kingpost and a wrought iron or mild steel jib. It is stayed front and rear, the rear being stayed to a point close to the bottom of the king post. This crane relies for its stability on its footing. The jib crane is a superb example of late nineteenth century design.

History: The crane was located in this position prior to World War 1. It could be one of the earlier machines erected at the Workshops.

Function and Operation: The slewing is done manually by dragging the jib. The carriage is also moved forwards and backwards manually while the lifting is done through a crank attached to the cast iron hoisting drum at the base of the King Post.

Location: Bay 1 South 10E

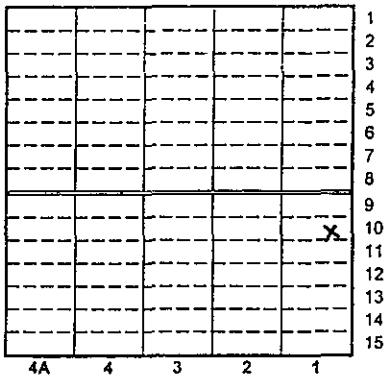
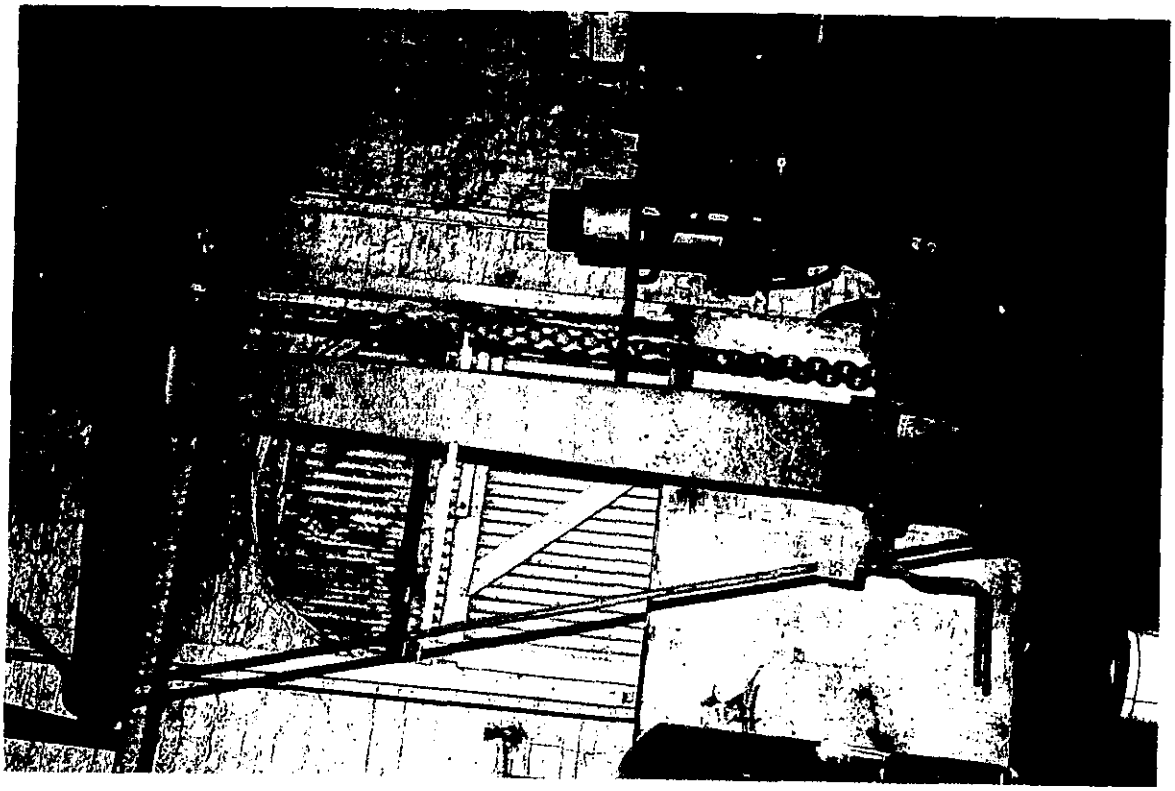


Photo: **FILM No.** 95-169-1-23 **Photographed and inspected December 1995**



Item Name: Oil Furnace Large | **Item No.** 56

Name Plate: PTC NSW FR 159 EVE S/O

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198

Description: There are two large oil furnaces in Bay 1 South. Both were for heating large billets which were to be worked under the 4000 weight Steam Hammer or the 2000 weight Steam Hammer. The furnaces are in excess of 2 metres wide, 3 metres long and stand about 2 metres high. Each is fitted with a heavy steel framed, fire-brick lined door which is counter-weighted by a chain to the rear. The door is lifted by a chain driven wheel. Initially it is believed that these furnaces were fired by gas and they were later converted to oil fire. The furnaces are braced with universal section members and in-fill cast-iron and sheet steel sheathing. The interior is lined with fire brick. Air for the furnaces, because of the quantity required is supplied from air compressors.

History: The history of the item is unknown but it is believed that it was installed in this position prior to World War II. However, as with many furnaces, this one may have been re-built on a number of occasions.

Function and Operation: This furnace originally supplied indirect or reflected heat through a reverberatory style roof. The oil is supplied from an elevated external reservoir. The air is now supplied from a specially introduced air compressor.

Location: Bay 1 South 11-12E

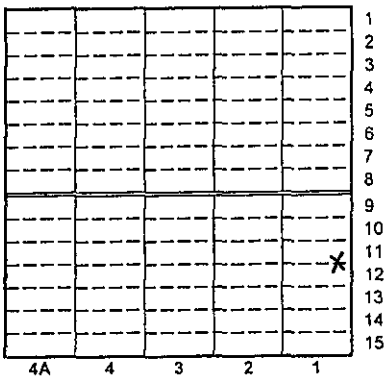
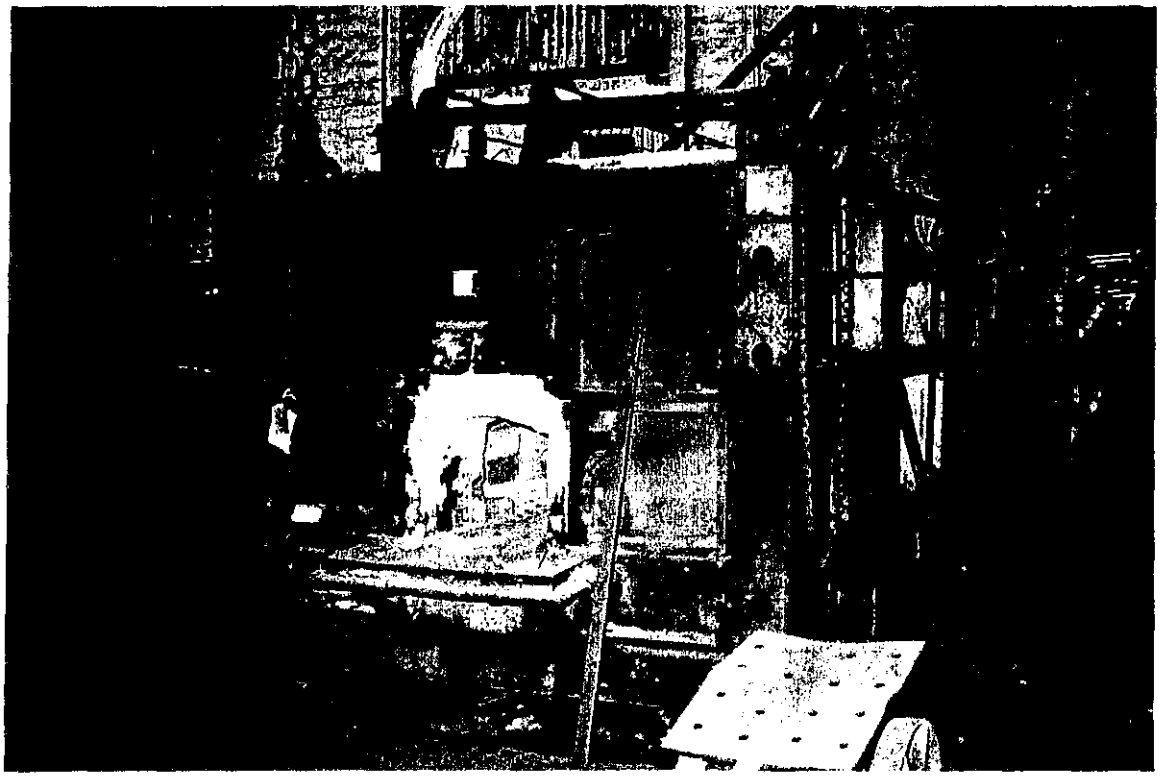


Photo: **FILM No.** 95-169-1-23 **Photographed and inspected December 1995**



Item Name: 20CWT Steam Hammer | **Item No.** 57

Name Plate: NSWGR 665 Class HS Davis & Primrose. Leith. 20 CWT HAMMER
.

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 20 CWT 46, 47, 57, 66E, 71
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Collection	☑	Steam Hammer 28, 29, 31, 32, 54, 57
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38

Description: This steam hammer is the second largest to exist in the workshops. It consists of a heavy cast-iron bed and massive curved cast-iron frame which supports the steam chest. The shaft is guided by glands which are attached immediately below the steam head. Steam is admitted on both the up and the down stroke.

History: The item was introduced to the workshops in the 1890s, it is believed, in this position. It has remained here since that time and was in continuous operation for almost 100 years.

Function and Operation: The steam hammer was operated by a blacksmith or foreman blacksmith. The material was held in balanced tongs, supported by one of the Jib Cranes. The length, and hence the weight, of the blow was determined by the amount of arc through which the lever was pushed and the frequency of the blow was determined by the manipulation of the lever. The hammer could be used with a number of dyes, fullers or swages which were attached to the dovetail mount of the hammerhead. Similarly, a number of dies, fullers or swages could be locked in position in the anvil. It should be noted that the anvil and the steam hammer were supported by two completely different sets of foundations.

Location: Bay 1 South 12-13

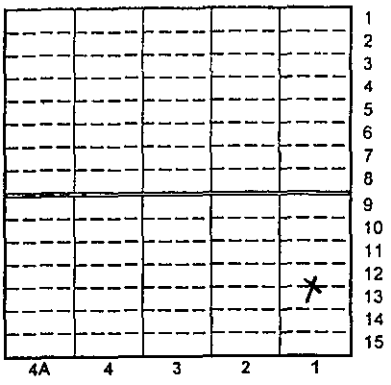
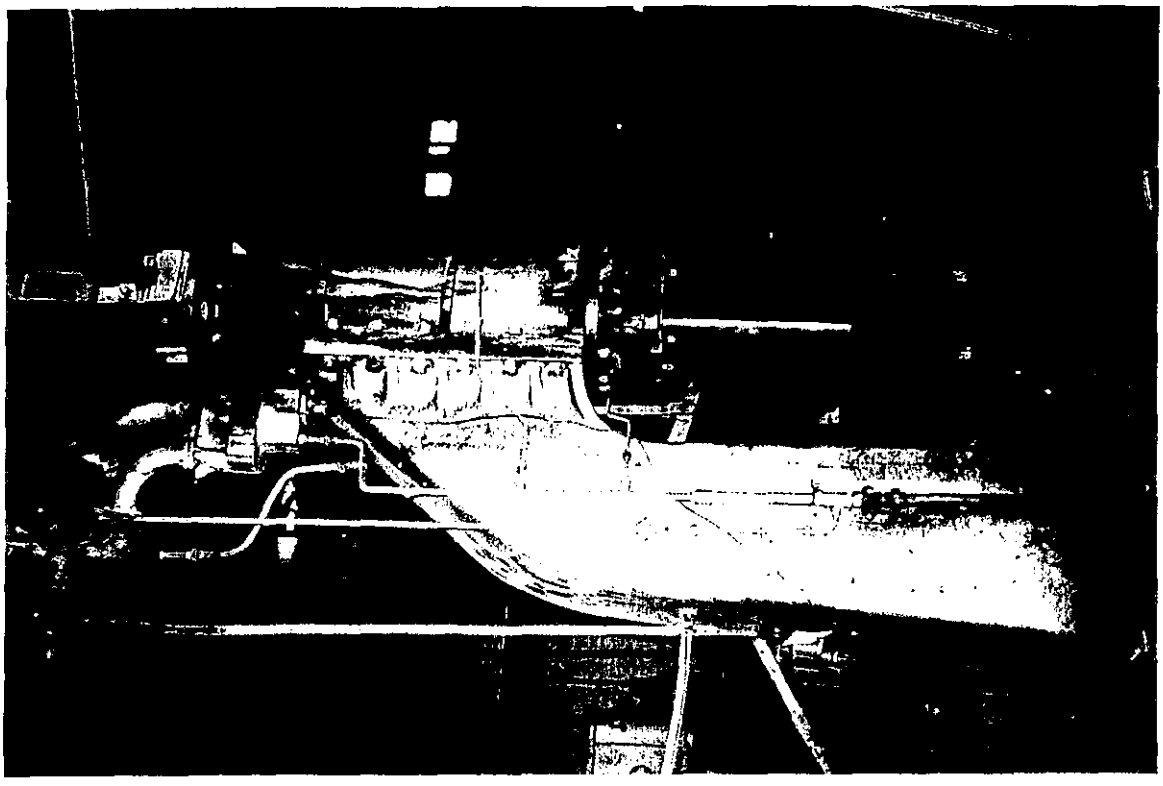


Photo: **FILM No.** 95-169-1-24 **Photographed and inspected December 1995**



Item Name: 7 CWT Crane (Braced off Column) **Item No.** 58

Name Plate: L.C. -500 S.W.L. 7 CWT. CLASS 3

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A
System	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195

Description: This small crane consists of a kingpost made of C-Section steel and a Jib of universal section. The jib is faced both front and back and the kingpost is faced from the walls.

History: The history of the item is unknown but it is believed to have been erected in the workshop after World War II.

Function and Operation: The Jib Crane was operated manually and was used for taking heated items from the furnaces to the 2000 weight steam hammer or the electro-pneumatic.

Location: Bay 1 South 14E

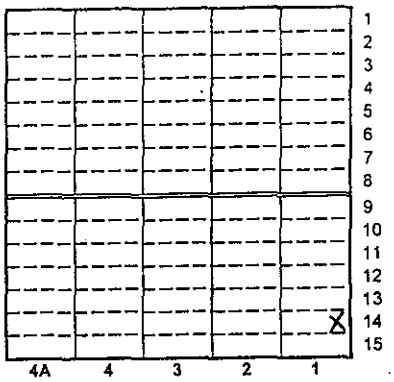


Photo: **FILM No.** 95-169-1-25 **Photographed and inspected December 1995**

Item Name: Blacksmiths Forge | **Item No.** 59

Name Plate: FB9

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A
System	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198

Description: This forge is similar to item Number 44. It is no longer in use and shows sign of advanced deterioration. The forge, like item 49, has a sheet metal and plate cowling rather than the typical cast-iron railway cowling and its water cooled tuyere has been removed.

History: The history of the item is unknown.

Function and Operation: The item is no longer operational but it does indicate the number of forges which were in use in this part of the workshop.

Location: Bay 1 South 14E

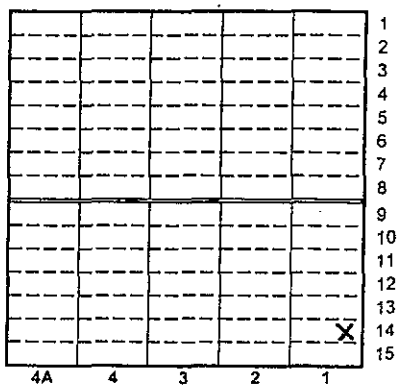
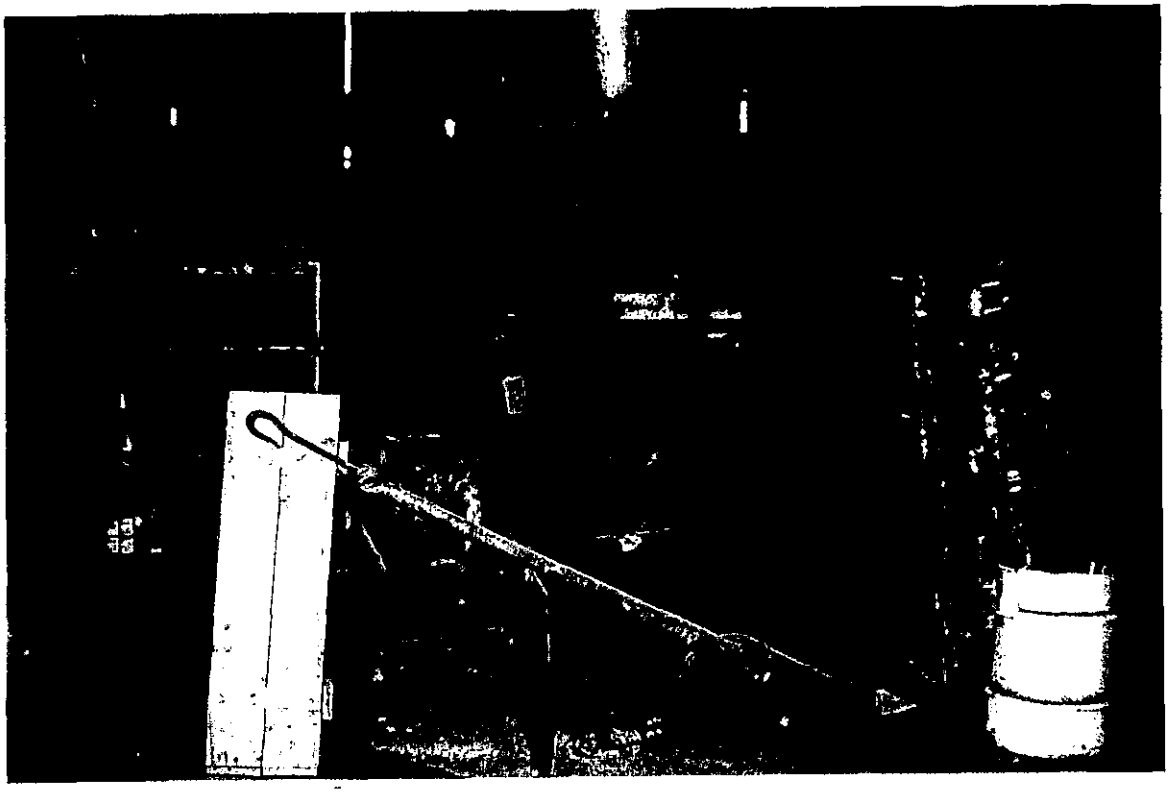


Photo: **FILM No.** 95-169-1-26 **Photographed and inspected December 1995**



Item Name: 700 Weight CWT Electro-Pneumatic Hammer | **Item No.** 60

Name Plate: PTC NSW HH1 EVE S/O - B & S MASSEY LTD. MANCHESTER. ENGLAND. 7 CWT PNEUMATIC HAMMER.

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A
System	☐	
Collection	☑	Electropneumatic hammers 60, 98, 96

Description: This Electro-Pneumatic Hammer operates on the same principle as a steam engine. The power pack for the hammer though is an air compressor which is an integral part of the hammer. A stand-alone electric motor powers the single piston air compressor which then supplies the head of the hammer with compressed air. Basically it stands in excess of 2 metres high, is about 2.5 metres long and about 1 metre wide at the base. It has the typical C-shaped heavy cast-iron construction of steam for electro-pneumatic hammers.

History: The history of the item is unknown but it was installed in this location of the workshops prior to World War II.

Function and Operation: The hammer was used for a wide section of general purpose forging. The head will take a series of flatters, fullers and swages as will the anvil. The operating lever determines both the repetity of the stroke and the weight of each blow. The material being forged is held by tongs which are supported by a chain loop attached to the Jib Crane.

Location: Bay 1 South 14

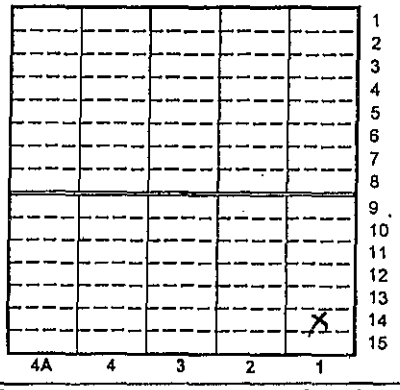
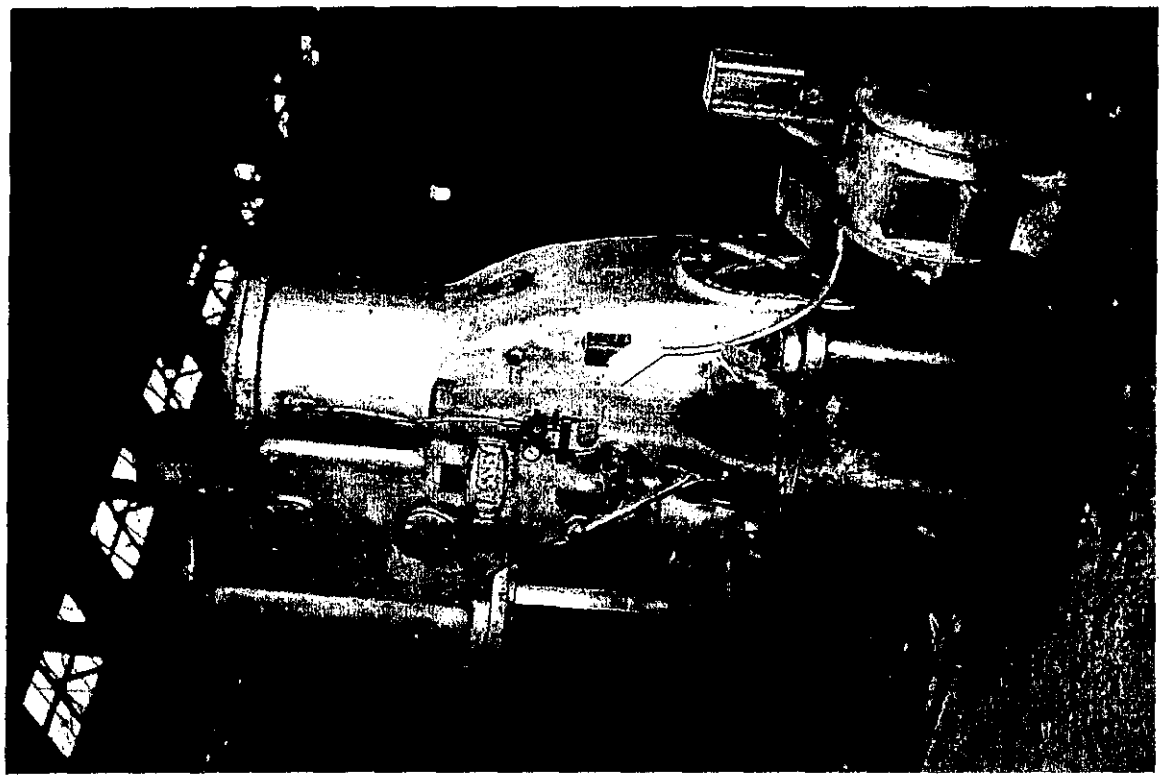


Photo: **FILM No.** 95-169-1-27 **Photographed and inspected December 1995**



Item Name: Rootes No. 6 Blower 1910 Pattern | **Item No.** 61

Name Plate: No.752 NSWGR Class BR THWAITES BROS LTD. BRADFORD YORKS. ROOTES BLOWER No.6

Associated Items:

Individual	☐	
Assemblage	☐	
System	☑	Steam 1, 2, 3, 4, 28, 29, 31, 32, 41, 42, 61, 54, 57, 188, 189, 190, 191
Collection	☑	Blowers 41, 42, 61

Description: The Rootes Blower is a single piston steam engine with twin shafts operating a counter-rotating vane air pump. The Blower supplies high volume low pressure air to the Blacksmiths Forges. The power pack is a simple vertical steam cylinder with a single shaft which is connected to a cross-head which has twin crank shafts. Each of the crank shafts is fitted to a driving wheel, direct coupled to a vane shaft.

History: The Rootes Blower was installed in 1911 to supply low pressure air to the Blacksmiths Forges. It is believed it was located in this position and has remained here since installation.

Function and Operation: The blowers supply air at low pressure compared to the air compressors which supply high pressure air. High pressure air is unsuitable for forgers as the amount of air going through is disruptive. When operating, the blower was turned on by opening the steam valve. The air was supplied to the furnaces or directed to exhaust.

Location: Bay 1 South 15E

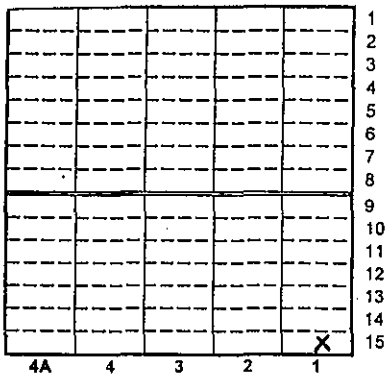


Photo: **FILM No.** 95-169-1-28 **Photographed and inspected December 1995**

Item Name: Tool Racks Between the Columns. **Item No.**62a-e

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 7CWT 44, 45, 58-60, 62AB, 66F, 66A Electropneumatic 2CWT (south) 62A, 98, 99
System	☐	
Collection	☑	Hand tools/ Racks 34A-L, 36A-D, 62A-E, 66A-H, 71, 100A-D, 102A-D

Description: There are three rails which have intermediate supoort and run between the single columns between Bays 1 and 2 South. The top rail has a series of hooks or brackets on it which holds the swage sets or the spring swages and also any item which has had an eye formed in the end of the handle. The middle rail holds generally sets of tongs and hammers and steel handled hot sets. There are over 300 tools on these racks which all illustrate the way in which the workshop is operated.

History: The history of the items is unknown but some pieces appear to be of a great age.

Function and Operation: The items were all used with the various steam and electro-pneumatic hammers as well as hand forging operations.

Location: Bay 1 South 10-14W

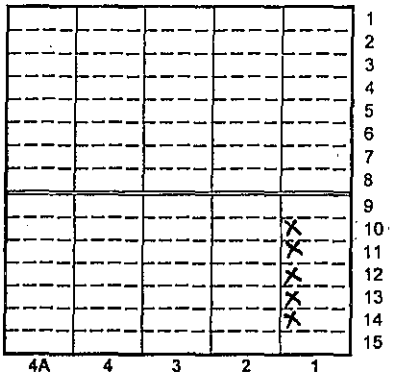
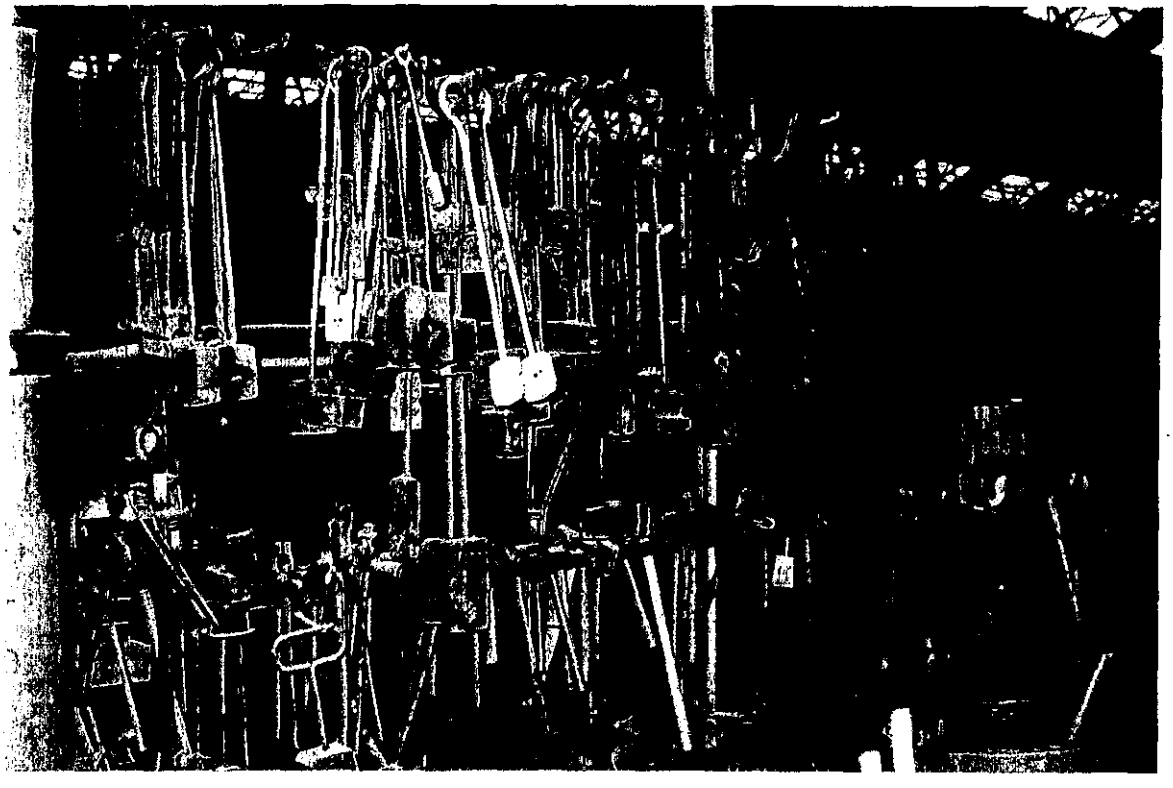


Photo: **FILM No.** 95-169-1-29 **Photographed and inspected December 1995**



Item Name: Anvil | **Item No.** 64

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ❑
System ❑
Collection ❑

Description: This heavy blacksmiths anvil is located on a wooden block set into a fixed cast-iron stand.

History: The history is unknown.

Function and Operation: The anvil served as a blacksmiths anvil for performing small generally non-repetitive jobs.

Location: Bay 1 South 14-15W

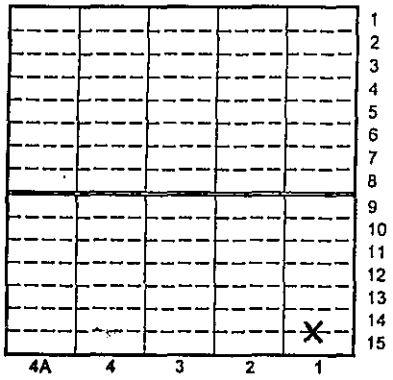
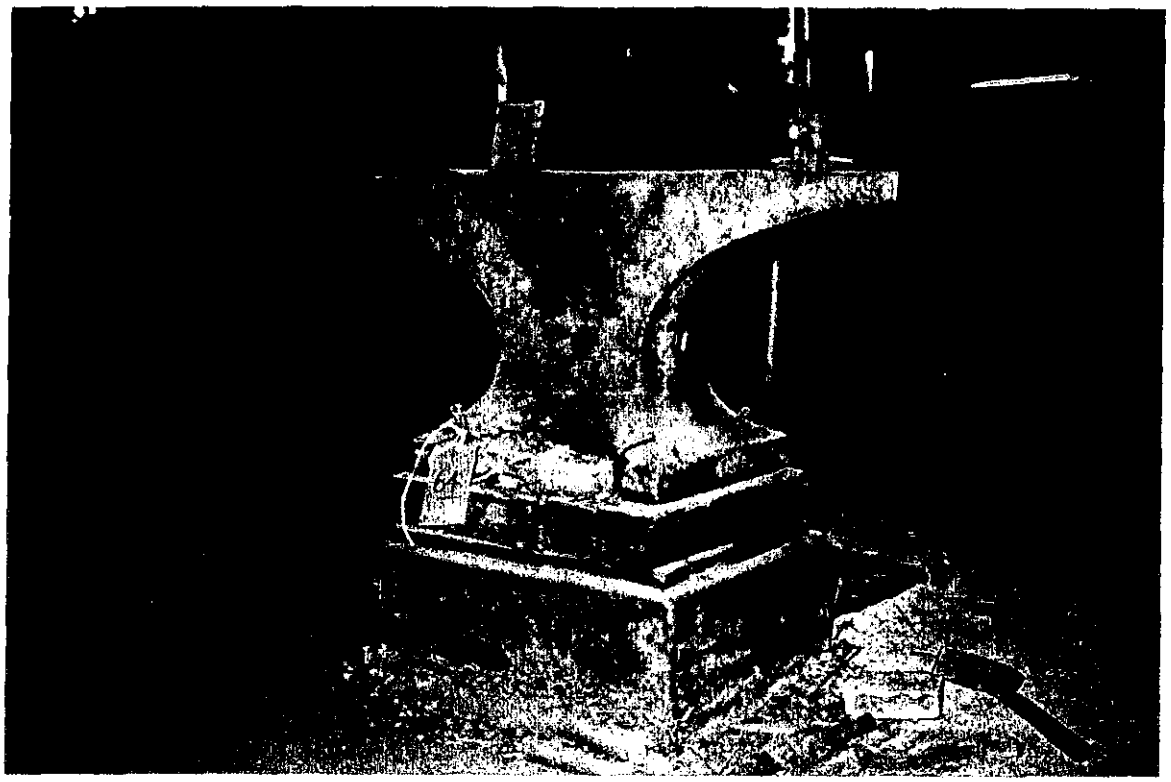


Photo: **FILM No.** 95-169-1-31 **Photographed and inspected December 1995**



Item Name: Quenching Bath | **Item No.** 65

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: This small cast-iron bath with a counter-weighted steel mesh basket was used for quenching items as they came from the forge. The items were generally thrown directly into the oil bath and were then extracted by further weighting, the counter-weight lifting the basket.

History: The history of the item is unknown.

Function and Operation: As above.

Location: Bay 1 South 14W

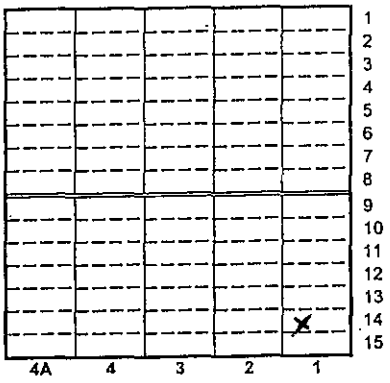
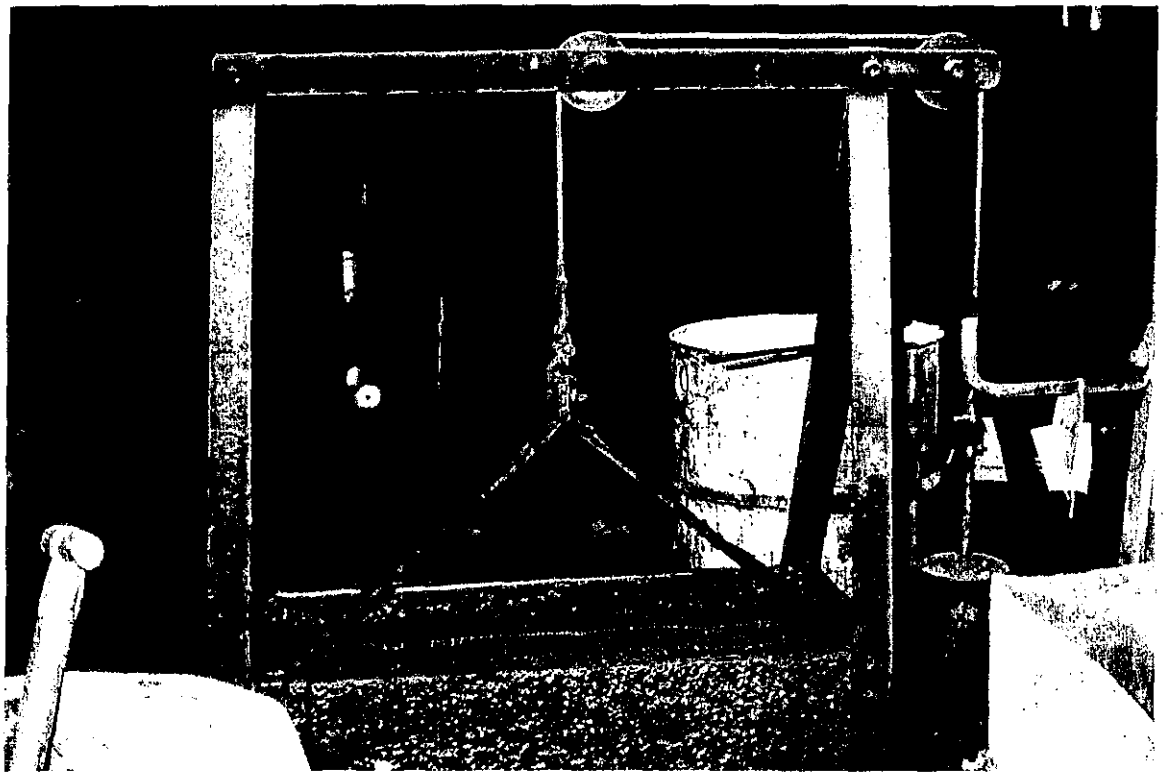


Photo: **FILM No.** 95-169-1-32 **Photographed and inspected December 1995**



Item Name: Racks of Assorted Tools | **Item No.**66a-h

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 2CWT (south) 62A, 98, 99
System	☐	
Collection	☑	Hand tools/ Racks 34A-L, 36A-D, 62A-E, 66A-H, 71, 100A-D, 102A-D

Description: There are a series of racks made variously from angled steel rod and bar which are placed throughout the bay. These racks support a variety of tongs, fullers, flatters and dies. They were all used in conjunction with either the electro-pneumatic hammers, the steam hammers or the olivers and hand forging.

History: The history of the items is unknown.

Function and Operation: The items were all used by blacksmiths in forging operations.

Location: Bay 1South 10W-15E

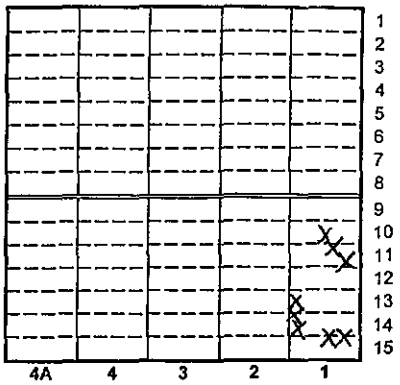


Photo: **FILM No.** 95-169-1-33 **Photographed and inspected December 1995**

Item Name: Warning Sign for 40CWT Steam Hammer | **Item No.** 67

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	☐	
Collection	☐	

Description: This steel sheet sign states "Warning When 40CWT Hammer is operating do not pass this way". It was meant as a safety device to prevent the area around the steam hammer being used as a thoroughfare when it was operating.

History: The history of the item is unknown, but the sign, because of its condition and the font used, would appear to be no older than 20 years.

Function and Operation: One sign was placed to the south of the hammer and one to the north of the hammer to prevent passage through the steam hammer area.

Location: Bay 1 South 13-14E

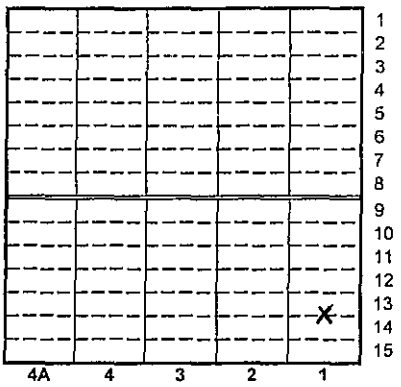
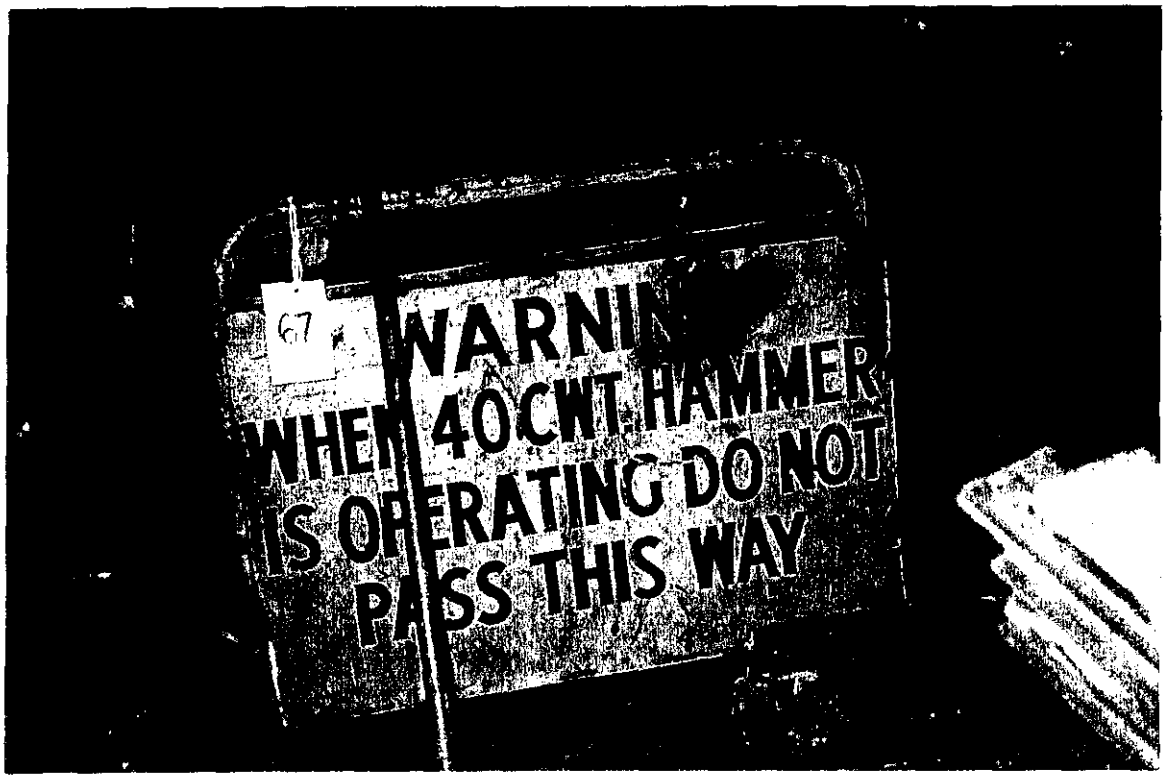


Photo: **FILM No.** 95-169-1-34 **Photographed and inspected December 1995**



Item Name: Stands of Assorted Dies | **Item No.**68a-e

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: There are five stands made variously of sheet plate steel, angle iron strap and rod which support a variety of dies and work in progress. All of the pieces show signs of rust and indicate they have not been used recently. The dies were used in conjunction with the steam hammers or the hydraulic presses. The partially fitted pieces of work were possibly formed on the steam hammer or Davy and were brought here for finishing.

History: The history of the items is unknown.

Function and Operation: The function and operation is not fully understood.

Location: Bay 1 South 9W-12E

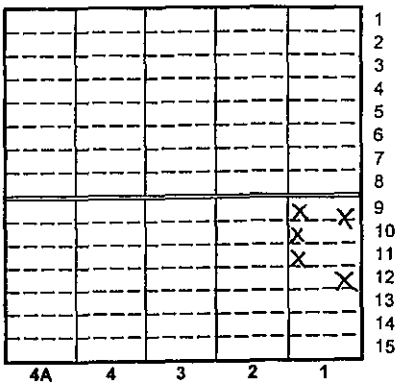
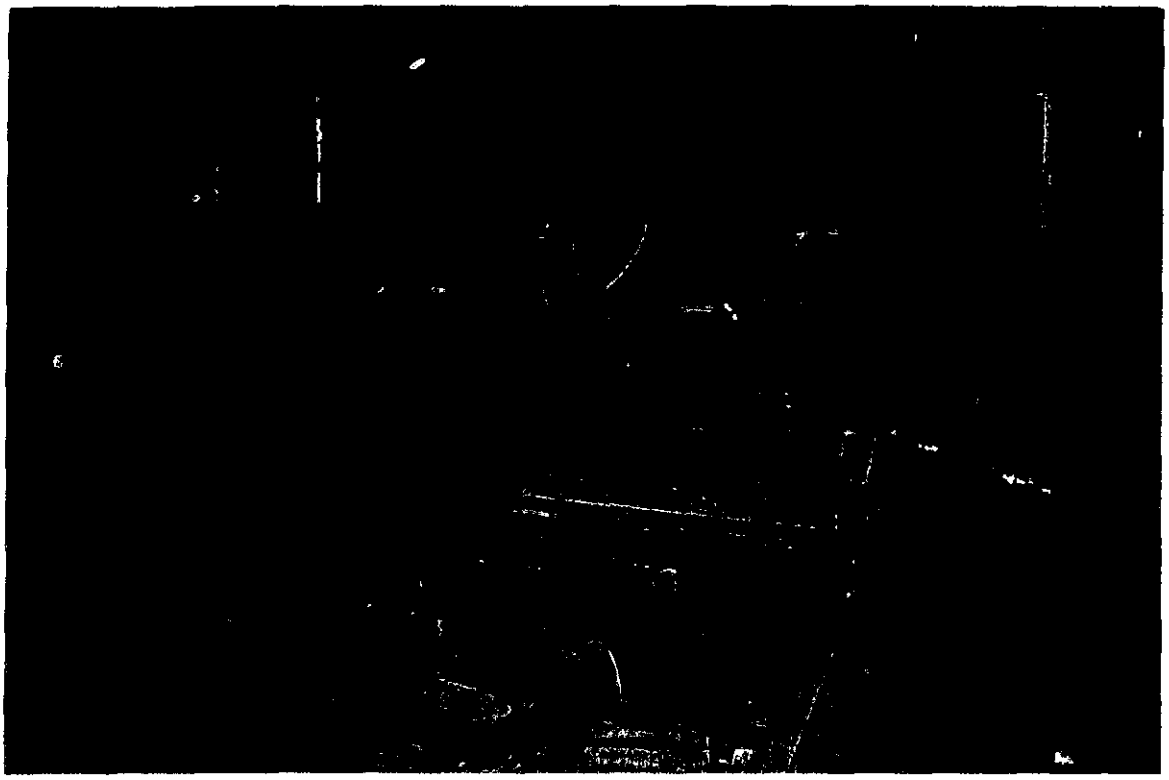


Photo: **FILM No.** 95-169-1-35 **Photographed and inspected December 1995**



Item Name: Metal Trolley Bin | **Item No.** 69

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: This small bin, which measures about 800mm by 400mm by 500mm high is fitted with two steel legs at the rear and two wheels at the front. It was basically for moving close to blacksmiths operating areas for the collection of scrap.

History: Unknown.

Function and Operation: N/A

Location: Bay 1 South 11-12

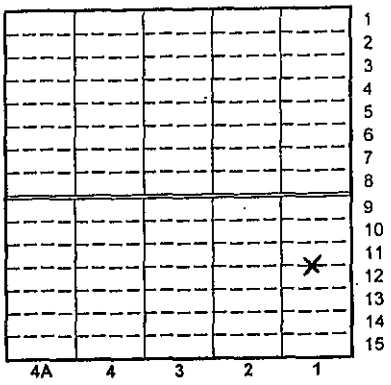
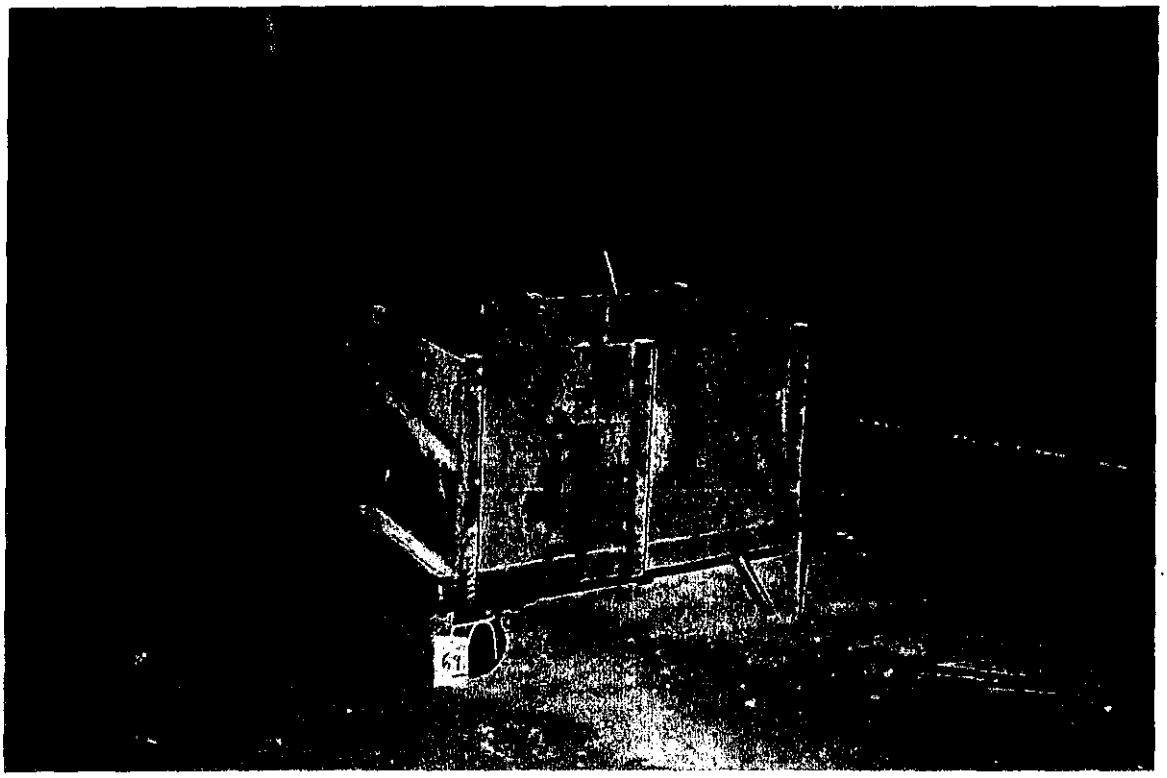


Photo: **FILM No.** 95-169-2-1 **Photographed and inspected December 1995**



Item Name: Warning Sign for 40CWT Steam Hammer	**Item No.** 70

Name Plate: N/A

Associated Items:

Individual	❑	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	❑	
Collection	❑	

Description: This steel sheet sign states "Warning When 40CWT Hammer is operating do not pass this way". It was meant as a safety device to prevent the area around the steam hammer being used as a thoroughfare when it was operating.

History: The history of the item is unknown but the sign, because of its condition and the font used, would appear to be no older than 20 years.

Function and Operation: One sign was placed to the south of the hammer and one to the north of the hammer to prevent passage through the steam hammer area.

Location: Bay 1 South 10W

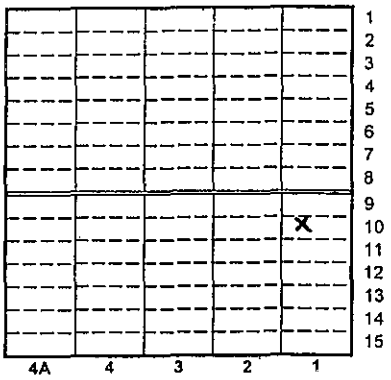


Photo: **FILM No.** 95-169-2-2 **Photographed and inspected December 1995**

Item Name: Assorted Tools | **Item No.** 71

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 20 CWT 46, 47, 57, 66E, 71
System	☐	
Collection	☐	

Description: This series of tools consists of fullers, flatters and rods which were used in conjunction with the steam hammer or electro-pneumatic hammers.

History: Unknown

Function and Operation: N/A

Location: Bay 1 South 10E

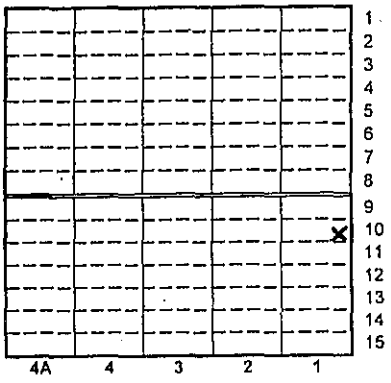


Photo: **FILM No.** 95-169-2-3 **Photographed and inspected December 1995**

Item Name: Hot Metal Trolley | **Item No.** 72

Name Plate: N/A

Associated Items:

Individual	❑	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	❑	
Collection	❑	

Description: This hot metal trolley consists of two cast wheels on a simple axle to which two brackets have been bolted. The brackets support a flat plate steel top to which a 2.5 metre handle has been bolted. The trolley was used for receiving hot metal billets as they were brought from the furnace and allowed their manipulation as they were being attached to holders or balanced tongs.

History: The history of the item is unknown but it is certain that it was manufactured before World War II.

Function and Operation: As above.

Location: Bay 1 South 11-12E

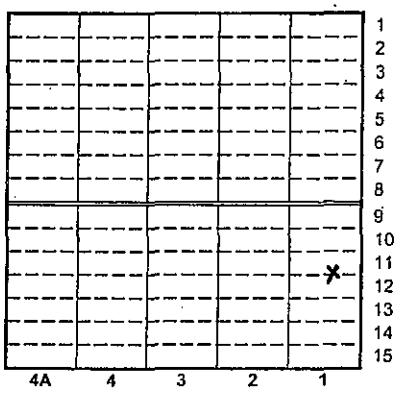
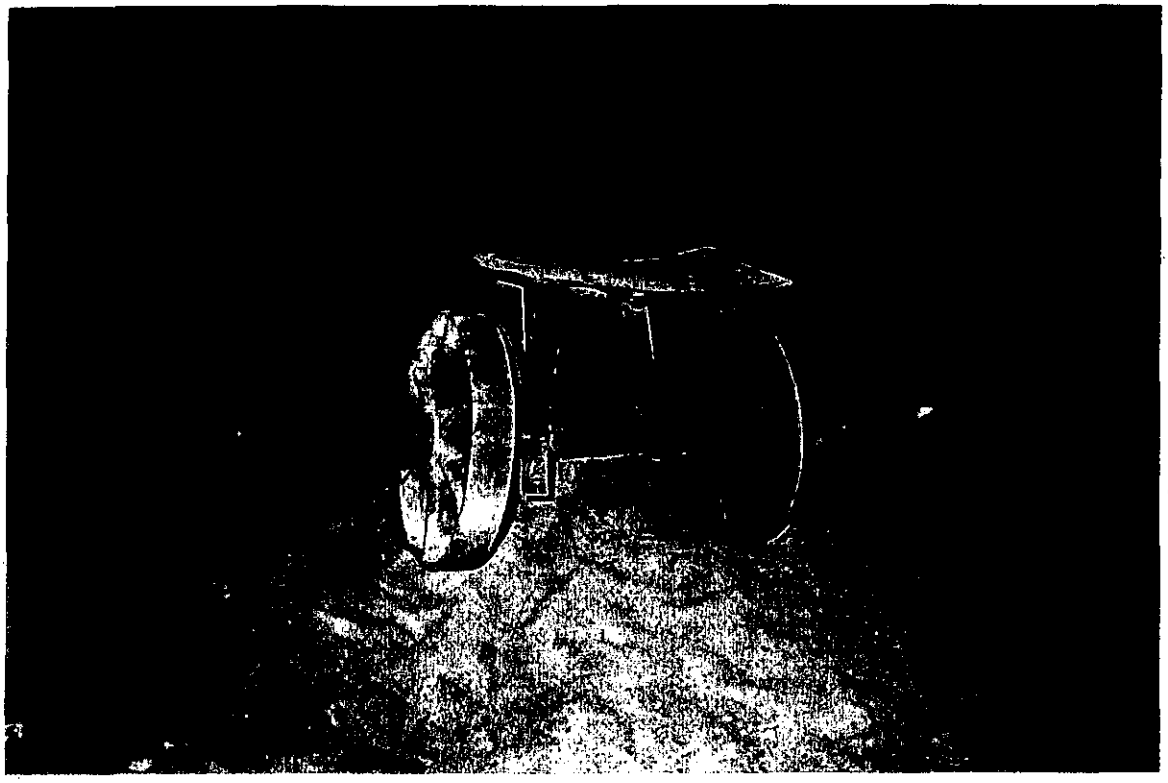


Photo: **FILM No.** 95-169-2-4 **Photographed and inspected December 1995**



Item Name: Crane Tong Support | **Item No.** 73

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Steam Hammer 40 CWT 47, 53, 54, 56, 66BCD, 70, 53
System	☐	
Collection	☐	

Description: This Crane Tong Support consists of a roller, which ran on the Jib Crane, a wishbone, which holds a trunnion, to which a threaded shaft and wheel is attached for raising or lowering the chain which held a set of balanced tongs.

History: The history of the item is unknown but is probably of the same age as the earliest of the jib cranes.

Function and Operation: The balanced tongs which held the billet for manipulation beneath the electro-pneumatic or steam hammers was passed through the chain. In this way the billet could be very easily manipulated. The tong support also allowed the transfer of the hot item back to the furnace.

Location: Bay 1 South 12E

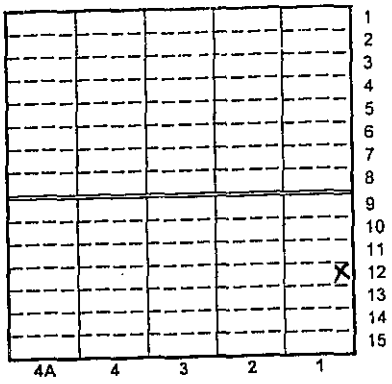


Photo: **FILM No.** 95-169-2-5 **Photographed and inspected December 1995**

Item Name: Metal Trolley	**Item No.** 74

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: This small trolley with a cast iron and timber frame was used for moving plate metal around the workshops.

History: The history of the item is unknown.

Function and Operation: N/A

Location: Bay 1 South 13

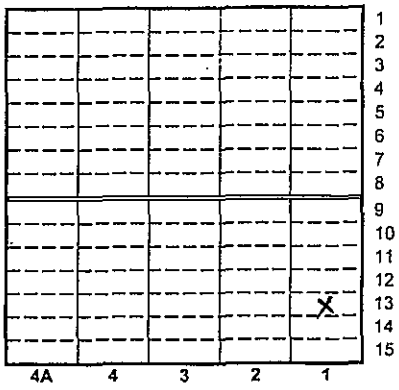


Photo: **FILM No.** 95-169-2-6 **Photographed and inspected December 1995**

Item Name: Metal Trolley with 2 Metal Boxes | **Item No.** 75

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: This small trolley has a frame supported on two small wheels and two legs. It has an angled section post in each corner which stands about 500mm high. On it are two sheet metal baskets for holding scrap steel.

History: The history of the item is unknown.

Function and Operation: The small trolley was moved when empty from one location to another to receive scrap from various operations.

Location: Bay 1 South 13-14E

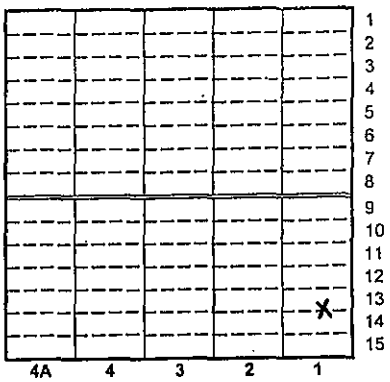
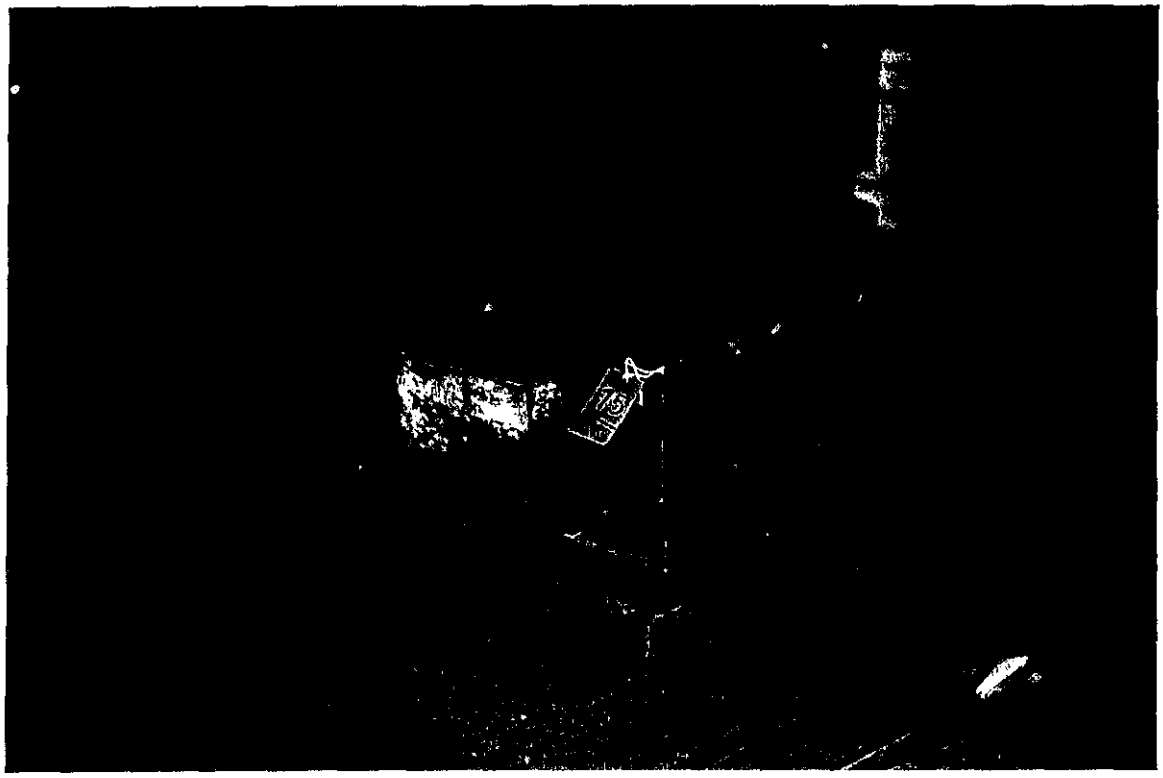


Photo: **FILM No.** 95-169-2-7 **Photographed and inspected December 1995**



Item Name: De Burgue Electric Shears | **Item No.** 206

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: The De Burgue Electric Shears are massive cast-iron framed shears which operate at low speed. The item is driven by a small electric motor through a gear box and a very large driving gear which is meshed with the cam shaft of the shears. The item is equipped with its own Jib Crane and has its own jig for determining the length of the material to be cut. The shears can cut metal in excess of 50mm sections.

History: The item was installed prior to World War I. The rest of its history is unknown.

Function and Operation: The electric motor is started and the shears operated at low speed. This allowed stock to be fed through the jaws to the stock and cut to length.

Location: Bay 1 South Exterior

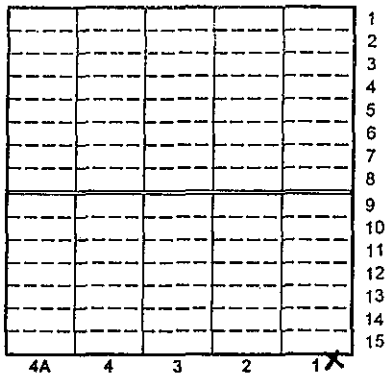
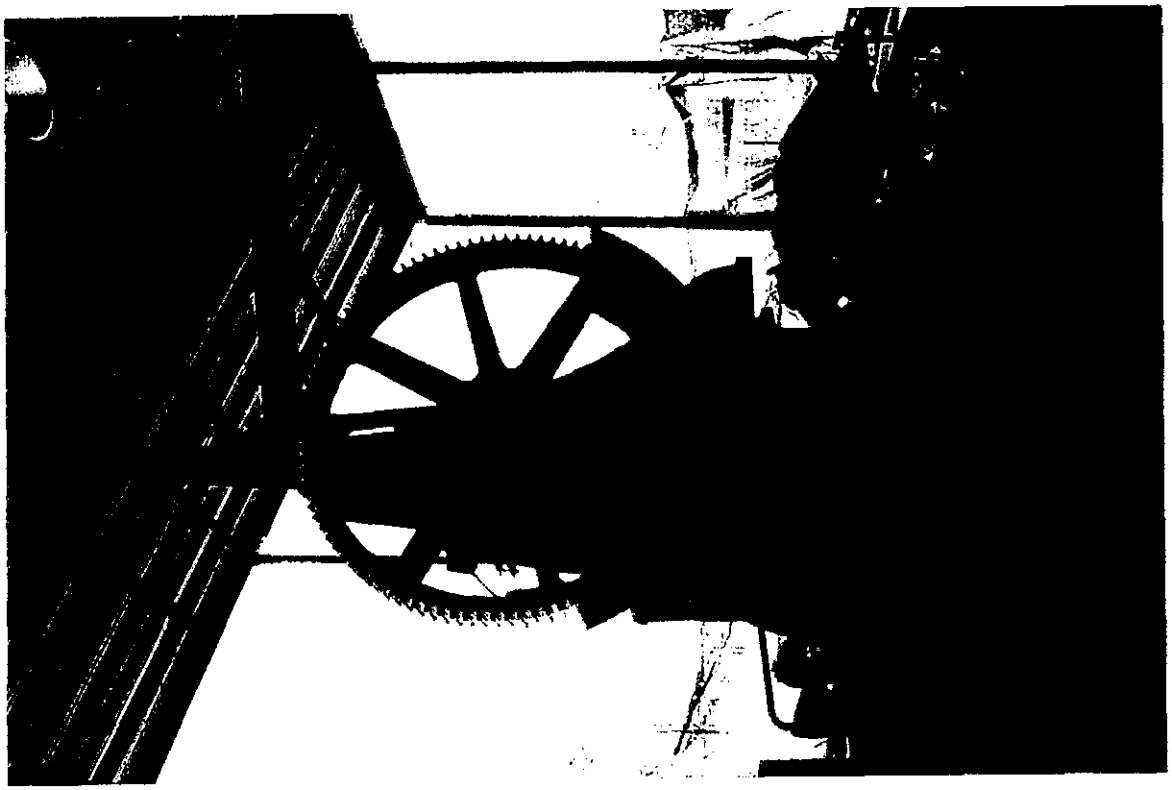


Photo: **FILM No.** **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 1 NORTH

Item Name: Davy Press | **Item No.** 1

Name Plate: P.T.C. NSW PH-815-EVE S/O-
DAVY BROS LTD SHEFFIELD 1920

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☐	

Description: The Davy Press is a massive cast iron and steel structure about 4 metres long, 2.5 metres wide and standing in excess of 6 metres tall. It consists of a base which is mounted below floor level, a massive cast iron crown and a crosshead. The crown holds the lift or return valve and the hydraulic valves and gland for the main shaft. The crosshead is allowed to slide on four massive shafts and it is direct coupled to the main piston and to the main upper die. The lower die is mounted on the framework of the bottom platform.

History: Until the advent of hydraulic presses much forging was done with steam hammers which applied sudden loads to the metal blank. Hydraulic presses, powered from accumulators which provided an artificial head, gave steady, controlled pressure. Steam hydraulic presses, introduced this century were able to supply far greater force than the regular hydraulic powered presses. Steam hydraulic presses were of the Haniel Lueg and Davy Bros Patent. Both were fitted with steam intensifiers which allowed the magnification of the final press. The steam intensifier of the Davy Patent stood alone as a separate item and the high pressure fluid was supplied through piping. Steam hydraulic presses were supplied in capacities of 100-1500 tonnes, with 1500 tonnes being regarded suitable for very heavy engineering work. The 1500 Davy Press at Eveleigh was installed in 1926 and remained in its present location ever since. No major modifications have taken place except to the original boilers.

Function and Operation: At Eveleigh all heavy forgings for bogey frames, steam hammer shafts and piston assemblies, forged crane wheels and a large variety of forms which involved punching, pressing and die forming were done with the Davy. As the piston in the intensifier rose, water was emitted from the hydraulic reservoir. This inlet valve was closed, steam was admitted to the intensifier and water at enormous pressure was then admitted into the head of the press. The forger, or foreman, was in charge of the operation and he directed from the side. The operator or blacksmith controlled the valves and the lever and there were a series of men who manipulated the billet being forged through the balanced tongs.

Location: Bay 1 North 4 East

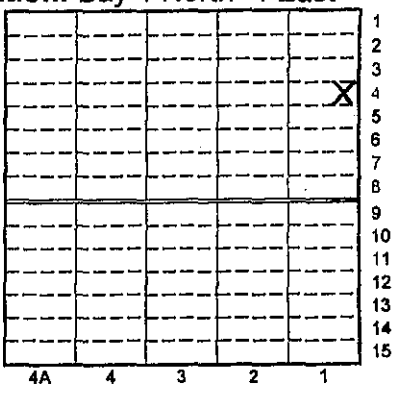


Photo: **FILM No.** 95-169-3-2 **Photographed and inspected December 1995**

Item Name: Davy Steam Intensifier | **Item No.** 2

Name Plate: No. 815 N.S.W.G.R.
DAVY BROS LTD. SHEFFIELD 1919.

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☐	

Description: The Davy Steam Intensifier is the power pack for the operation of the Press. It is basically a cast iron and steel cylinder which stands about 3 metres high and is mounted on a concrete plinth which is 400mm high and square with 1.5 mm sides. The upper portion of the cylinder is covered in lagging with a sheet metal cover.

History: The steam intensifier was mounted in this position in 1926 when the Davy Press was installed in Bay 1 North. It has remained in this position in basically unmodified form.

Function and Operation: The intensifier supplies high pressure fluid to the Davy Press. Steam is admitted to the crown and through a series of valves and rams the steam pressure is intensified in the hydraulic fluid. The hydraulic fluid is then allowed into the ram of the Davy Press via the main valve which is controlled through a lever by the operator or blacksmith.

Location: Bay 1 North 5 East

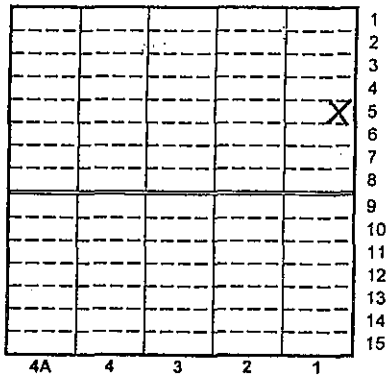
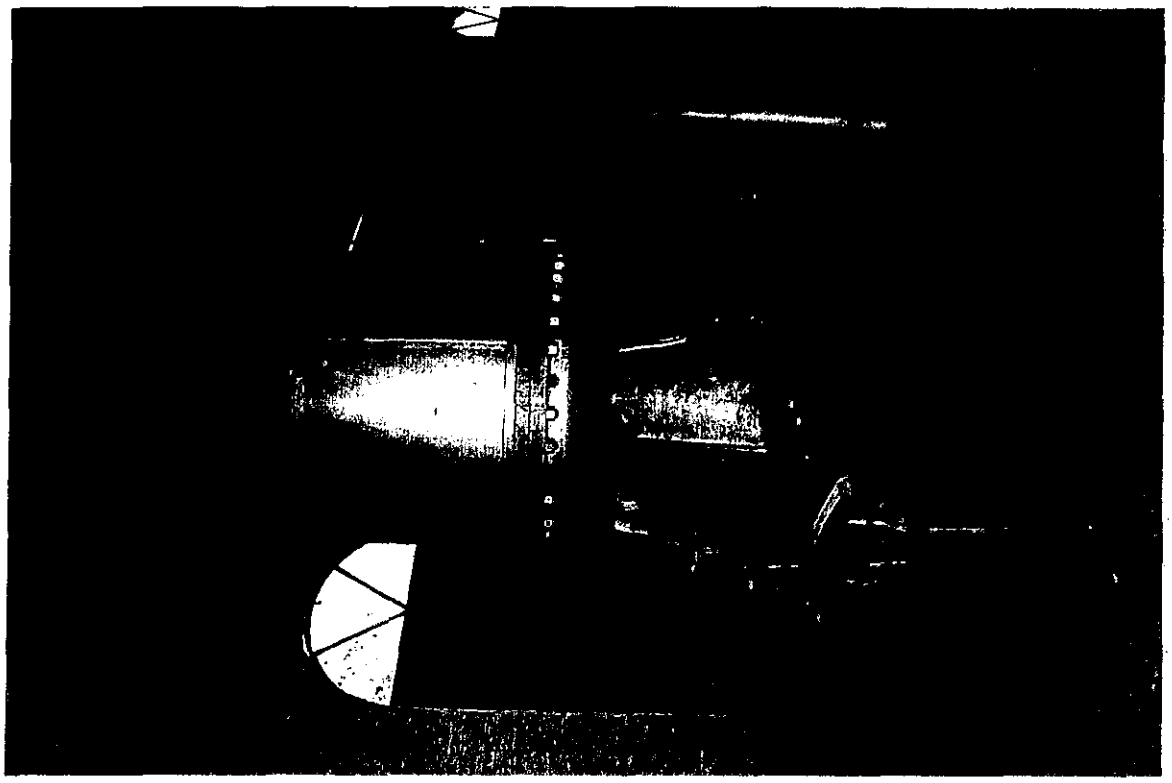


Photo: **FILM No.** 95-169-3-3 **Photographed and inspected December 1995**



Item Name: The Davy Hydraulic Reservoir | **Item No.** 3

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☐	

Description: The Reservoir is basically a boiler or air receiver shell which is of riveted construction in three sections. It stands on four feet which have been riveted to the boiler shell. The Reservoir contains the hydraulic fluid which is supplied to the Press system. The cylinder of the Reservoir is about 1 metre in diameter and stands about 4 metres high. It is mounted on four large concrete lugs.

History: The Hydraulic Reservoir was installed with the Davy Press in 1926. It has remained in this location as far as is known with no major modifications for that period.

Function and Operation: The Hydraulic Reservoir contains spare hydraulic fluid which may be necessary for various pressing operations. Fluid is admitted to the system by means of a control valve controlled by the operator or blacksmith.

Location: Bay 1 North 4 East

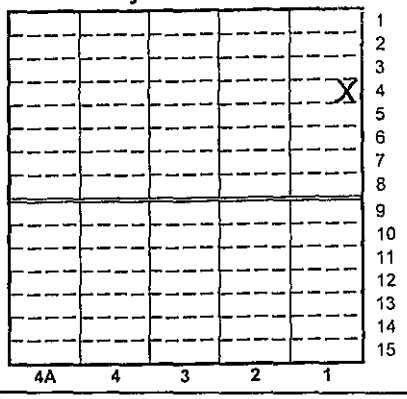
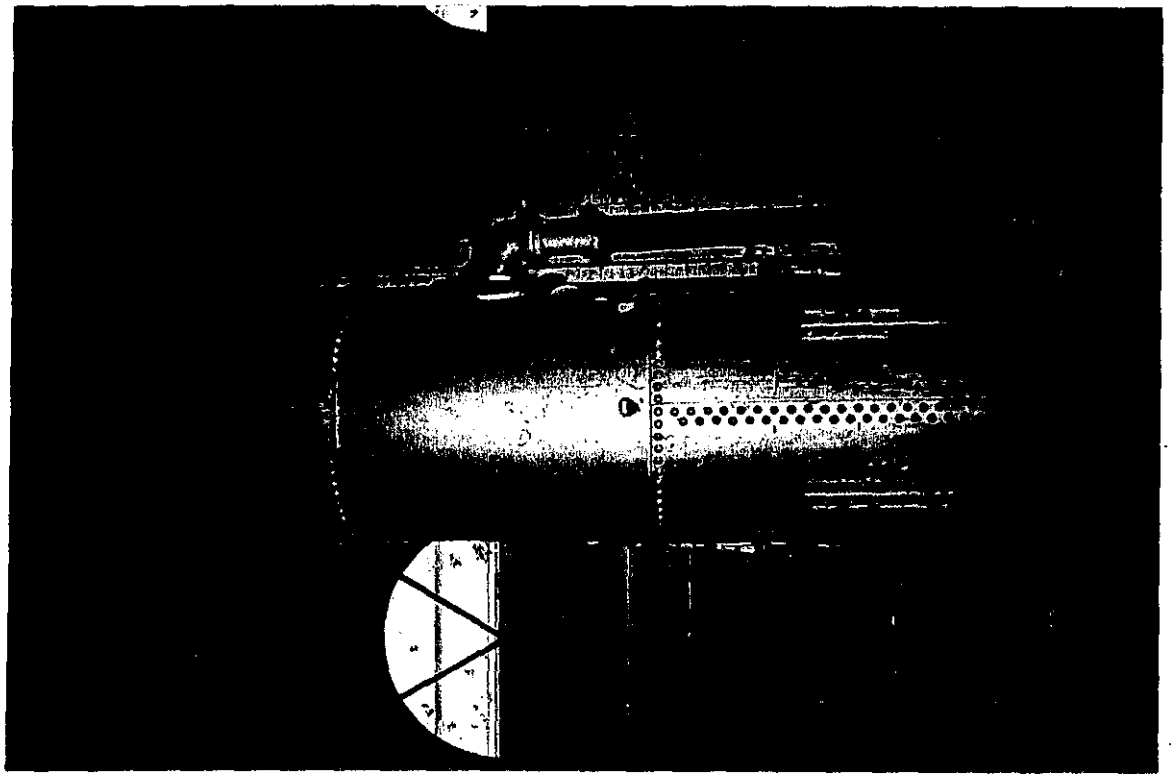


Photo: **FILM No.** 95-169-3-4 **Photographed and inspected December 1995**



Item Name: Additional Volume Steam Reservoir for Davy Press | **Item No.** 4

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☐	

Description: The Additional Volume Steam Reservoirs are two horizontally mounted, centrally joined, cylindrical steam receivers mounted on a C Section and universal section steel frame. The frame itself is supported on a concrete platform. Steam is admitted to the north side of the lower reservoir and passes out through the north side of the upper reservoir. Both cylinders are lagged and covered with a badly deteriorated sheet metal sheathing. A pressure gauge is mounted adjacent to the bottom reservoir.

History: When the Davy Press was introduced in 1926 two small dedicated furnace/boilers were mounted in holes knocked in the east wall of the workshops. The furnace boilers were fired from an elevated firing floor with coal. Heat passed through the furnace heating steel billets then through the boiler to provide steam for the Davy Press system. Smoke exhausted through two short steel stacks. Each furnace/boiler was fired on alternate days. Heating a cold billet of steel took a full day. When the billet was removed the brick furnace lining was also removed and had to be rebuilt to take the next billet. When these furnace/boilers were subsequently removed, the steam reservoirs were introduced in the opening in row 10 and the number 1 boiler in the south annexe of Bay 2 was dedicated to the Davy Press.

Function and Operation: The steam reservoirs supply additional volume of steam at the pressure of about 120psi the steam being admitted to the steam intensifier of the Davy Press by the operation of the main valve.

Location: Bay 1 North 6 East

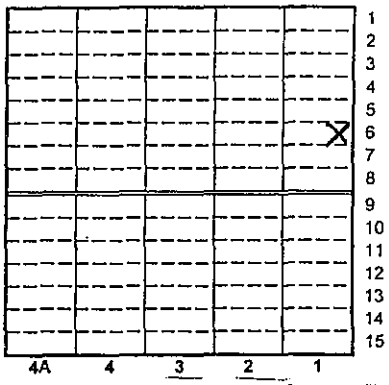
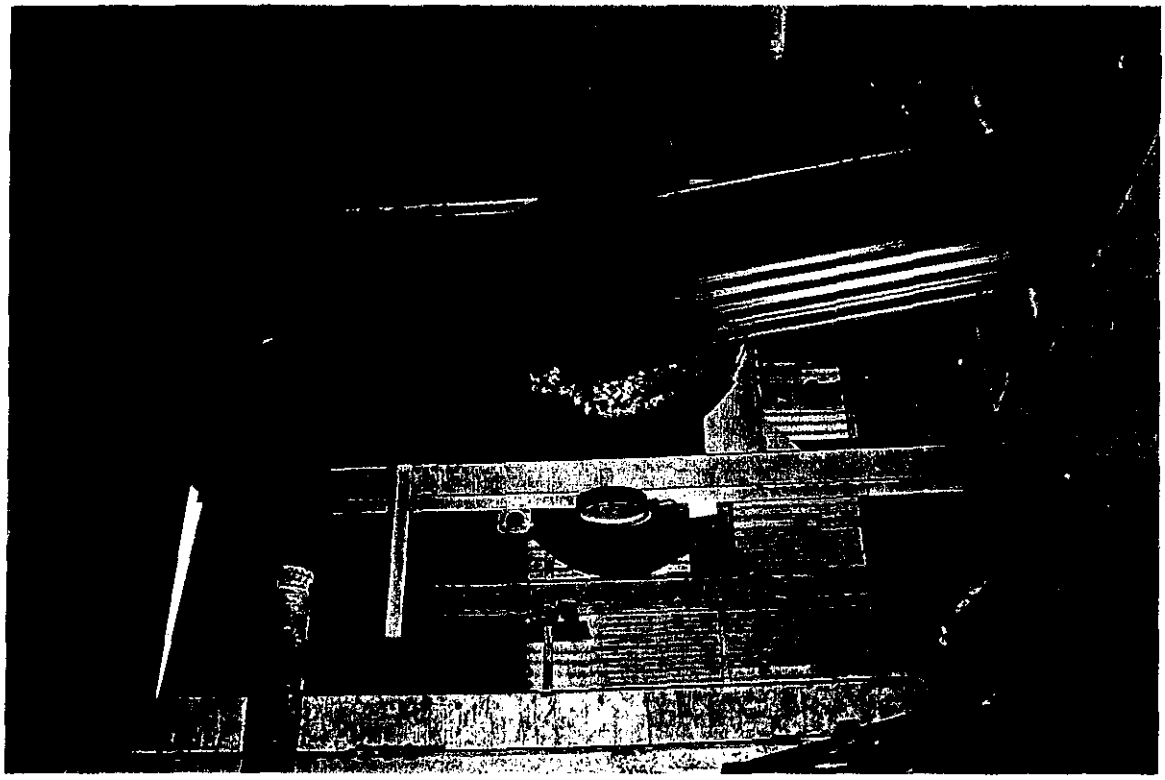


Photo: **FILM No.** 95-169-3-5 **Photographed and inspected December 1995**



Item Name: Balanced Billet Holders for Davy Press | **Item No.** 5 a-p

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The holders are all about 6-8 metres long, have a holding device and rotation handles for manipulation fastened about the centre. Each item was made for holding or manipulating a specifically shaped billet.
5a Billet Holder - circular end, square inset.
5b Billet Holder - circular end, deep.
5c Billet Holder - circular end, shallow.
5d-5i Billet Holder - clamp, square.
5j Special tool - spade end with four holes.
5k,l Special tool - twin flat plate, adjustable.
5m Special tool - twin tyned fork.
5n Special tool - wedge spade.
5p Holder

History: It is believed that most of the holders were introduced when the Davy Press was installed. Some of them were possibly made in response to later requirements.

Function and Operation: The billets to be worked were grasped by the end of the holder. The holder was securely clamped by the use of pins and wedges. The special crane hook was attached to the centre of gravity of the shaft and up to five men were used to manipulate the billet as it came under the action of the Davy Press.

Location: Bay 1 North 5-6 East

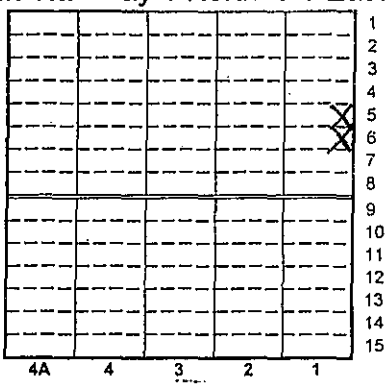


Photo: **FILM No.** 95-169-3-6 **Photographed and inspected December 1995**

Item Name: Davy Press Work in Progress | **Item No.** 6

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The work in progress is in three separate locations. It consists of partially forged and completely forged steam hammer shaft and pistons, three forged shafts and a number of crane wheels which have had their centres punched out and forged roughly to shape.

History: The history of all of these items is unknown but it is assumed that they were amongst the last items which were forged on the Davy Press.

Function and Operation: N/A

Location: Bay 1 North 6 East

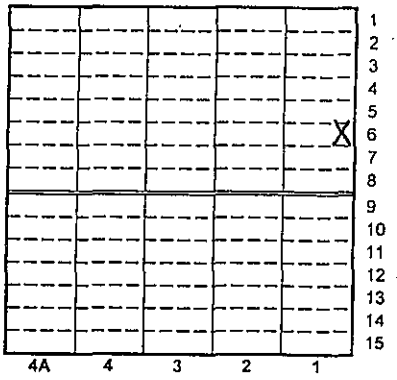
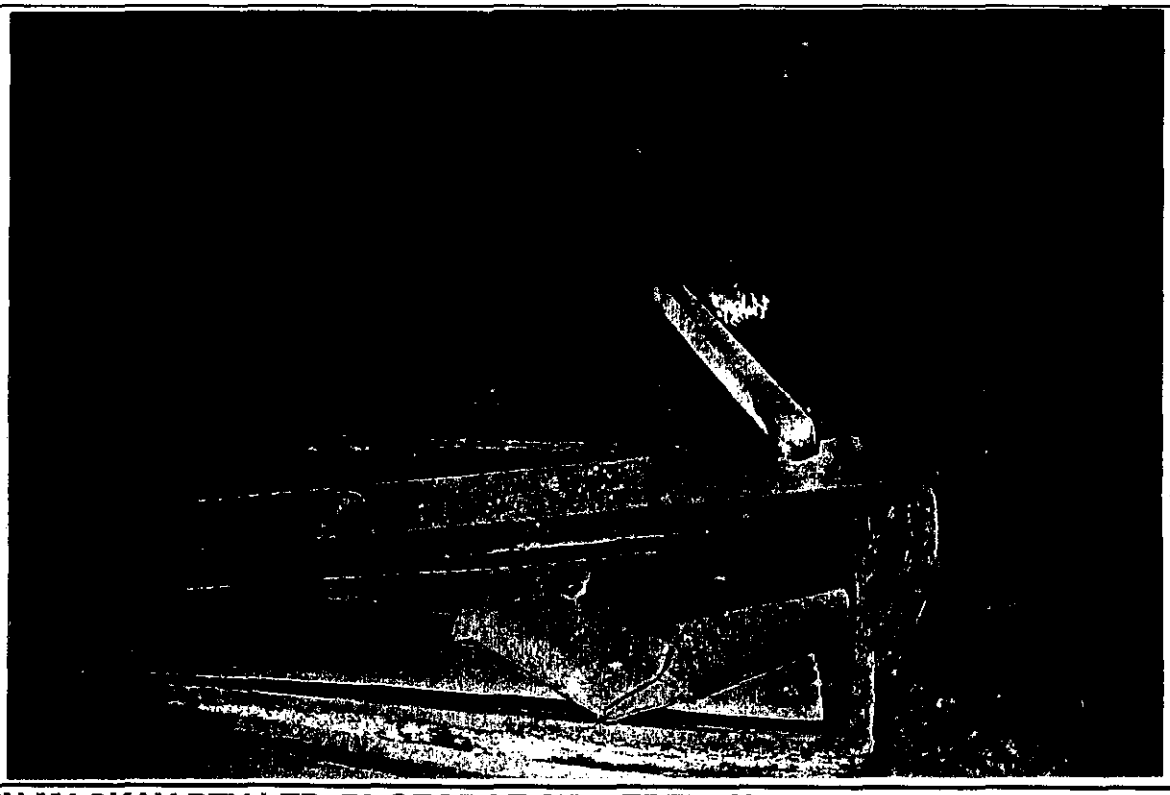


Photo: **FILM No.** 95-169-3-7 **Photographed and inspected December 1995**



Item Name: Steel Spacers | **Item No.** 7

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
System	☐	
Collection	☐	

Description: The Steel Spacers usually consist of scraps of iron or steel, flat with two parallel sides which are used to block the descent of the top die of the Davy. The amount of travel by the cross head can only be prevented by manual means. This is achieved by stacking the spacers on the bottom anvil to the desired height.

History: The spacers which are located in very heavy steel bins have possibly been used since 1926.

Function and Operation: The spacers are placed one on top of the other until the desired height of spacers is reached. The spacers then prevent the downward travel of the Cross Head of the Press.

Location: Bay 1 North 7 East

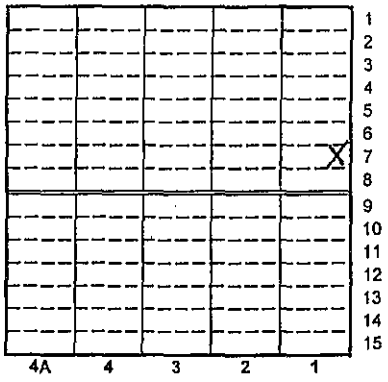
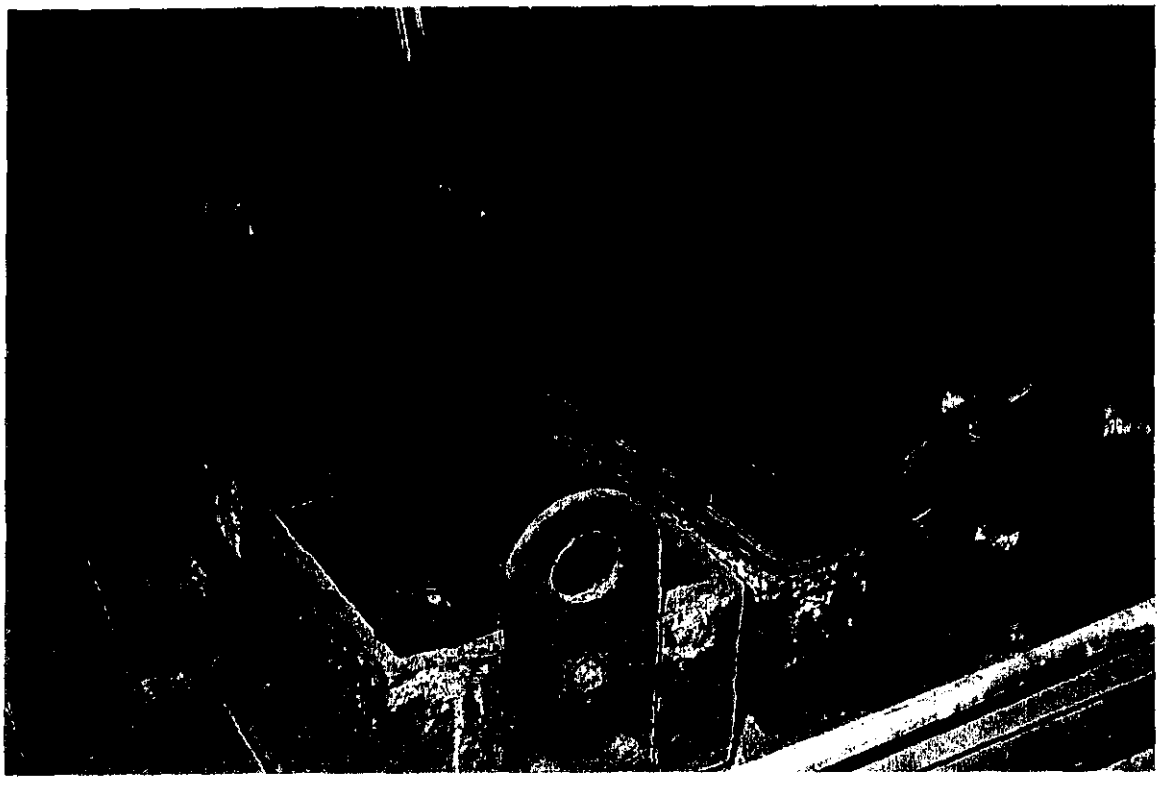


Photo: **FILM No.** 95-169-3-8 **Photographed and inspected December 1995**



Item Name: Metal Case of Shims for the Davy Press | **Item No.** 8

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The shims consist of sections of plate and sheet of different thickness placed in the various divisions of the metal case. Each of the shims measures about 200-300 mm long by 100-200mm wide.

History: The history of the shims is unknown but it is possible that these Shims have been associated with the Davy since 1926.

Function and Operation: The shims are placed one on top of another, usually in conjunction with the steel spacers to allow the descent of the Press to be checked at a specific height. The shims are invariably arranged by the forger or his assistant.

Location: Bay 1 North 4 East

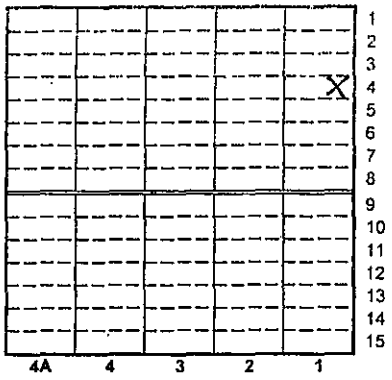
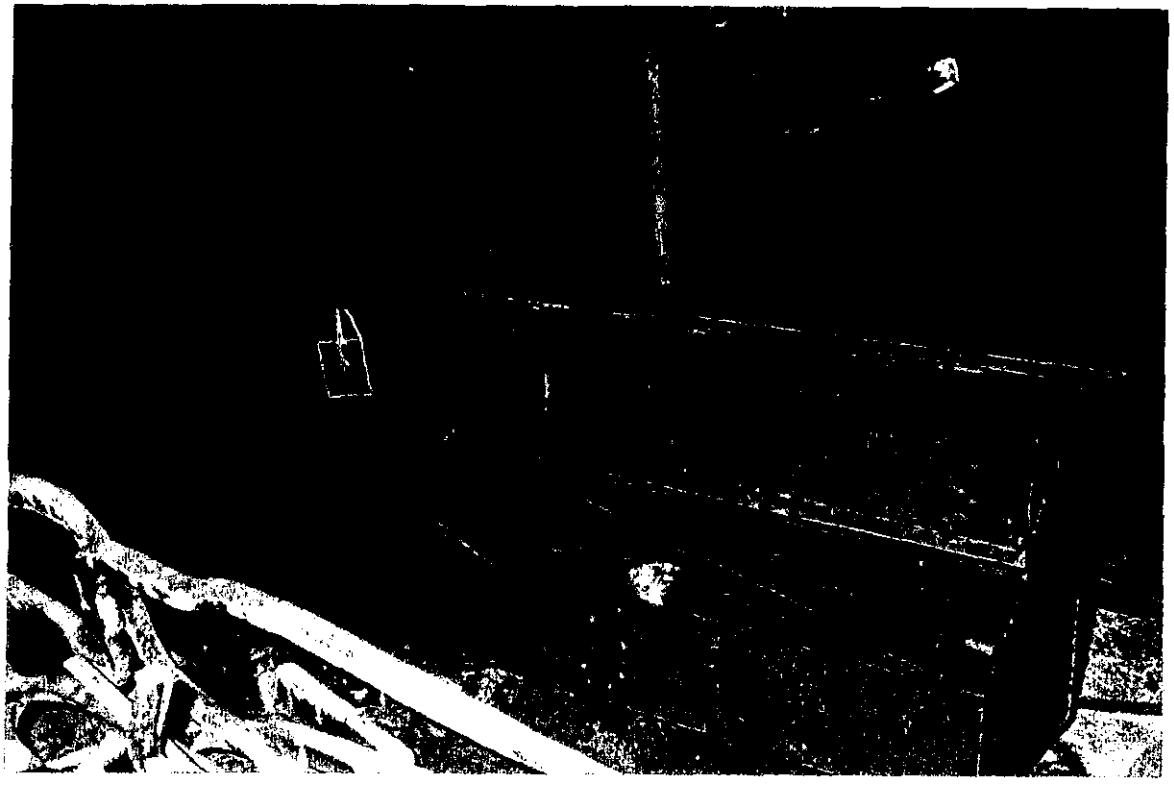


Photo: **FILM No.** 95-169-3-9 **Photographed and inspected December 1995**



Item Name: 9a - A Crane Balanced Special Holder
9b - Hand Held Tongs, Furnace Rakes/Hose etc.

Item No. 9a, b

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: 9a - Special holder for use within the crane.
9b - Hand held tongs (10 items), furnace rake and hoe (5 items), assorted steel pieces.

History: The history of these pieces is unknown but it is believed that they have been associated with the operations of the Davy Press since 1926.

Function and Operation: The rings and hooks of the special holder were used to sling the tongs at the correct height to allow material of smaller size to be manipulated under the Davy Press. 9(b)-the hand-held tongs were used to hold the material being pressed. The furnace rakes and hoe were used to clear out millscale from the furnace after the heating of various items.

Location: Bay 1 North 5 East

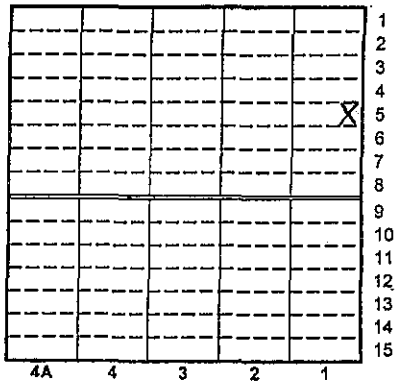
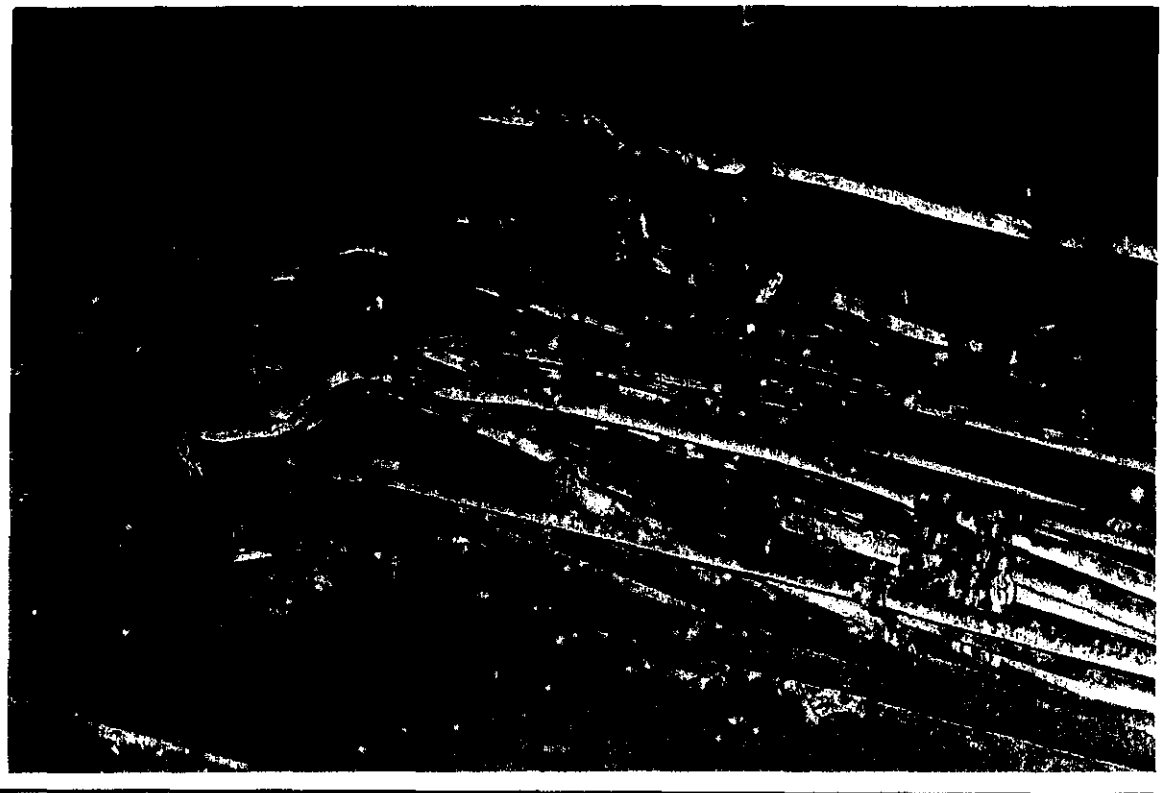


Photo: **FILM No.** 95-169-3-10 **Photographed and inspected December 1995**



Item Name: Hand Trolley for Hot Work | **Item No.** 10

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The Hand Trolley is virtually a small wheelbarrow with a steel shaft on which two cast iron wheels about 400mm in diameter are mounted. These six spoked flanged wheels were cast in the Eveleigh Workshops. A small tray measuring about 500mm by 500mm of half inch plate is mounted on two brackets along with a 3 metre long handle. The trolley was used for manipulating and for moving hot work around the floor of the workshop.

History: The history of the item is unknown although it may be as old as the Davy Press.

Function and Operation: The hand trolley was normally moved close to the furnace and the material removed by the use of a balanced tong or grab and placed on the hand trolley. The trolley could then be moved away from the furnace and the hot piece could be gripped by a special pair of tongs in an area where it was possible to securely attach the holder.

Location: Bay 1 North 5 East

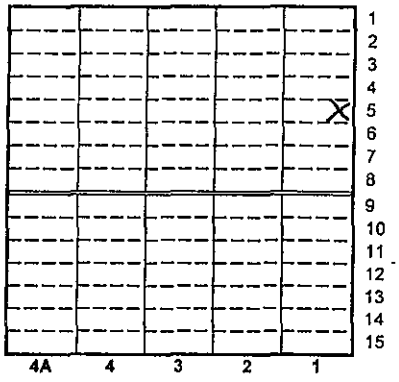
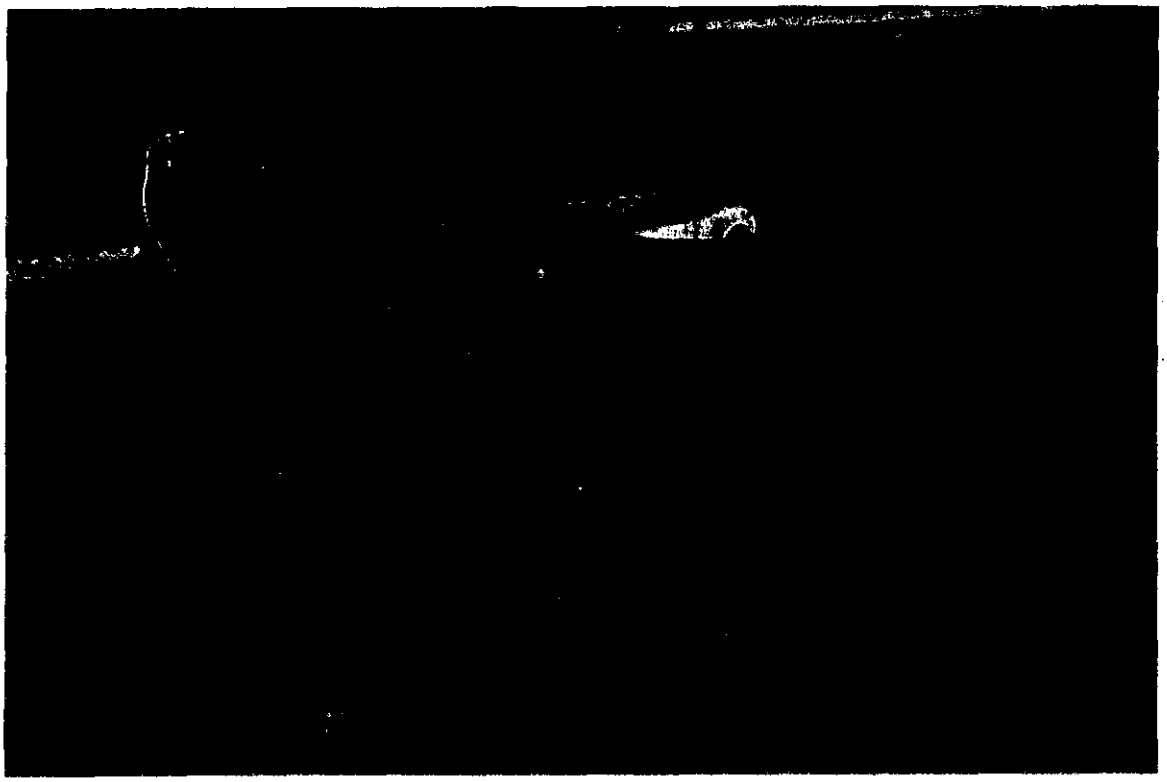


Photo: **FILM No.** 95-169-3-11 **Photographed and inspected December 1995**



Item Name: Warning Signs for Davy Press	**Item No.** 11

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The Davy Press Warning Signs simply indicate that when the Davy Press was operating that other staff must not pass through this particular area. One was placed at the north end of the press and the other was placed at the south end of the press area.

History: The date of construction of these signs is not known but they are probably the last of a long line of signs that were erected in various parts of the Workshop when large machines were in use.

Function and Operation: Placed at the north and east end of the operating end of the Davy press to prevent accidents occurring when the press and ancillary items were operating.

Location: Bay 1 North 5 West

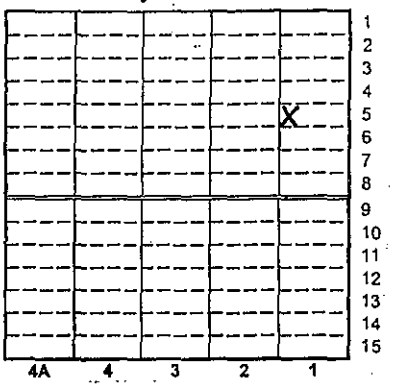
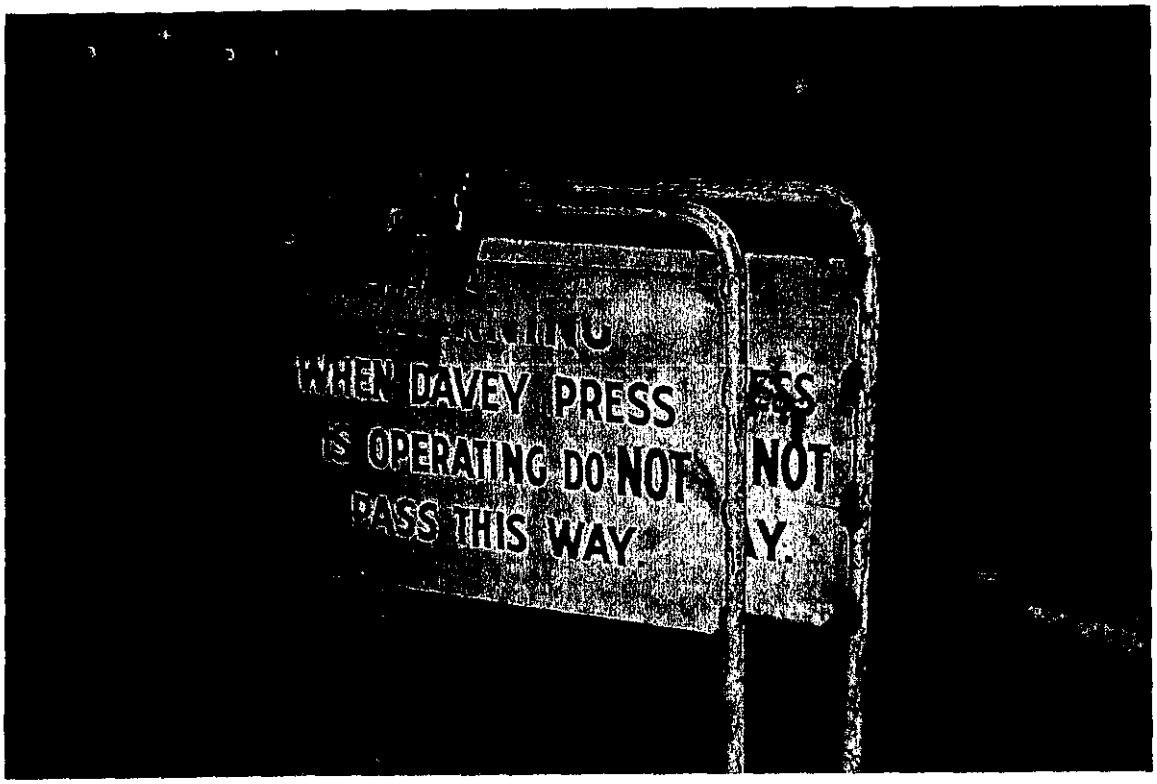


Photo: **FILM No.** 95-169-3-12 **Photographed and inspected December 1995**



Item Name: Punches, Dies and Swage Blocks | **Item No.** 12

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: There is a number of Punches and dies which were used for pressing holes into large sectioned hot steel billets. The dies were placed on the anvil of the Davy Press. The Punch placed immediately above and the Punch was then forced or pressed through the hot metal. There are five Dies in this group and a series of four Punches. Some of the Punches were simply rested on the metal billet while others were held in place with a pair of tongs. There is also a set a swages in this group of materials.

History: The history of these items is unknown but it would appear that many of them are of a considerable age and show extensive wear.

Function and Operation: Used for forming items on the Davy Press.

Location: Bay 1 North 4 East

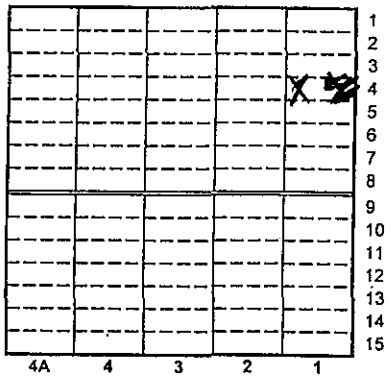
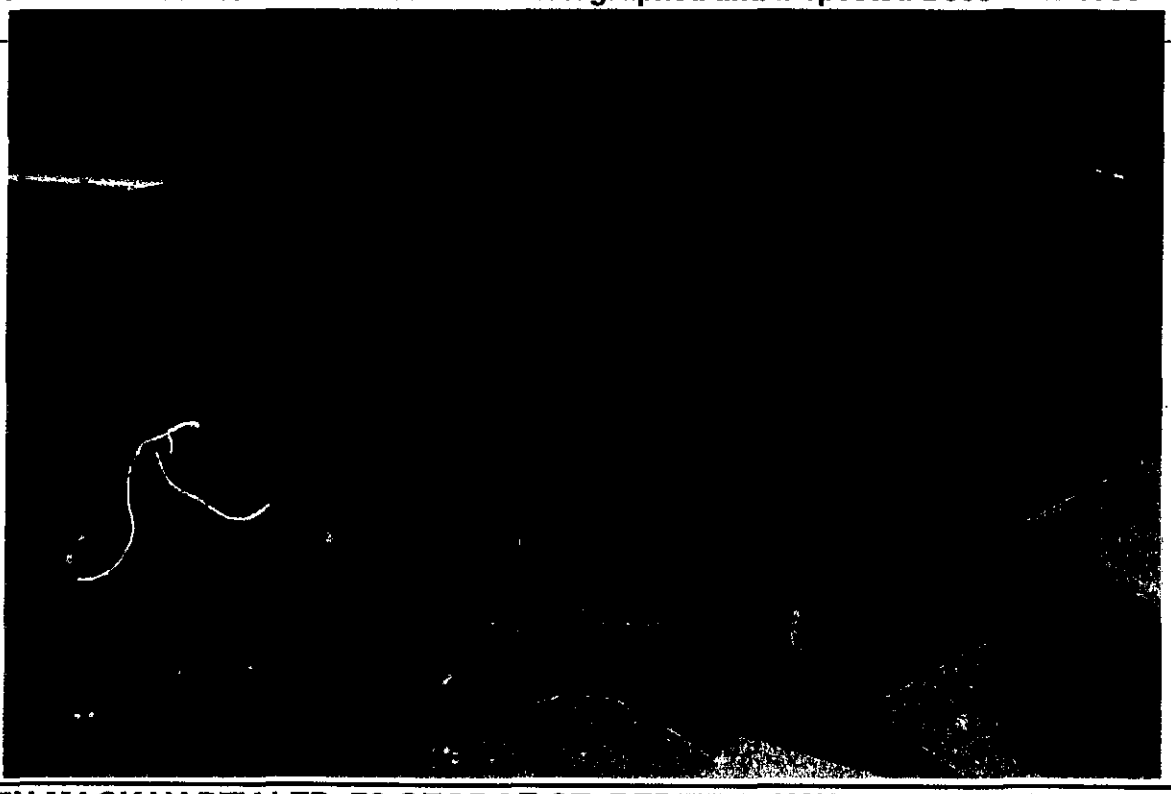


Photo: **FILM No.** 95-169-3-13 **Photographed and inspected December 1995**



Item Name: Lock Pins and Wedges for Crane Tongs | **Item No.** 13

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The Lock pins are slotted pins about 600mm long and about 30mm in diameter. There is a round pin at one end and the other end is slightly tapered. The slot is usually 100-150mm long and about 8mm wide.

History: The history of the items is unknown but it would appear that they are possibly as old as 40 years.

Function and Operation: The Lock pins and wedges were used for holding the jaws of the various billet holders shut. The pin was placed through corresponding holes on each side of the jaw and it was tightened by the use of two wedges. The wedges bound the opposite side of the tongs in place and allowed the manipulation of the hot metal.

Location: Bay 1 North 3 East

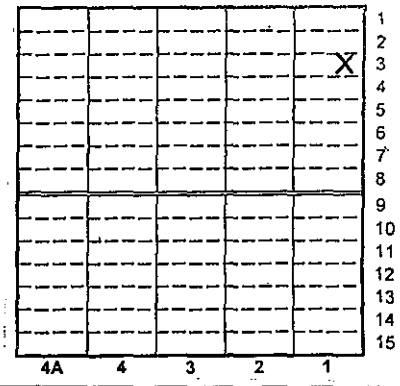
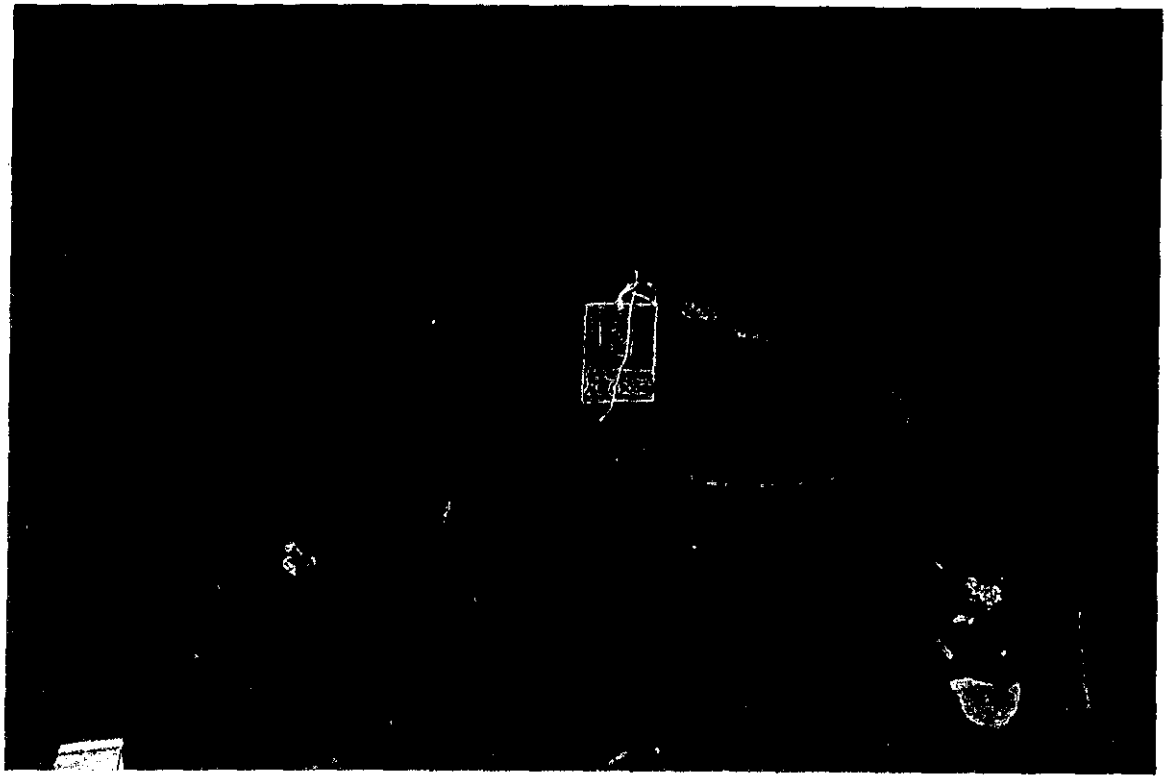


Photo: **FILM No.** 95-169-3-14 **Photographed and inspected December 1995**



Item Name: Stack of Assorted Metal Pieces | **Item No.** 14

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The metal pieces on this small rack, which consists of two lengths of railway track on the ground were used variously for holding sections of material and also as the block and die for specific forging techniques.

History: The history of these items is unknown.

Function and Operation: The hot metal was simply placed between the block and the die and pressed to shape. In some cases these blocks and dies were used only for finishing items that had been rough forged.

Location: Bay 1 North 4 East

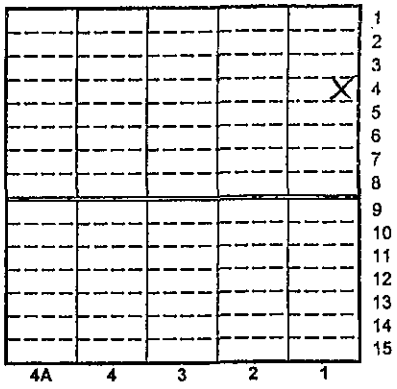
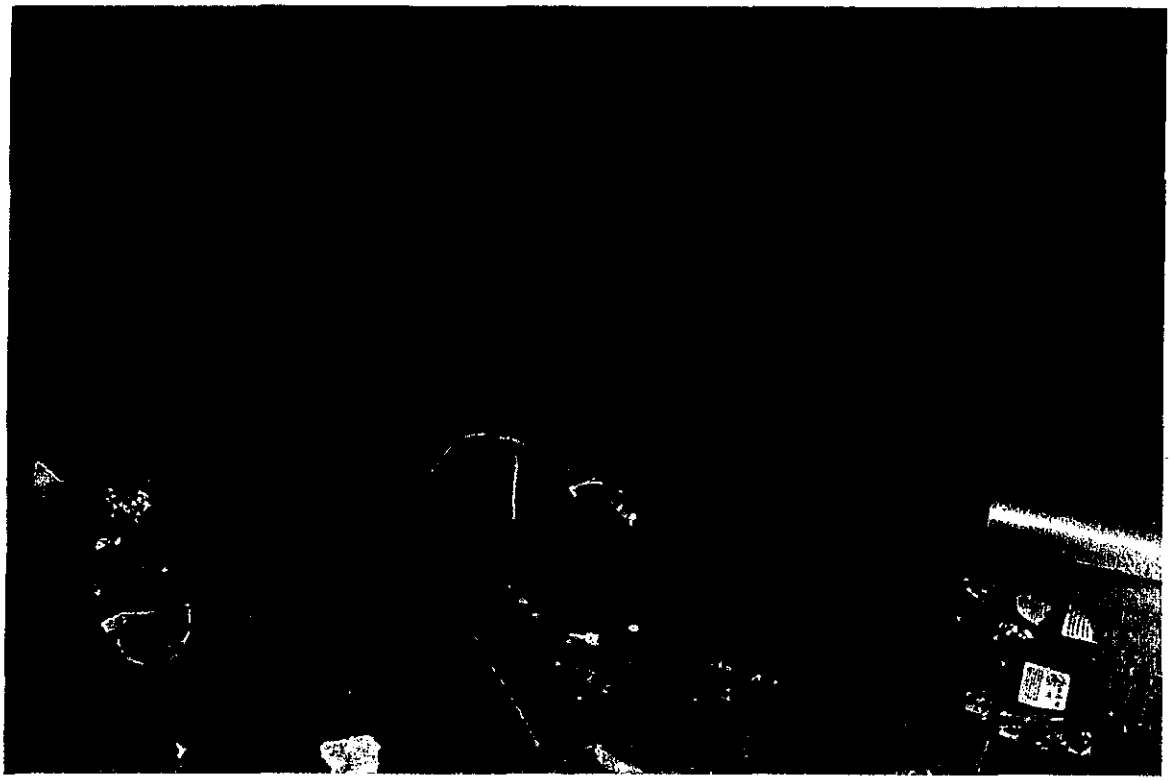


Photo: **FILM No.** 95-169-3-15 **Photographed and inspected December 1995**



Item Name: Forged and Partially Machined Steam Hammer Shafts and Rectangular Spare Parts Bin. **Item No.**15a-c

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: The two forged and partially machined steam hammer shafts have been returned to the Davy Press area for further working. This work was never carried out. The rectangular parts bin is made from half inch plate steel and is fitted with two hooks for hoisting.

History: The history of the items is unknown.

Function and Operation: N/A

Location: Bay 1 North 2 East

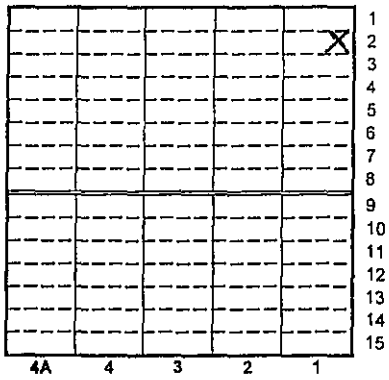
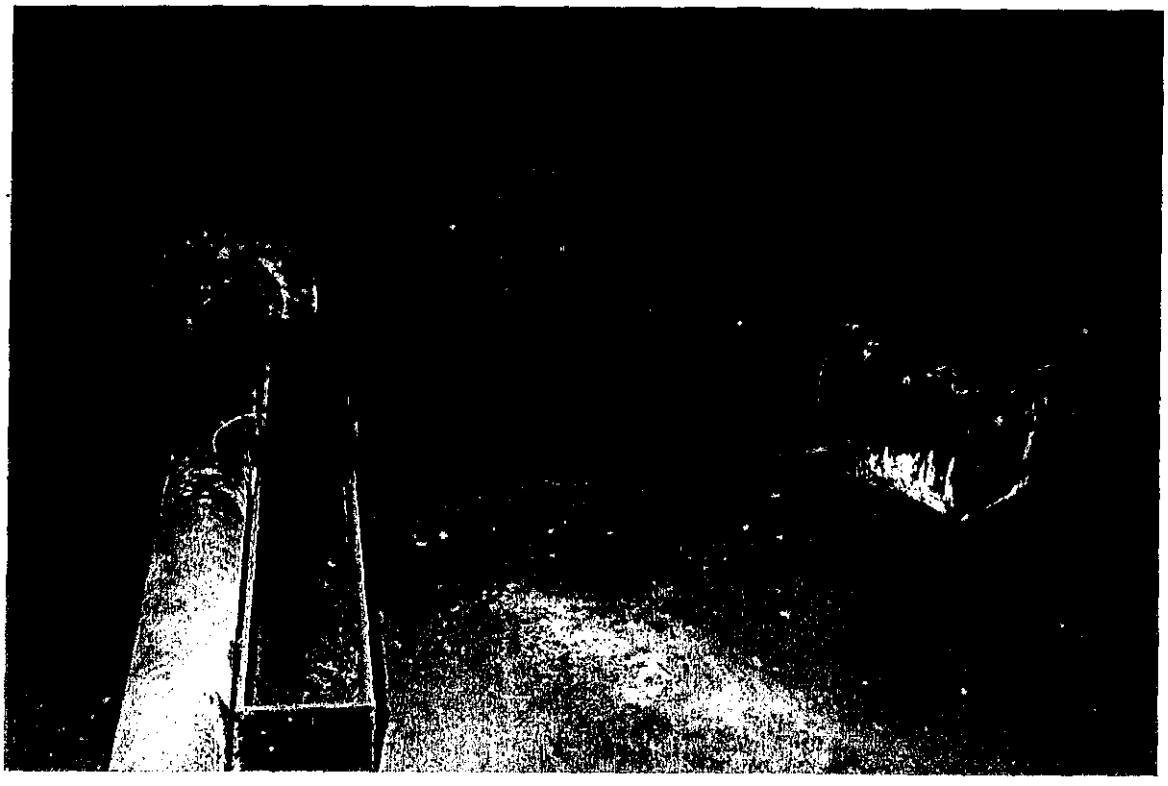


Photo: **FILM No.** 95-169-3-16 **Photographed and inspected December 1995**



Item Name: Crane Slings | **Item No.** 16

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: There are six crane slings and three wire rope slings and a single spring suspended pulley block for crane tools. These items are located on a crane sling frame close to the east wall of the Bay 1 North.

History: The history of the items is unknown, however, the spring suspended pulley block would appear to be about the same age as the Press.

Function and Operation: The chains in the slings were used to hold and lift the balanced holders as they moved items around the Davy Press space. They were also used for slinging raw material from the trolleys which ran on the central road.

Location: Bay 1 North 5 West

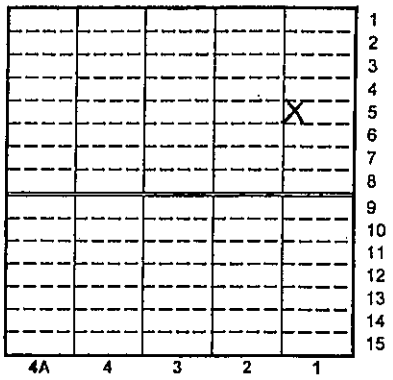
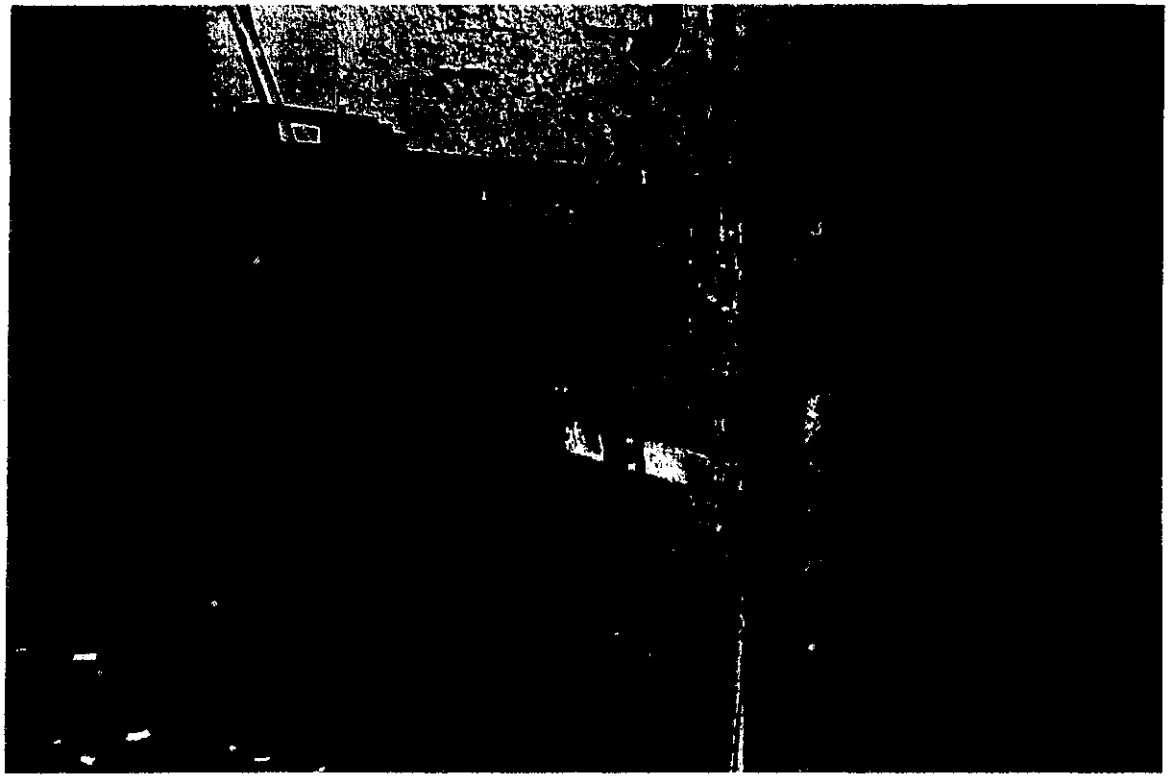


Photo: **FILM No.** 95-169-3-17 **Photographed and inspected December 1995**



Item Name: Collection of Large Circular Dies, Swages, Punches and Spanners | **Item No.** 17

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: These items are in a rough pile against the central columns. There are a number of dies similar to the ones which have been mentioned as Item 12 and there are a set of Swages for general forming work and two exceptionally large forged spanners, the purpose of which is unknown.

History: The history of the items is unknown.

Function and Operation: The swages, dies and punches were all used for forming metal on the Davy Press.

Location: Bay 1 North 3 West

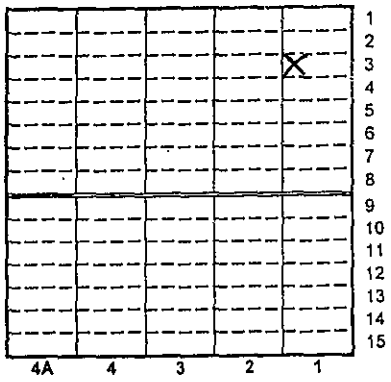
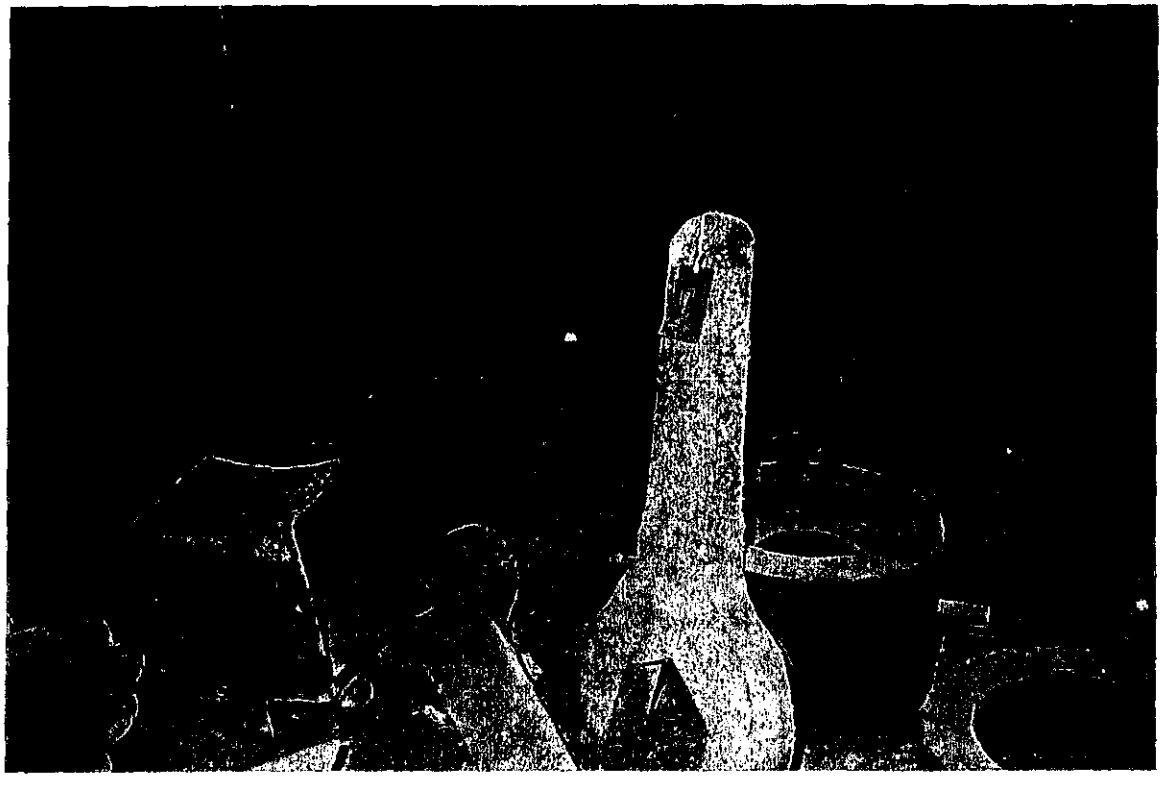


Photo: **FILM No.** 95-169-3-18 **Photographed and inspected December 1995**



Item Name: Maintenance Tool Cabinets for the Davy Press | **Item No.** 18

Name Plate: N/A

Associated Items:

Individual	❑	
Assemblage	❑	Davy Press 1-24, 207
Collection	❑	
System	❑	
Operational Groups	❑	

Description: The cabinet consists of five doors on a steel framed and sheet steel clad heavy cabinet which was lockable and which held the tools for maintaining the Davy Press and its associated items. The cabinet stands about 2 metres high and each of the five bays is about 700mm wide.

History: History of the item is unknown.

Function and Operation: N/A

Location: Bay 1 North 4 West

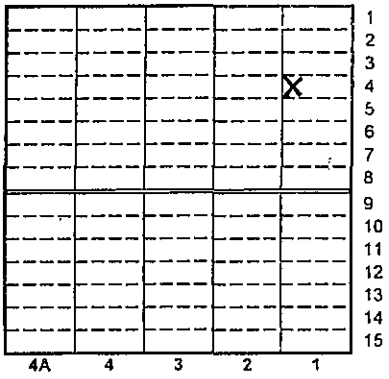
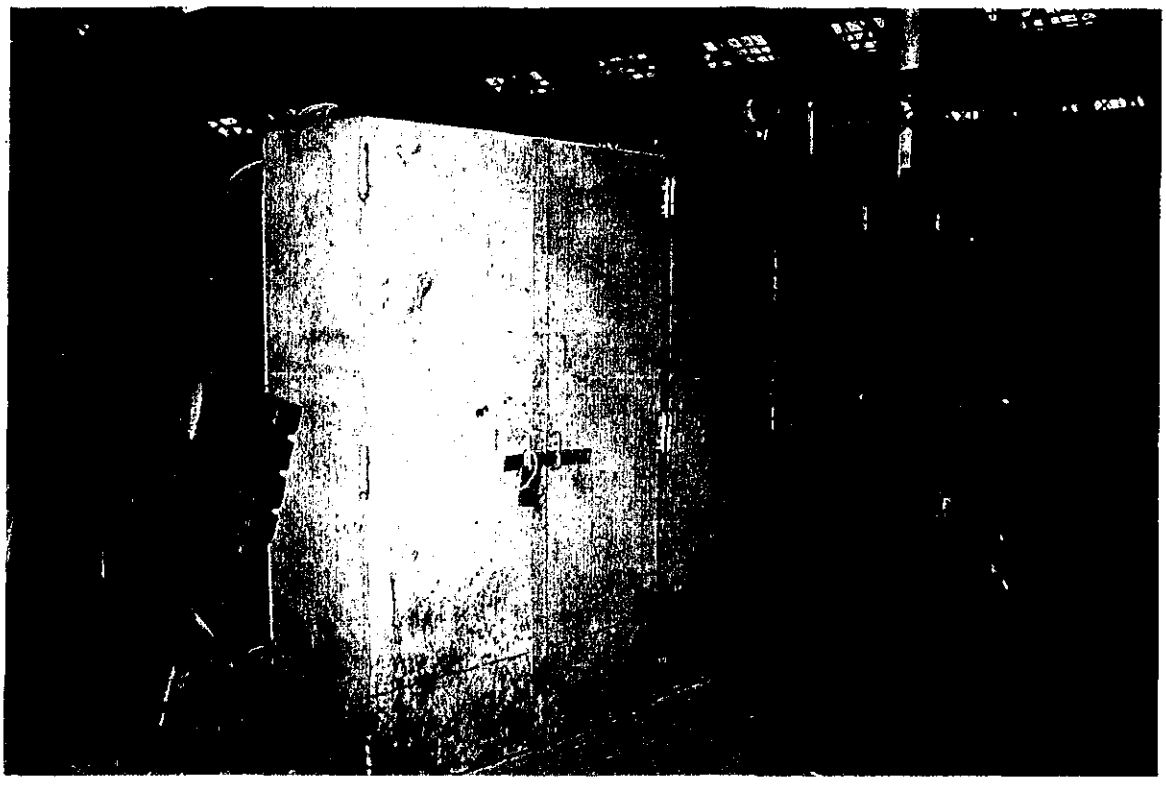


Photo: **FILM No.** 95-169-3-19 **Photographed and inspected December 1995**



Item Name: Equalising Beams for Diesel Locomotives | **Item No.** 19

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: 9 of these equalising beams have been forged and machined while two of them are in the rough forged state.

History: The history of these items is unknown but it is obvious that they have been recently made.

Function and Operation: N/A

Location: Bay 1 North 4 West

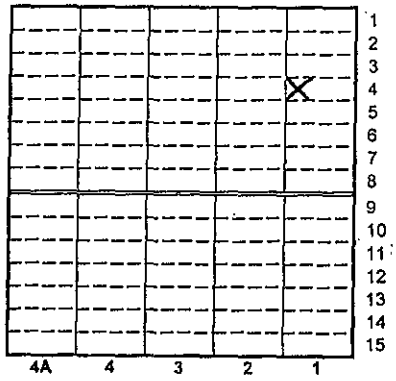


Photo: **FILM No.** 95-169-3-20 **Photographed and inspected December 1995**

Item Name: Rack of Swages and Fullers | **Item No.** 20

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: A large number of hand held swages and fullers which were used in conjunction with the Davy Press for forging a large variety of complex shapes. There are approximately 77 items on this rack, most of them have steel handles which are in excess of 2 metres long. This allowed the operator or the blacksmith to hold the item and stay well away from the very hot metal.

History: The history of the items is unknown but many appear to be of a considerable age.

Function and Operation: The swages and fullers were hand held and manipulated so that complex shapes could be forged with the Davy Press. Quite often two of the items would be used simultaneously to allow metals to be bent or shaped around dies.

Location: Bay 1 North 4 West

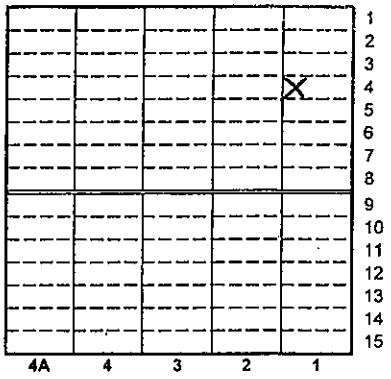
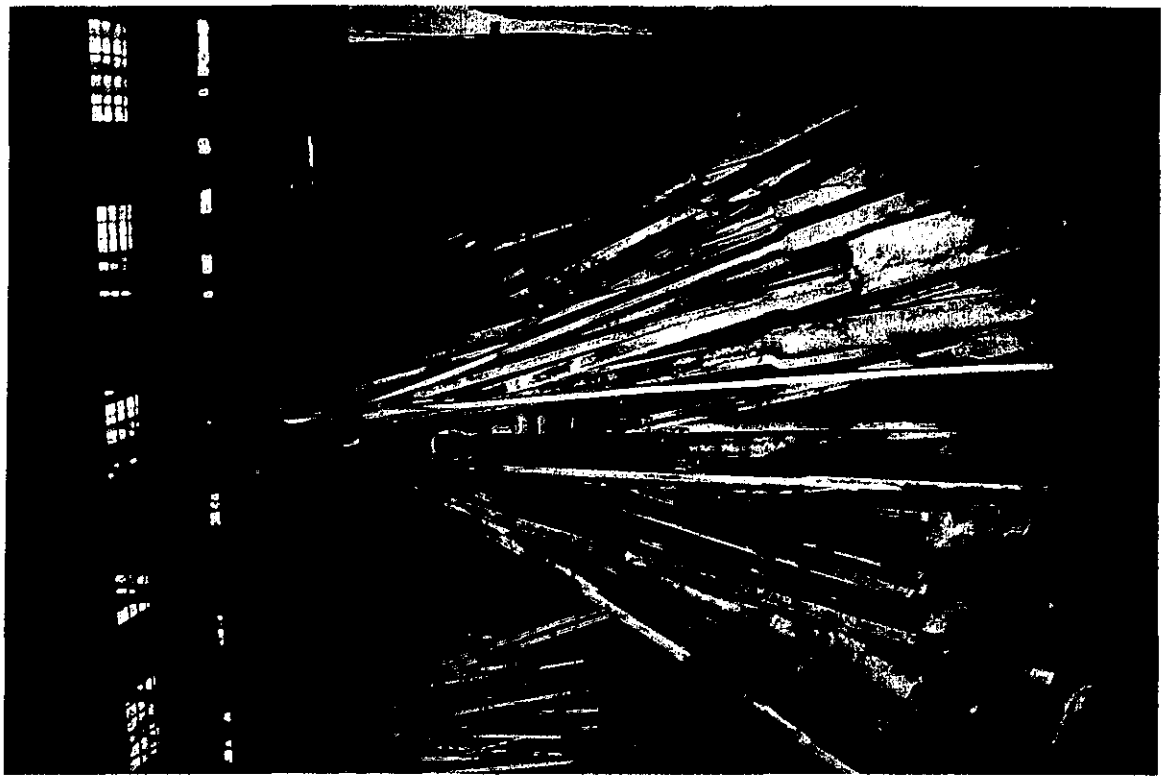


Photo: **FILM No.** 95-169-3-21 **Photographed and inspected December 1995**



Item Name: A Rack of Tongs and Swages | **Item No.** 21

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: This rack contains some 36 sets of tongs which were used for holding hot metal as it was being fastened onto the long balanced holders or as it was being worked on the Press.

History: The history of the items is unknown but many appear to be of some age.

Function and Operation: These items were hand held and were used for manipulating the hot metal prior to or during its being worked.

Location: Bay 1 North 5 West

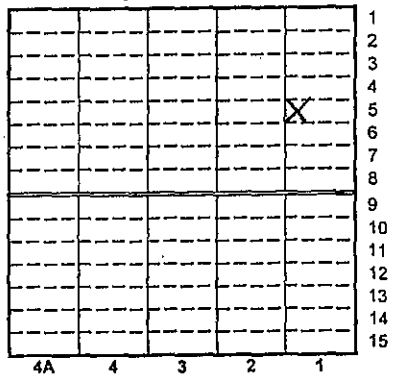
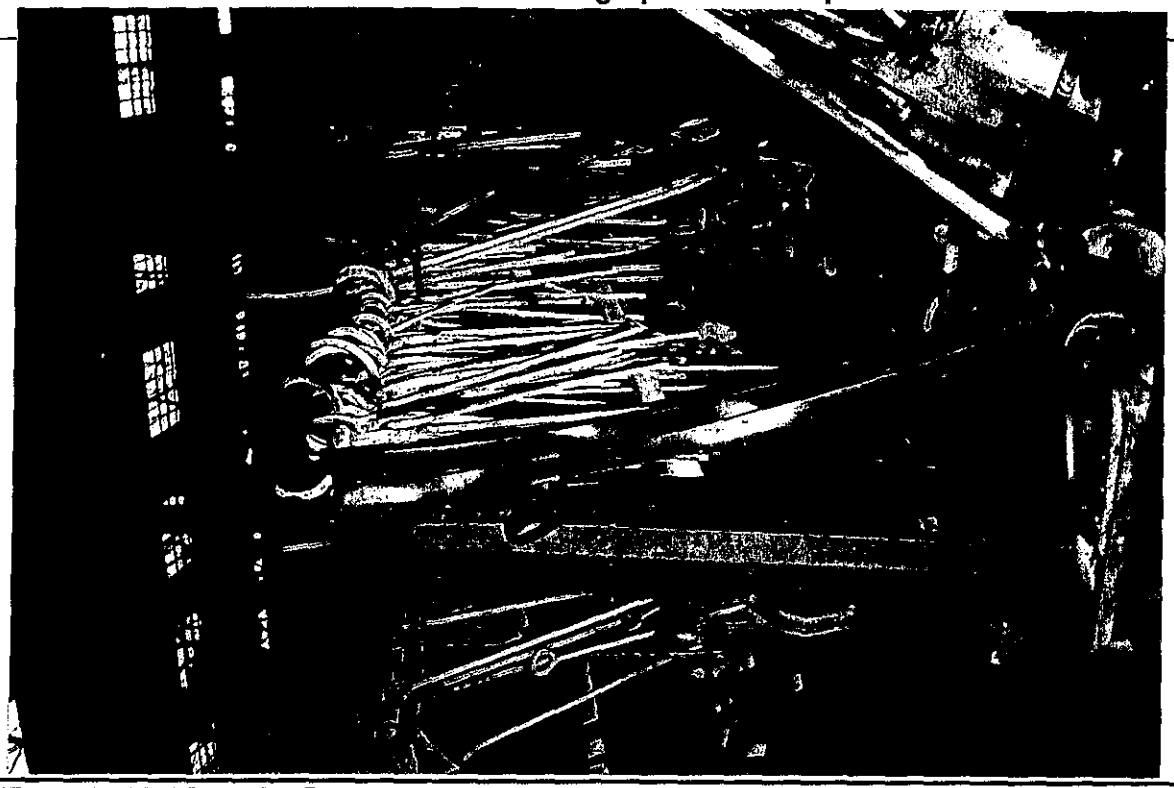


Photo: **FILM No.** 95-169-3-22 **Photographed and inspected December 1995**



Item Name: Rack of Mixed Swages, Fullers, Templates and Hotsets | **Item No.** 22

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: These mixed items were all used, usually by being held by hand to cut and form items being forged on the Davy Press.

History: The history of the items is unknown but some of them appear to be quite old.

Function and Operation: These items were hand held and manipulated as the cross head of the Davy Press, bearing a die forced the swage fuller or hotset onto the metal being worked.

Location: Bay 1 North 5 West

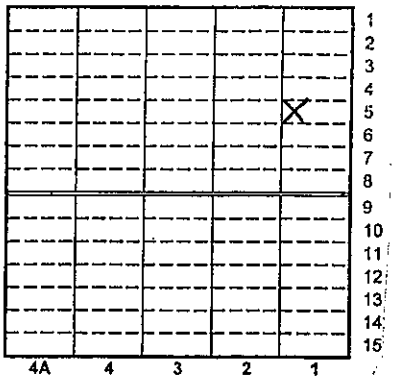
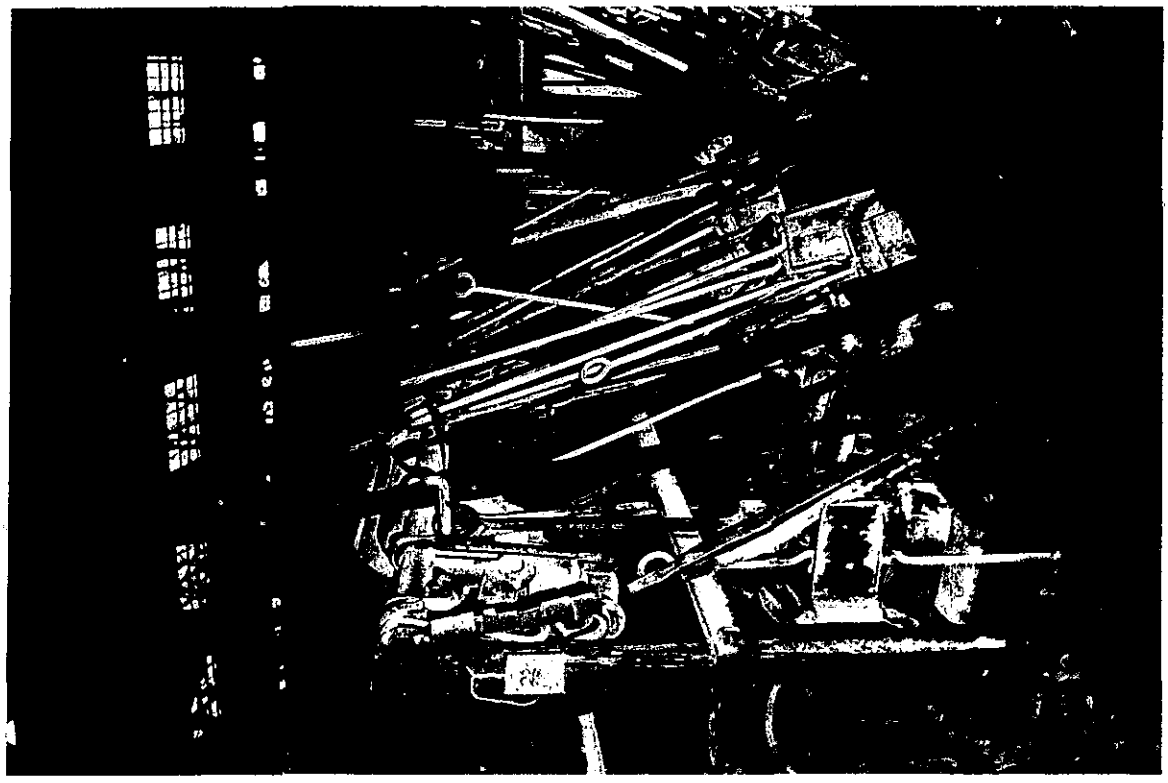


Photo: **FILM No.** 95-169-3-23 **Photographed and inspected December 1995**



Item Name: Collection of Swage Blocks and Dies for the Davy Press | **Item No.** 23

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: All of the die blocks and swages are fitted with a dove-tailed head which allows them to be fitted snugly into the crosshead mounting on the Davy Press. Some of these items come in pairs as a die and an anvil whereas others come as a two-die set for hot forging. The items must be regarded as integral parts of the Davy Press.

History: It is believed that all of these items were supplied with the Davy Press although some of them have been cast at the workshops.

Function and Operation: The dies, die sets and swages are fitted into the dove-tailed slot in the Davy Press crosshead and base and wedged into place with steel wedges. The heated billets or material being formed is in place between the faces of the dies or anvils or swage blocks and formed when the pressure is applied to the crosshead.

Location: Bay 1 North 5 West

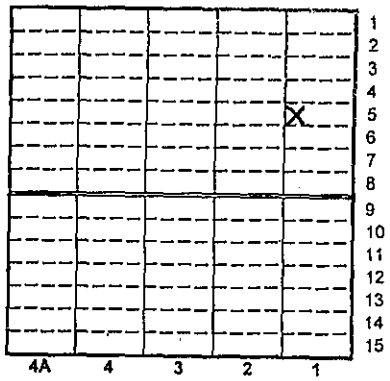
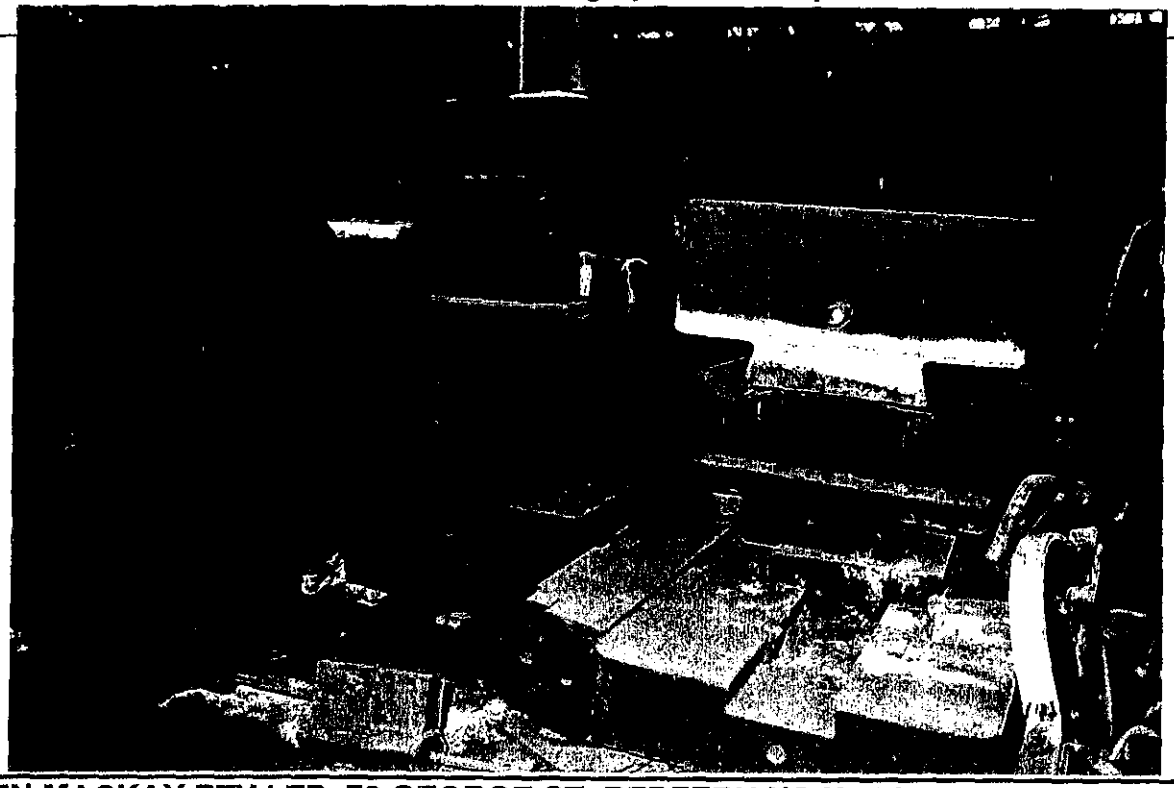


Photo: **FILM No.** 95-169-3-24 **Photographed and inspected December 1995**



Item Name: Metal Work Tables for Davy Press | **Item No.**24a-e

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: These small metal tables consist of a plate of five/eighth inch milled steel measuring from 500-900mm wide and 900-1500mm long with legs in a Z-shape being bolted or riveted in place.

History: The history of the items is unknown.

Function and Operation: These items were light enough to be moved manually around the workshops and could be used to temporarily place hot metal on while the grips of the large holders were attached to them.

Location: Bay 1 North 3 East 4 West

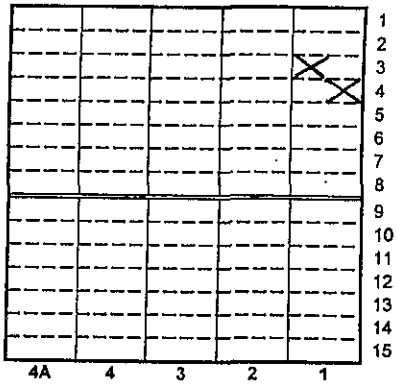


Photo: **FILM No.** 95-169-3-25 **Photographed and inspected December 1995**

Item Name: The Furnace for Billets for the Davy Press	**Item No.** 25

Name Plate: FR23

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: This large furnace measures about 5 metres long, 4 metres wide and 2 metres high. It is fitted with two steel framed counter-balanced doors which are operated by chain driven pulleys. The furnace itself is steel-framed and lined with fire brick. There are two firing ports on each side. The furnace has been converted from gas to oil-fired and was used for heating billets for the Davy Press.

History: The history of the item is unknown but it is believed that this was installed around the time that the furnace/boilers were removed from their position immediately inside the east wall, adjacent to the Davy Press.

Function and Operation: The billets to be heated were placed inside using balanced tongs, the doors were fastened in place and the item heated, often overnight. Removing the billet was done with the tool 5N which was a wedge spade and it was operated in much the same was as a garden spade.

Location: Bay 1 North 1 East

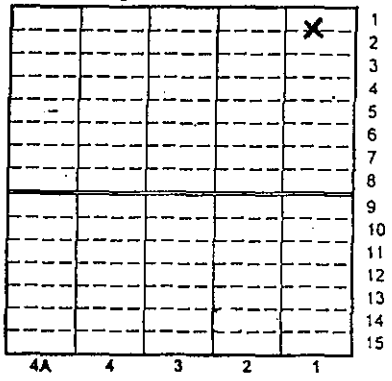
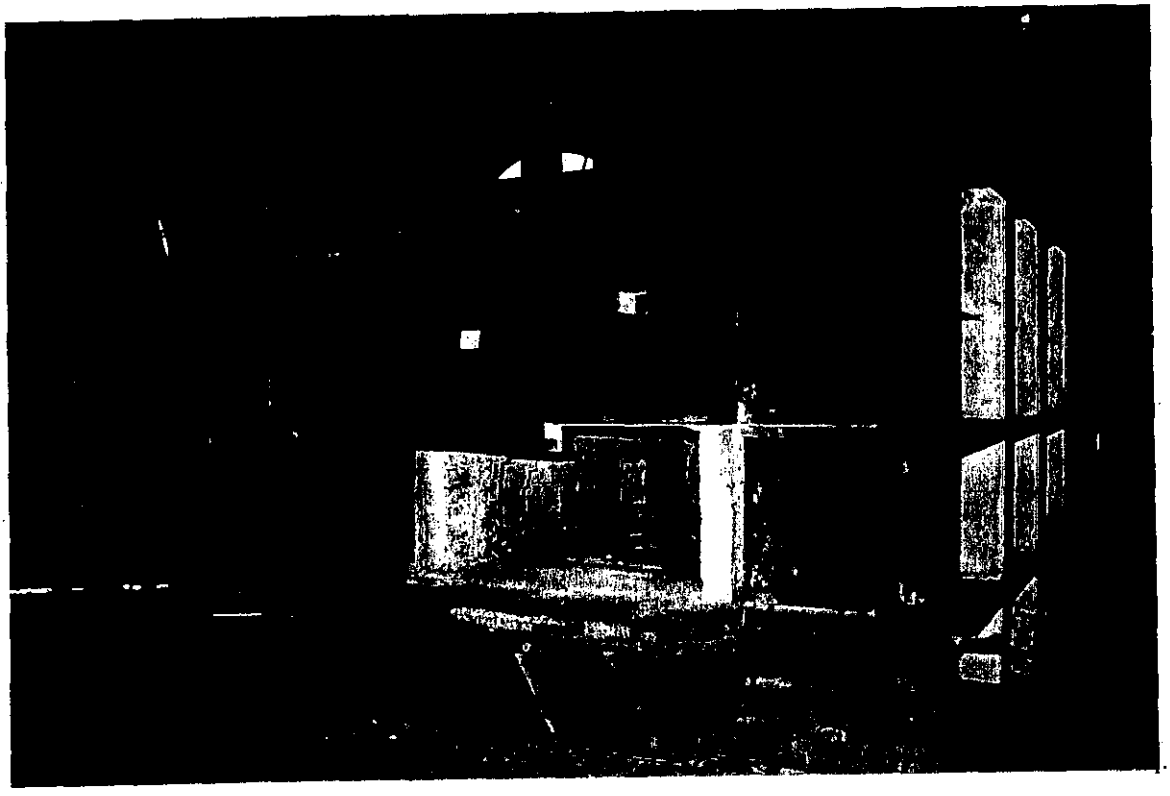


Photo: **FILM No.** 95-169-3-26 **Photographed and inspected December 1995**



Item Name: Overhead Crane | **Item No.** 207

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy Press 1-24, 207
Collection	☐	
System	☐	
Operational Groups	☐	

Description: This crane consists of twin plate girder beams which taper towards the end. It was made by Craven Brothers and was probably located in another bay within the workshops. It would appear that the crane was originally driven by continuous rope, powered by a steam engine at one end of the workshop and later converted to electric power. This crane was mounted in this position, probably in 1926 and was dedicated to the operation of the Davy Press. The crane rail beams on the eastern and western side have been attached to new columns formed from high universal section steel.

History: The crane is of some considerable age and has been moved to this position from some other area of the workshop. It has been converted probably from rope drive to electric power. The crane was placed in this position probably prior to the Davy Press being installed so that it could assist with the installation of the Davy and possibly the removal of other items which were installed here previously.

Function and Operation: The crane is operated from a small cab which is suspended beneath the crane beams. The cab holds three motor controllers, one for each of the motors on the crane. These motors power the longitudinal movement of the crane, transverse movement of the crane carriage and of the crane hoisting cable.

Location: Bay 1 North 8 West

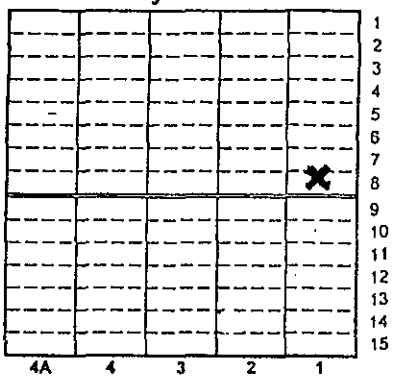


Photo: **FILM No.** No Number **Photographed and inspected December 1995**

GODDEN
MACKAY

BAY 2 SOUTH

Item Name: 2-Ton Jib Crane | **Item No.** 76

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
System	☐	
Operational Group	☐	

Description: This is a small, relatively modern Jib-Crane with a capacity of 2 tonne.

History: The history is unknown but the item appears to have been introduced immediately before the workshop closed down.

Function and Operation: The item has a small carriage and was operated by hand.

Location: Bay 2 South 14 West

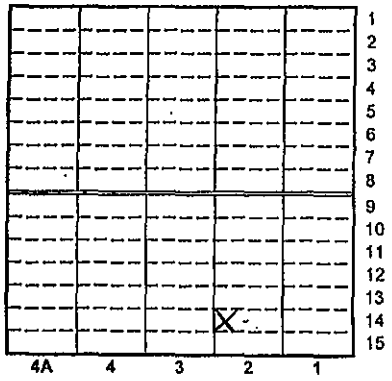


Photo: **FILM No.** 95-169-2-8 **Photographed and inspected December 1995**

Item Name: One Tonne Jib-Crane | **Item No.** 77

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
System	☐	
Operational Group	☐	

Description: This small hand operated crane, like other jib cranes which are located away from the wall is staid to the overhead crane rail beam. It consists of a universal section king post and universal section jib which is staid by a twin back-to-back angled section sealed piece.

History:

Function and Operation: The crane was formerly fitted with a hand operated block and tackle and the operation was done by hand.

Location: Bay 2 South 12 West

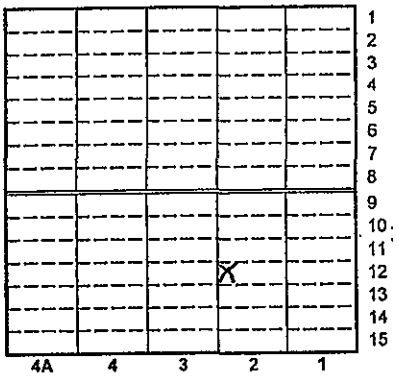
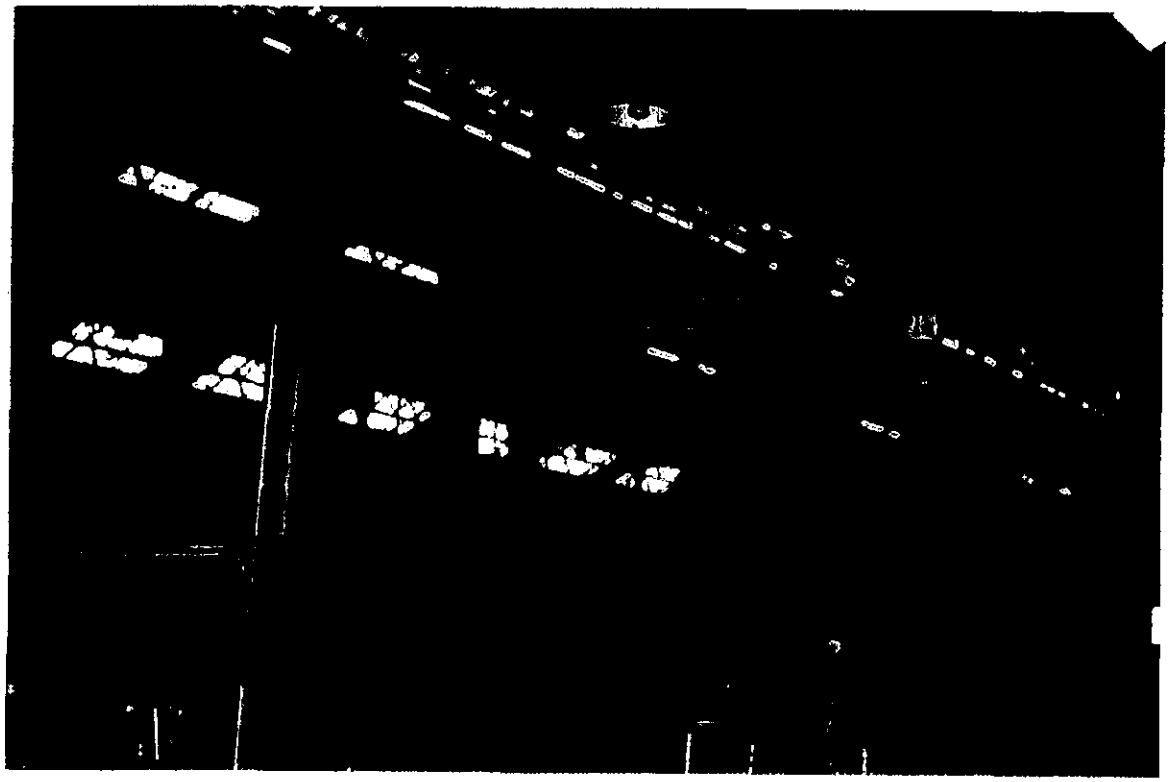


Photo: **FILM No.** 95.169.2.9 **Photographed and inspected December 1995**



Item Name: Frazing Wheel and Saw | **Item No.** 78

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Frazing Wheels 33, 78, 82, 83, 92
System	☐	
Operational Group	☐	

Description: This Frazing Wheel was manufactured by the workshops and consists of a cast iron steel frame which supports two bearing blocks. The bearing block supports the main shaft on which the frazing wheel and saw were mounted. The shaft was driven by V-belts from a small electric motor mounted on the rear of the frame.

History: The history of the item is unknown but it appears that it was once driven from an overhead line shaft. It was certainly in another location before being mounted here.

Function and Operation: The frazing wheel was generally used for rough trimming of hot metal and the saw was probably used for trimming hot metal pieces.

Location: 2 South 12 West

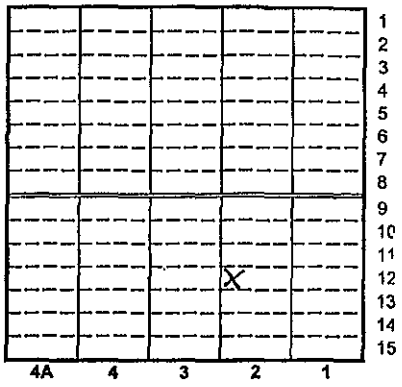
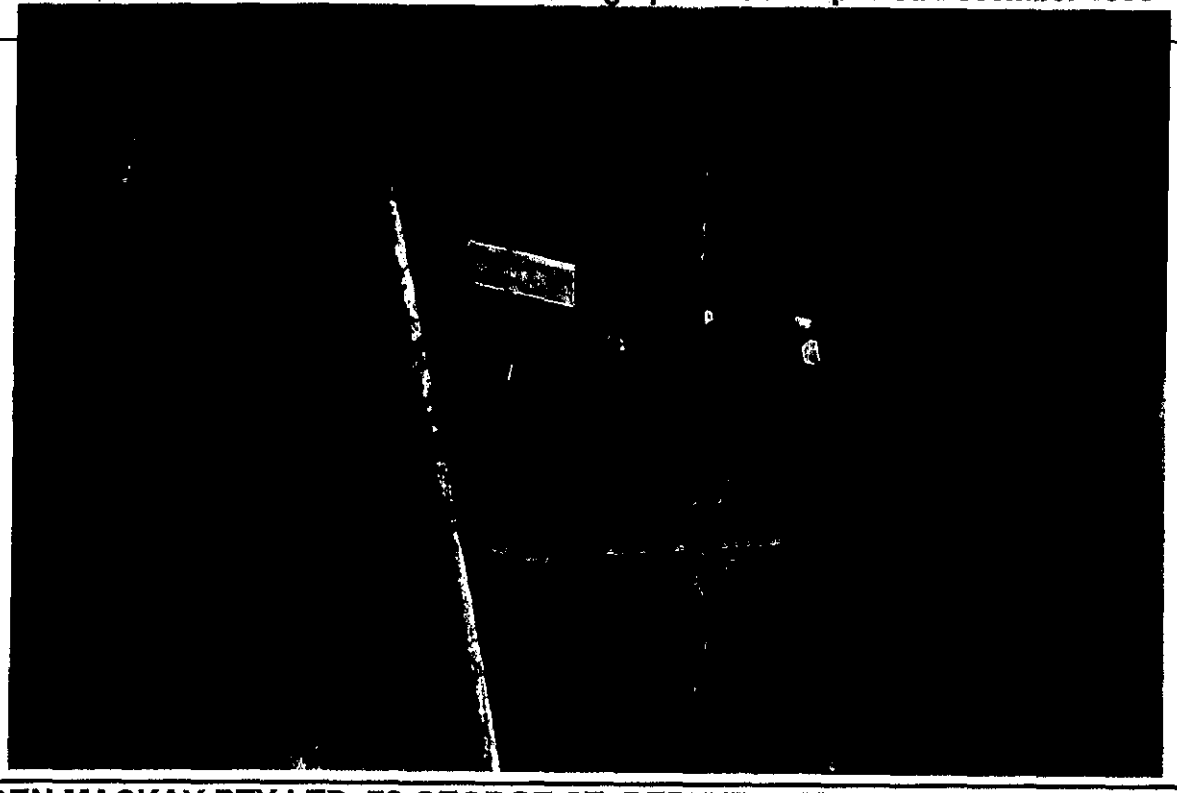


Photo: **FILM No.** 95-169-2-10 **Photographed and inspected December 1995**



Item Name: Furnace for the Ajax Forming Machine | **Item No.** 79

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	Ajax 79, 80, 81, 82, 100C
Collection	❑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129,
System	❑	159, 161, 198
Operational Group	❑	

Description: This small gas-fired furnace is steel framed and mounted on a brick plinth. The steel-framed front door is counter-balanced with two heavy weights which consist of concrete in sections of pipe.

History: The history of the item is not known but it appears to have been departmental built and mounted in this position for some years.

Function and Operation: The item was used for heating sections before being formed in the Ajax Forming Machine. The precise method of operation is unknown.

Location: Bay 2 South 12 West

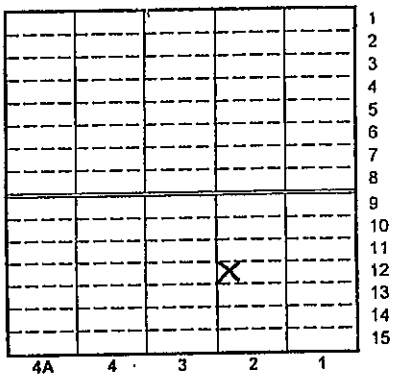
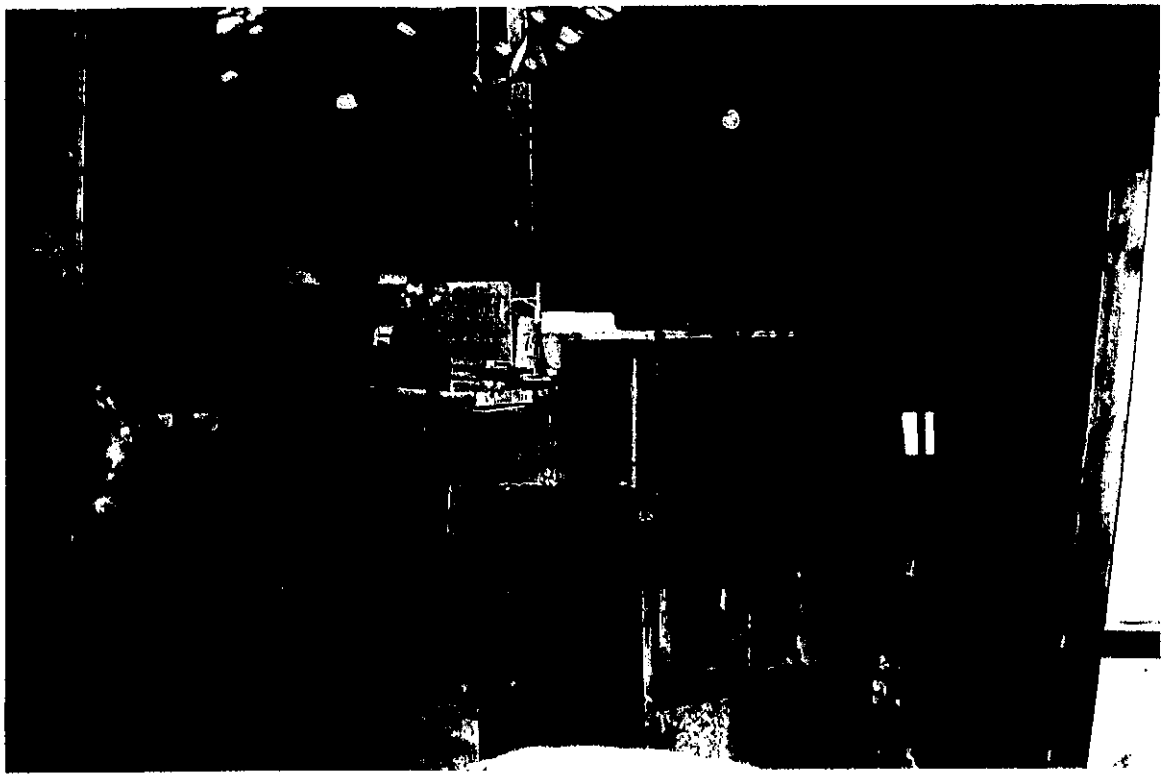


Photo: **FILM No.** 95-169-2-11 **Photographed and inspected December 1995**



Item Name: Jib-Crane **Item No.** 80

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
System	❑	
Operational Group	❑	

Description: This small hand operated crane, like other jib cranes which are located away from the wall is stayed to the overhead crane rail beam. It consists of a universal section king post and universal section jib which is stayed by a twin back-to-back angled section sealed piece.

History:

Function and Operation: The crane was formerly fitted with a hand operated block and tackle and the operation was done by hand.

Location: Bay 2 South 11 West

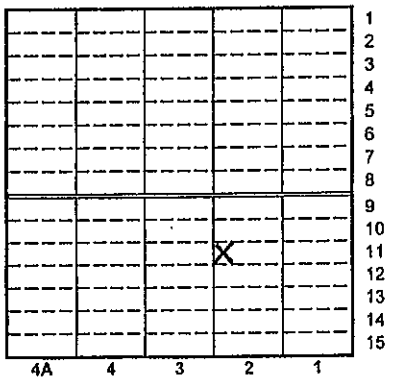


Photo: **FILM No.** 95-169-2-12 **Photographed and inspected December 1995**

Item Name: The Ajax Continuous Forging Machine | **Item No.** 81

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	Ajax 79, 80, 81, 82, 100C
Collection	❑	
System	❑	
Operational Group	❑	

Description: This massive, cast-iron continuous forging machine is of the Universal type. Hot metal rod is fitted into the machine which is cut to length up-set and headed before being discharged. A number of different shaped dies can be placed in the machine. The machine is powered by an electric motor.

History: The item was installed in 1922. This was probably its original location although that is unknown.

Function and Operation: Hot steel rods are removed from the small furnace adjacent and fed into the machine. It was used for manufacturing a wide range of rivets, bolts and pins which were used throughout the workshops and the NSW Rail System.

Location: Bay 2 South 11 West

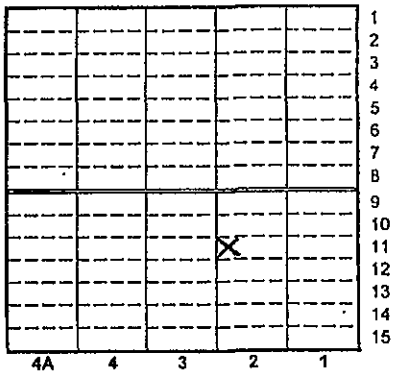
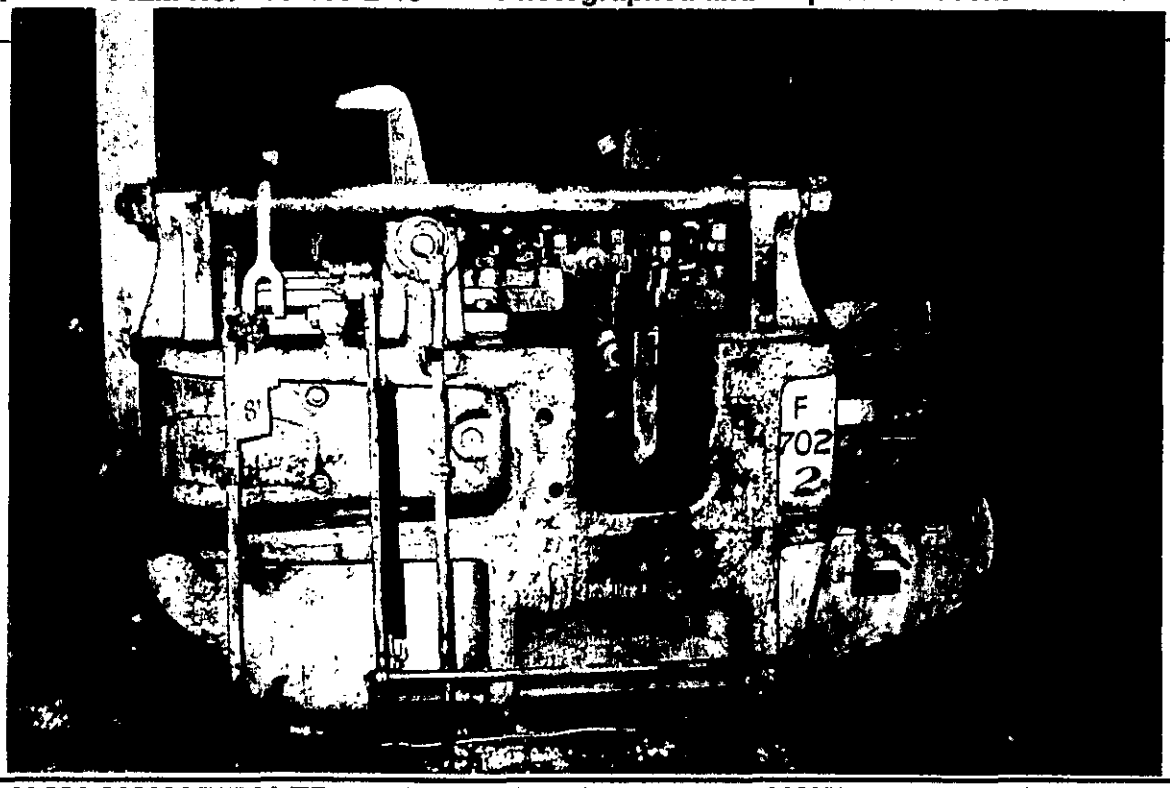


Photo: **FILM No.** 95-169-2-13 **Photographed and inspected December 1995**



Item Name: Ajax Continuous Forging Machine | **Item No.** 81

Condition:

In general, the item appears to be in operable condition providing power sources are connected and the item is cleaned, serviced and tested.

The external surface of the item has patches of superficial rust and bare metal.

Significance Matrix

	Historical	Aesthetic	Social	Technology/ Research Potential
Rare	☒	☒	☐	☒
Repres-entative	☒	☐	☐	☒

State Historical Themes:

Category ☐ Moveable Item ☐ Industrial Relic

Themes
- ☐ 13 Transport
- ☐ 15 Utilities
- ☐ 16 Industry
- ☐ 18 Technology
- ☐ 20 Government Administration

Statement of Significance The item was an integral part of the Eveleigh Locomotive Workshops being associated with their operation for over 65 years. The item is a large, rare, industrial piece exhibiting massive cast-iron construction and which had general engineering application. The item is impressive in size and form and exhibits a unity in its design and detail. The item has research and education potential for developing an understanding of early engineering practice. The item exhibits a high degree of structural integrity. The item is an integral part of the Ajax assemblage.

Conservation Policy:

The item is to retained in its present location and be preserved as part of the Ajax assemblage to which it belongs. The item is to remain operational.

Policy Implementation:

All external surfaces are to be cleaned and degreased using appropriate methods. All superficial rust is to be removed or treated. All external surfaces are to be treated with an appropriate sealant such as Shell ENSIS fluid or polycrystalline wax. The machine should be serviced by a qualified engineer.

Conserve in situ.

Maintenance Schedule

Interpretation:

Item Name: Frazing Wheel and Saw | **Item No.** 82

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Ajax 79, 80, 81, 82, 100C
Collection	☑	Frazing Wheels 33, 78, 82, 83, 92
System	☐	
Operational Group	☐	

Description: This Frazing Wheel was manufactured by the workshops and consists of a cast iron steel frame which supports two bearing blocks. The bearing block supports the main shaft on which the frazing wheel and saw were mounted. The shaft was driven by V-belts from a small electric motor mounted on the rear of the frame.

History: The frazing wheel was installed in 1946. It may have once been driven from an overhead line shaft. It was certainly mounted in another location before being mounted here.

Function and Operation: The frazing wheel was generally used for rough trimming of hot metal and the saw was probably used for trimming hot metal pieces as well.

Location: Bay 2 South 11 West

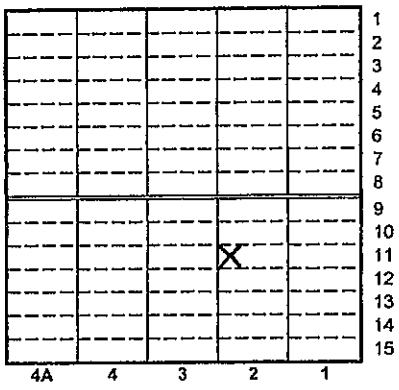
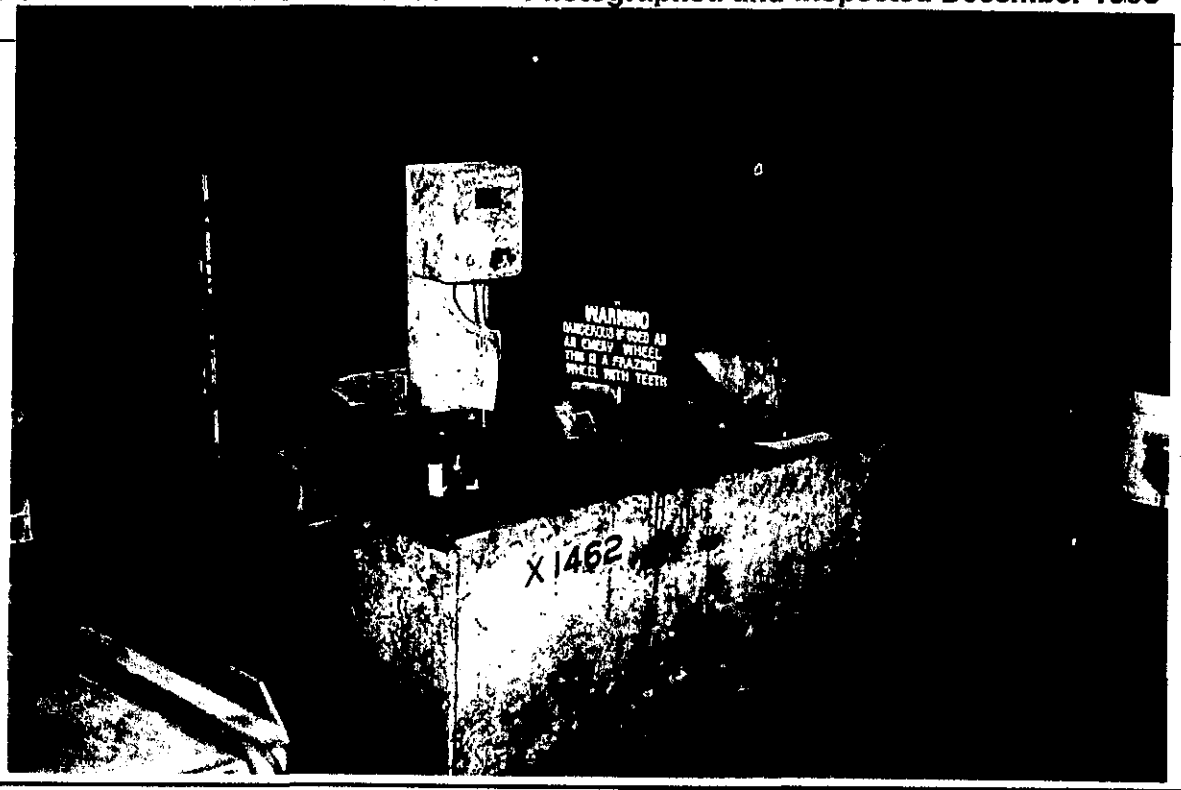


Photo: **FILM No.** 95-169-2-14 **Photographed and inspected December 1995**



Item Name: Frazing and Grinding Wheel | **Item No.** 83

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Covmac 83, 84, 85, 86, 100C
Collection	☑	Frazing Wheels 33, 78, 82, 83, 92
System	☐	
Operational Group	☐	

Description: The Frazing and Grinding Wheel has a cast-iron bed on which is mounted a shaft which holds a frazing wheel on one end and a fifteen inch emery wheel on the other. Two bearings, integrated into the cast iron frame, support the shaft. A driven wheel is located in the middle of the shaft which is powered by a series of four V-belts by a one horsepower electric motor. There is no name plate information on the item but it is believed that it was cast in the Eveleigh Foundry and that the item has been produced by the Workshop.

History: The history of the item is unknown but it is likely that it dates from the time that this part of the blacksmith's shop had the steam hammer installed.

Function and Operation: The Frazing and Grinding Wheel is used for the rough cleaning of items which have been forged in the Bay 2 North. The Frazing Wheel consists of a series of hardened teeth which are parallel to the axis of the shaft. These teeth which have a pitch of about 7mm are used for the rough shaping of hot steel as it comes from the forge.

Location: Bay 2 South 10 West

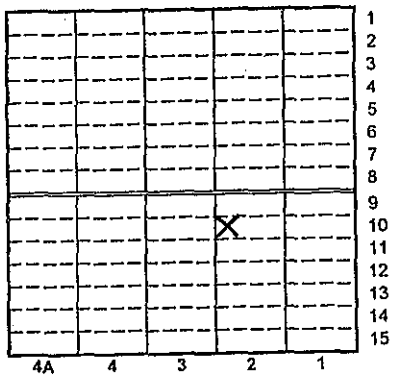
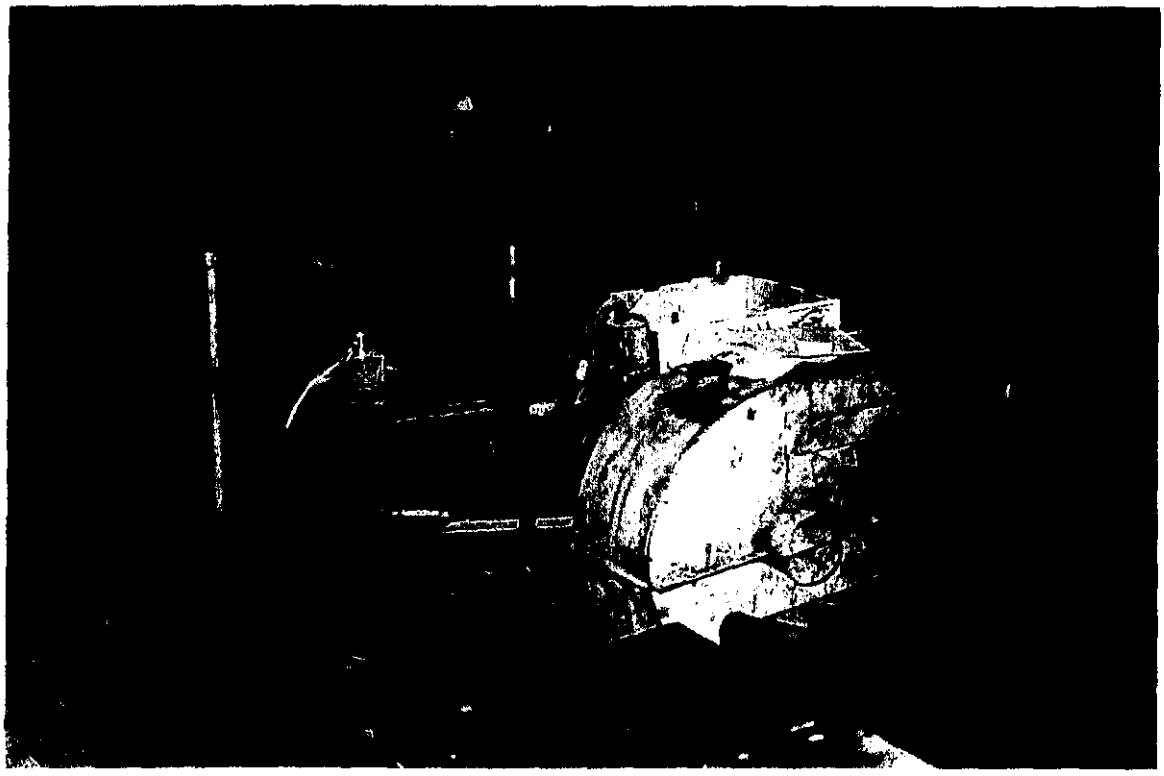


Photo: **FILM No.** 95-169-2-15 **Photographed and inspected December 1995**



Item Name: 10CWT Jib-Crane | **Item No.** 84

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
System	☐	
Operational Group	☐	

Description: This small hand operated crane, like other jib cranes which are located away from the wall is stayed to the overhead crane rail beam. It consists of a universal section king post and universal section jib which is staid by a twin back-to-back angled section sealed piece.

History:

Function and Operation: The crane was formerly fitted with a hand operated block and tackle and the operation was done by hand.

Location:

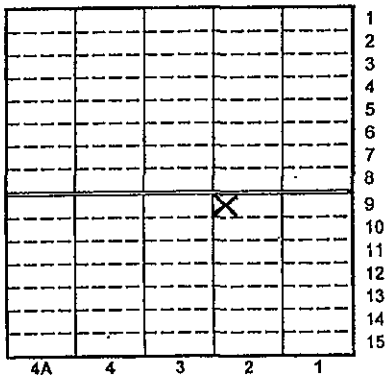
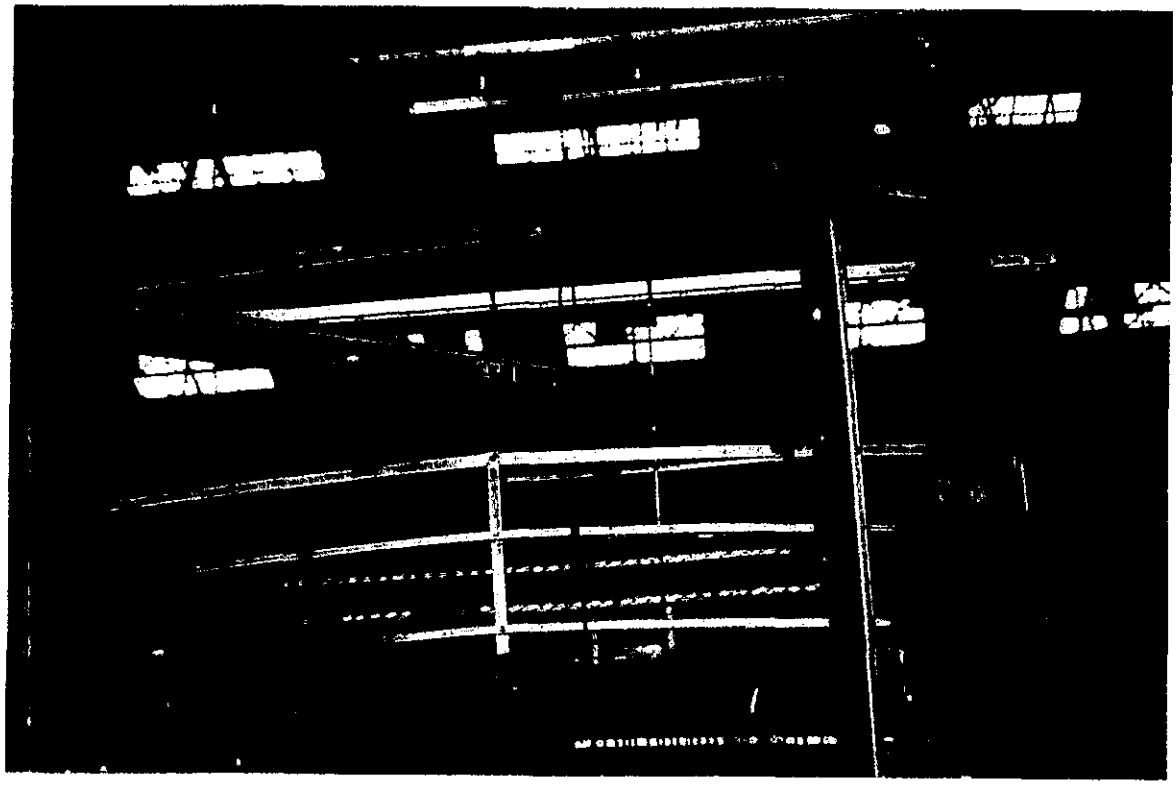


Photo: **FILM No.** 95-169-2-16 **Photographed and inspected December 1995**



Item Name: The Covmac Continuous Forging Machine | **Item No.** 85

Name Plate:

Associated Items:

Individual	☑	
Assemblage	☑	Covmac 83, 84, 85, 86, 100C
Collection	☐	
System	☐	
Operational Group	☐	

Description: The Covmac Continuous Forging Machine is a massive cast-iron structure which was used for producing rivets and bolts from hot metal stock. The item was installed in this location in 1950 and has operated here until present day. This is a universal machine and a variety of heads can be placed on rivets, pins and bolts.

History: The covmac was installed, probably in this position, in 1950.

Function and Operation: The machine is driven by a stand-alone electric motor. It operates on the inertia principle, having a very heavy fly wheel. The hot stock is fed into the machine where it is cut to size, up-set, headed and injected. It was used for producing a variety of rivets, bolts and pins used throughout the workshops in NSW Rail Network.

Location: Bay 2 South 9 West

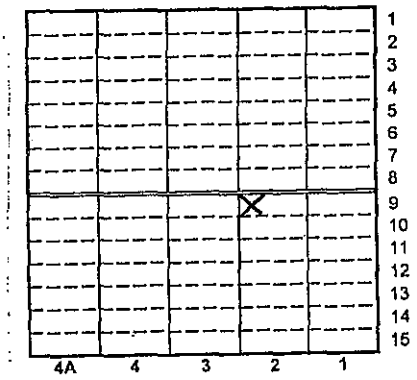
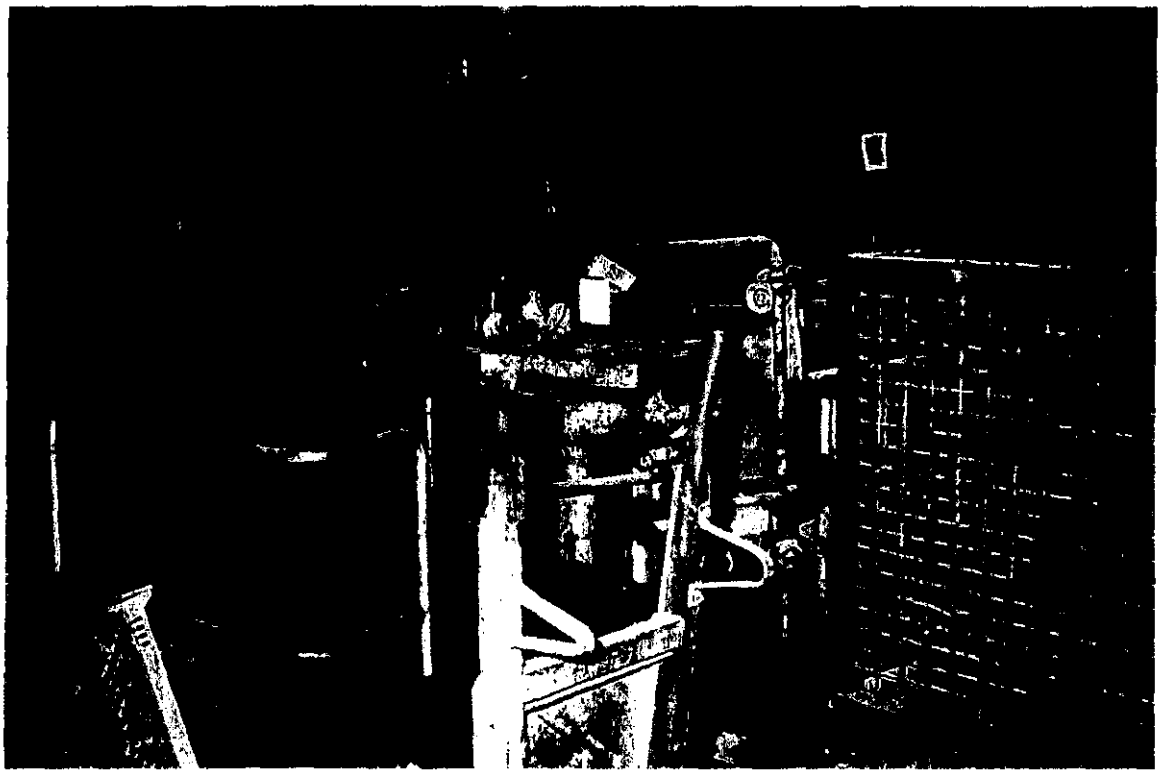


Photo: **FILM No.** 95-169-2-17 **Photographed and inspected December 1995**



Item Name: The Furnace for the Covmac | **Item No.** 86

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Covmac 83, 84, 85, 86, 100C
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☐	
Operational Group	☐	

Description: The small furnace, which was dedicated to the Cogmac continuous forging machine, is gas-fired and is equipped with a heavy door on the front which, besides being counter-balanced to lift, also has a series of holes and a space to allow longer stock which was only being headed to be placed in the forge.

History: The history of the item is unknown.

Function and Operation: Lengths of steel were placed in the machine for heating. It would appear that in some cases the longer lengths of bar or rod could be introduced to the machine through holes in the bottom of the external door. Adjacent to this door there was a bracket which allowed the rod or bar to be supported while one end was being heated.

Location: Bay 2 South 9 West

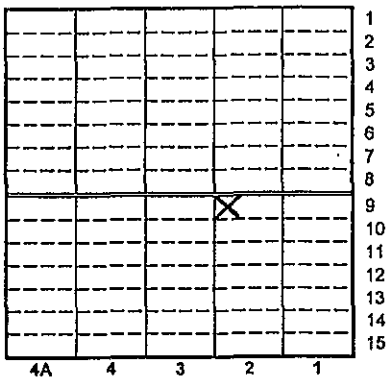
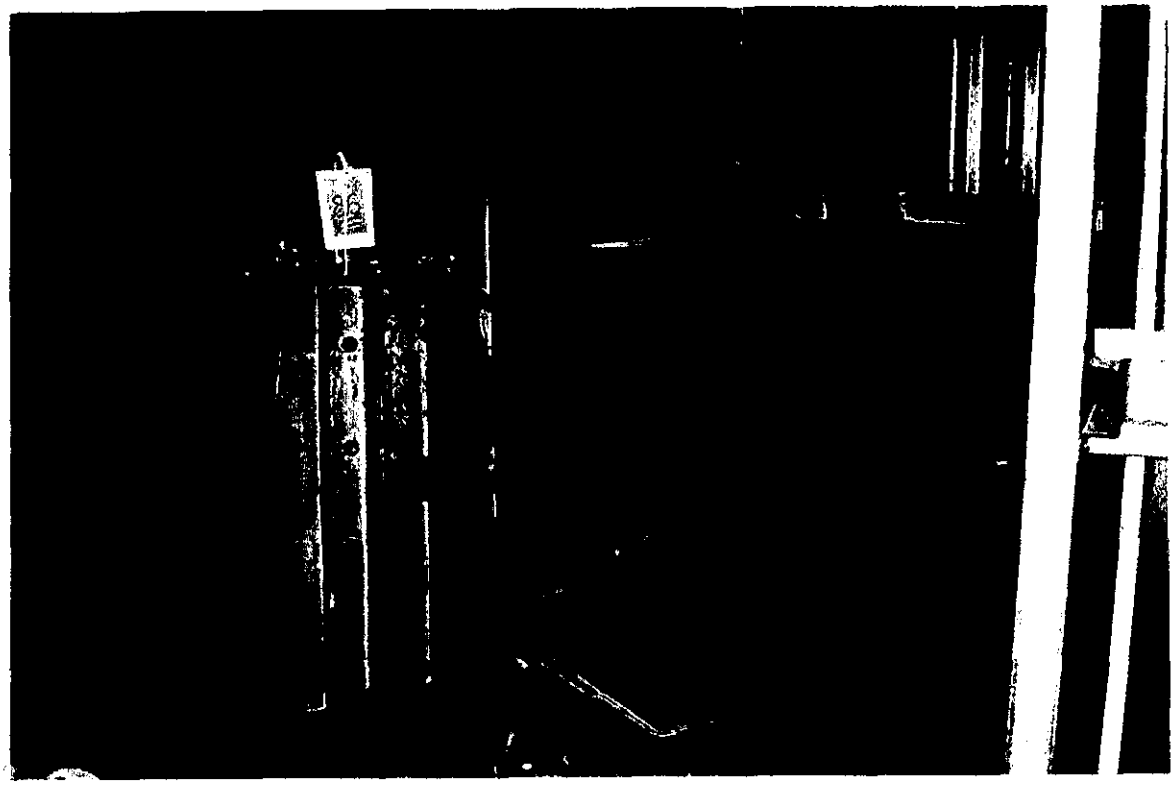


Photo: **FILM No.** 95-169-2-18 **Photographed and inspected December 1995**



Item Name: The Blacksmiths Forge and Coke Bin | **Item No.**87

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99
System	❑	
Operational Group	❑	

Description: 4 of the original cast iron blacksmiths furnaces remain in Bay 2 South. The Forges consist of a cast-iron stage or frame which holds the cast-iron fire pan. The rear legs extend about 800mm beyond the fire pan and hold the back plate and support the cast iron hood. The cast iron tuyeres which are of the side-heating design are all water cooled. Each forge is naturally vented through a vertical stack which passes through the roof of the workshop. In some cases, side panels have been added to the forges to contain the heat. The forges are all connected to the sub-floor high volume, low pressure air lines which take air from the route blowers located at the south end of Bay 1 to the forges.

History: Originally the forges were all connected to a low pitched sheet metal flue which ran the length of the bay at a height of about 3-4 metres above the ground. This flue ran to two stacks which passed through the roof of the bay. It is not known where the forges were made but it is believed that they were produced in the Eveleigh Foundry which was originally located outside Bay 4.

Function and Operation: The forges were all used for heating relatively small items to red or white heat for forging by hand by the blacksmiths or beneath the four steam hammers still located in Bay 2. The forges all used coal or coke as fuel and the air supply was controlled by a lever at the rear of the forge.

Location: Bay 2 South 9 East

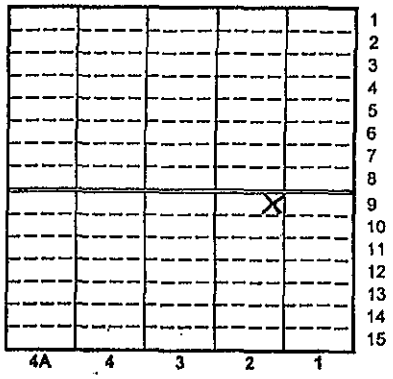
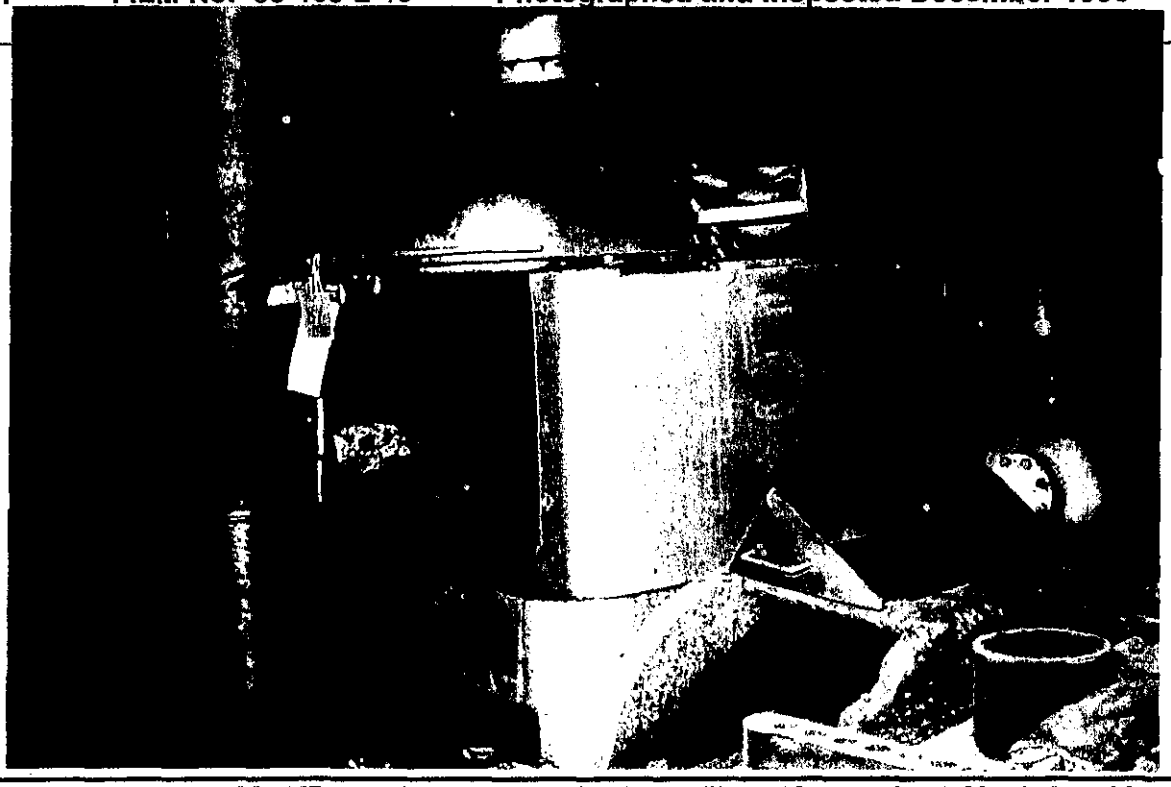


Photo: **FILM No.** 95-169-2-19 **Photographed and inspected December 1995**



Item Name: The Blacksmiths Forge | **Item No.** 88

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99
System	☐	
Operational Group	☐	

Description: 4 of the original cast iron blacksmiths furnaces remain in Bay 2 South. The Forges consist of a cast-iron stage or frame which holds the cast-iron fire pan. The rear legs extend about 800mm beyond the fire pan and hold the back plate and support the cast iron hood. The cast iron twears which are of the side-heating design are all water cooled. Each forge is naturally vented through a vertical stack which passes through the roof of the workshop. In some cases, side panels have been added to the forges to contain the heat. The forges are all connected to the sub-floor high volume, low pressure air lines which take air from the route blowers located at the south end of Bay 1 to the forges.

History: Originally the forges were all connected to a low pitched sheet metal flue which ran the length of the bay at a height of about 3-4 metres above the ground. This flue ran to two stacks which passed through the roof of the bay. It is not known where the forges were made but it is believed that they were produced in the Eveleigh Foundry which was originally located outside Bay 4.

Function and Operation: The forges were all used for heating relatively small items to red or white heat for forging by hand by the blacksmiths or beneath the four steam hammers still located in Bay 2. The forges all used coal or coke as fuel and the air supply was controlled by a lever at the rear of the forge.

Location: Bay 2 South 10 East

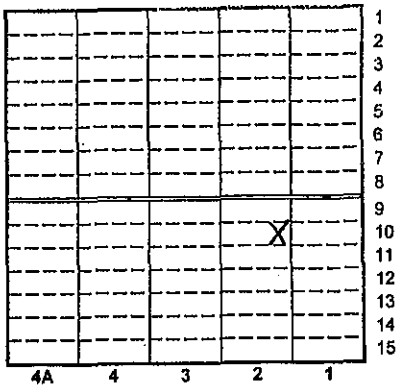


Photo: **FILM No.** 95-169-2-20 **Photographed and inspected December 1995**

Item Name: The Blacksmiths Forge **Item No.** 90

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99
System	❑	
Operational Group	❑	

Description: 4 of the original 9 cast iron blacksmiths furnaces remain in Bay 2 South. The Forges consist of a cast-iron stage or frame which holds the cast-iron fire pan. The rear legs extend about 800mm beyond the fire pan and hold the back plate and support the cast iron hood. The cast iron twears which are of the side-heating design are all water cooled. Each forge is naturally vented through a vertical stack which passes through the roof of the workshop. In some cases, side panels have been added to the forges to contain the heat. The forges are all connected to the sub-floor high volume, low pressure air lines which take air from the route blowers located at the south end of Bay 1 to the forges.

History: Originally the forges were all connected to a low pitched sheet metal flue which ran the length of the bay at a height of about 3-4 metres above the ground. This flue ran to two stacks which passed through the roof of the bay. It is not known where the forges were made but it is believed that they were produced in the Eveleigh Foundry which was originally located outside Bay 4.

Function and Operation: The forges were all used for heating relatively small items to red or white heat for forging by hand by the blacksmiths or beneath the four steam hammers still located in Bay 2. The forges all used coal or coke as fuel and the air supply was controlled by a lever at the rear of the forge.

Location: Bay 2 South 11 East

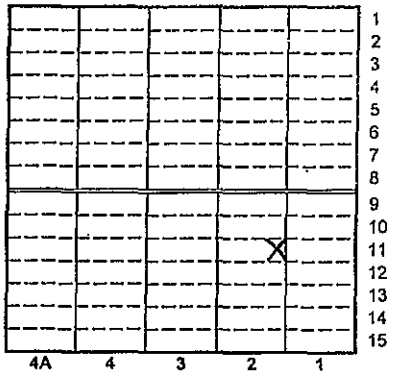
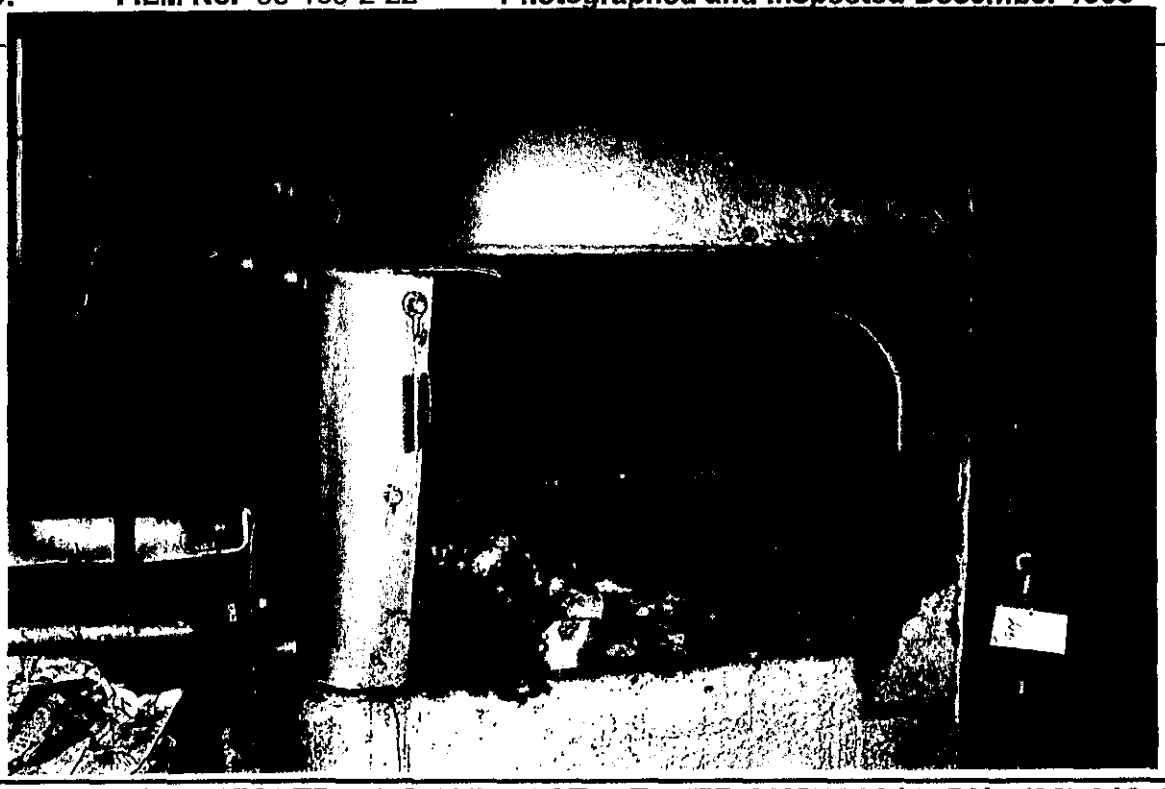


Photo: **FILM No.** 95-169-2-22 **Photographed and inspected December 1995**



Item Name: The Allen Striker		**Item No.** 91
Name Plate:		
Associated Items:		
Individual	☐	
Assemblage	☑	91
Collection	☐	
System	☐	Compressed Air 91, 92, 94
Operational Group	☐	Strikers 91, 94, 139

Description: The Allen Striker is a small example of the helve type, in that the hammer is on the end of a lever which is pivoted on a shaft. The power is applied on both the up and down stroke and the force of the strike is controlled by the operator through the foot pedal. The lever or striker, is of the wishbone shape with the twin bars being attached to the shaft. Specially shaped dies are available for both the striker and for the anvil.

History: The Allen Strikers are also known as Oliver Forges. It is believed that most of these strikers were originally located in the Oliver shop which is on the opposite side to the south road to the workshops. This particular striker was installed in the Workshops in 1906.

Function and Operation: The Oliver or Allen Striker was the smallest of the power hammers used at Eveleigh. It was rated at 2CWT which is about 100 kilos. The hammer was used for producing a wide variety of small items used throughout the workshops in the New South Wales Rail System. There was an adjacent furnace where the metal was heated and it was then formed beneath plain hammers, flatters, fullers or swages which were fitted to the jaw and to the anvil.

Location: Bay 2 South 11 East

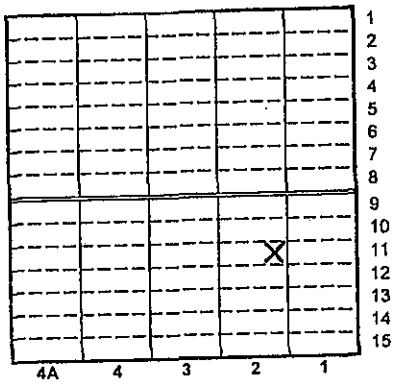
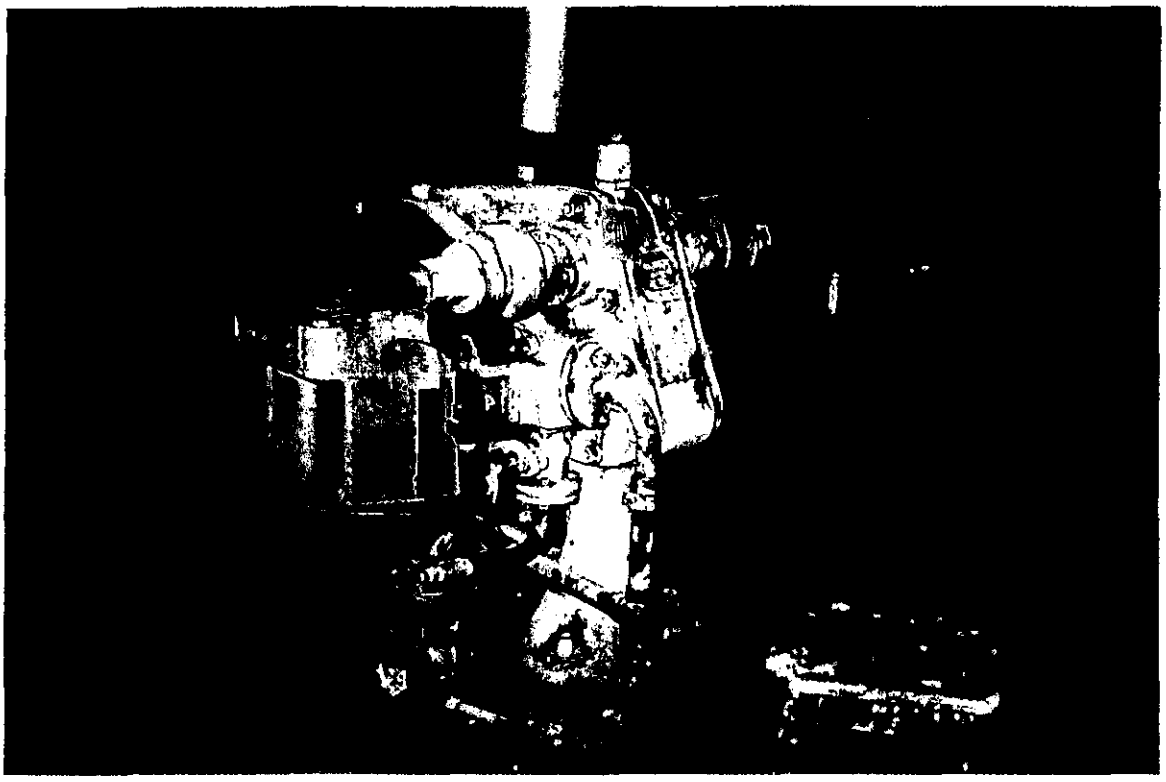


Photo: **FILM No.** 95-169-2-23 **Photographed and inspected December 1995**



Item Name: Frazing and Grinding Wheel | **Item No.** 92

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 2CWT (south) 62A, 98, 99
Collection	☐	
System	☑	Frazing Wheels 33, 78, 82, 83, 92
Operational Group	☑	

Description: The Frazing and Grinding Wheel has a cast-iron bed on which is mounted a shaft which holds a frazing wheel on one end and a fifteen inch emery wheel on the other. Two bearings, integrated into the cast iron frame support the shaft. A driven wheel is located in the middle of the shaft which is powered by a series of four V-belts by a one horsepower electric motor. There is no name plate information on the item but it is believed that it was cast in the Eveleigh Foundry and that the item has been produced by the Workshop.

History: The history of the item is unknown but it is likely that it dates from the time that this part of the blacksmith's shop had the steam hammer installed.

Function and Operation: The Frazing and Grinding Wheel is used for the rough cleaning of items which have been forged in the Bay 2 North. The Frazing Wheel consists of a series of hardened teeth which are parallel to the axis of the shaft. These teeth which have a pitch of about 7mm are used for the rough shaping of hot steel as it comes from the forge.

Location: Bay 2 South 11 East

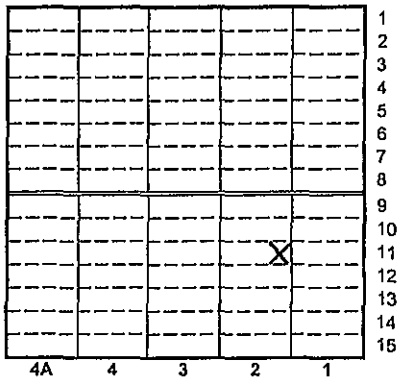


Photo: **FILM No.** 95-169-2-24 **Photographed and inspected December 1995**

Item Name: The Blacksmiths Forge | **Item No.** 93

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99
System	☐	
Operational Group	☐	

Description: 4 of the original 9 cast iron blacksmiths furnaces remain in Bay 2 South. The Forges consist of a cast-iron stage or frame which holds the cast-iron fire pan. The rear legs extend about 800mm beyond the fire pan and hold the back plate and support the cast iron hood. The cast iron twears which are of the side-heating design are all water cooled. Each forge is naturally vented through a vertical stack which passes through the roof of the workshop. In some cases, side panels have been added to the forges to contain the heat. The forges are all connected to the sub-floor high volume, low pressure air lines which take air from the route blowers located at the south end of Bay 1 to the forges.

History: Originally the forges were all connected to a low pitched sheet metal flue which ran the length of the bay at a height of about 3-4 metres above the ground. To this flue was supplied two stacks which passed through the roof of the bay. It is not known where the forges were made but it is believed that they were produced in the Eveleigh Foundry which was originally located outside Bay 4.

Function and Operation: The forges were all used for heating relatively small items to red or white heat for forging by hand by the blacksmiths or beneath the electro-pneumatic hammers or Oliver Strikers. The forges all used coal or coke as fuel and the air supply was controlled by a lever at the rear of the forge.

Location: Bay 2 South 12 East

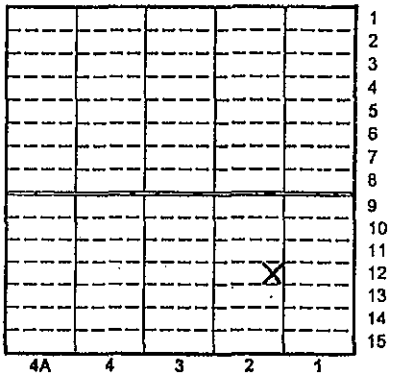


Photo: **FILM No.** 95-169-2-25 **Photographed and inspected December 1995**

Item Name: The Allen Striker | **Item No.** 94

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Strikers 91, 94, 139
System	❑	Compressed Air 91, 92, 94
Operational Group	❑	

Description: The Allen Striker is a small hearth of the helve type, in that the hammer is on the end of a lever which is pivoted on a shaft. The power is applied on both the up and down stroke and the force of the strike is controlled by the operator through the foot pedal. The lever or striker, is of the wishbone shape with the twin bars being attached to the shaft. Especially shaped dies are available for both the striker and for the anvil.

History: The Allen Strikers are also known as Oliver Forges. It is believed that most of these forges were originally located in the Oliver shop which was on the opposite side to the south road to the workshops. This particular striker was installed in the Workshops in 1916.

Function and Operation: The Oliver or Allen Striker was the smallest of the power hammers used at Eveleigh. It was rated at 2cwt which is about 100 kilos. The hammer was used for producing a wide variety of small items used throughout the workshops in the New South Wales Rail System. There was an adjacent furnace where the metal was heated and it was then formed beneath plain hammers, flatters, fullers or swages which were fitted to the jaw and to the anvil.

Location: Bay 2 South 11 East

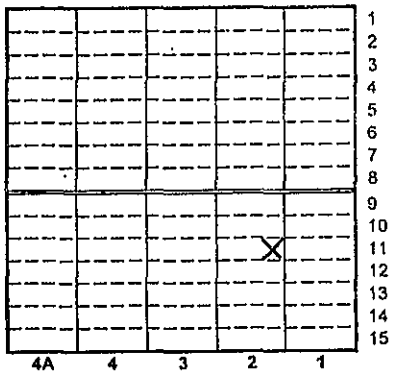
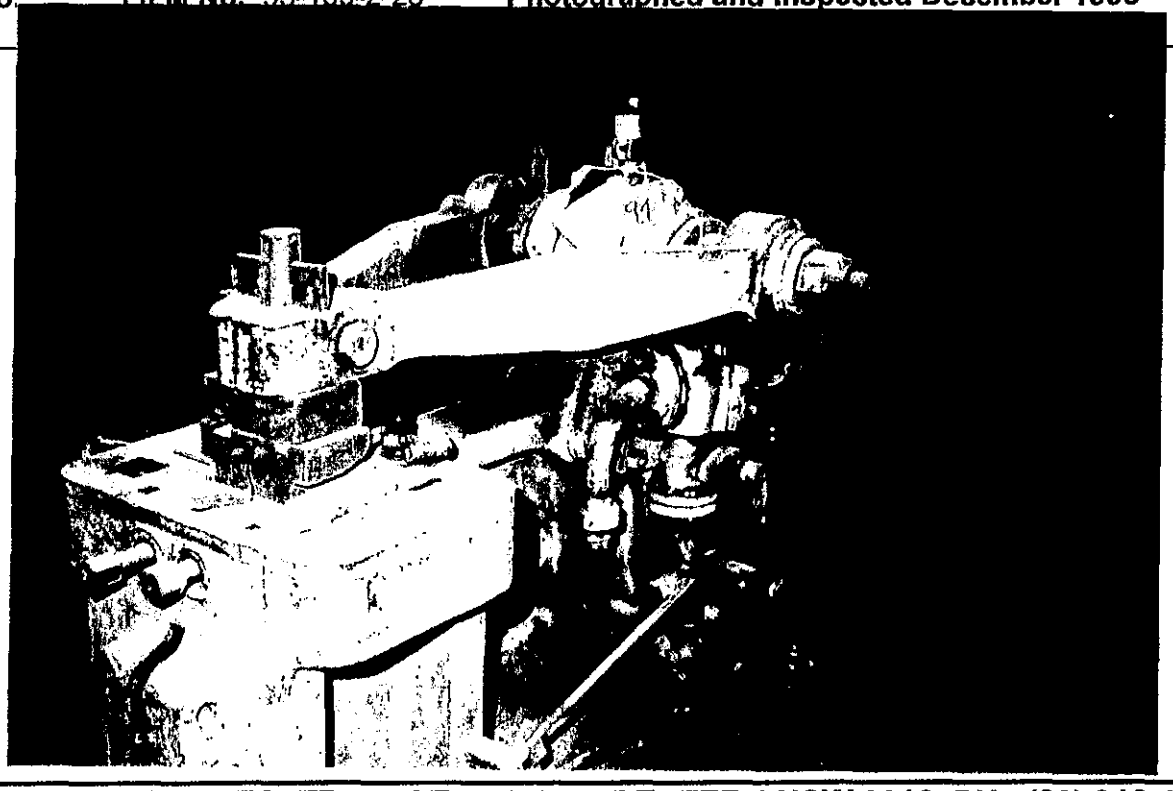


Photo: FILM No. 95-169-2-26 **Photographed and inspected December 1995**



Item Name: Small Furnace | **Item No.** 95

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Allen Striker 82, 91, 94, 95
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☐	
Operational Group	☐	

Description: This small gas-fired furnace consists of a sheet metal and plate frame which stands about 1.2 metres high, is 600mm square in section and is lined with fire brick. It is a side heated furnace and has a small door opening at the front which measures about 200mm by 70mm.

History: The history of the item is unknown but it is believed to have been manufactured prior to World War II.

Function and Operation: The furnace was used for heating small articles which were worked either by hand or by Allen Striker.

Location: Bay 2 South 13 East

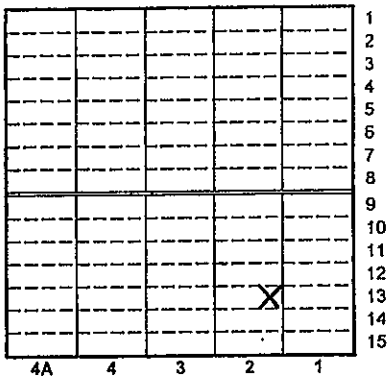
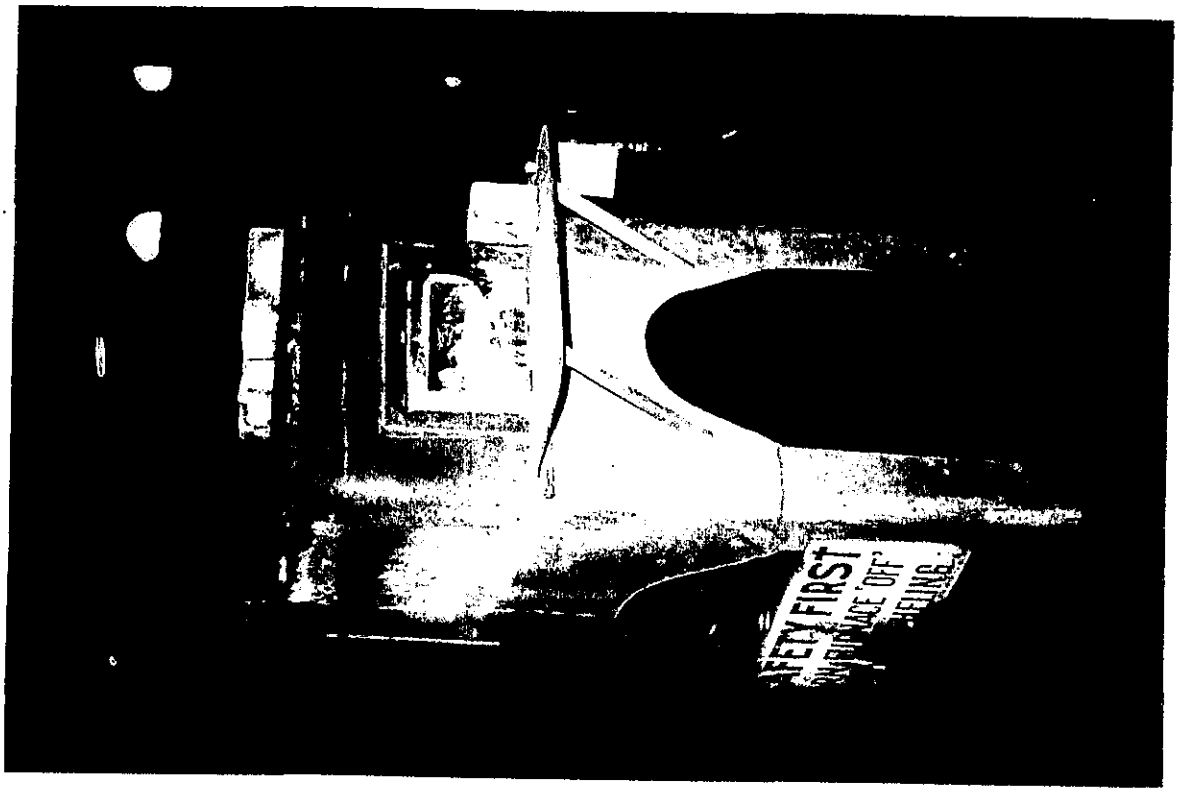


Photo: **FILM No.** 95-169-2-27 **Photographed and inspected December 1995**



Item Name: The Massey 2cwt Electropneumatic Hammer | **Item No.** 96

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 2cwt (north) 95-97, 102A, 92.
Collection	☑	
System	☐	
Operational Group	☐	

Description: The 2CWT electro-pneumatic hammer is a smaller version of the hammers in Bay 1 South. The construction is basically in cast iron in a simple C-Section with the slide path being set obliquely to the axis of the machines. The power for the machine is produced by an electric motor operating an air compression cylinder behind the main cylinder of the hammer. The length of blow and the force of the blow is controlled by a foot-ring which is operated by the blacksmith. In this case the hammer requires a single operator.

History: The item was installed in 1938 and has remained in this location since then.

Function and Operation: The electro-pneumatic hammer has the advantage over the small Oliver in that the blows are delivered perpendicular to the work. Again, the hammer may be used with swages, fullers and flatters. Dies may also be fitted to both the ram and the anvil.

Location: Bay 2 South 13 East

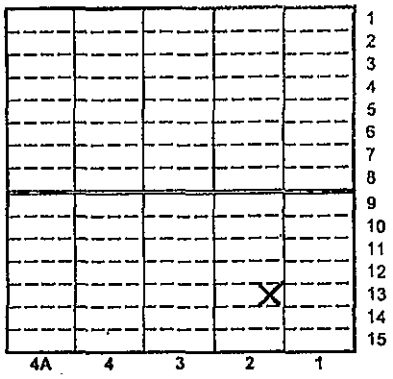
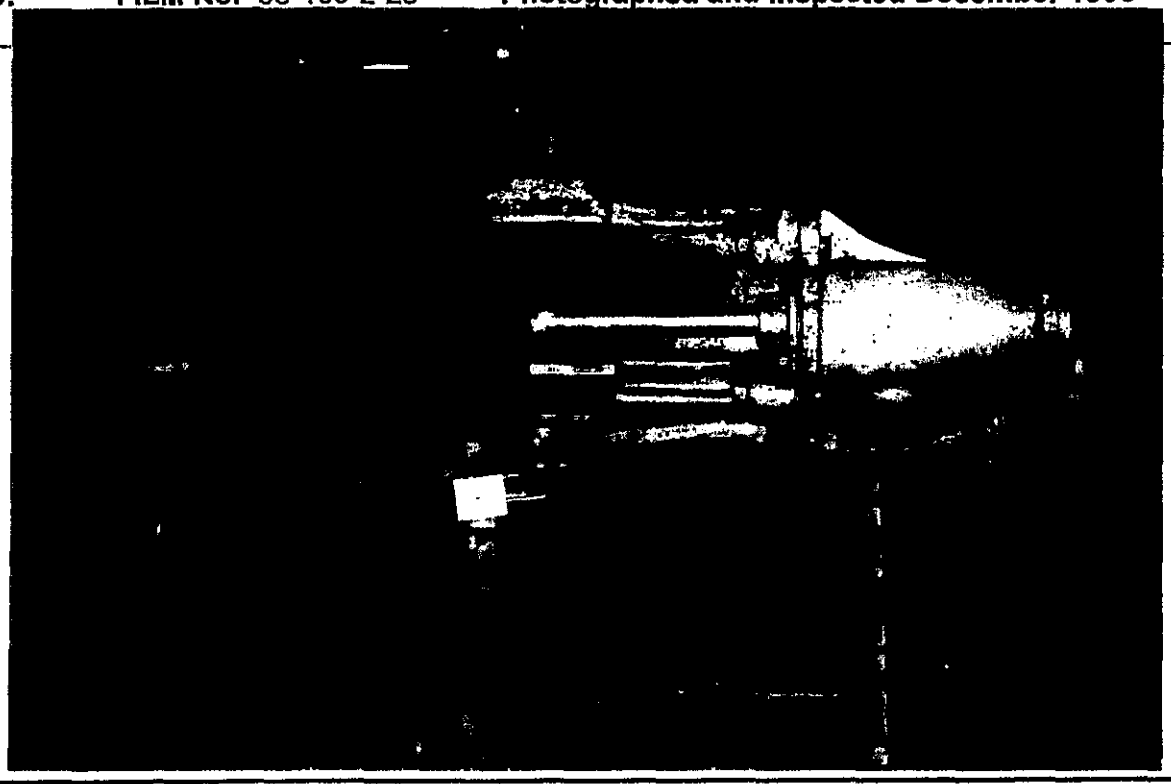


Photo: **FILM No.** 95-169-2-28 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 97

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☐	
Operational Group	☐	

Description: This small furnace which was built in the Workshops has a steel sheet and plate frame standing on angled section legs. It has a pivoted counter-weighted door, it is gas-fired and used in conjunction with the electro-magnetic and Allen Strikers.

History: Its history is unknown.

Function and Operation: A simple gas-fired furnace.

Location: Bay 2 South 13 East

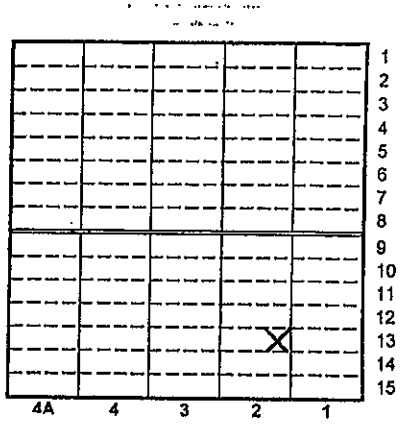
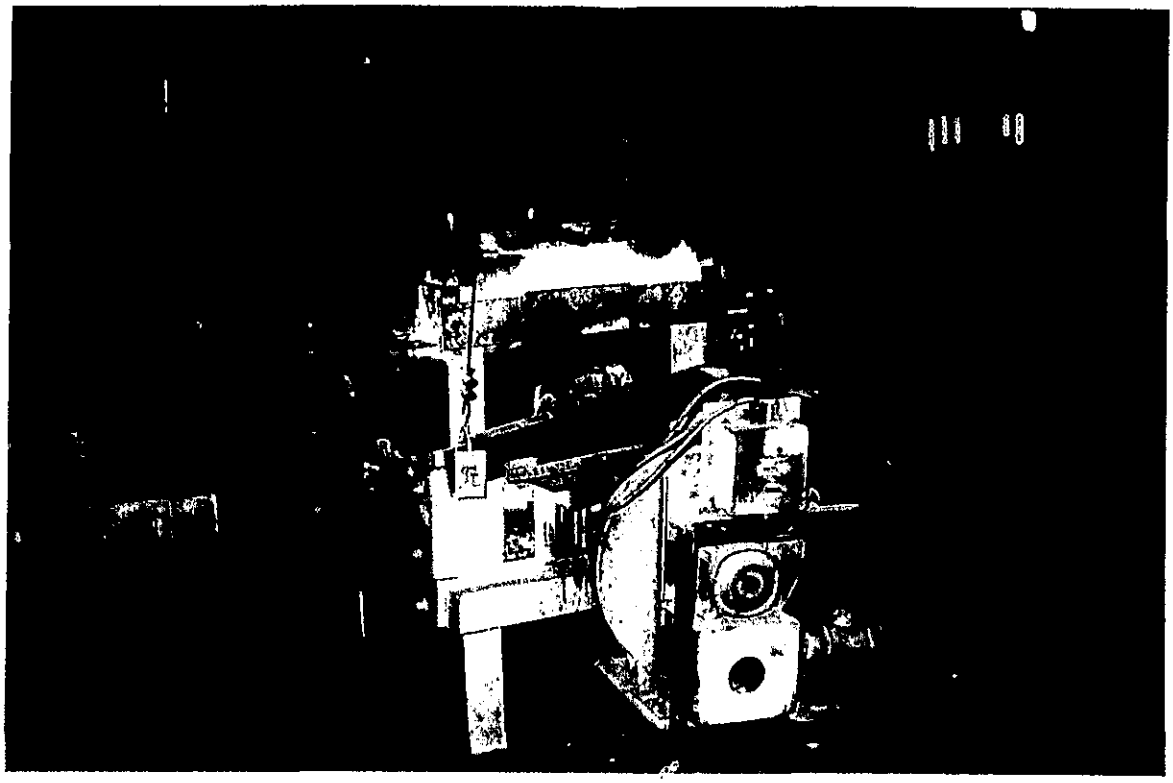


Photo: **FILM No.** 95-169-2-29 **Photographed and inspected December 1995**



Item Name: The Massey 2CWT Weight Pneumatic Hammer | **Item No.** 98

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	Electropneumatic 2CWT (south) 62A, 98, 99
Collection	❑	
System	❑	
Operational Group	❑	

Description: The 2CWT weight electro-pneumatic hammer is a smaller version of the hammer in Bay 1 South. The construction is basically in cast iron in a simple C-Section with the slide path being set obliquely to the access of the machines. The power for the machine is produced by an electric motor operating an air compression cylinder behind the main cylinder of the hammer. The length of blow and the force of the blow is controlled by a foot-ring which is operated by the blacksmith. In this case the hammer requires a single operator.

History: The item was installed in 1938 and has remained in this location since then.

Function and Operation: The electro-pneumatic hammer has the advantage over the small Oliver in that the blows are delivered perpendicular to the work. Again, the hammer may be used with swages, fullers and flatters. Dies may also be fitted to both the ram and the anvil.

Location: Bay 2 South 14 East

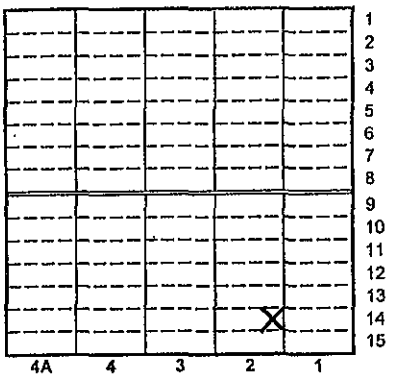
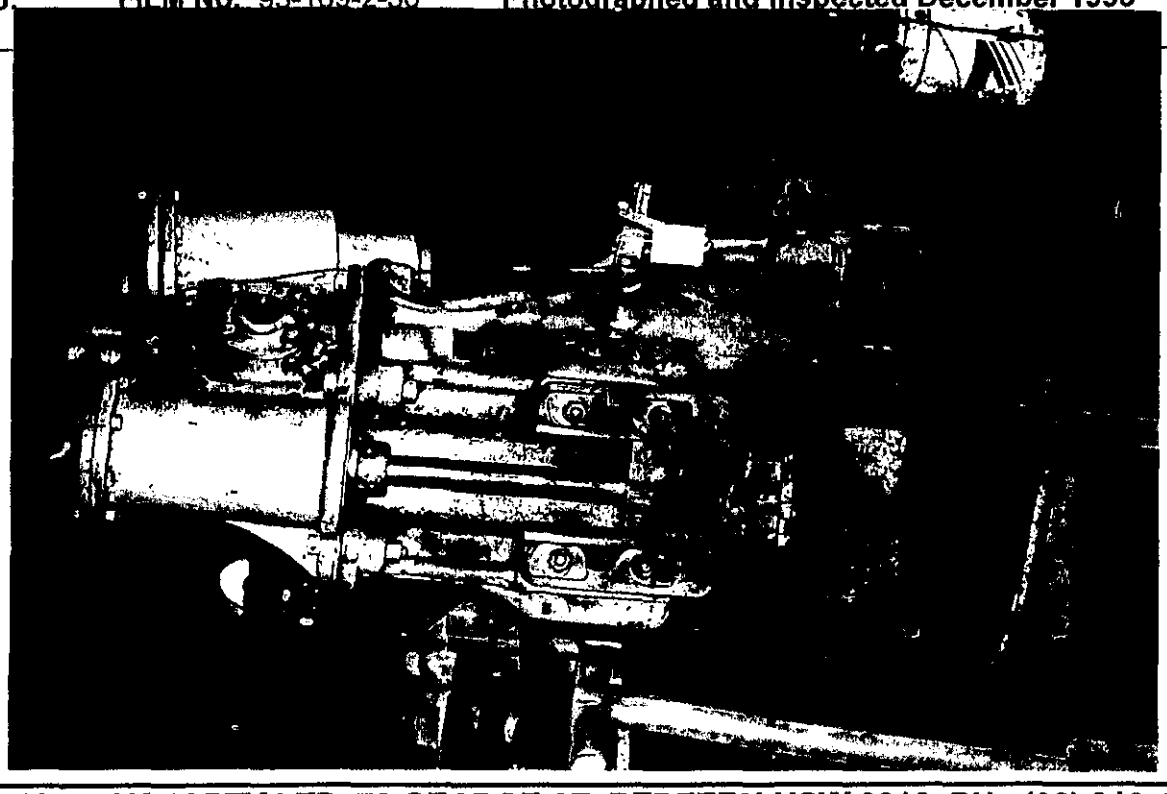


Photo: **FILM No.** 95-169-2-30 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 99

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Electropneumatic 2CWT (south) 62A, 98, 99
Collection	☑	Forges 27A-H, 44, 59, 87, 88, 90, 93, 97, 99
System	☐	
Operational Group	☐	

Description: This small furnace which was built in the Workshops is a steel sheet and plate frame standing on angled section legs. It is gas-fired and used in conjunction with the electro-pneumatic hammers and Allen Strikers. The former door which was counter-weighted and pivoted is missing.

History: Its history is unknown.

Function and Operation: A simple gas-fired furnace.

Location: Bay 2 South 14 West

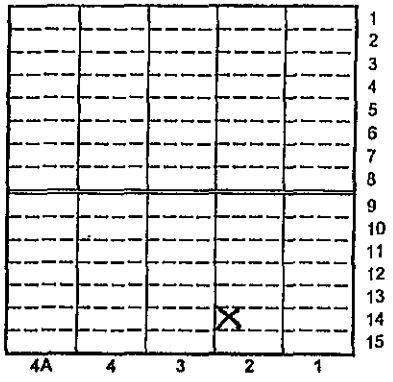
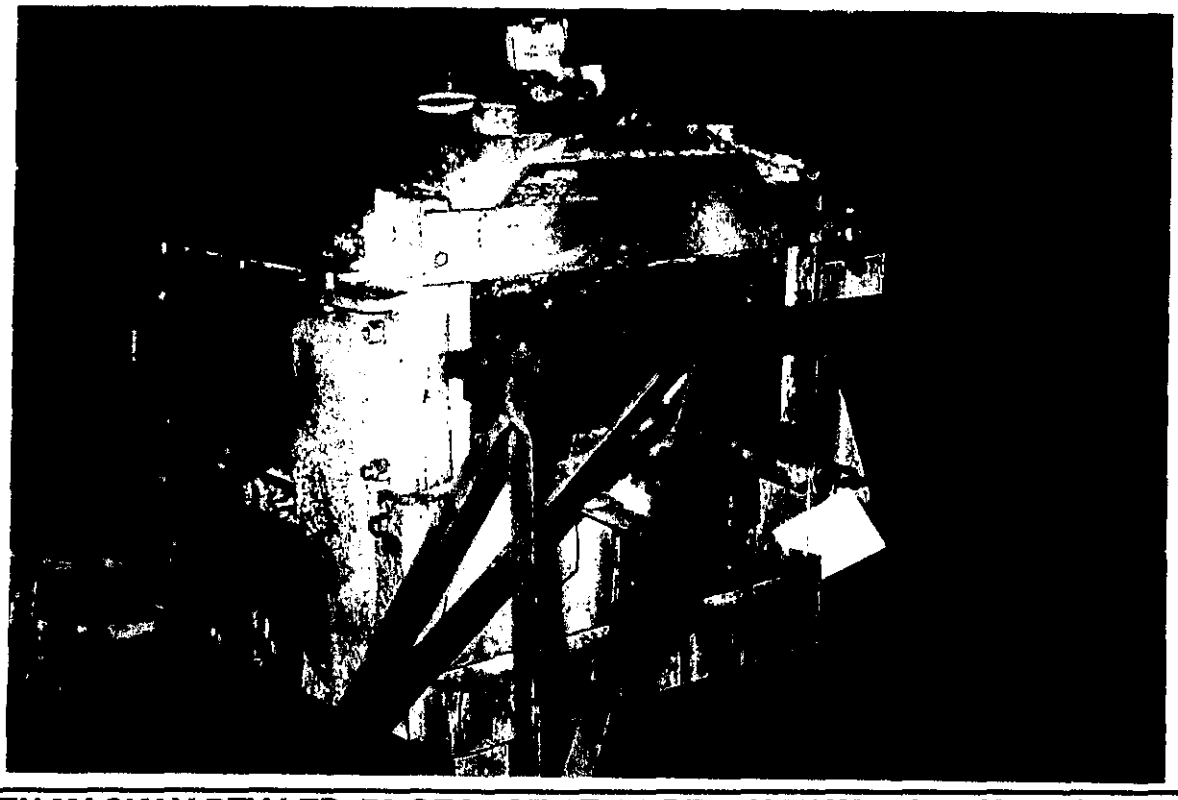


Photo: **FILM No.** 95-169-2-31 **Photographed and inspected December 1995**



Item Name: The C-36 Class Boiler | **Item No.** 188

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Boilers 188-191
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Group	☐	

Description: The C-36 Class Locomotive Boiler was originally a hand-stoked, coal fired boiler installed in the workshops to provide steam throughout Bays 1-15 and also to the Oliver Shop. The Boilers are over 8 metres long and stand well over 3 metres high. Each has a smoke-box end which protrudes past the annexe in which it is housed and the short stack passes up through the roof of the annexe.

History: The history of the boilers is unknown. However, it is believed that they are from former locomotives which operated on the SRA network which were specially modified and installed in this location, possibly after World War II. Modifications to the annexe and some documentary evidence indicate that this is the third set of boilers which occupied this location.

Function and Operation: The Boilers were originally coal fired but were converted to oil in the 1970s. The introduction of oil meant that further equipment such as blowers were added to the boilers.

Location: Bay 2 South 15 West

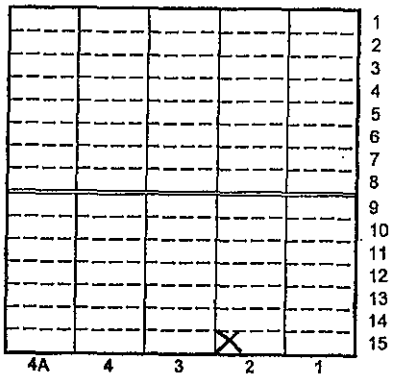
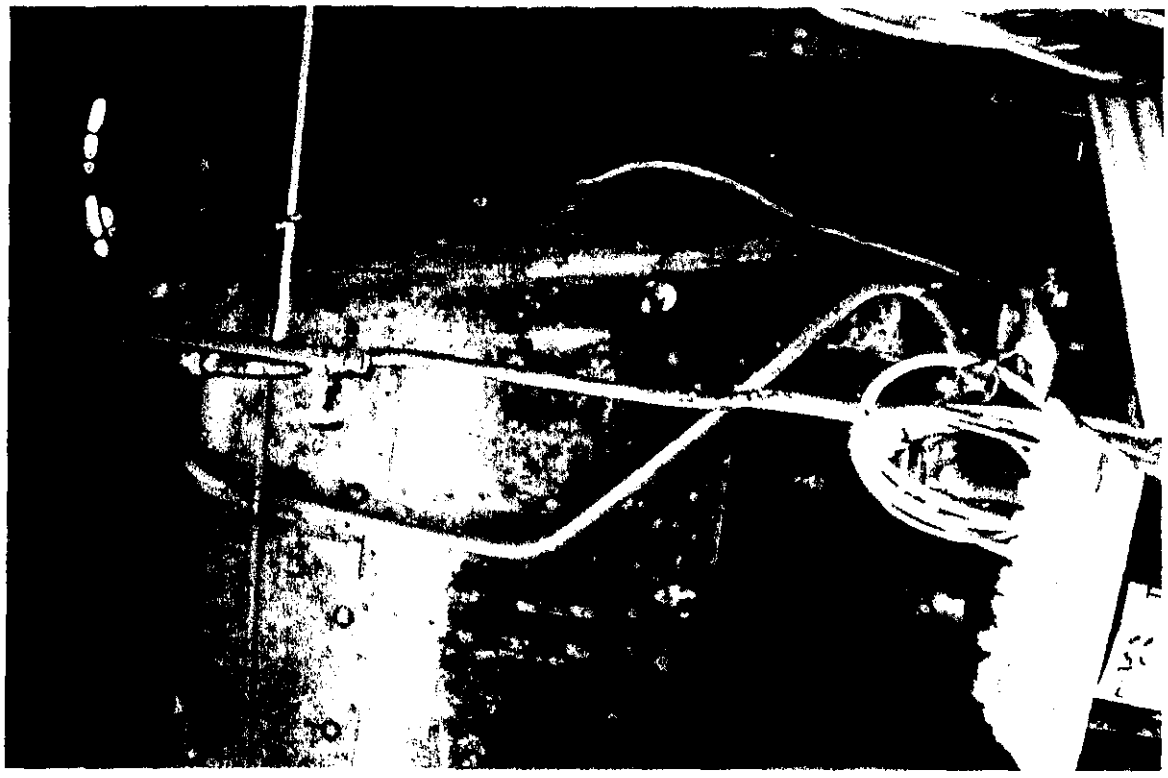


Photo: **FILM No.** 95-169-6-17 **Photographed and inspected December 1995**



Item Name: The C-36 Classed Boiler	**Item No.** 189
Name Plate:	

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Boilers 188-191
System	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Group	☐	

Description: The C-36 Class Locomotive Boiler was originally a hand-stoked, coal fired boiler installed in the workshops to provide steam throughout Bays 1-15 and also to the Oliver Shop. The Boilers are over 8 metres long and stand well over 3 metres high. Each has a smoke-box end which protrudes past the annexe in which it is housed and the short stack passes up through the roof of the annexe.

History: The history of the boilers is unknown. However, it is believed that they are from former locomotives which operated on the SRA network which were specially modified and installed in this location, possibly after World War II. Modifications to the annexe and some documentary evidence indicate that this is the third set of boilers which occupied this location.

Function and Operation: The Boilers were originally coal fired but were converted to oil in the 1970s. The introduction of oil meant that further equipment such as blowers were added to the boilers.

Location: Bay 2 South 15 West

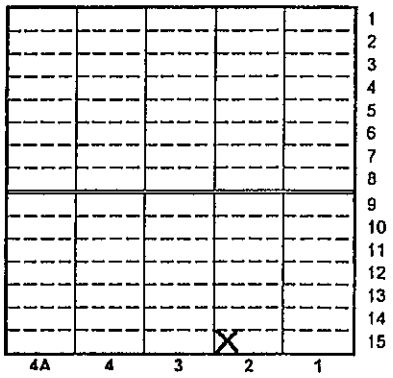
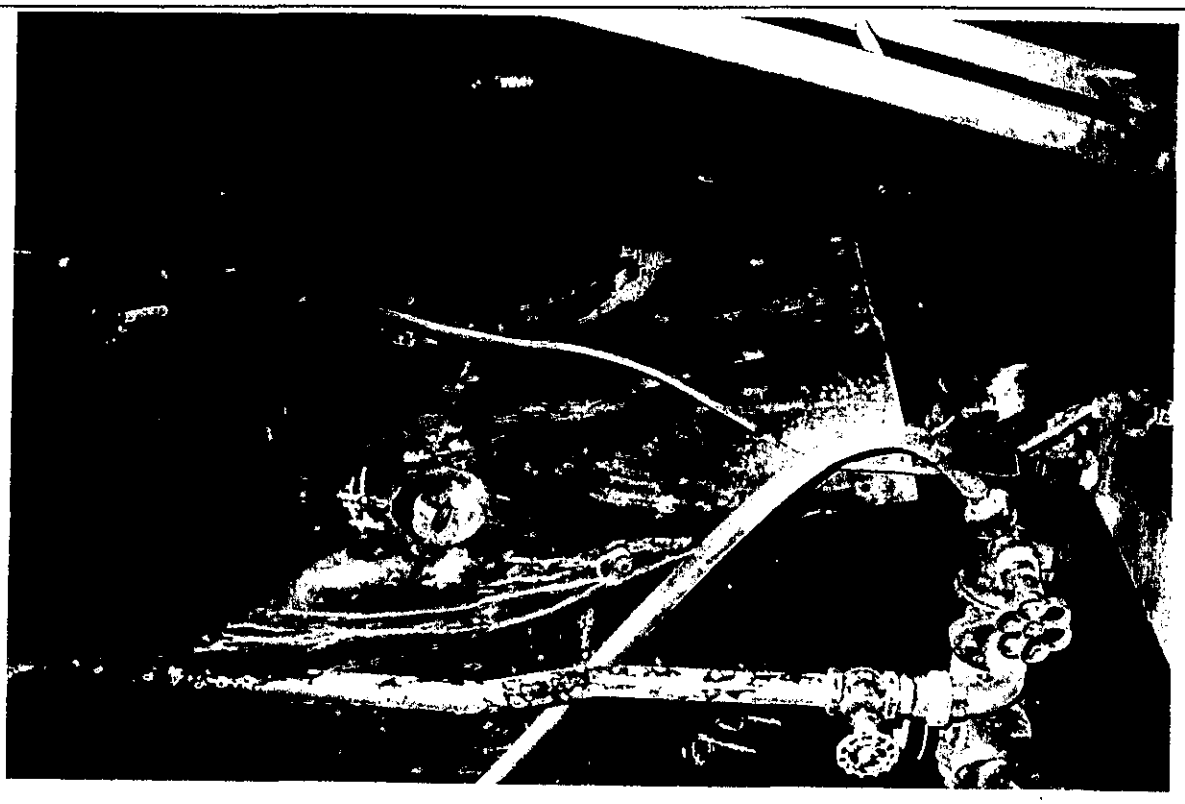


Photo: **FILM No.** 95-169-6-18 **Photographed and inspected December 1995**



Item Name: The C-36 Classed Boiler	**Item No.** 190
Name Plate:	

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Boilers 188-191
System	☐	
Operational Group	☐	

Description: The C-36 Class Locomotive Boiler was originally a hand-stoked, coal fired boiler installed in the workshops to provide steam throughout Bays 1-15 and also to the Oliver Shop. The Boilers are over 8 metres long and stand well over 3 metres high. Each has a smoke-box end which protrudes past the annexe in which it is housed and the short stack passes up through the roof of the annexe.

History: The history of the boilers is unknown. However, it is believed that they are from former locomotives which operated on the SRA network which were specially modified and installed in this location, possibly after World War II. Modifications to the annexe and some documentary evidence indicate that this is the third set of boilers which occupied this location.

Function and Operation: The Boilers were originally coal fired but were converted to oil in the 1970s. The introduction of oil meant that further equipment such as blowers were added to the boilers.

Location: Bay 2 South 15 West

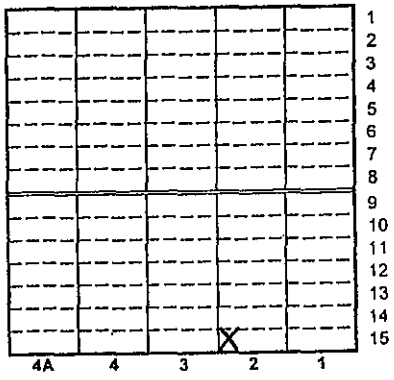
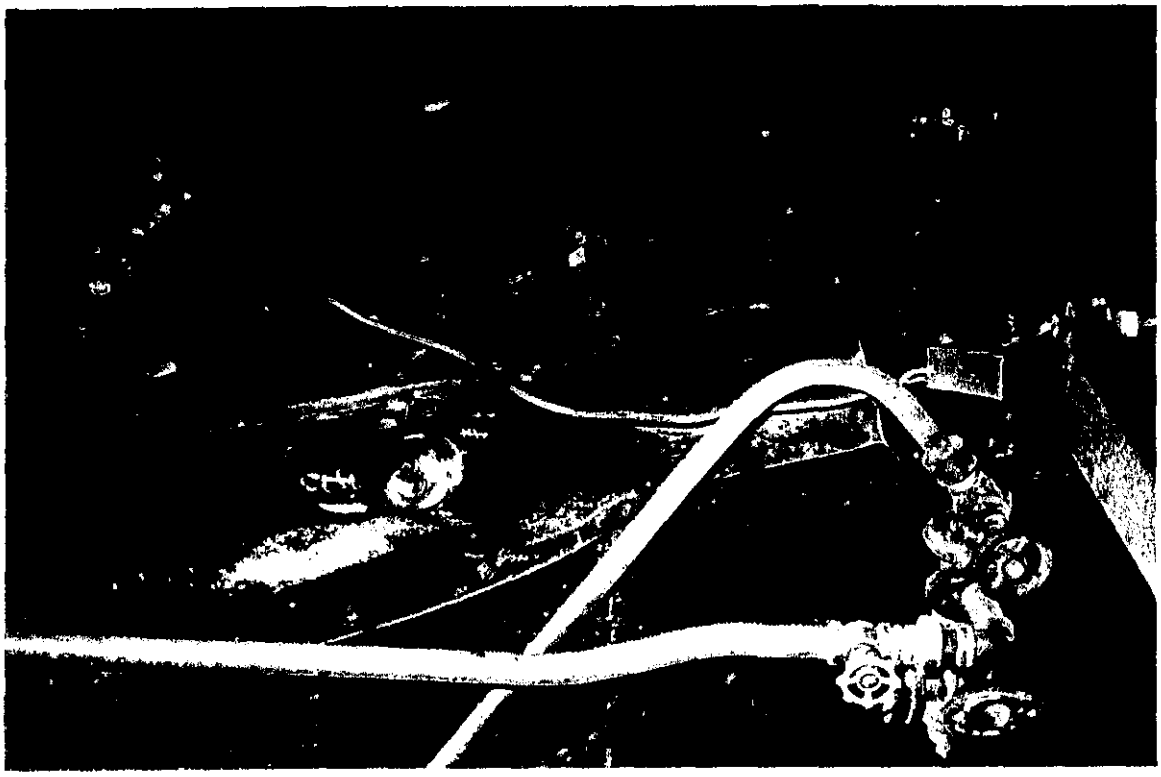


Photo: **FILM No.** 95-169-6-19 **Photographed and inspected December 1995**



Item Name: The C-36 Classed Boiler | **Item No.** 191

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Boilers 188-191
System	☐	
Operational Group	☐	

Description: The C-36 Class Locomotive Boiler was originally a hand-stoked, coal fired boiler installed in the workshops to provide steam throughout Bays 1-15 and also to the Oliver Shop. The Boilers are over 8 metres long and stand well over 3 metres high. Each has a smoke-box end which protrudes past the annexe in which it is housed and the short stack passes up through the roof of the annexe.

History: The history of the boilers is unknown. However, it is believed that they are from former locomotives which operated on the SRA network which were specially modified and installed in this location, possibly after World War II. Modifications to the annexe and some documentary evidence indicate that this is the third set of boilers which occupied this location.

Function and Operation: The Boilers were originally coal fired but were converted to oil in the 1970s. The introduction of oil meant that further equipment such as blowers were added to the boilers.

Location: Bay 2 South 15 West

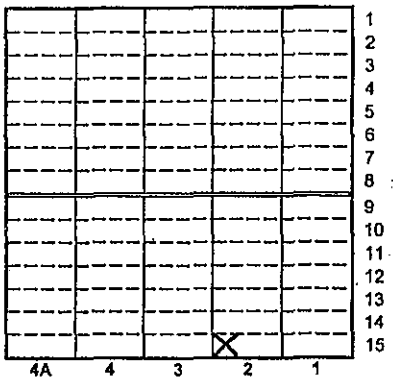
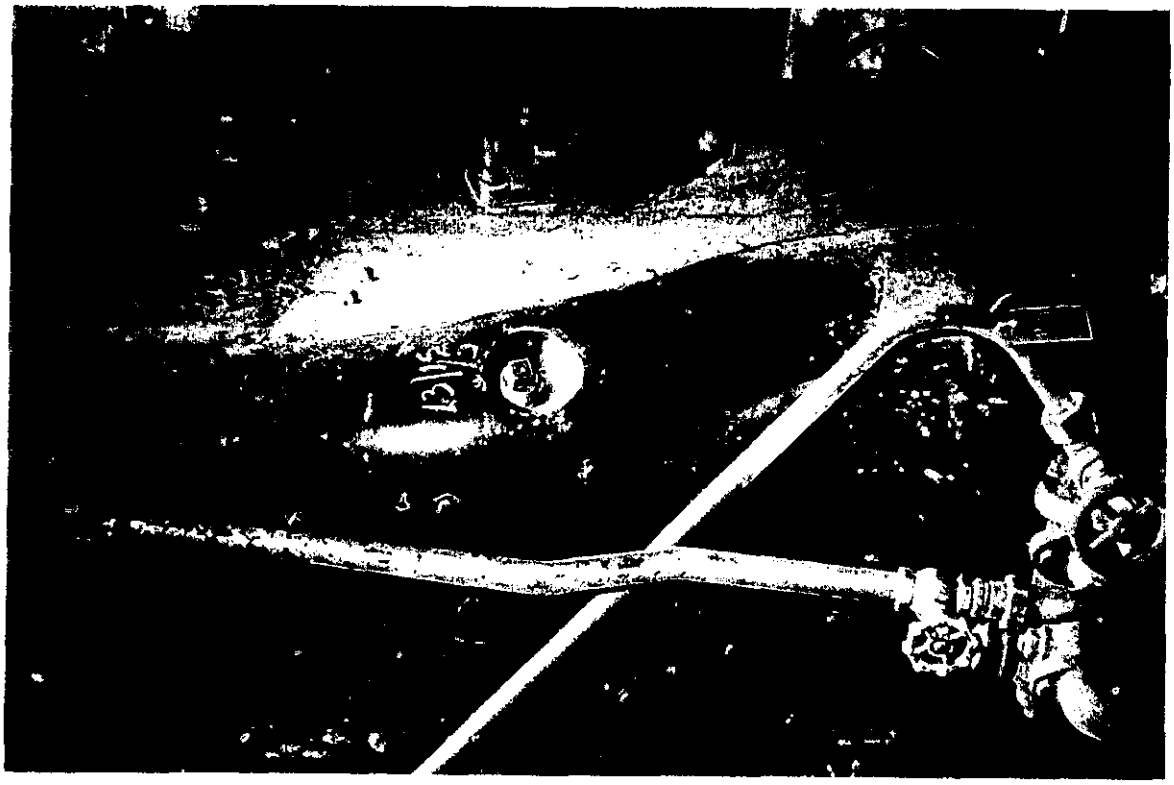


Photo: **FILM No.** 95-169-6-20 **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 2 NORTH

Item Name: Rack of Moulds and Templates for Hammer Shop | **Item No.** 26

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer (1) 26, 27, 28, 34, 36, 37
Collection	☐	
Systems	☑	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: Steel rack which is formed out of angle section and bar steel riveted together has tapered ends and supports three steel sheet shelves. The item has two braces on the side and appears to be grossly over-designed. The series of dyes, moulds and templates appear to have been stored here in a random manner when the workshops were to be closed down.

History: The history of the item is unknown but it appears to be of some age. The moulds and templates which it holds are of varying ages and varying conditions.

Function and Operation: The rack was purpose-built to hold a series of moulds.

Location: Bay 2 North 3 West

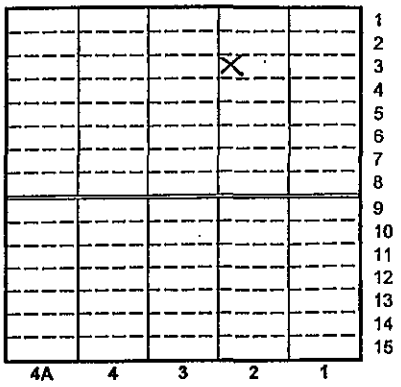
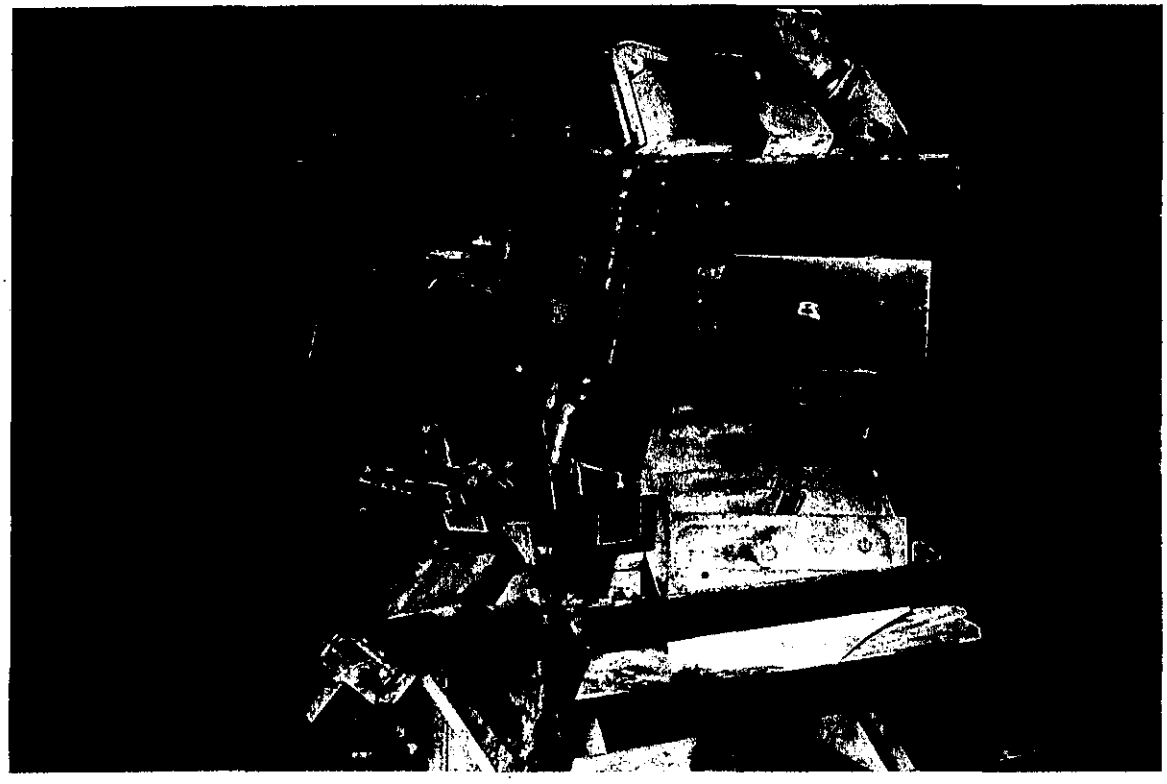


Photo: **FILM No.** 95-169-3-27 **Photographed and inspected December 1995**



Item Name: Davis and Primrose Steam Hammer 2 | **Item No.** 29

Name Plate:

Associated Items:

Individual	❑	
Assemblages	❑	Steam Hammer 8CWT2, 26, 27DE, 29, 30, 31A, 34GH, 36G
Collection	❑	Steam Hammer 28, 29, 31, 32, 54, 57
Systems	❑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	❑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This vertical, single frame steam hammer delivers a blow of 8.5cwt (430kg). The hammer was powered by steam via an overhead steam line from the boiler headers at the south end of Bay 2. The hammer consists of a cast-iron steel frame, virtually in the form of a C.

History: The steam hammer was installed in this location in 1908. (The 1912 plan of the Eveleigh Railway Workshops SRAO EL W29) indicates a steam hammer in this precise location.

Function and Operation: The steam hammer was used for a variety of items produced for the railways. These varied from the roughing out of small axles and shafts to the production of small items which were drop-forged in spring swage sets.
The operating lever is moved with a pumping action and a skilled operator can change both the length of the blow and its rapidity. As the operation of the lever is increased in speed, the speed of the blows delivered is increased. The length of stroke is governed by the distance in which the lever is moved. The blow delivered depends both on the steam being admitted to the steam cylinder and the weight of the piston rod, the ram and the ram dye.

Location: Bay 2 North 6E

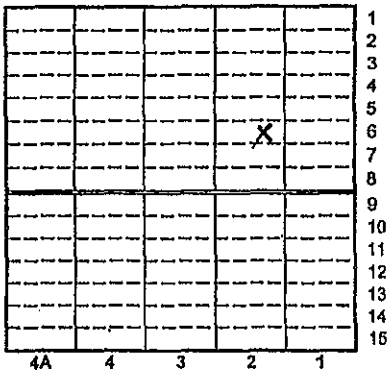


Photo: **FILM No.** 95-169-3-30 **Photographed and inspected December 1995**

Item Name: Wall Crane for Item 29, (Steam Hammer 2) | **Item No.** 30

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 8CWT2, 26, 27DE, 29, 30, 31A, 34GH, 36G
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This small jib-crane was manufactured at the Eveleigh Workshops and consists of a jib made from a double sided rail and a rod of steel for the main brace. The crane is stayed against one of the cast iron columns in the Workshop. It is equipped with a small carriage which rolls on the upper surface of the jib and contains a threaded bar attached to the carriage by a wish-bone. A threaded rod, fitted with a handle, passes through the bar which facilitates the raising and lowering of a small pulley to which a set of tongs for gripping hot work for manipulation under the hammer, is attached with a chain sling.

History: It is believed that the jib-crane was mounted in workshops and temporanously with the steam hammer.

Function and Operation: The radius of the crane will allow it to reach both the small forge and the steam hammer. A holding device, or sling usually in the form of a chain is suspended from a pulley on the lower bracket of the crane and tongs are passed through the chain, attached to the work in progress and the jib-crane is then used to convey the work in progress to the steam hammer.

Location: Bay 2 North 6-7E

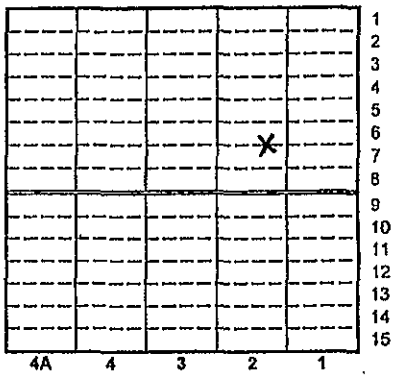
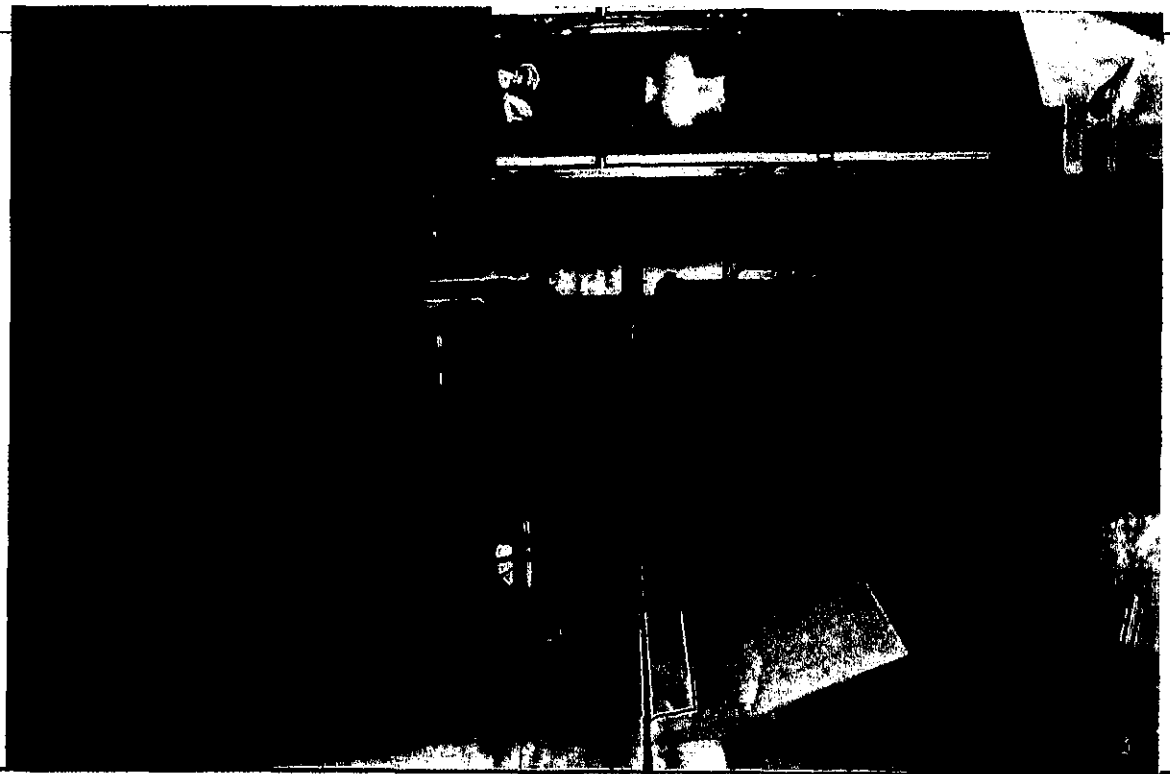


Photo: **FILM No.** 95-169-3-31 **Photographed and inspected December 1995**



Item Name: Davis and Primrose Steam Hammer 3 | **Item No.** 31

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 8CWT3 27DE, 29, 30, 31A, 34GH, 36G
Collection	☑	Steam Hammer 28, 29, 31, 32, 54, 57
Systems	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This vertical, single frame steam hammer delivers a blow of 8.5cwt (430kg). The hammer was powered by steam via an overhead steam line from the boiler headers at the south end of Bay 2. The hammer consists of a cast-iron steel frame, virtually in the form of a C.

History: The steam hammer was installed in this location in 1904. (The 1912 plan of the Eveleigh Railway Workshops SRAO EL W29) indicates a steam hammer in this precise location.

Function and Operation: The steam hammer was used for a variety of items produced for the railways. These varied from the roughing out of small axles and shafts to the production of small items which were drop-forged in spring swage sets.
The operating lever is moved with a pumping action and a skilled operator can change both the length of the blow and its rapidity. As the operation of the lever is increased in speed, the speed of the blows delivered is increased. The length of stroke is governed by the distance in which the lever is moved. The blow delivered depends both on the steam being admitted to the steam cylinder and the weight of the piston rod, the ram and the ram dye.

Location: Bay 2 North 6W

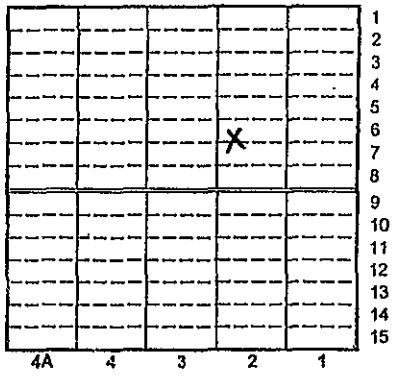


Photo: **FILM No.** 95-169-3-32 **Photographed and inspected December 1995**

Item Name: Davis and Primrose Steam Hammer 4 | **Item No.** 32

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 8cwt4 32, 34BCD, 36E
Collection	☑	Steam Hammer 28, 29, 31, 32, 54, 57
Systems	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This vertical, single frame steam hammer delivers a blow of 8.5cwt (430kg). The hammer was powered by steam via an overhead steam line from the boiler headers at the south end of Bay 2. The hammer consists of a cast-iron steel frame, virtually in the form of a C.

History: The steam hammer was installed in this location in 1904. (The 1912 plan of the Eveleigh Railway Workshops SRAO EL W29) indicates a steam hammer in this precise location.

Function and Operation: The steam hammer was used for a variety of items produced for the railways. These varied from the roughing out of small axles and shafts to the production of small items which were drop-forged in spring swage sets.
The operating lever is moved with a pumping action and a skilled operator can change both the length of the blow and its rapidity. As the operation of the lever is increased in speed, the speed of the blows delivered is increased. The length of stroke is governed by the distance in which the lever is moved. The blow delivered depends both on the steam being admitted to the steam cylinder and the weight of the piston rod, the ram and the ram dye.

Location: Bay 2 North 3-4W

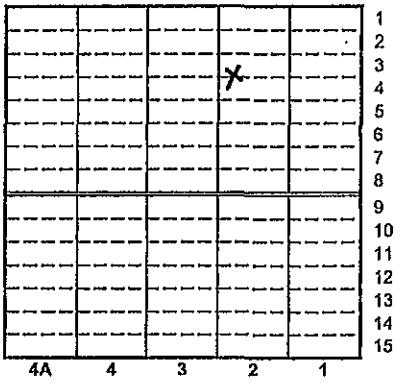
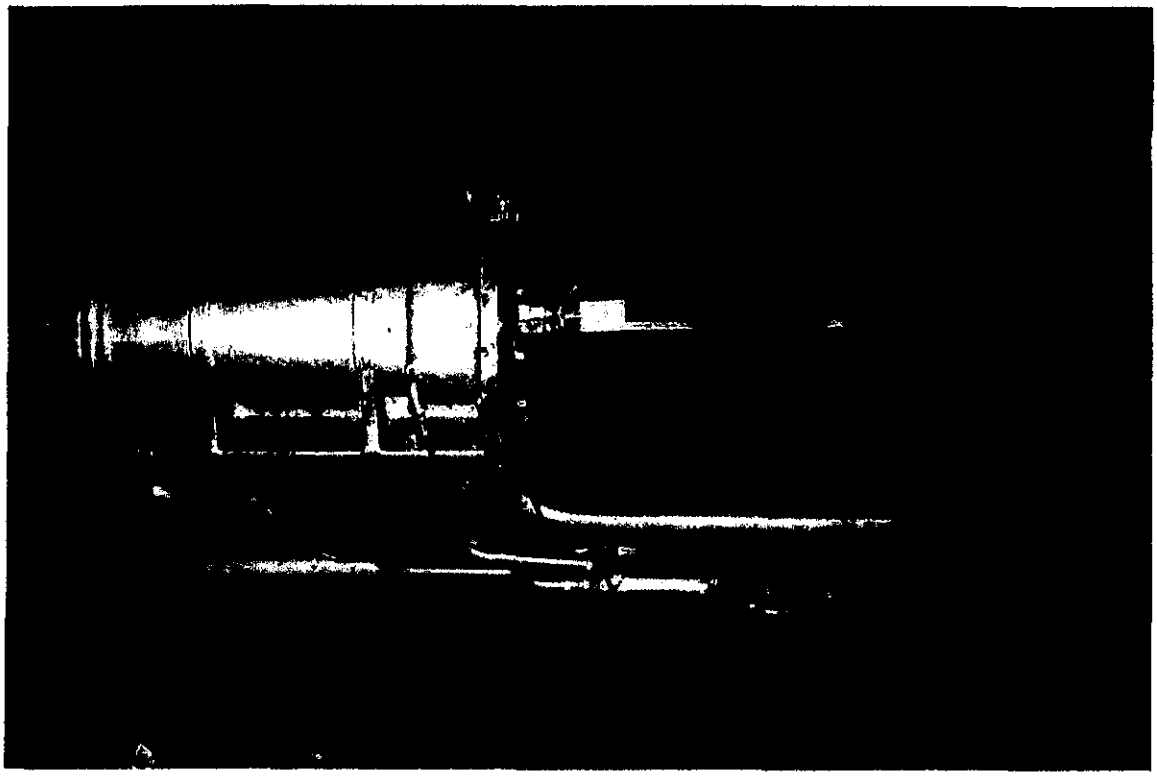


Photo: **FILM No.** 95-169-3-33 **Photographed and inspected December 1995**



Item Name: Frazing and Grinding Wheel | **Item No.** 33

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☐	
Collection	☑	Frazing Wheels 33, 78, 82, 83, 92
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: The Frazing and Grinding Wheel has a cast-iron frame on which is mounted a shaft which holds a frazing wheel on one end and a fifteen inch emery wheel on the other. Two bearings, their beds integrated into the cast iron frame, support the shaft. A driven wheel is located in the middle of the shaft which is powered by a series of four V-belts by a one horsepower electric motor. There is no name plate information on the item but it is believed that it was cast in the Eveleigh Foundry and that the item has been produced by the Workshops.

History: The history of the item is unknown but it is likely that it dates from the time that this part of the blacksmith's shop had the steam hammer installed.

Function and Operation: The Frazing and Grinding Wheel is used for the rough cleaning of items which have been forged in the Bay 2 North. The Frazing Wheel consists of a series of hardened teeth which are parallel to the axis of the shaft. These teeth which have a pitch of about 7mm are used for the rough cleaning of hot steel as it comes from the forge.

Location: Bay 2 North 5E

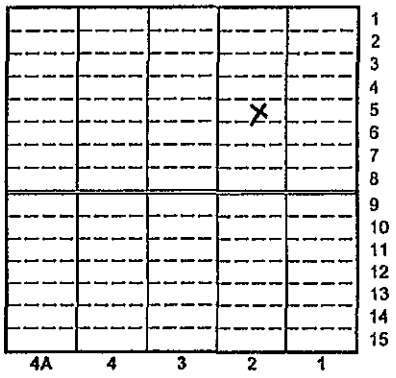
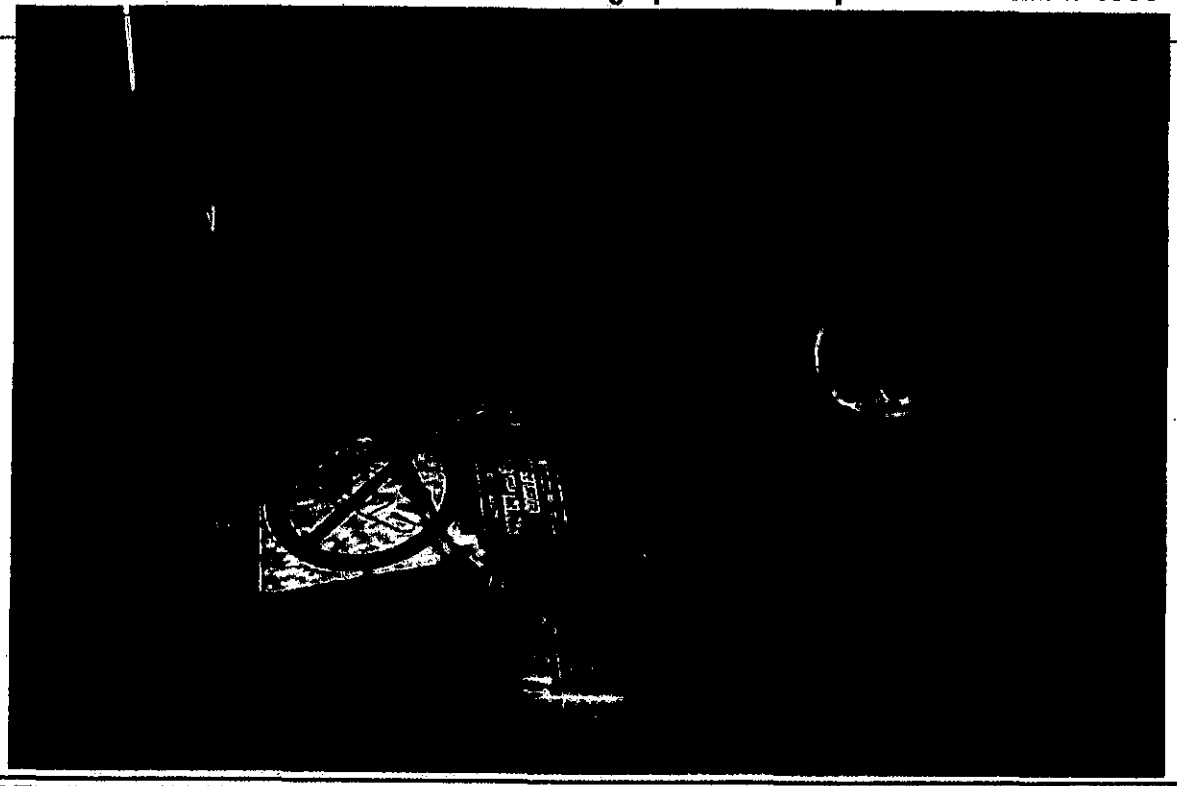


Photo: **FILM No.** 95-169-3-34 **Photographed and inspected December 1995**



Item Name: Tool Racks Between the Columns	**Item No.** 34A-L

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 8CWT, 1, 2, 3 & 4
Collection	☐	Hand tools/ Racks 34A-L, 36A-D, 62A-E, 66A-H, 71, 100A-D, 102A-D
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: Tool racks were formed by mounting vertical iron or steel bars adjacent to the centre line of the cast-iron columns and fastening as many as five single or double steel straps between them. In many cases there was a vertical intermediate bar to support the horizontal straps which acted as the racks. Each of these racks contained a number of hammers, holders, specialist tongs of various shapes, swages and fullers with steel handles and spring swage sets.

History: The history of the racks is not known but they certainly appear in similar form in early photographs of the workshops (MLGBO Video Disc 1 06679SS1884).

Function and Operation: The racks were there purely to hold tools and possibly other small items used in the workshops.

Location: Bay 2 North 2-7

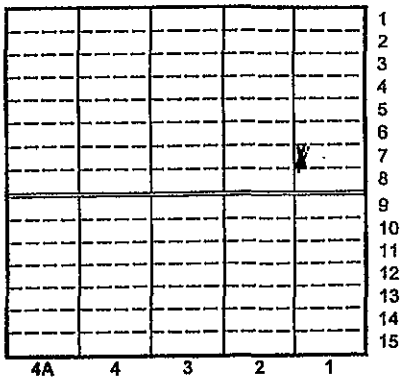
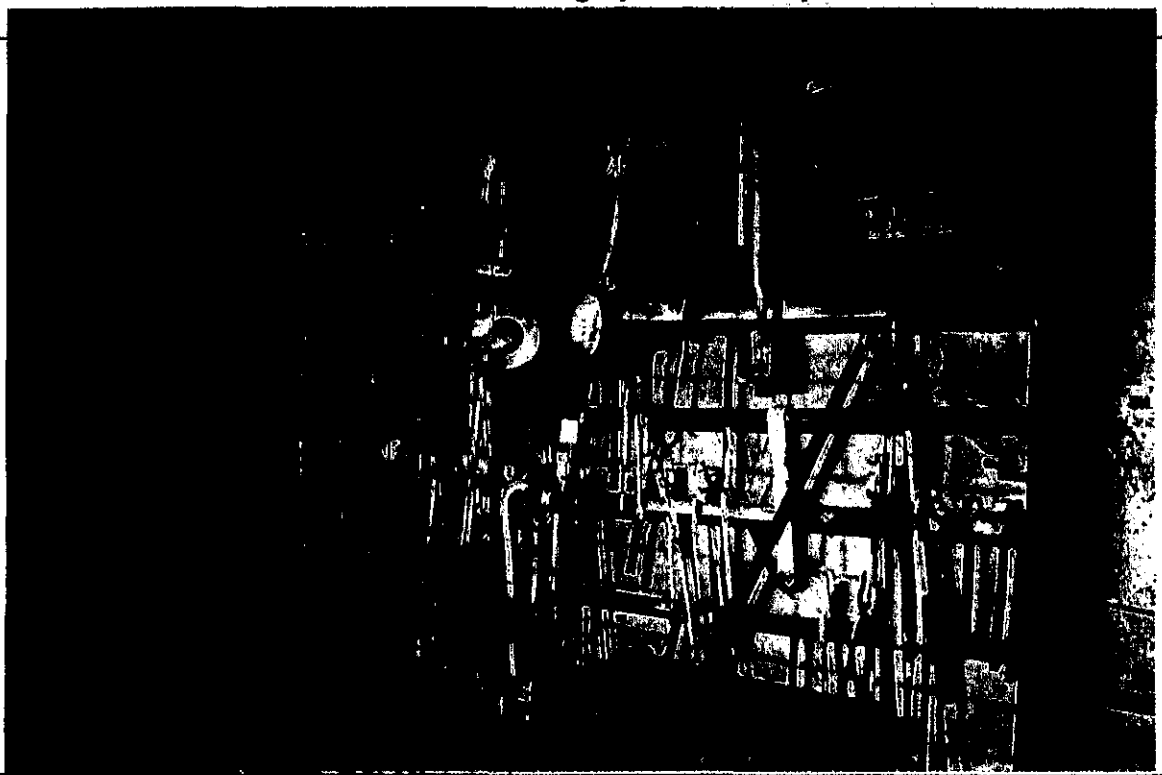


Photo: **FILM No.** 95-169-3-35 **Photographed and inspected December 1995**



Item Name: Hot Metal Circular Saw | **Item No.** 35

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☐	
Collection	☐	
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This small, circular saw has a cast-iron frame and bed and is mounted at the south end of Bay 2 North. It is powered by an elevated electric motor which is mounted on the adjacent column and powers the saw through a fabric belt. It would appear that the saw has been mounted in this position for some time and it is probable that it was originally driven by a belt from the line shaft.

History: The history of the item is unknown but it is believed to have been in this location since the steam hammer shop was established. The item appears in the plan of the Eveleigh Workshops in 1912 (SRAO ELW 29).

Function and Operation:
Used for cutting hot steel - and for this purpose has an unusually thick blade.

Location: Bay 2 North 7W

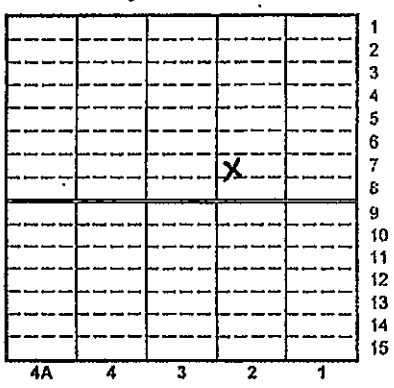


Photo: **FILM No.** 95-169-3-36 **Photographed and inspected December 1995**

Item Name: Tool Racks Portable	**Item No.** 36A-F

Name Plate:

Associated Items:

Individual	❑	
Assemblages	❑	Steam Hammer 20 CWT 46, 47, 57, 66E
Collection	❑	Hand tools/ Racks 34A-L, 36A-D, 62A-E, 66A-H, 71, 100A-D, 102A-D
Systems	❑	
Operational Groups	❑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: There are a number of portable tool racks in Bay 2 North which hold fullers, swages and spring fullers and swages. They are generally formed from bar steel and consist of converted Y-shaped ends and three horizontal bars. In some instances hooks have been riveted to the top bar to hold the items. In other cases the items are simply slung over the bar.

History: The history of the items is unknown but it would appear that they are of early construction.

Function and Operation: The tool racks held those series of tools for use by the blacksmith in forging. The advantage of these tool racks is that it was possible to move them from one location in the workshop to another and to provide ready access to different types of tools for the different forging operations.

Location: Bay 2 North 1-7

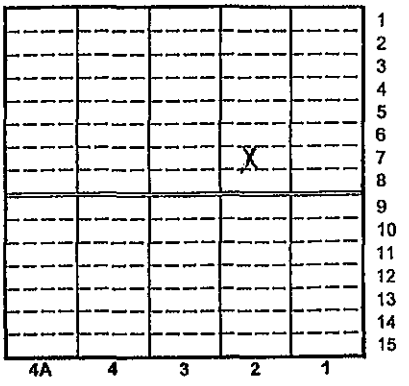
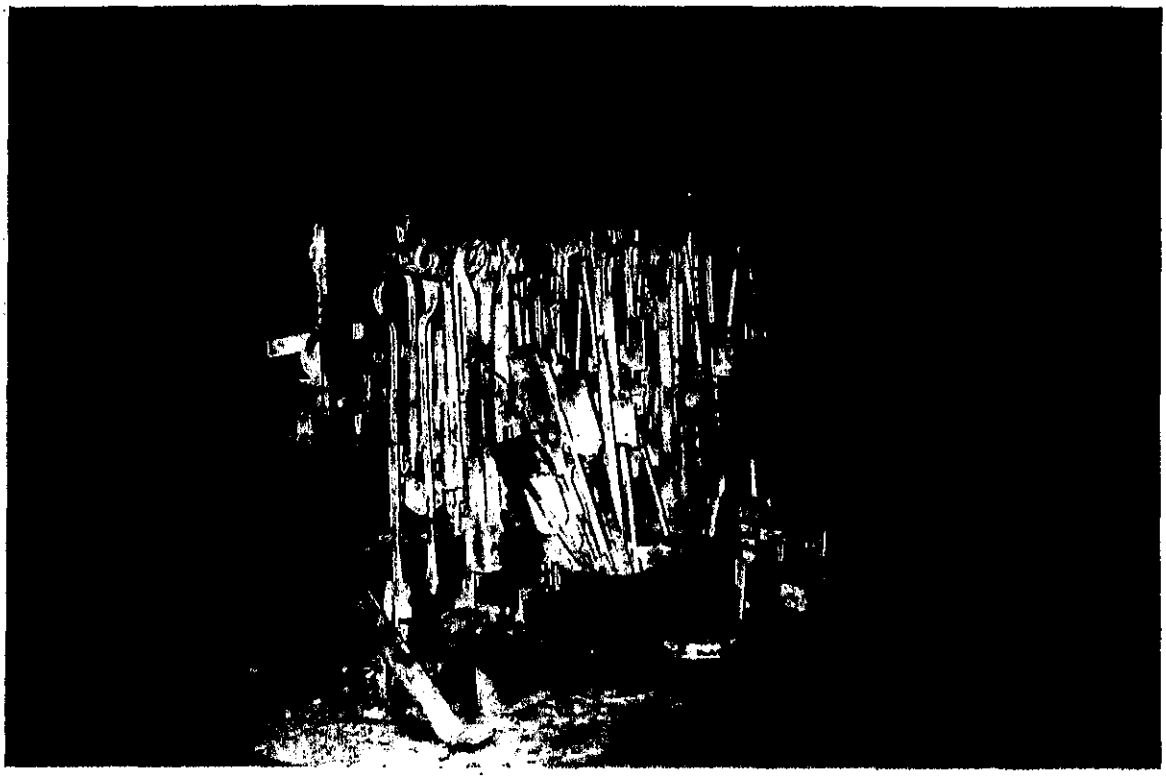


Photo: **FILM No.** 95-169-1-3 **Photographed and inspected December 1995**



Item Name: Workbench with 6-inch Vice | **Item No.** 39

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☐	
Collection	☐	
Systems	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: The workbench is an extremely solid timber bench with a sheet-steel cover and a very heavy forged vice.

History: The bench was of the pattern typically made by the apprentice carpenters and joiners. Benches such as this were used right throughout the Eveleigh Workshops complex.

Function and Operation: The bench could be used for all metal working operations, the sheet steel top preventing damage to the wood. The two drawers to the front were normally used for storing bench tools.

Location: Bay 2 North 5 East

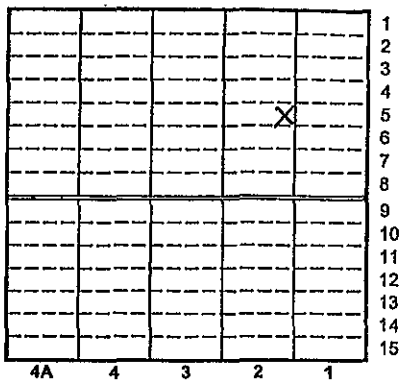


Photo: **FILM No.** 95-169-1-6 **Photographed and inspected December 1995**

Item Name: The Dual Grinder | **Item No.** 40

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☐	
Collection	☐	
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This grinder is similar to several others which are mounted throughout the workshops. It consists of a cast-iron frame which holds two bearing blocks which support the main shaft. On the ends of the main shaft are mounted a very coarse and a coarse grinding wheel of about 400mm in diameter. Very heavy tool rests bolted to slots in the cast frame are provided. The wheels are direct driven from a one horsepower motor mounted on the back of the cast-iron frame via V-belts. A simple, on-off switch in a sheet metal cabinet is mounted on the front of the frame.

History: The history of the item is unknown but it appears that it would certainly have been driven from a line-shaft. It does not appear on any of the historic plans and the time it has spent in this location is unknown.

Function and Operation: The grinding wheel which operated at very high speed was used for the sharpening and grinding of tools rather than the grinding of items which had been formed on the forge.

Location: Bay 2 North 2W

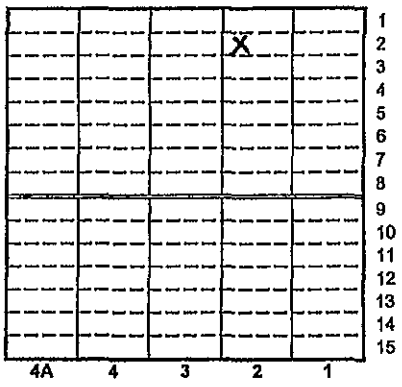
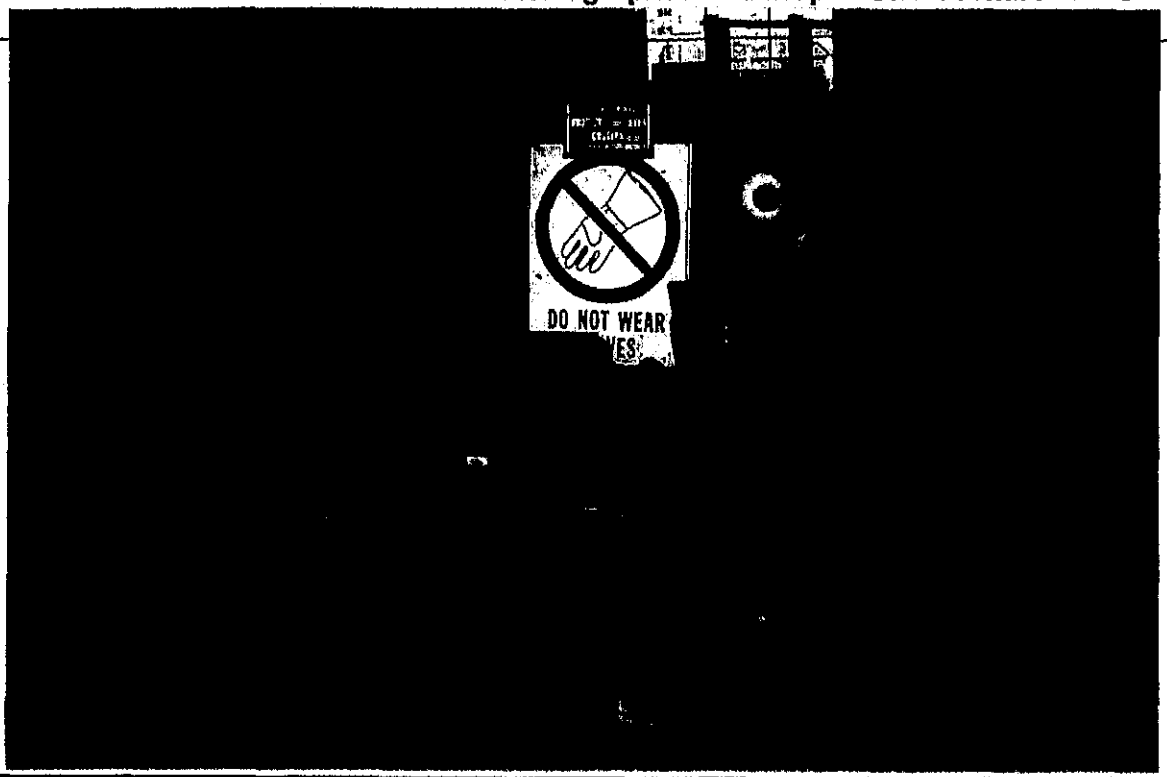


Photo: **FILM No.** 95-169-1-7 **Photographed and inspected December 1995**



Item Name: The Blacksmiths Forges including coke bins and water tanks. **Item No.** 27A-H

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	(Steam Hammer 8CWT1, 26, 27AB, 28, 34KJ, 36DF, 37ABC)
Collection	☐	C3 Forges
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: 8 of the original 20 cast iron blacksmith forges or furnaces remain in Bay 2 North. The Forges consist of a cast-iron stage or frame which holds the cast-iron fire pan. The rear legs extend about 800mm beyond the fire pan and hold the back plate and support the cast iron hood. The cast iron tuyeres which are of the side-heating design are all water cooled. Each forge is naturally vented through a vertical stack which passes through the roof of the workshop. In some cases, side panels have been added to the forges to contain the heat. The forges are all connected to the sub-floor high volume, low pressure air lines which take air from the Roots blowers located at the south end of Bay 1 to the forges.

History: Originally the forges were all connected to a low pitched sheet metal flue which ran the length of the bay at a height of about 3-4 metres above the ground. To this flue was supplied two stacks which passed through the roof of the bay. It is not known where the forges were made but it is believed that they were produced in the Eveleigh Foundry which was originally located outside Bay 4.

Function and Operation: The forges were all used for heating relatively small items to red or white heat for forging by hand by the blacksmiths or beneath the four steam hammers still located in Bay 2. The forges all used coal or coke as fuel and the air supply was controlled by a lever at the rear of the forge.

Location: Bay 2 North 3-7E

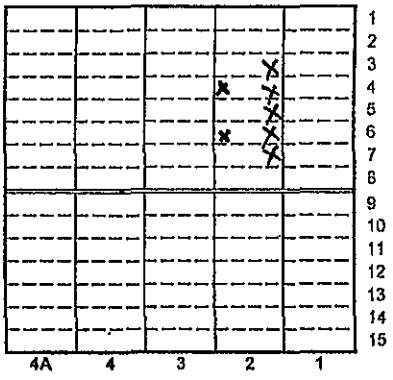
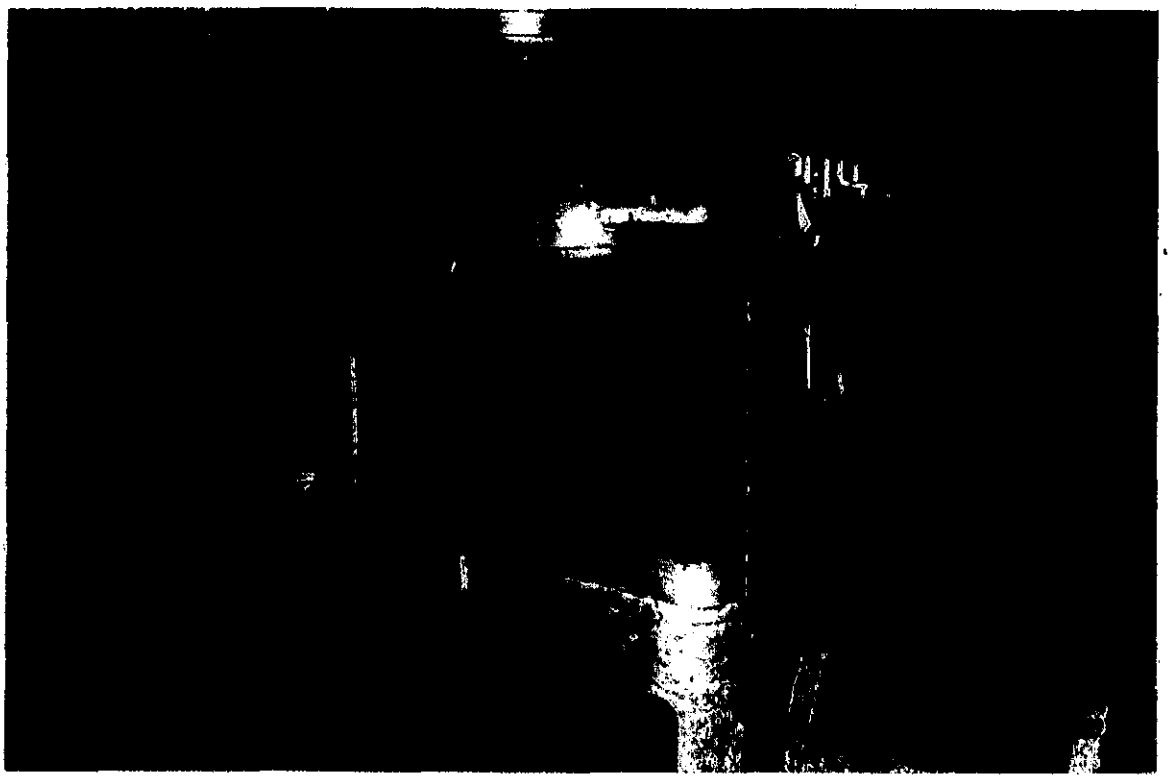


Photo: **FILM No.** 95-169-3-28 **Photographed and inspected December 1995**



Item Name: Davis and Primrose Steam Hammer 1 | **Item No.** 28

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 800CWT1 27AB, 28, 34KJ, 36DF, 37ABC
Collection	☑	Steam Hammer 28, 29, 31, 32, 54, 57
Systems	☑	Steam 1-4, 28, 29, 31, 32, 54, 57, 188-191
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This vertical, single frame steam hammer delivers a blow of 8.5cwt (430kg). The hammer was powered by steam via an overhead steam line from the boiler headers at the south end of Bay 2. The hammer consists of a cast-iron steel frame, virtually in the form of a C.

History: The steam hammer was installed in this location in 1908. (The 1912 plan of the Eveleigh Railway Workshops SRAO EL W29) indicates a steam hammer in this precise location.

Function and Operation: The steam hammer was used for a variety of items produced for the railways. These varied from the roughing out of small axles and shafts to the production of small items which were drop-forged in spring swage sets.
The operating lever is moved with a pumping action and a skilled operator can change both the length of the blow and its rapidity. As the operation of the lever is increased in speed, the speed of the blows delivered is increased. The length of stroke is governed by the distance by which the lever is moved. The blow delivered depends both on the steam being admitted to the steam cylinder and the weight of the piston rod, the ram and the ram dye.

Location: Bay 2 North 3-4E

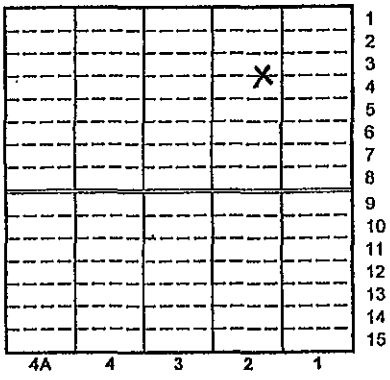
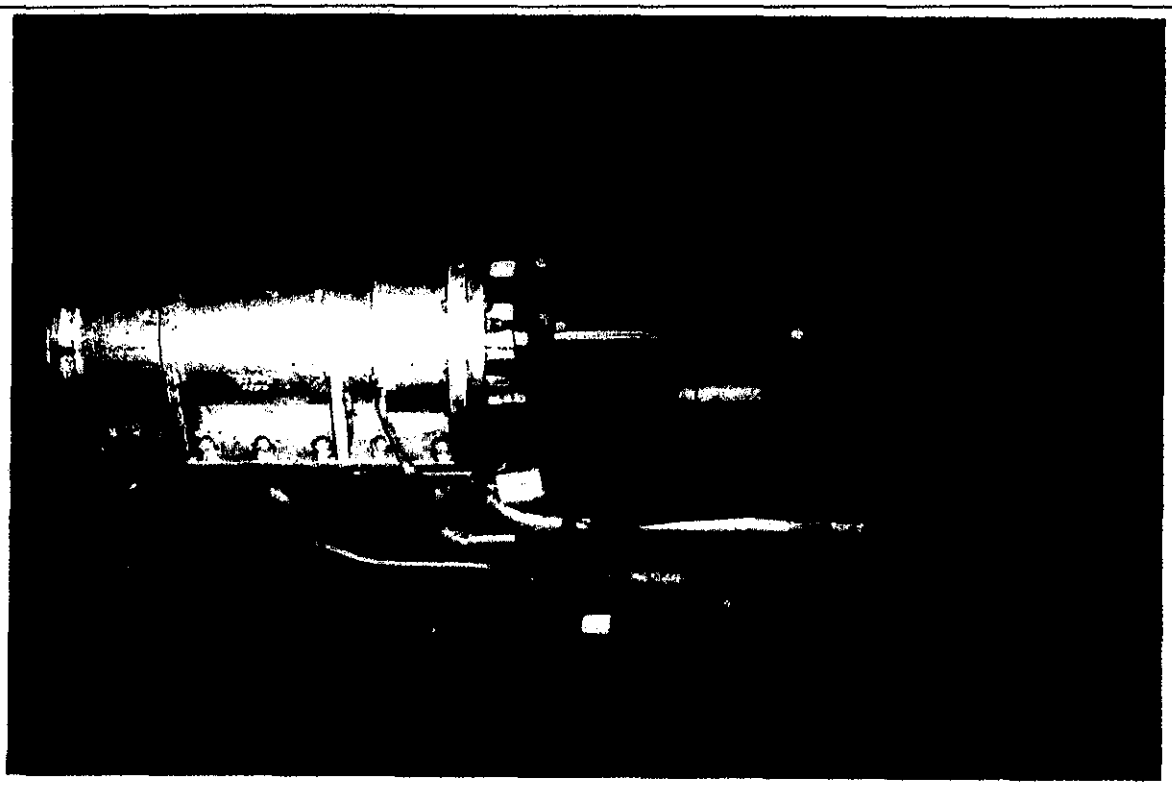


Photo: **FILM No.** 95-169-3-29 **Photographed and inspected December 1995**



Item Name: Benches for Moulds, Dyes, Templates and Tools. **Item No.** 37A-I

Name Plate:

Associated Items:

Individual	☐	
Assemblages	☑	Steam Hammer 20 CWT 46, 47, 57, 66E
Collection	☐	
Systems	☐	
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: These small benches vary in size and construction but normally consist of four legs made from angle steel and angle steel rails which hold sheet steel shelves. They are normally braced by diagonal strap steel at each end. The dyes, moulds and templates on them were for varying use with the steam hammers and various forging operations that took place in the Bay 2 North.

History:

Function and Operation:

Location: Bay 2 North 1-6

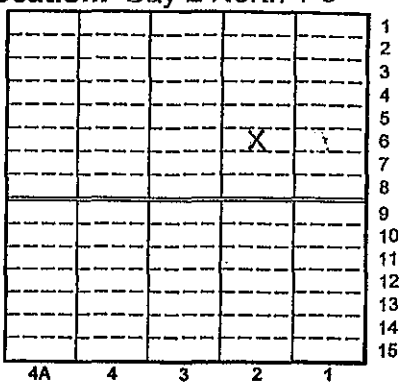
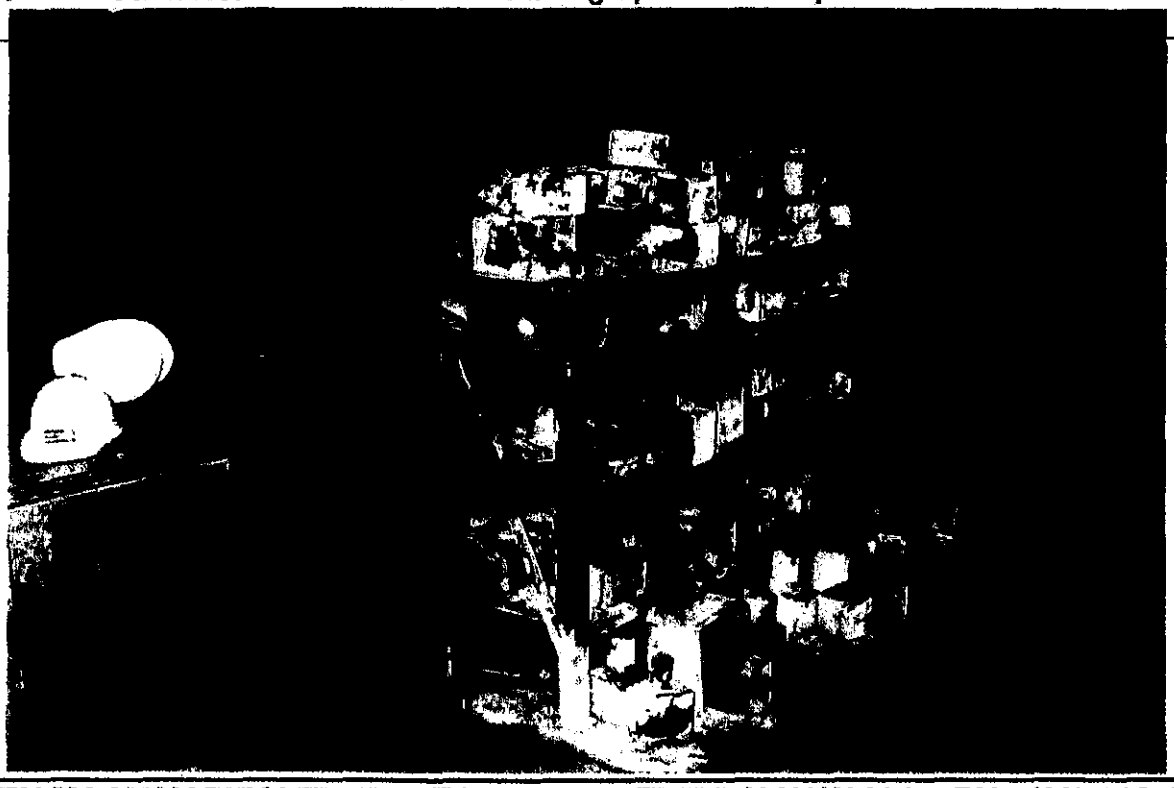


Photo: **FILM No.** 95-169-1-4 **Photographed and inspected December 1995**



Item Name: Lathe Bed | **Item No.** 38

Name Plate: NSW6 J Whitworth & Co Manchester

Associated Items:

Individual	☐	
Assemblages	☐	
Collection	☑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
Systems	☐	
Operational Groups	☐	

Description: This extremely heavy lathe bed, partial headstock and partial tail stock is all that remains of one of the oldest lathes in the workshop. The bed is in excess of four metres long, is about 400mm wide and 800mm high. The ways of the bed are machined cast iron. The tail stock is now at the western extremity. There is no real indication of the type of headstock nor the way in which it operated.

History: The lathe was manufactured for the New South Wales Government by Whitworth and Company of Manchester, England, in 1883. It was installed in the workshops in 1887. It is unlikely that this was its original location and it does not appear on the 1912 drawing (SRAO ELW29).

Function and Operation: The function and operation of the lathe are unknown.

Location: Bay 2 North 1W

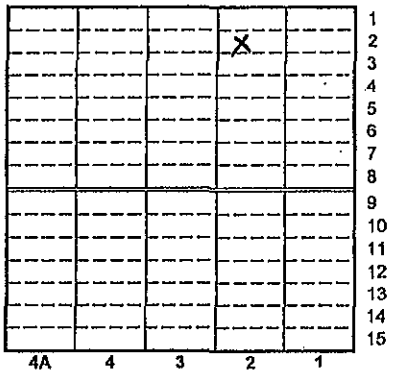
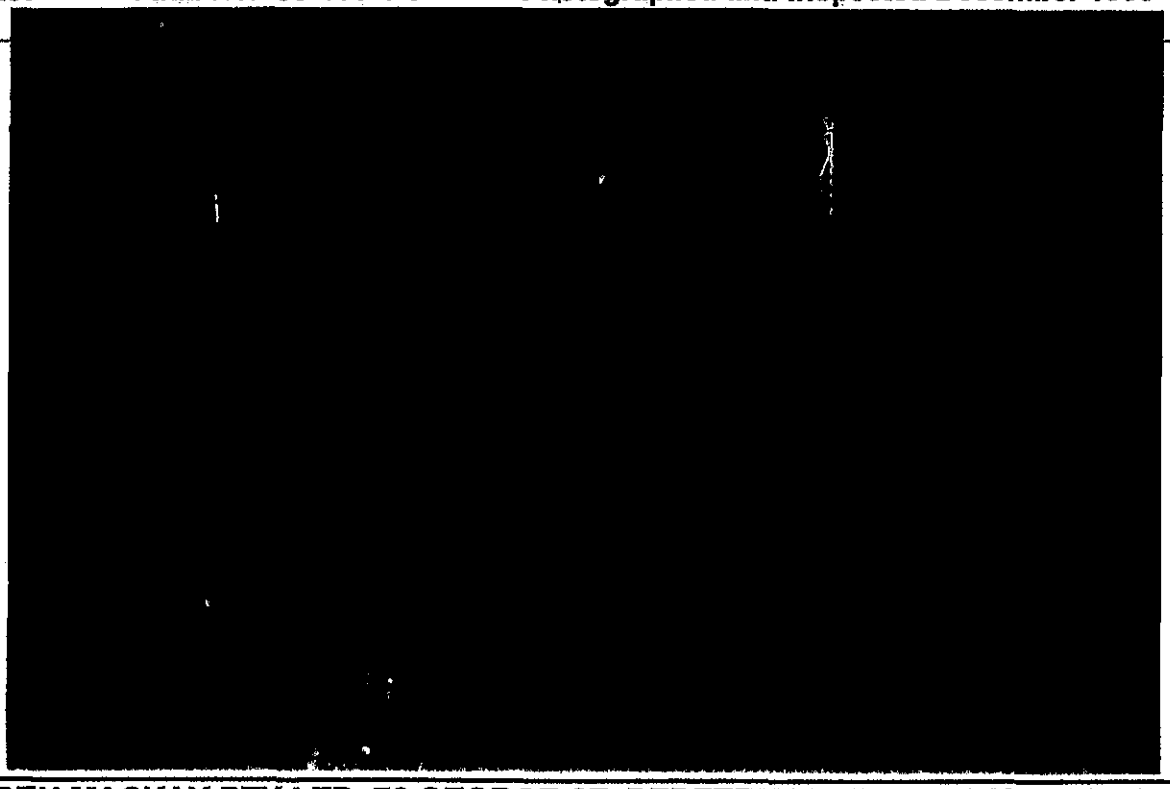


Photo: **FILM No.** 95-169-1-5 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 198

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
System	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
Operational Groups	☑	Steam Hammer Shop. All items in Bay 2N except 38.

Description: This small gas-fired, steel-framed and fire brick-lined furnace is fitted with a steel-framed door fitted with two counter weights. The furnace was used for heating items to be forged in the steam hammers.

History: The history of the item is not known and it does not appear on any of the historic plans.

Function and Operation: The furnace is side heated with direct flame and has no baffles. The door was opened simply by lifting from the front. Items to be heated were placed in side, possibly for periods up to 4 hours, to be thoroughly heated prior to being worked.

Location: Bay 2 North 6 West

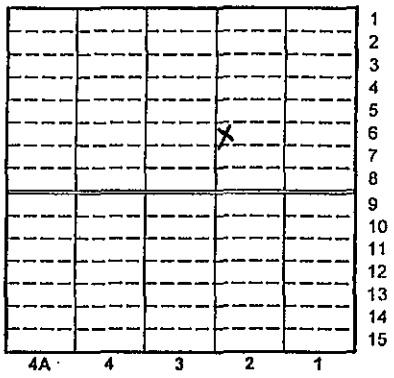
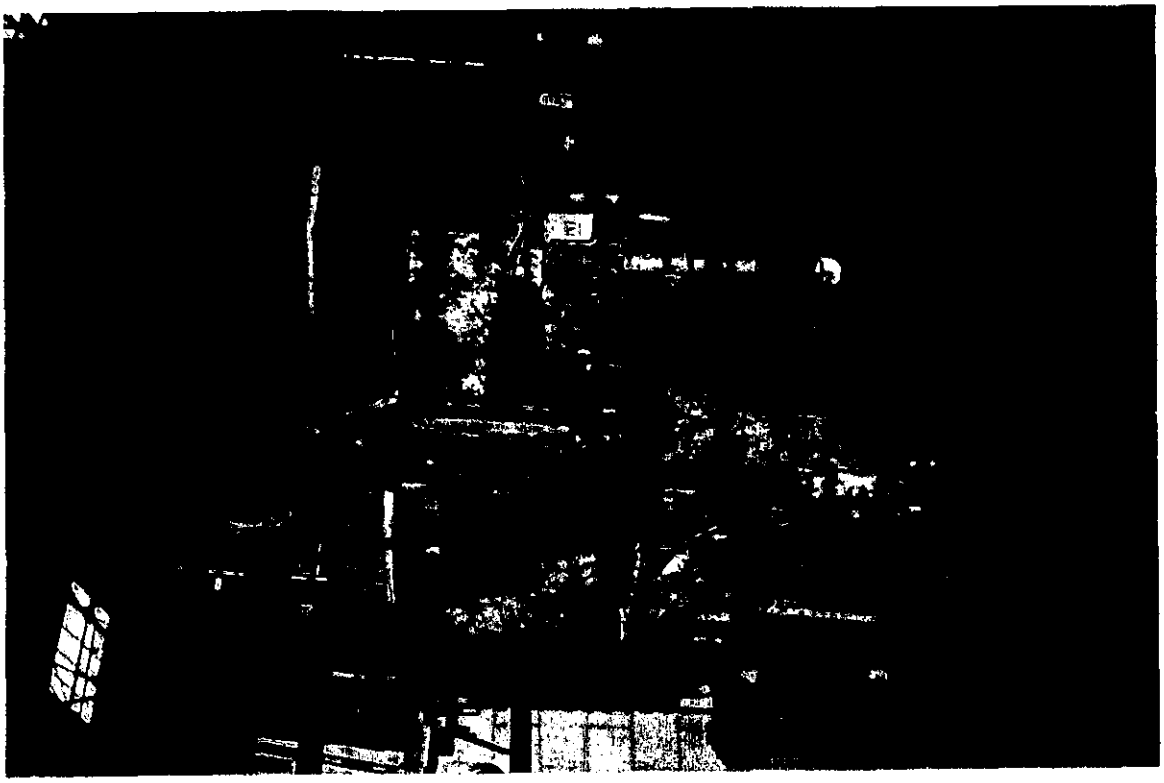


Photo: **FILM No.** 95-169-6-27 **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 3 SOUTH

Item Name: Churchill Grinder | **Item No.** 104

Name Plate:

Associated Items:
Individual ❑
Assemblage ❑
System ❑
Collection ❑

Description: The Churchill Grinder is a large surface grinder with a portal carrying the grinding head. It is a precision machine which was used for producing, in the main, flat level surfaces for large pieces of equipment.

History: The history of the item is unknown but it is believed that it was installed in the workshops, during or after World War II.

Function and Operation: The item was operated by skilled fitter machinists and it was one of the more significant of the grinding machines which were located in Bays 8 and 9.

Location: Bay 3 South 14 West

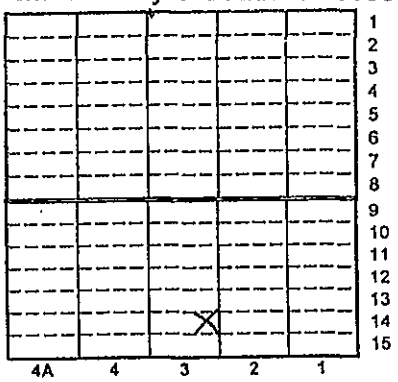


Photo: **FILM No.** 95-169-2-36 **Photographed and inspected December 1995**

Item Name: Furnace | **Item No.** 106

Name Plate: N/A

Associated Items:

Individual	❑
Assemblage	❑
Collection	❑
System	❑
Operational Groups	❑

Description: This small, cylindrical furnace was used for heating smaller items and springs prior to clenching and testing.

History: Its history is unknown.

Function and Operation: N/A

Location: Bay 3 South 10 East

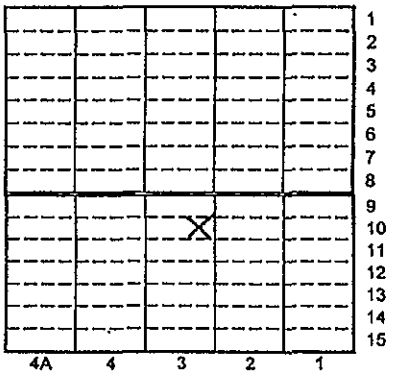
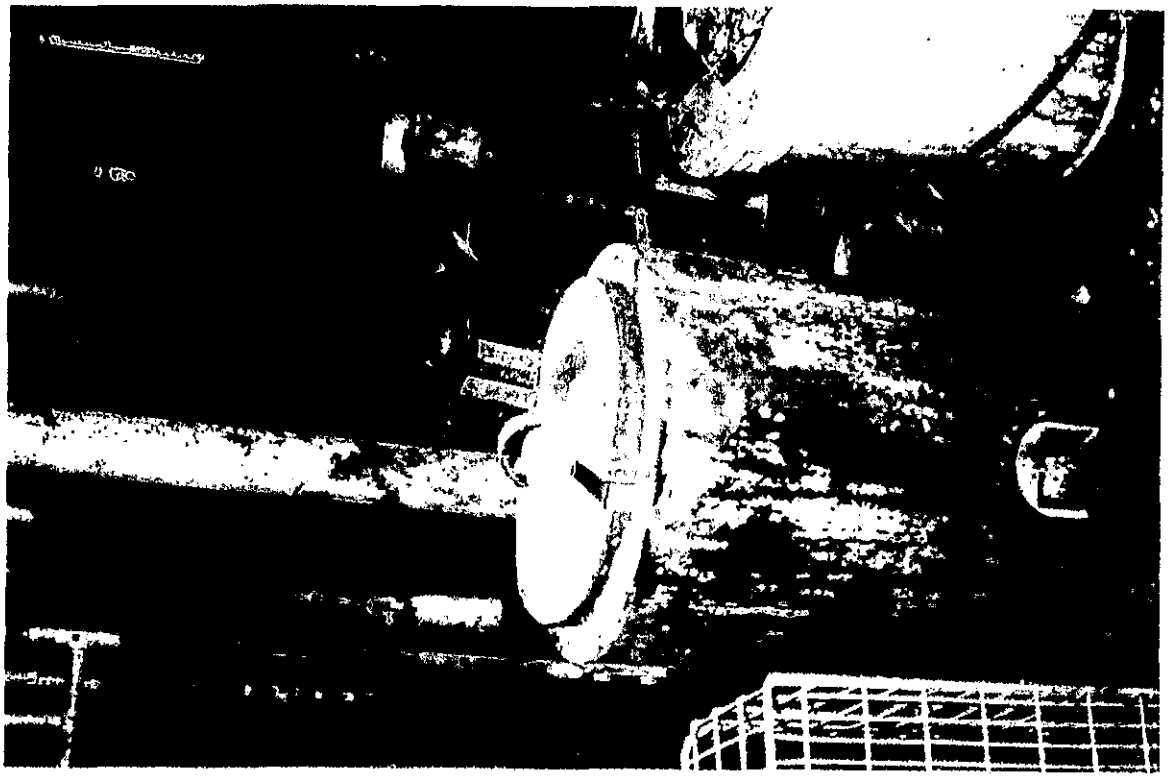


Photo: **FILM No.** 95-169-4-2 **Photographed and inspected December 1995**



Item Name: Buffer Grinder and Quenching Baths | **Item No.** 105

Name Plate:

Associated Items:

Individual ❑
Assemblage ❑
Collection ❑
System ❑
Operational Groups ❑

Description: This unusual machine comprises an electric motor, a stand on which a buffer and grinder are attached by a spindle and the spindle continues to a clenching bath where it activates a paddle via bevel gears and a vertical shaft to agitate the oil baths which is used for clench hardening of springs.

History: The history of the item is unknown but it is obviously a departmental manufactured item and was probably installed around World War II.

Function and Operation: The Buff and Grinder are used for trimming and polishing springs and other work-hardened items. The clenching bath is used for hardening.

Location: Bay 3 South 11 West

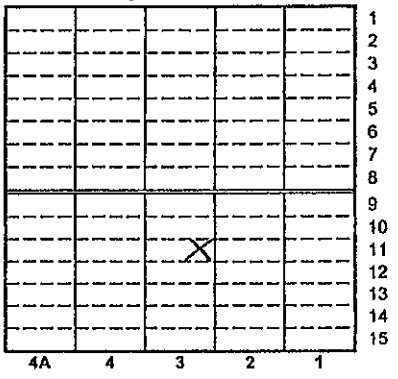
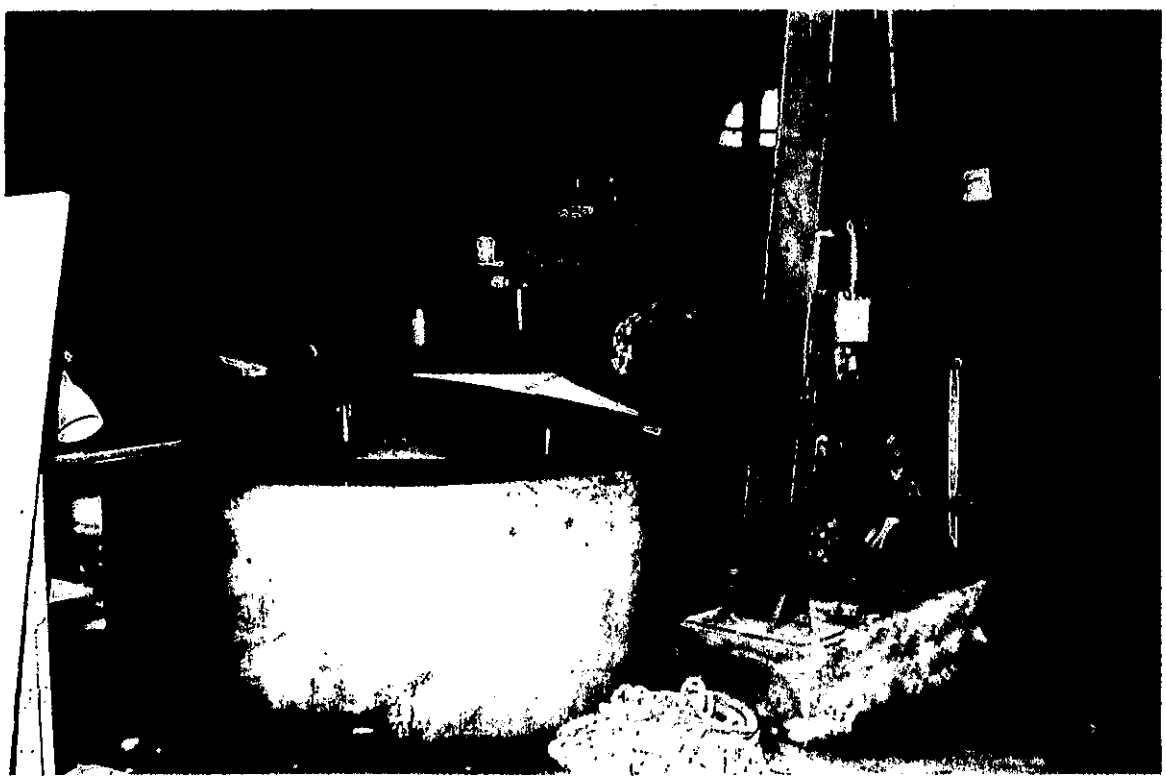


Photo: **FILM No.** 95-169-4-1 **Photographed and inspected December 1995**



Item Name: A Smith and Coventry Grinder	**Item No.** 108

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small grinder is direct coupled to a small electric motor. It has been attached to a home-made bracket consisting of two lengths of rail track to which the grinder base plate has been attached.

History: The history of the item is unknown.

Function and Operation: N/A

Location: Bay 3 South 11 West

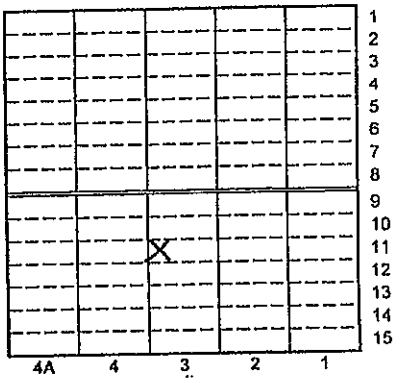
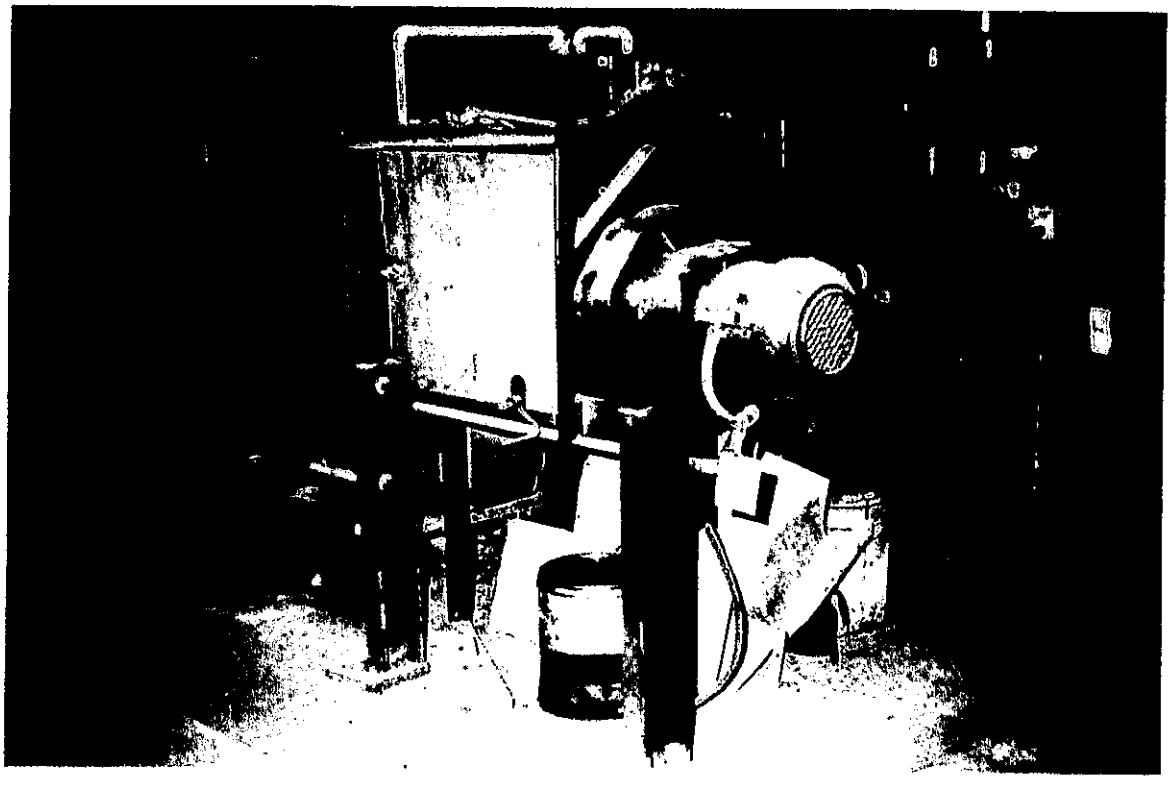


Photo: **FILM No.** 95-169-4-4 **Photographed and inspected December 1995**



Item Name: Lathe | **Item No.** 107

Name Plate: N/A

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
System	❑	
Operational Groups	❑	

Description: This small lathe is composed of an A-framed stand at one end, a rectangular stand at the other and the bed is of two C-Section elements welded together with a spacer between. The head stock is a hollow section with the driving motor located below. The lathe simply operates at a single speed, was made by the department.

History: The history of the item is unknown.

Function and Operation: The item appears to have been used only for cleaning up and polishing. There is no indication that any machining of consequence took place on it.

Location: Bay 3 South 10 West

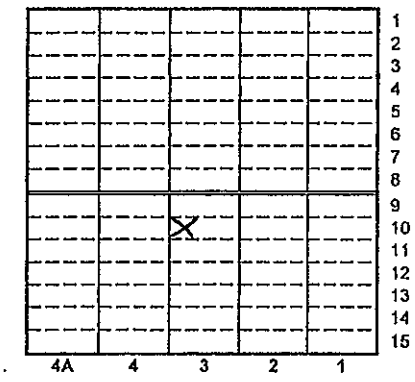
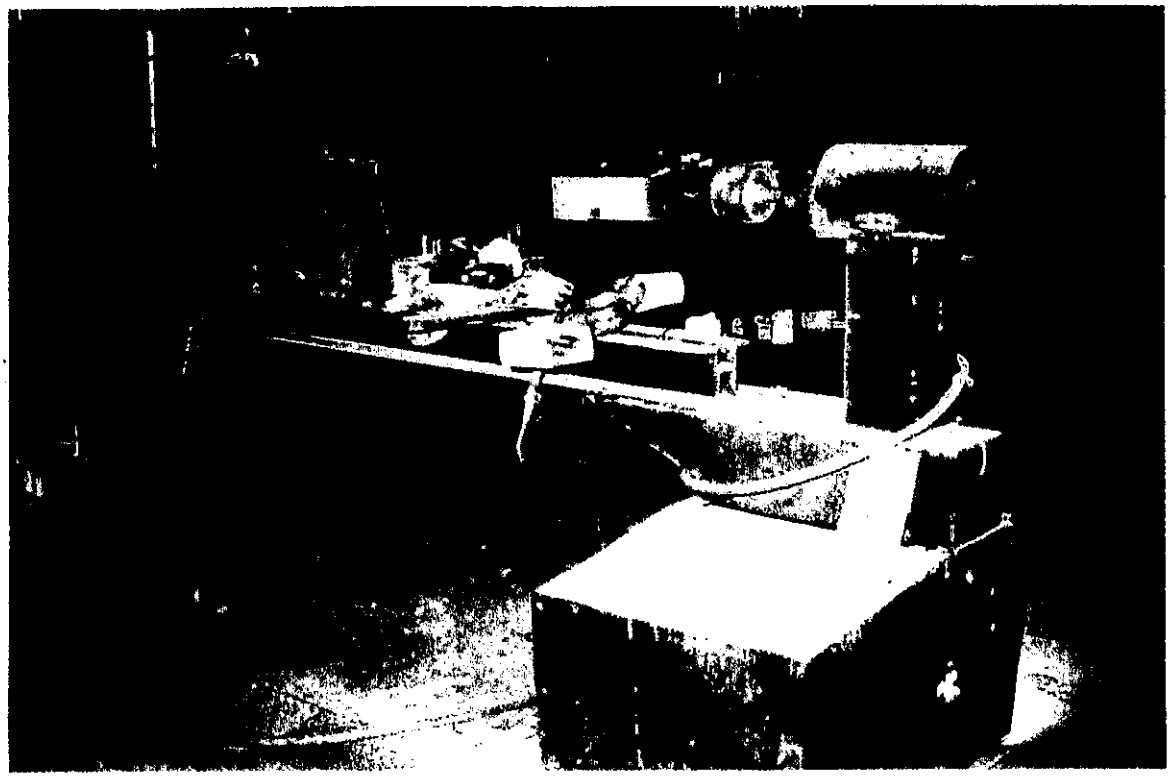


Photo: **FILM No.** 95-169-4-3 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 110

Name Plate: N/A

Associated Items:

Individual	❑
Assemblage	❑
Collection	❑
System	❑
Operational Groups	❑

The item is resting on the earth floor.

Description: This small, cylindrical furnace was used for heating items prior to heat treating. The furnace itself is about 800mm in diameter and stands about 900mm high. It is lined with refractory material and has a sheet steel skin. The furnace is located on a platform which stands about 250mm high and is about 1m square.

History: The history of the item is unknown.

Function and Operation: N/A

Location: Bay 3 South 10 East

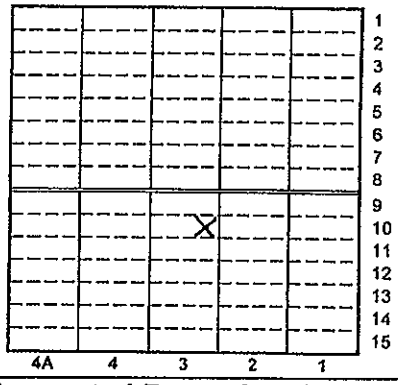
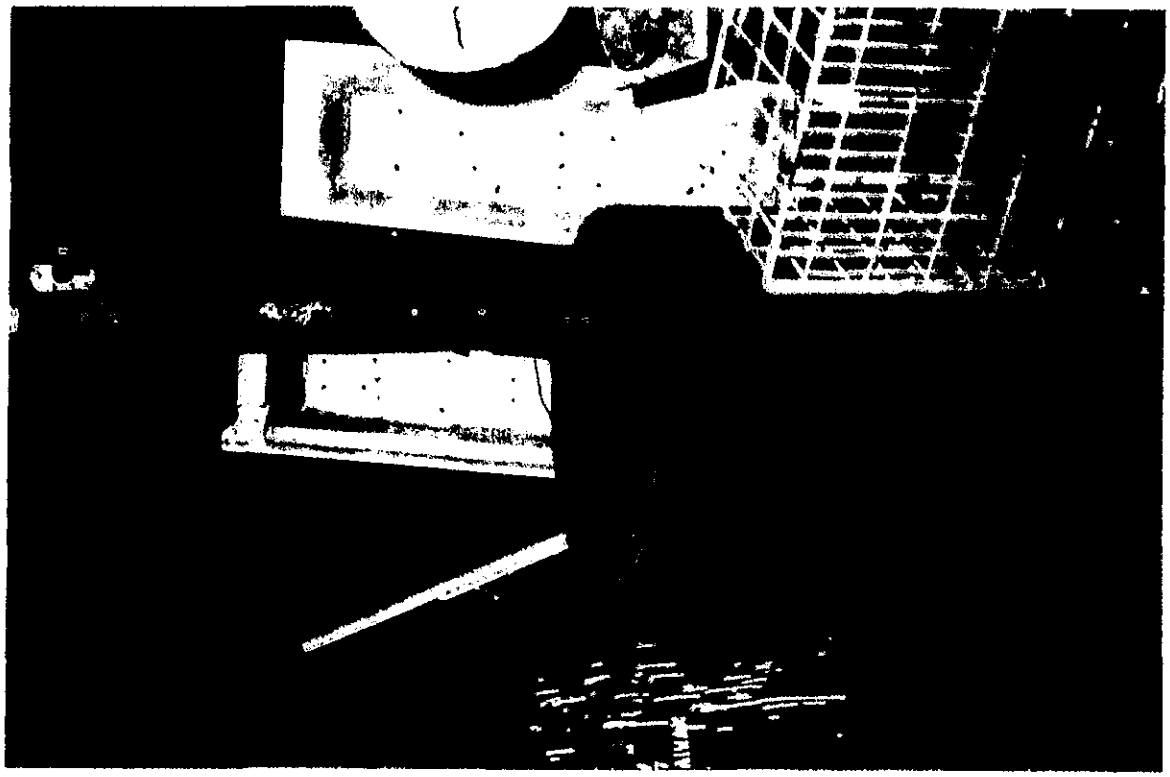


Photo: **FILM No.** 95-169-4-6 **Photographed and inspected December 1995**



Item Name: Small Lathe | **Item No.** 109

Name Plate: N/A

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
System	❑	
Operational Groups	❑	

Description: This small lathe is obviously departmentally made and consists of two small A-frames made from angle section steel and a bed made from back-to-back steel C-Sections. The motor drives a set of pulleys below the level of the bed and the head stock turns at a constant speed. The lathe was probably used for coiling springs.

History: The history of the item is unknown.

Function and Operation: N/A

Location: Bay 3 South 11 West

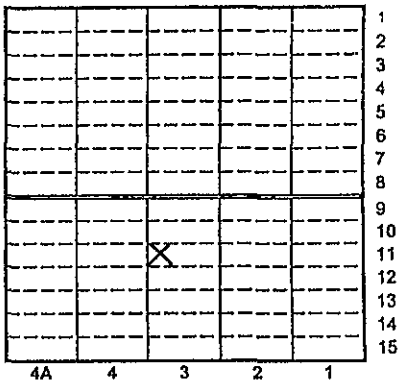
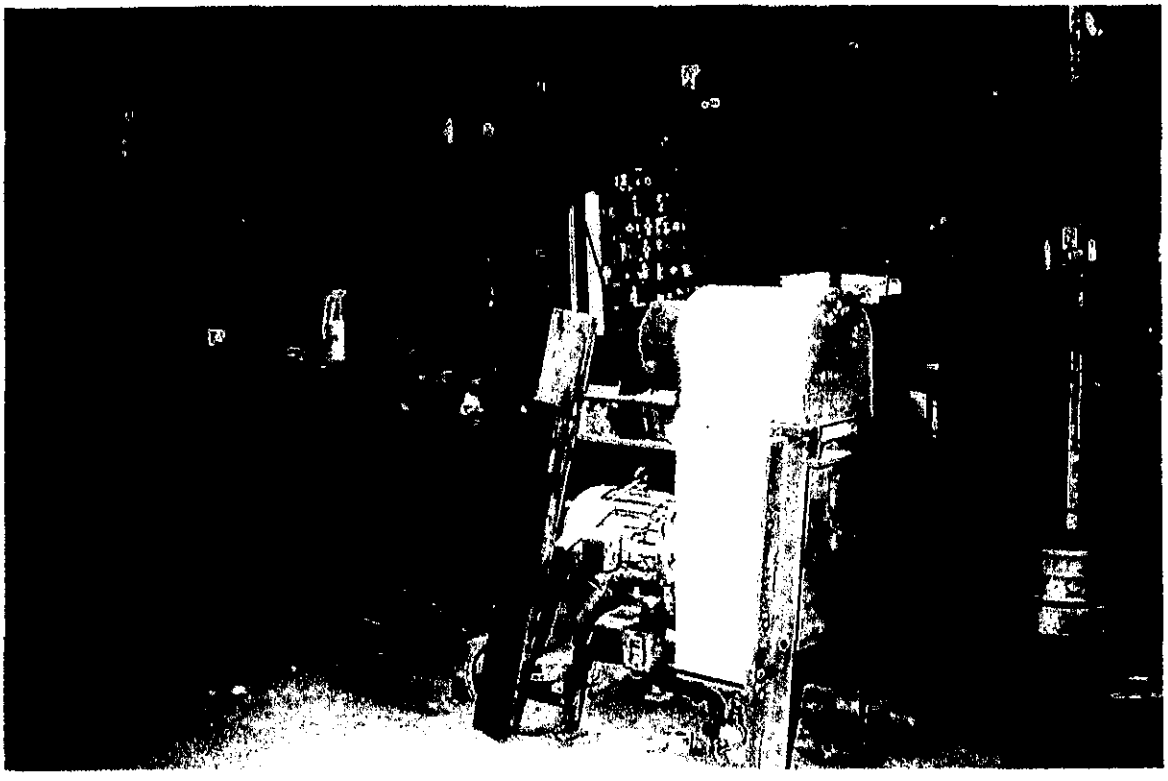


Photo: **FILM No.** 95-169-4-5 **Photographed and inspected December 1995**



Item Name: The Springking Eye Rolling Machine | **Item No.** 112

Name Plate:

Associated Items:

Individual	❑	
Assemblage	❑	Spring King 111-114
Collection	❑	
System	❑	Spring Shop
Operational Groups	❑	

Description: This machine consists of three parts, the Vicars Vane pump, the controller and the eye rolling machine itself. The eye-rolling machine stands about 1.2metres high and is roughly one metre square. It has three vertical and one horizontal activated rams. The machine forms an I on the end of the primary leaf of the laminate spring and this I attaches to the second leaf and to the hangers on which the spring is mounted. The machine is operated by a foot pedal once the controller is set.

History: The history of the item is unknown.

Function and Operation: N/A

Location: Bay 3 South 15 East

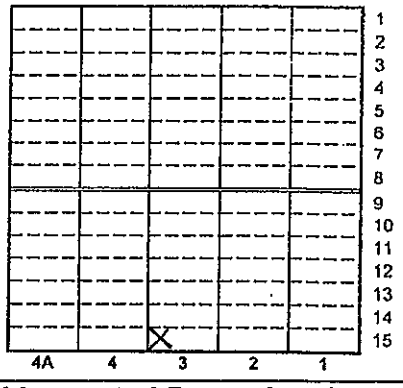


Photo: **FILM No.** 95-169-4-8 **Photographed and inspected December 1995**

Item Name: Furnace for Springs | **Item No.** 111

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☒	Spring King 111-114
Collection	☒	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☐	
Operational Groups	☐	

Description: This medium furnace was about 2 metres wide, almost 2 metres high and 1 metre deep. It is of the reverberatory type and having a low front entry. It is steel framed and fitted with a double counter-weighted lift door.

History: The item was installed in 1962 and was departmental made.

Function and Operation: The item was used for heating springs prior to partial forming in the adjacent spring king machine.

Location:

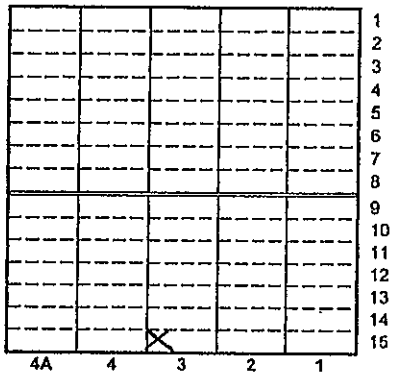
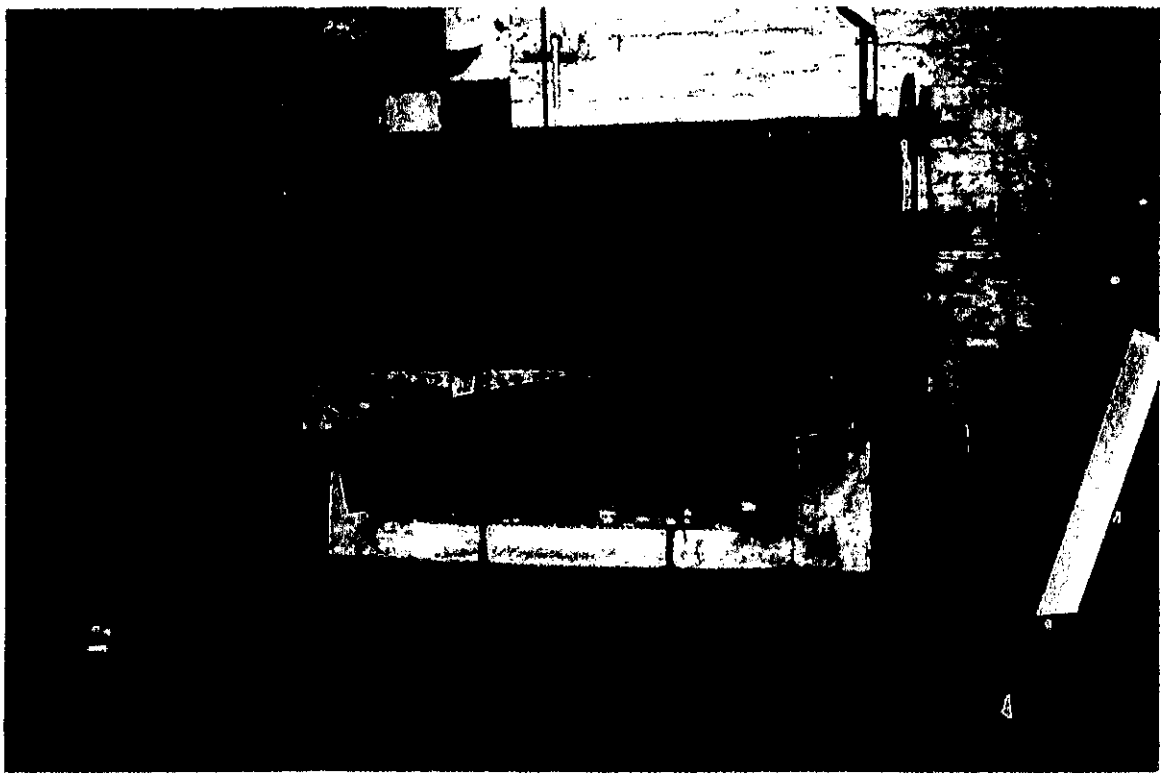


Photo: **FILM No.** 95-169-4-7 **Photographed and inspected December 1995**



Item Name: The Controller (part of Spring King assembly) | **Item No.** 114

Name Plate:

Associated Items:

Individual	❑	
Assemblage	☒	Spring King 111-114
Collection	❑	
System	❑	
Operational Groups	❑	

Description: This item is used to control the pumps which produce the hydraulic pressure for the springking eye rolling machine.

History: N/A

Function and Operation: N/A

Location: Bay 3 South 14 West

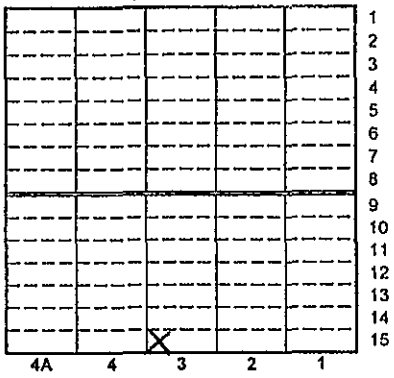
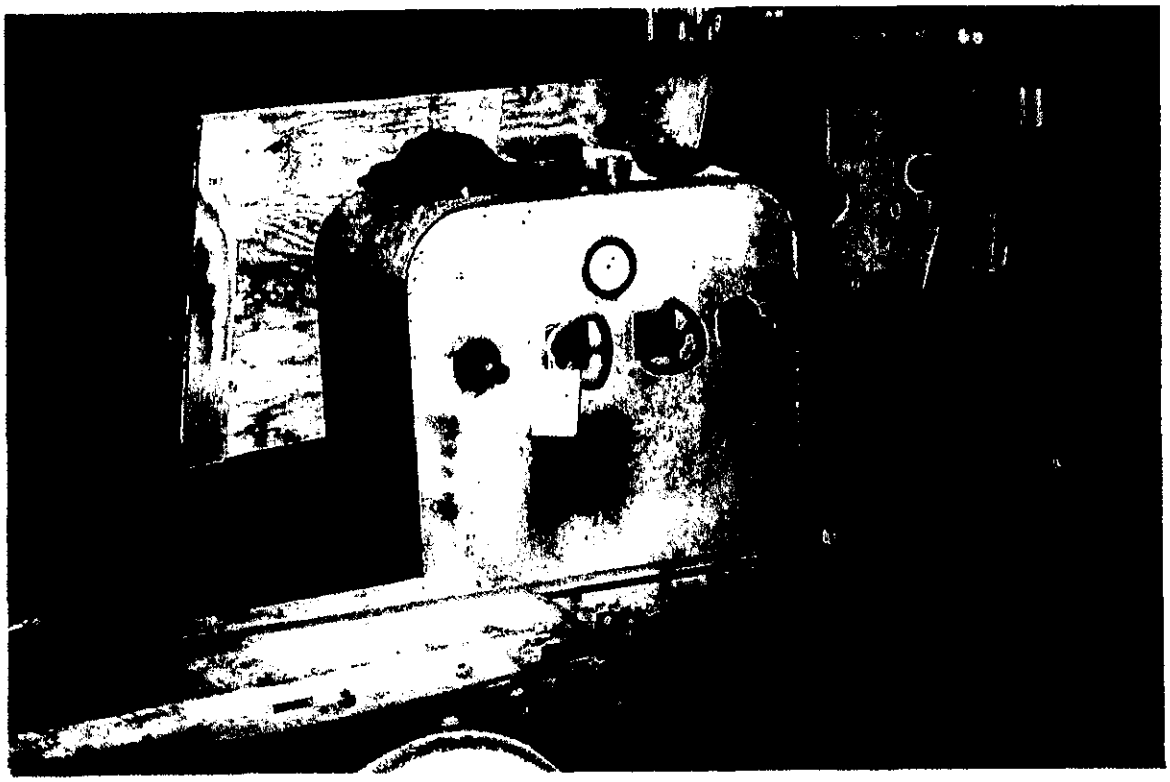


Photo: **FILM No.** 95-169-4-10 **Photographed and inspected December 1995**



Item Name: The Vicars Vane Pump (part of the Spring King assembly) | **Item No.** 113

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☒	Spring King 111-114
Collection	☐	
System	☐	
Operational Groups	☐	Spring Shop

Description: This electrically operated pump produces the hydraulic pressure for the operation of the springking eye rolling machine.

History: N/A

Function and Operation: N/A

Location: Bay 3 South 14West

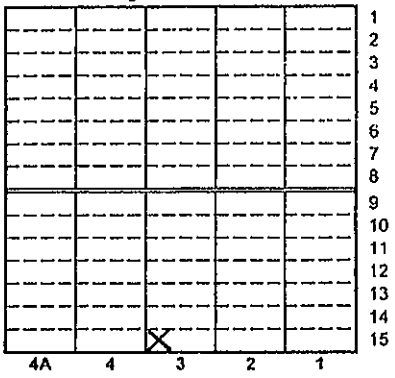
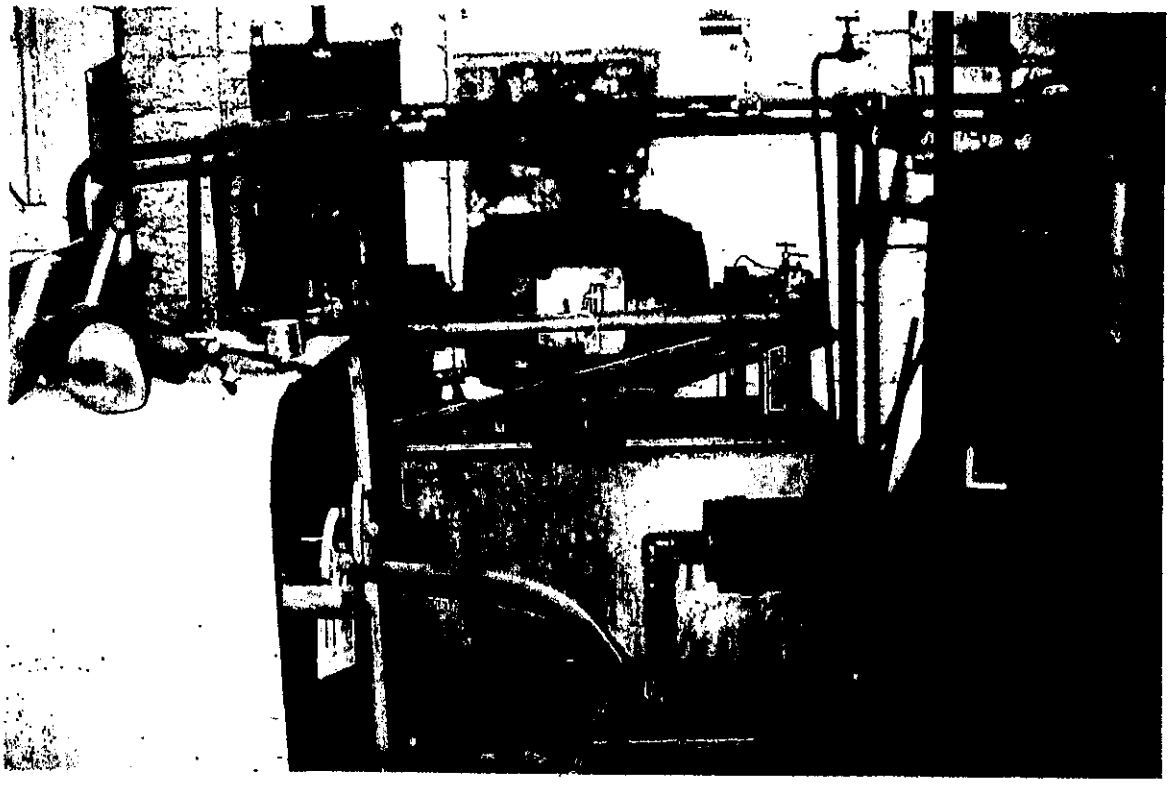


Photo: **FILM No.** 95-169-4-9 **Photographed and inspected December 1995**



Item Name: The Halifax Shaper | **Item No.** 116

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small shaper consists of a cast-iron bed and a cast-iron work holder of extreme versatility. The shaper drive mechanism was through a large-toothed cog located directly behind the drive. It had a 14 inch bracket, 350mm stroke and although relatively old, was an extremely versatile and accurate machine.

History: The history of the item is unknown but it is believed to have been installed in Bay 10 North between the Wars. It was moved to its present location after the workshops closed down by Mr Guido Gouvernor.

Function and Operation: The machine was used normally for preparing flat surfaces of relatively small items and was regarded as a precision cutting machine.

Location: Bay 3 South 13 West

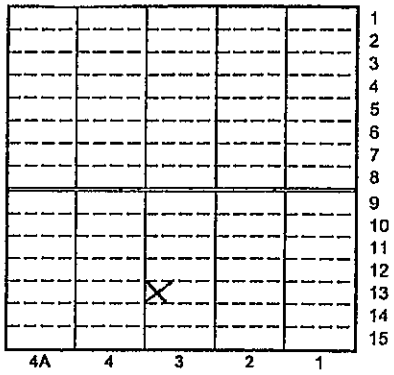
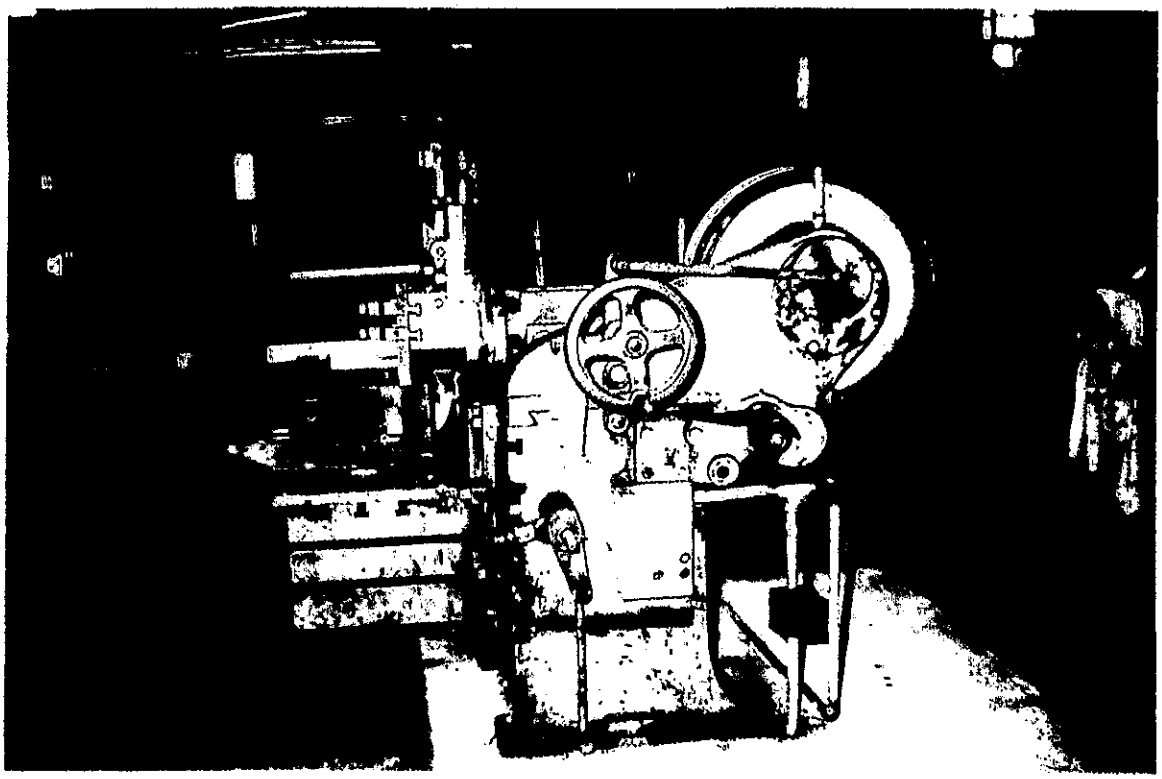


Photo: **FILM No.** **Photographed and inspected December 1995**



Item Name: Four Wheeled Trolley | **Item No.** 115

Name Plate:

Associated Items:
Individual ❑
Assemblage ❑
System ❑
Collection ❑

Description: This four-wheeled trolley is 2.5 metres long and consists of the frame made of two very heavy longitudinal beams and two shorter transverse beams. The top of the longitudinal beams is fitted with steel bar to prevent wear. The simple bearing blocks hold the axle of a set of wheels front and rear. The wheels are of a cast iron railway type with C-shaped spokes.

History: The history of the item is unknown but it appears to be of some antiquity.

Function and Operation: The item was used for transporting material on the rail tracks in the workshop.

Location: Portable Bay 3 South

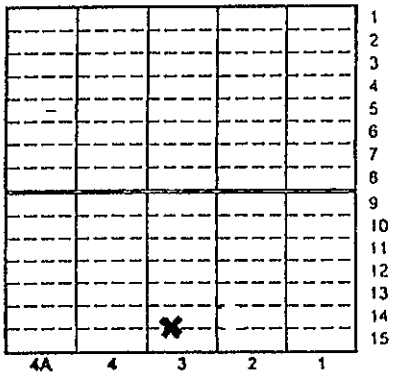
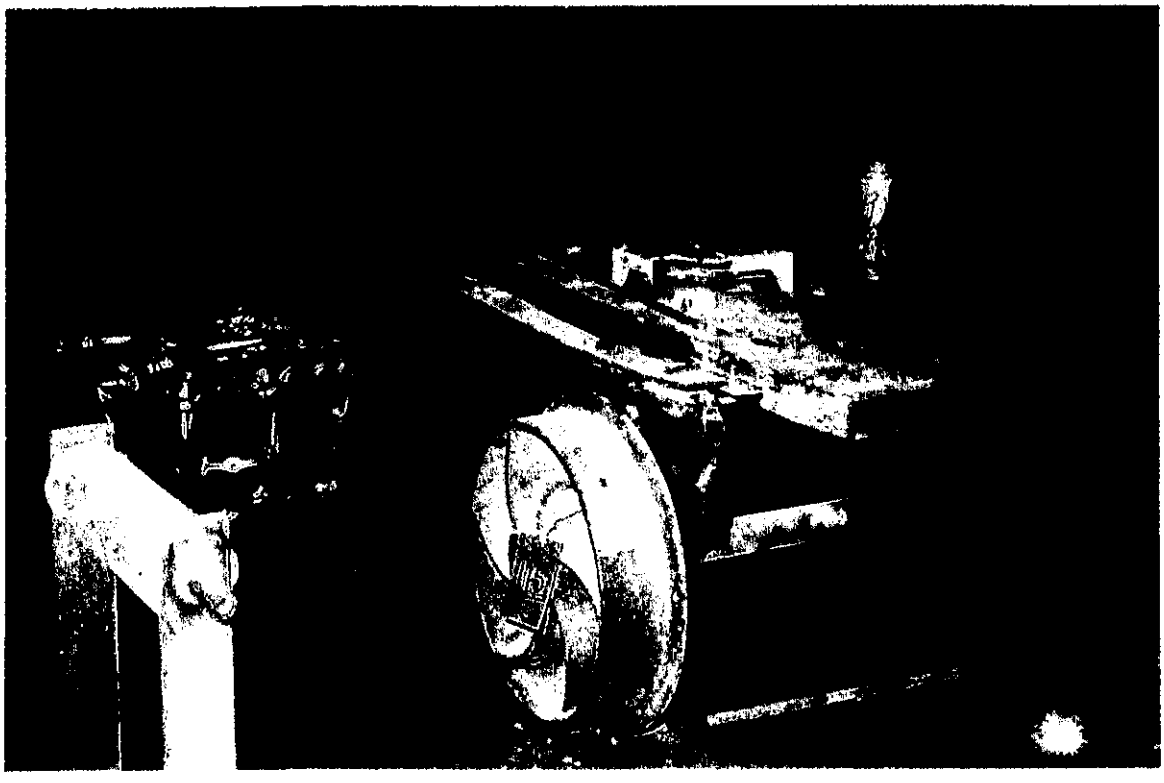


Photo: **FILM No.** 95-169-4-11 **Photographed and inspected December 1995**



Item Name: The Landis Screw Cutting Machine | **Item No.** 118

Name Plate:

Associated Items:

Individual ❑
Assemblage ❑
System ❑
Collection ❑

Description: This particular item has a massive cast-iron bed and was originally used for precision screw cutting on a wide range of bolts used throughout the rail network.

History: The history of the item is unknown but it is believed to have been installed initially in Bay 10 North between the Wars.

Function and Operation: Steel stock is fed through the special ways at the front of the machine into the screw cutting chucks. The screw cutting, once commenced is fed automatically.

Location: Bay 3 South 12 West

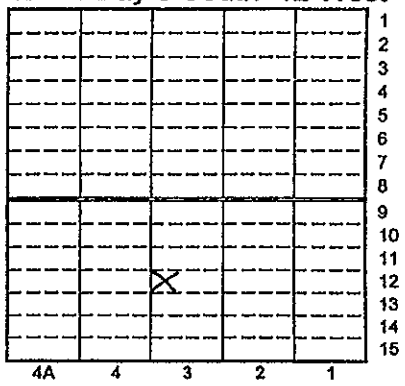
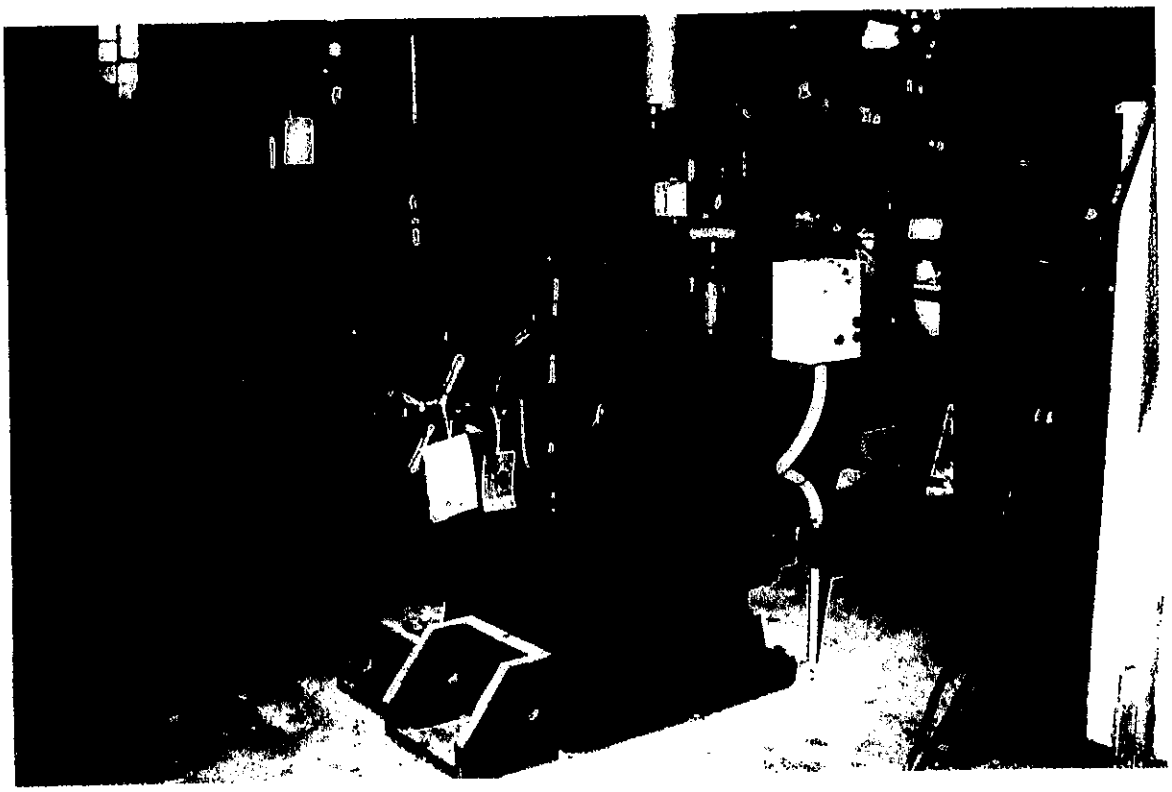


Photo: **FILM No.** 95-169-4-14 **Photographed and inspected December 1995**



Item Name: Boring Machine | **Item No.** 117

Name Plate:

Associated Items:
Individual ❑
Assemblage ❑
System ❑
Collection ❑

Description: This small boring machine by Fred Town and Sons Halifax has a radial arm and the tool head could be moved longways on the arm through a manually operated wheel. The item is about 1.2metres long, 0.8 metres wide and stands in excess of 2 metres high.

History: The history of the item is unknown but it was removed from its original location to this present location by Mr Guido Gouvernor after the workshops closed down.

Function and Operation: The small boring machine was used for producing or enlarging holes which had been drilled or turned in various steel parts or sections. The cutting heads were fixed through the use of a taper and pin.

Location: Bay 3 South 11 West

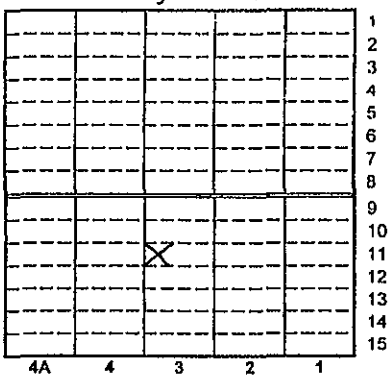
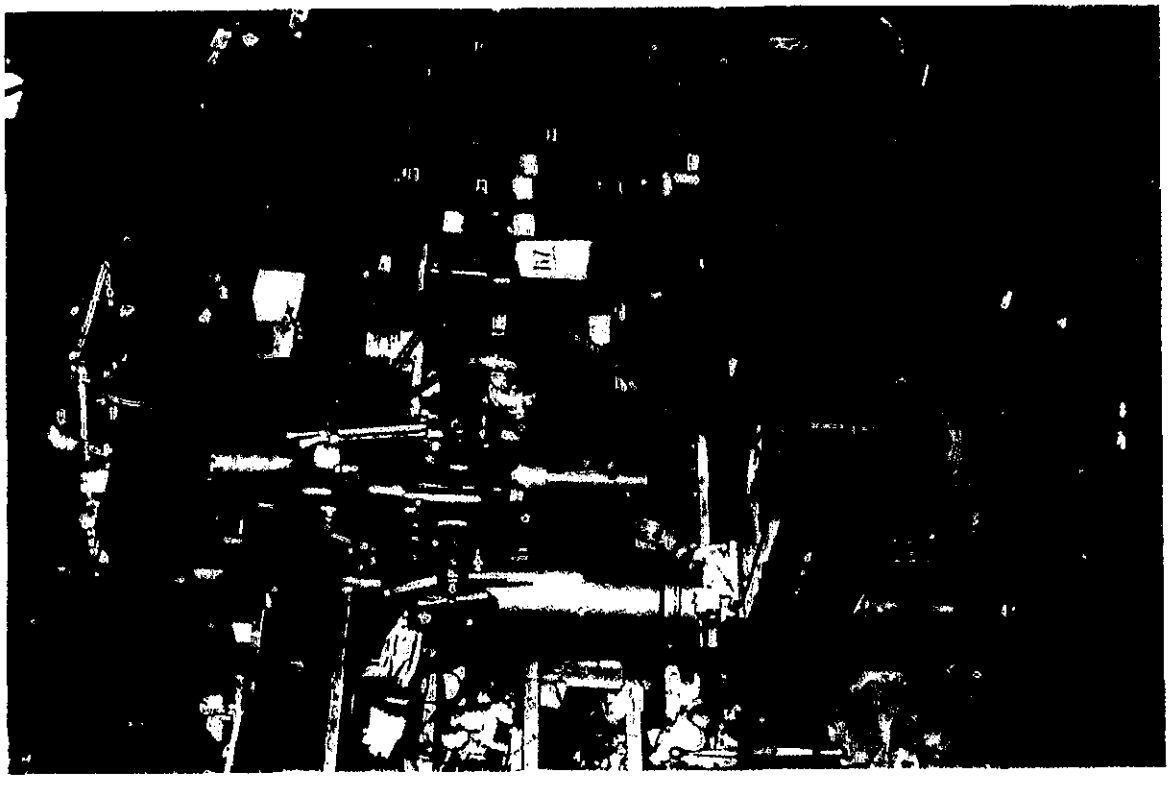


Photo: **FILM No.** 95-169-4-13 **Photographed and inspected December 1995**



Item Name: The Cincinnati Milling Machine | **Item No.** 120

Name Plate: NSWTD MH 3668 S.O.27212 CINCINNATI.BIRMINGHAM.ENGLAND

Associated Items:

Individual	☑
Assemblage	❑
System	❑
Collection	❑

Description: This small milling machine consists of a cast bed with steel ways, a machine mounting and a large machine head which can move the cutting head both vertically and horizontally.

History:

Function and Operation:

Location: Bay 3 South 10 West

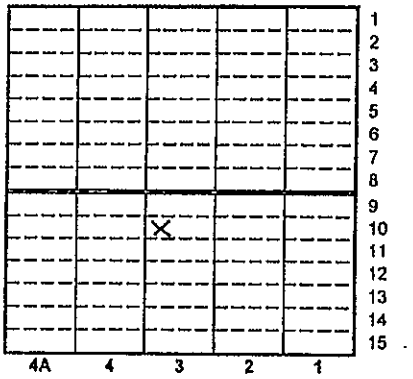
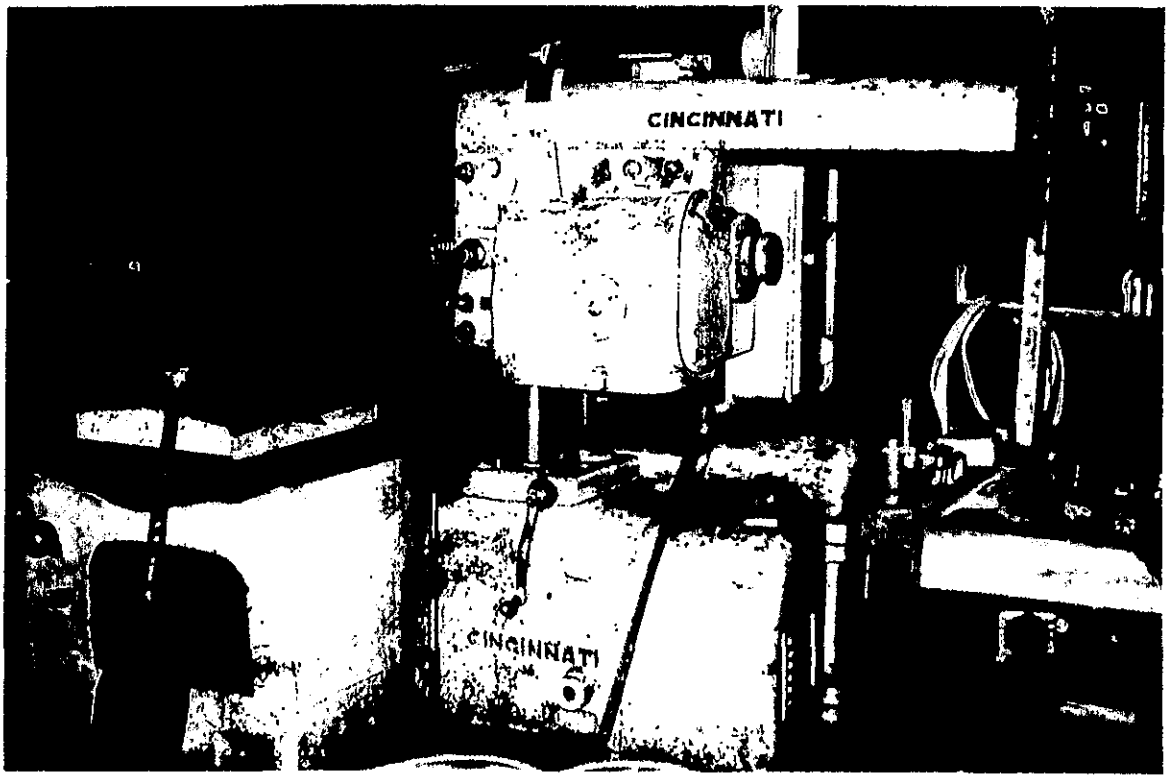


Photo: **FILM No.** 95-169-4-16 **Photographed and inspected December 1995**



Item Name: The Surface Grinder | **Item No.** 119

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
System	☐
Collection	☐

Description: This small surface grinder consists of a base, a pedestal and a bed which can be adjusted horizontally in two directions and can be fed horizontally in two directions. The grinding head is contained on the opposite side to the feed mechanism and is driven through a stand-alone electric motor. The grinding head is small being about 75mm in diameter.

History: The history of the item is unknown.

Function and Operation: The item is used for surface grinding of small items and the whole operation is done manually. The cross feed and transfer feed is controlled by two handles located on the operator's side of the machine.

Location: Bay 3 South 11 West

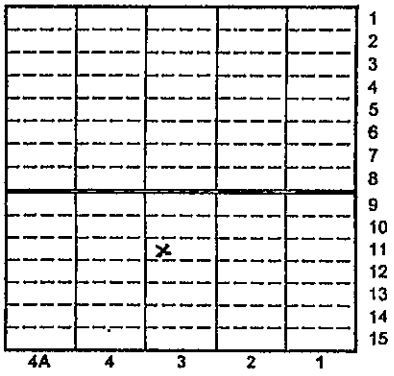
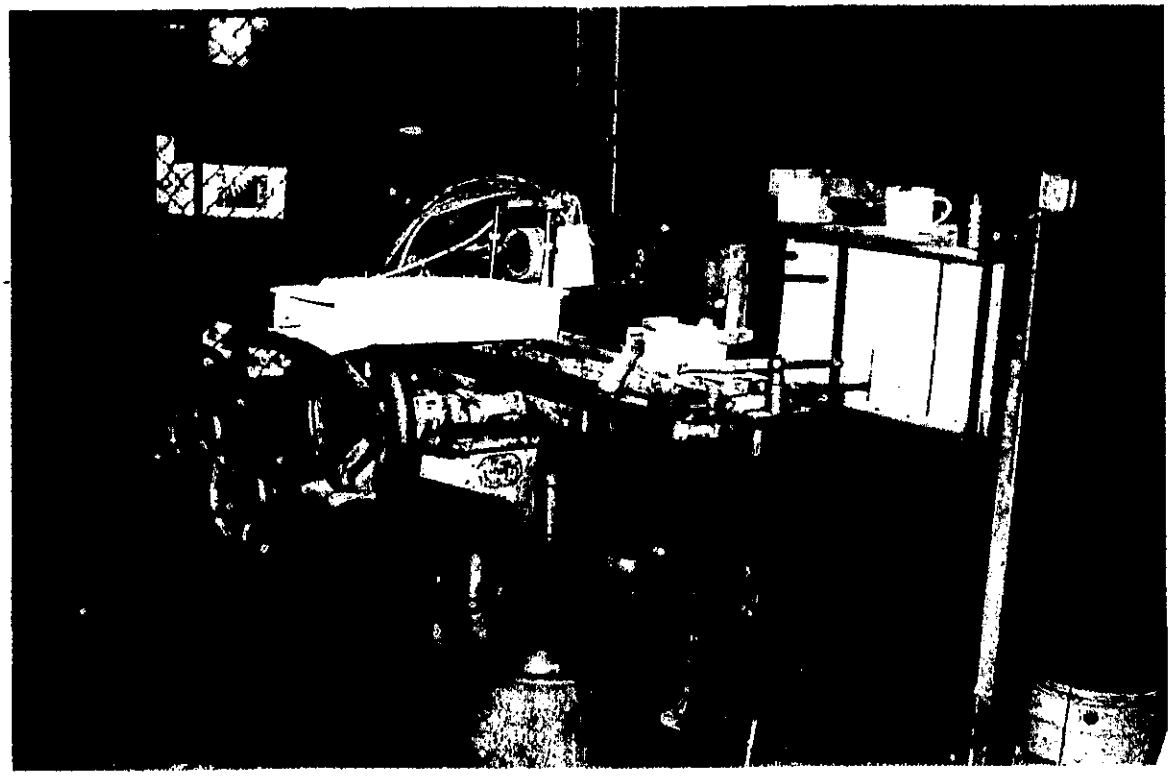


Photo: **Film No.** 95-169-4-15 **Photographed and inspected December 1995**



Item Name: Bed from the Genevoise Precision Drilling Machine | **Item No.** 122

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This item belongs with item 135, the Genevoice Drilling and Boring Machine.

History:

Function and Operation:

Location: Bay 3 South 9 East

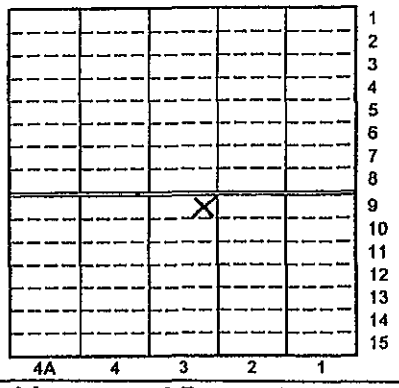


Photo: **FILM No.** 95-169-4-18 **Photographed and inspected December 1995**

Item Name: The Bed from the Genervoise Precision Drilling Machine | **Item No.** 121

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This item belongs with Item 134.

History:

Function and Operation:

Location: Bay 3 South 9 West

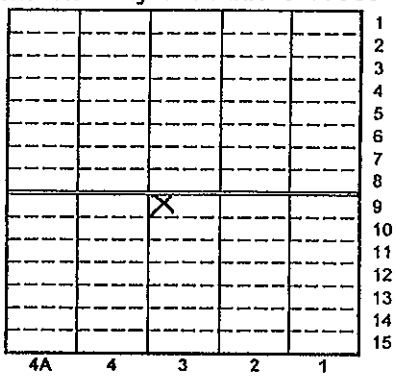


Photo: **FILM No.** 95-169-4-17 **Photographed and inspected December 1995**

Item Name: The Hydraulic System Electric Motor	**Item No.** 184

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: The Hydraulic System consists of an electric motor connected to the gearbox of a three throw electric pump, a steam hydraulic pump by Fielding and Platt, a water reservoir and two hydraulic accumulators. This 100 horsepower motor is by Hawthorn Davey and Company Ltd of Leeds, England. It is believed that this motor was installed with the three throw pump. However, the base on which it stands indicates that another motor has been used to power the pump at some time in the past.

History: The history of this item is unknown but it is believed that it was installed in 1914 to power the Hawthorn Davy three throw pump. It is possible that the footings on which it is mounted were changed in response to the change in the coupling system.

Function and Operation: The motor operates the pump continuously - but is only on load as hydraulic power is being consumed.

Location: Bay 3 South 15 West

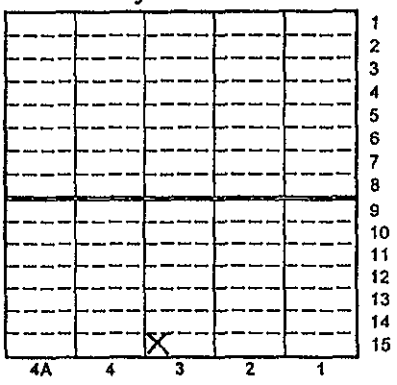
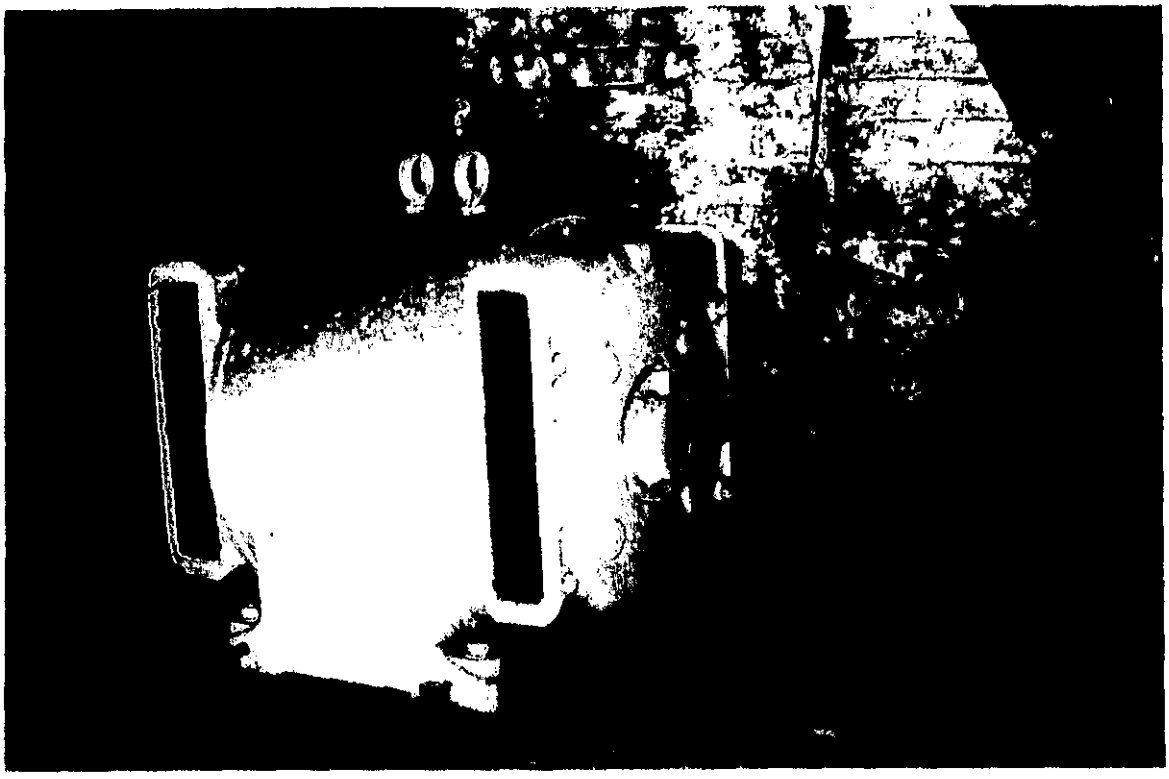


Photo: **FILM No.** 95-169-6-13 **Photographed and inspected December 1995**



Item Name: The Hydraulic System Pump. **Item No.** 185

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: The Hydraulic System consists of an electric motor connected to the gearbox of a three throw electric pump, a steam hydraulic pump by Fielding and Platt, a water reservoir and two hydraulic accumulators. This is a vertical triplex, single acting pressure pump driven by a 100 horsepower electric motor via a very large reduction gear. The pump was installed in this location in 1914 and is by Hawthorn Davey and Company Limited of Leeds, England. The pump is mounted on a cast iron footing which also holds the platform on which the motor is mounted.

History: The pump was installed in 1914 in this location to suppliment the steam pump.

Function and Operation: When the workshops were in full swing the pump was switched on for each shift. The pump rotated continuously but was not placed under pressure unless hydraulic fluid was being sent through the system.

Location: Bay 3 South 15 West

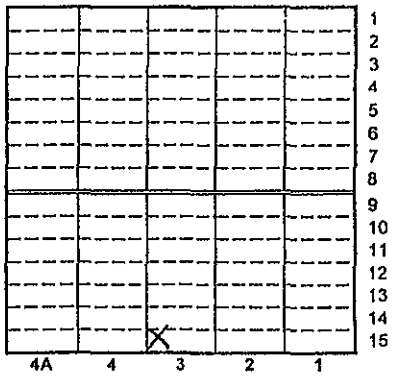
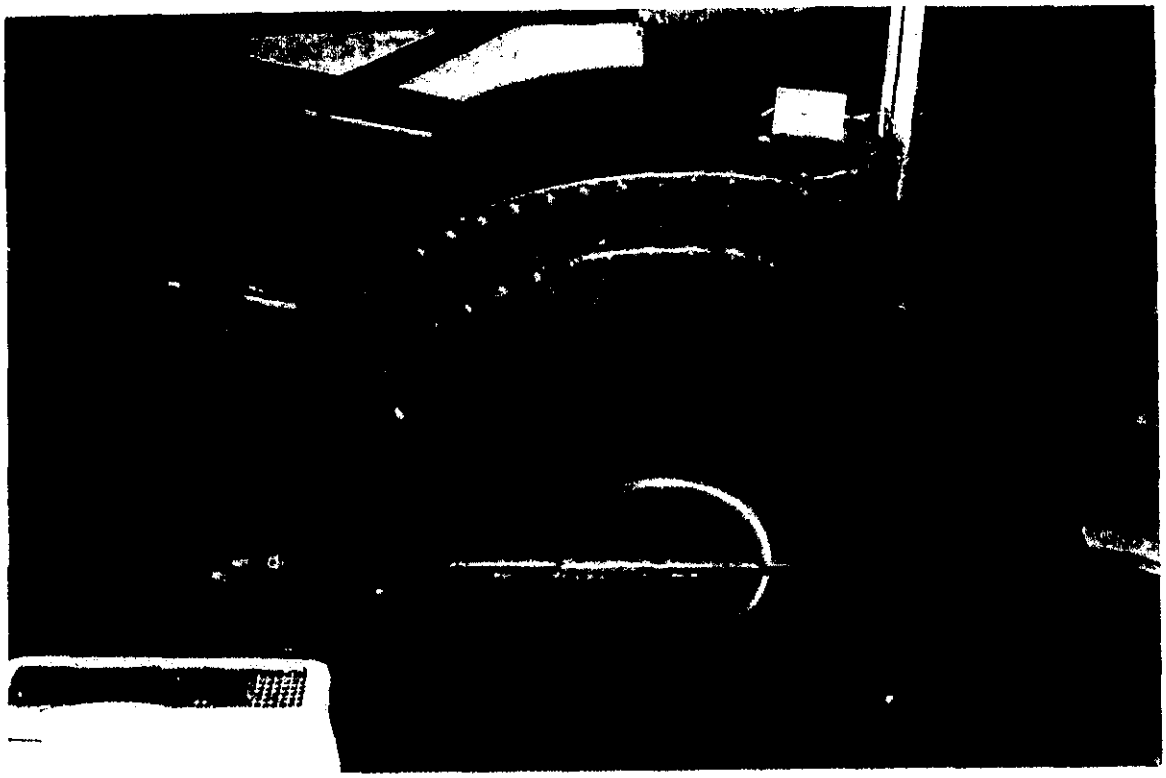


Photo: **FILM No.** 95-169-6-14 **Photographed and inspected December 1995**



Item Name: The Hydraulic System Steam Pump | **Item No.** 186

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: This is a two-cylinder horizontal steam engine direct linked with a two-cylinder pressure pump manufactured in England, about 1885. The two reciprocating pump cylinders are each driven directly by steam cylinders by sharing a common piston shaft and are mounted behind and in line with each steam cylinder. The con-rods to the two metre diameter fly wheel are joined to the centre of each cylinder/pump/piston. Over speed regulation is by a governor driven from the fly wheel crank shaft.

History: The pump was installed in this position in 1886 and has been shown in this location on various maps and plans since.

Function and Operation: The pump is connected to the Number 4 steam boiler and when it was in operation the valving system was actuated by the rise and fall of the accumulators.

Location: Bay 3 South 15 West

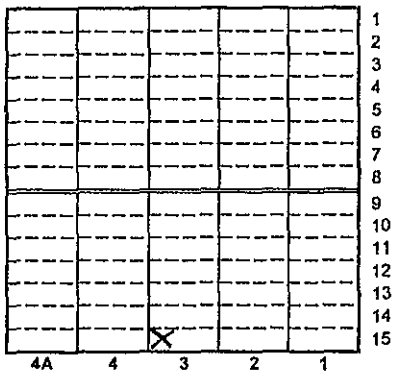
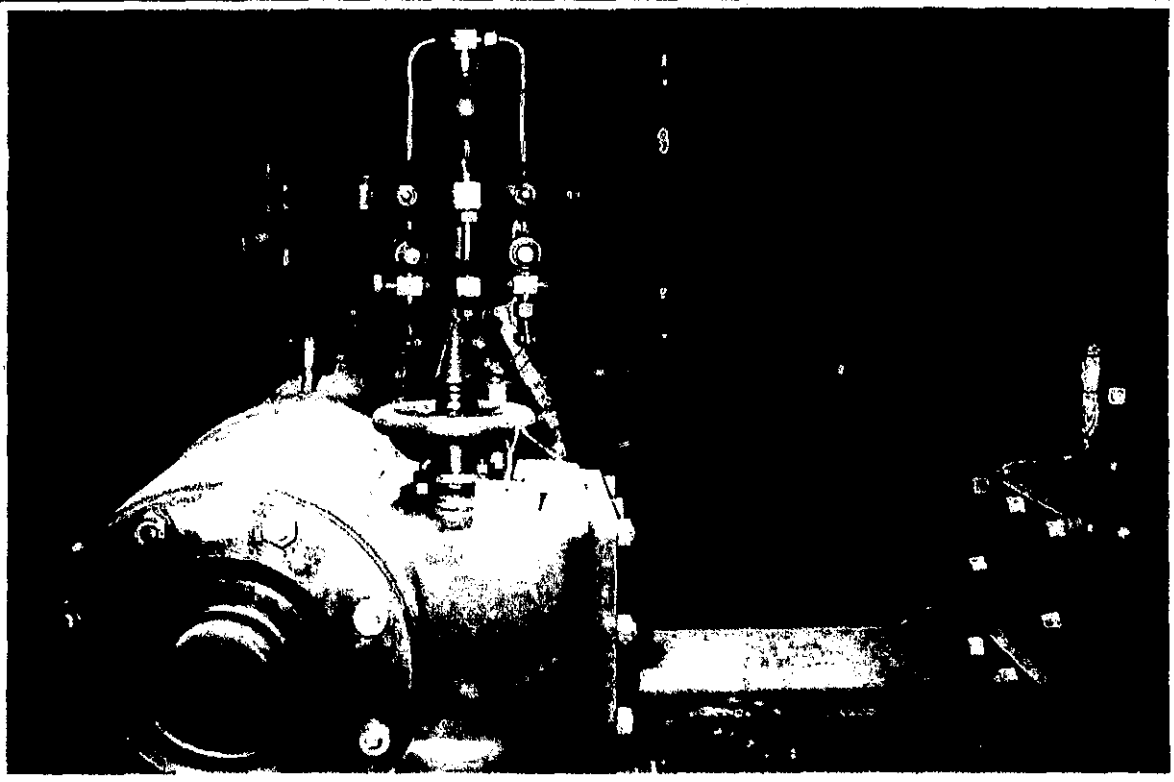


Photo: **FILM No.** 95-169-6-15 **Photographed and inspected December 1995**



Item Name: Hydraulic System Overhead Reservoir | **Item No.** 187

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Collection	☐	

Description: This hydraulic reservoir was installed in 1886 to hold the water for the hydraulic system. This hydraulic system exhausted waste and there appears to have been no return pipes.

History: Installed in this location in 1886.

Function and Operation: The reservoir was filled with water which gave a low-pressure supply to the high pressure pumps.

Location: Bay 3 South 15 West

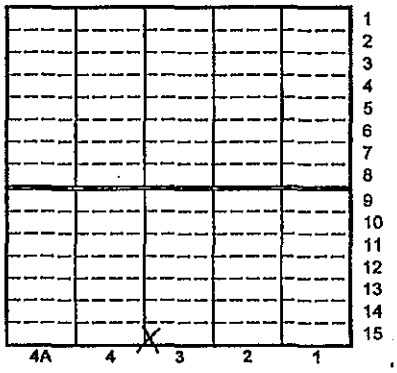


Photo: **FILM No.** **Photographed and inspected December 1995**

Item Name: The Hydraulic Accumulator | **Item No.** 193

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: The hydraulic accumulator is in fact a cylinder about 1.5 metres in diameter and some 4.5 metres high which is filled with iron scrap and in some cases sandstone. It is believed that both of these accumulators were filled with scrap iron. The accumulator, through its weight, gives an artificial head to the water in the hydraulic system. The inlet and outlet is through a single pipe which enters the ram at the base. The accumulator is fitted with guide rails which have top and bottom, cutout and activating switches.

History: The age of the accumulator is unknown although it would appear that both have had recycled fabric used in their present form.

Function and Operation: The accumulator is free to move up and down the guides. As water is pumped in to the cylinder or ram it moves up. Water or fluid is used by the machines which are powered by Hydraulic fluid the accumulator rides down. There are switch mechanisms at both the top of the allowable rise and the bottom which activates and deactivates the pumps.

Location: Bay 3 South 15 West

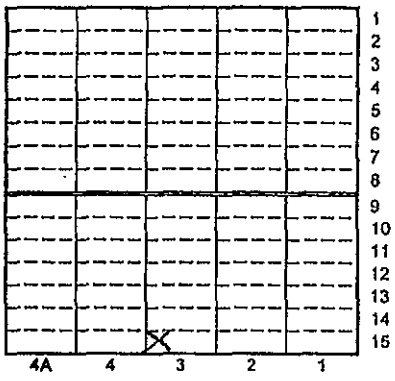
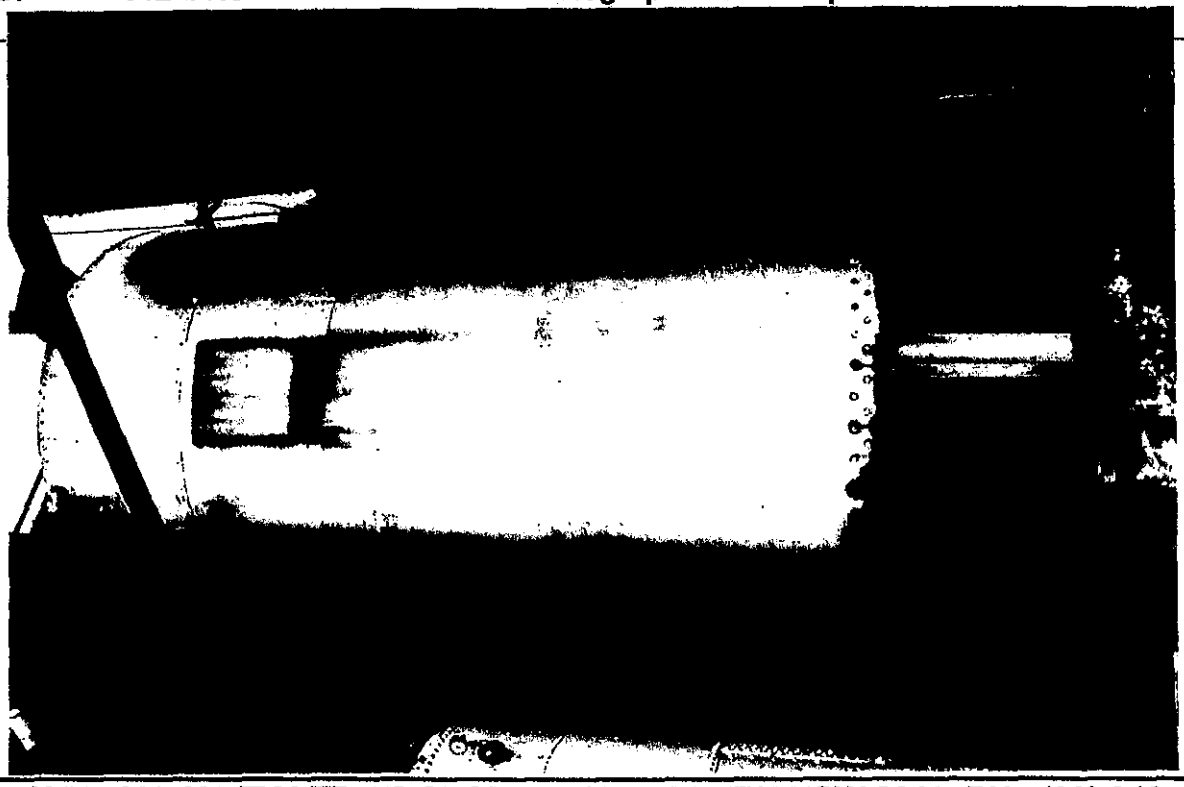


Photo: **FILM No.** 95-169-6-22 **Photographed and inspected December 1995**



Item Name: Hydraulic Accumulator	**Item No.** 194

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: The hydraulic accumulator is in fact a cylinder about 1.5 metres in diameter and some 4.5 metres high which is filled with iron scrap and in some cases sandstone. It is believed that both of these accumulators were filled with scrap iron. The accumulator, through its weight, gives an artificial head to the water in the hydraulic system. The inlet and outlet is through a single pipe which enters the ram at the base. The accumulator is fitted with guide rails which have top and bottom, cutout and activating switches.

History: The age of the accumulator is unknown although it would appear that both have had some of their fabric re-used.

Function and Operation: The accumulator is free to move up and down the guides. As water is pumped in it moves up. Water or fluid is used by the machines which are powered by Hydraulic fluid the accumulator rides down. There are switch mechanisms at both the top of the allowable rise and the bottom which activates and deactivates the pumps.

Location: Bay 3 South

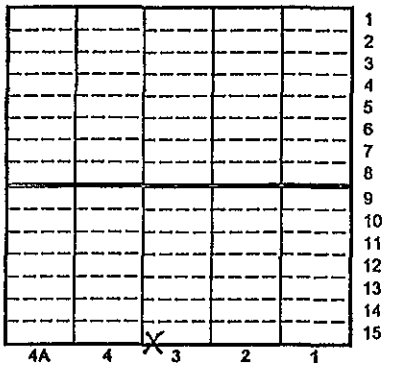
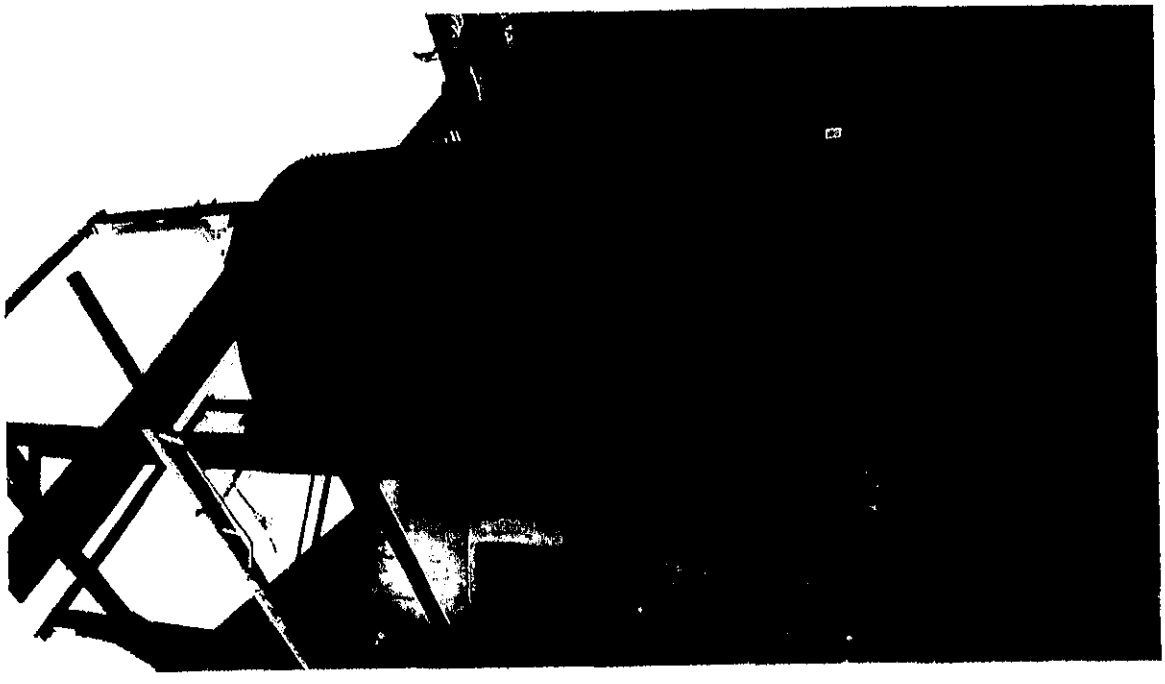


Photo: **FILM No.** **Photographed and inspected December 1995**



Item Name: Jib-Crane **Item No.** 195

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Jib Cranes 30, 45, 46, 50, 55, 58, 76, 77, 80, 84, 183, 195
System	☐	
Operational Groups	☐	

Description: This small Jib-Crane was used as part of the spring heat treating process.

History: Its history is unknown but it is believed to be of relatively modern origin.

Function and Operation: The Jib was swung by hand and a small electrically block and tackle hoist was used to raise and lower the equipment.

Location: Bay 3 South 11 East

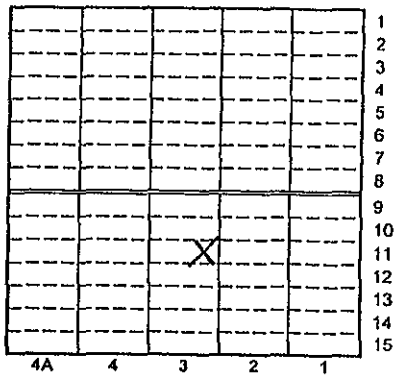
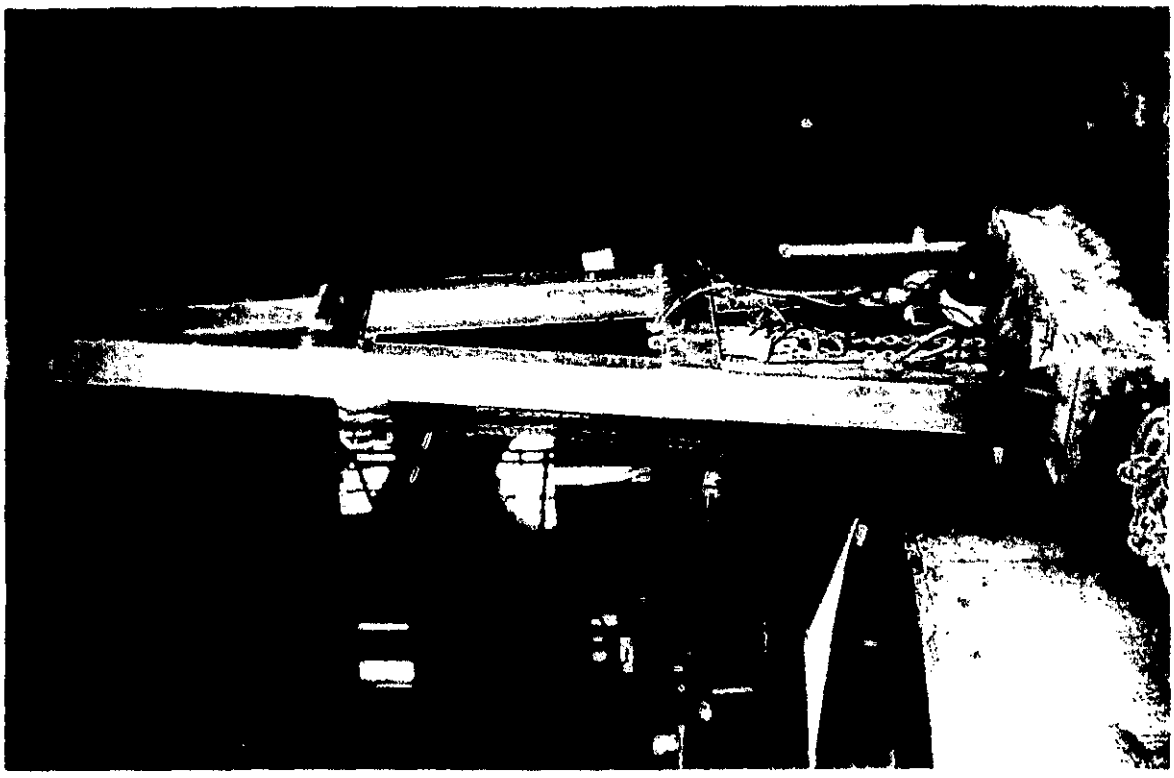


Photo: **FILM No.** 95-169-6-24 **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 3 NORTH

Item Name: Pedding Haus Shearing Machine | **Item No.** 123

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☐	
Systems	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This machine was basically used for shearing plate or rod spring stock. It is a large heavy machine made from bolted and riveted plate rather than cast sections and stands in excess of 2 metres high and is over 1 metre wide. The shears are operated by a belt attached to a very large driven wheel, the speed of which is broken down by a gear train.

History: The history of the item is unknown but it is believed that it has been in the workshops since the 1950s.

Function and Operation: Bar or rod stock is simply fed through from the back or southern end, onto a bench fitted with a stock. The material is then cut from the stock. The slow shearing action allows the stock to be fed through continuously.

Location: Bay 3 North 4-5

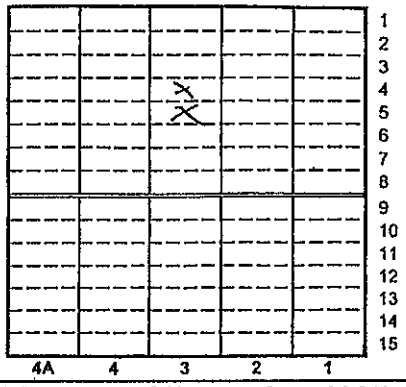
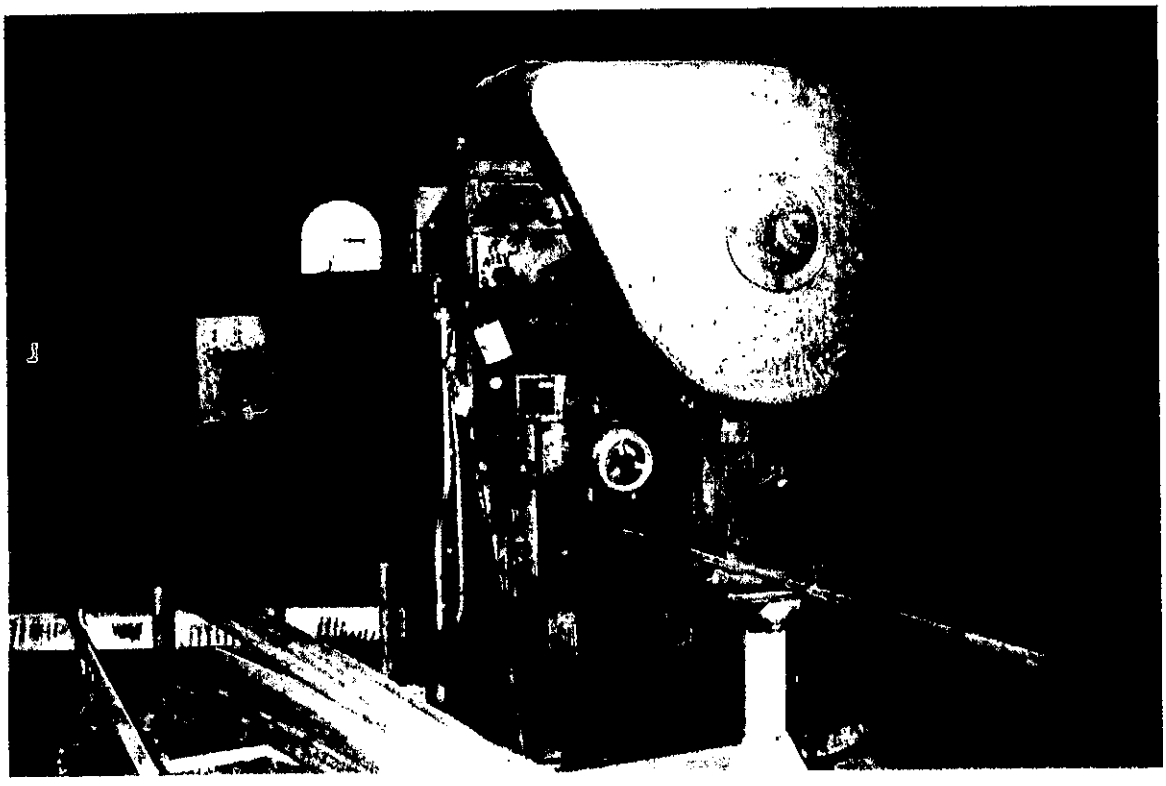


Photo: **FILM No.** 95-169-4-23 **Photographed and inspected December 1995**



Item Name: Reheating Furnace | **Item No.** 124

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	36G
Collections	☐	
Systems	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This is a relatively small furnace in the spring shop which was used for heating springs prior to heat treating. The furnace is manufactured form sheet and plate steel and lined with fire bricks. The heating is done indirectly and the flame does not impinge directly onto the spring. The furnace is fitted with a counter-weighted lever operated door.

History: The history of the item is unknown but it is believed to have been manufactured prior to the Second World War.

Function and Operation:

Location: Bay 3 North 3-4 West

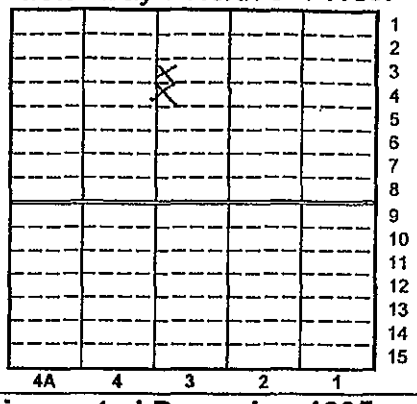
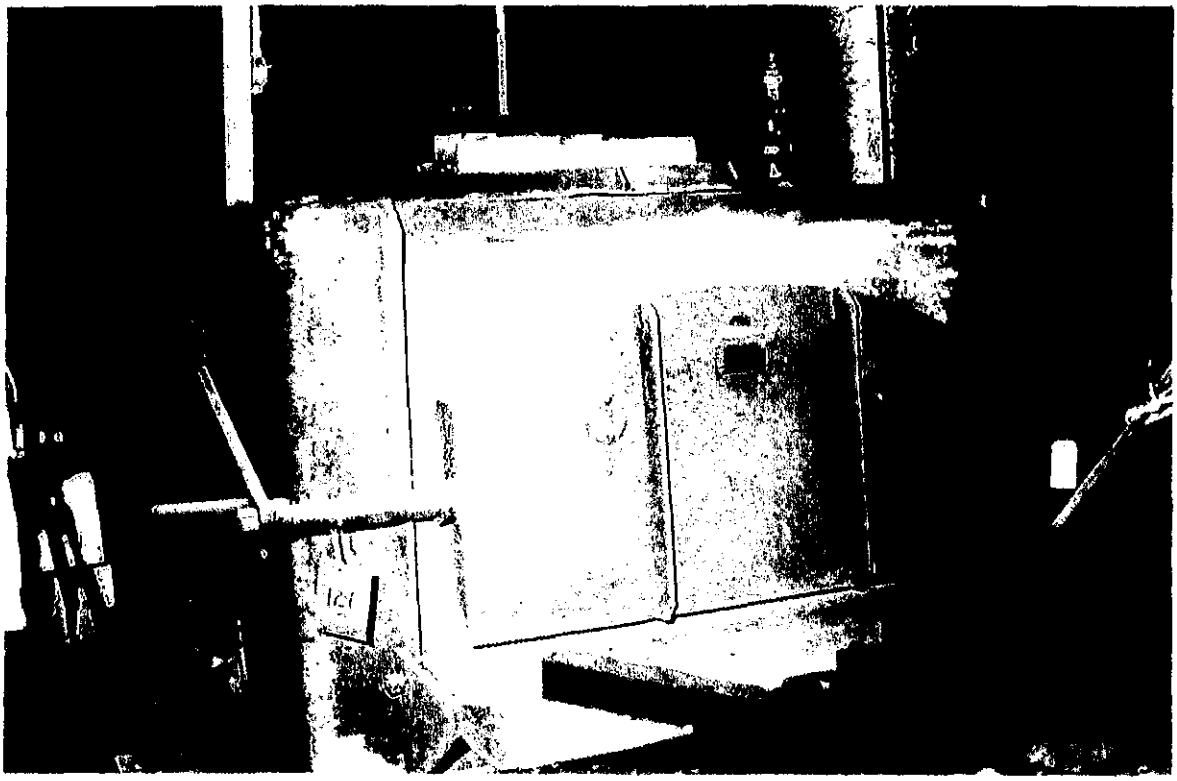


Photo: **FILM No.** 95-169-4-24 **Photographed and inspected December 1995**



Item Name: Whitam Spring Coiler | **Item No.** 125

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☑	Spring coiler
Collections	☐	
Systems	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: The machine is about 4 metres long and stands in excess of a metre high. It is fitted with a large, open gear at the head-stock end which rotates the mandrel on which the spring is formed. The spring coiler has the basic shape of a lathe and, in most respects, resembles one.

History: The coiler was installed in 1912.

Function and Operation: The coiled springs were exceptionally important throughout the railway systems. Coil springs were wound in the spring shop. They were ground and heat treated in Bays 3 and 4. The diameter of the springs could be varied by using different diameter mandrills which were set into the drive of the spring coiler.

Location: Bay 3 North 2-3 West

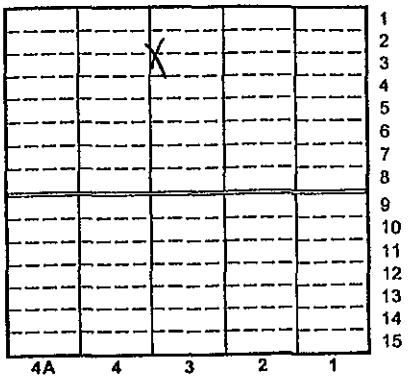
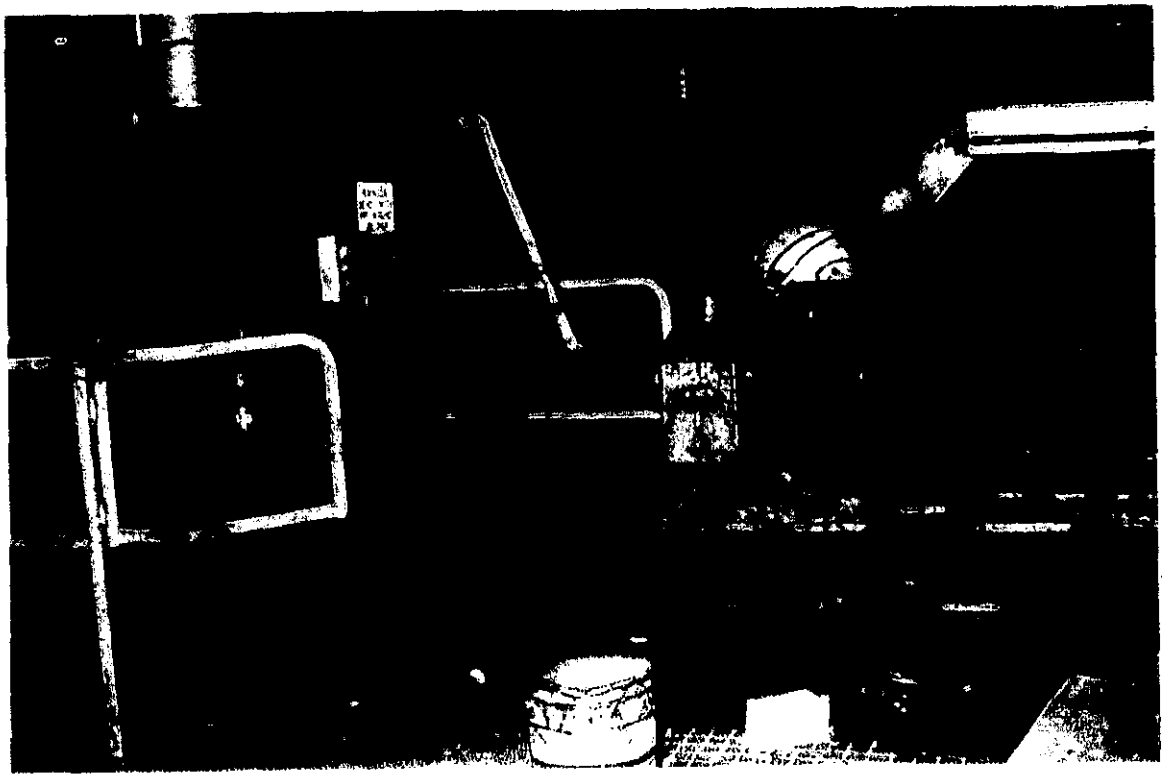


Photo: **FILM No.** 95-169-4-25 **Photographed and inspected December 1995**



Item Name: Departmental Grinder	**Item No.** 126

Name Plate: N/A

Associated Items:

Individual ☑
Assemblage ☐
Collections ☐
Systems ☐
Operational Groups ☐

Description: This particular grinder was originally used in Bay 14 North and was a tool and cutter grinder, manufactured by the railways themselves. It stands in excess of 2 metres high. It is fitted with a small adjustable table which has longitudinal and transverse travel and the machine, driven by its own attached motor has two grinding wheels, one above the table and one at the end of the table.

History: It is not known when the item was manufactured but it is believed to be about 1940 when the war prevented the introduction of imported machines. This item has been made from other redundant machinery parts and the base was possibly cast at the Eveleigh Workshops.

Function and Operation: The grinder was used for grinding and sharpening tools and cutters used throughout Bay 14.

Location: Bay 3 North 4 East

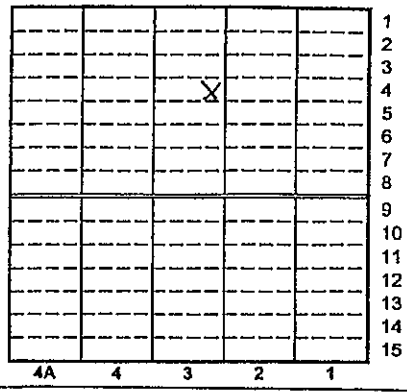
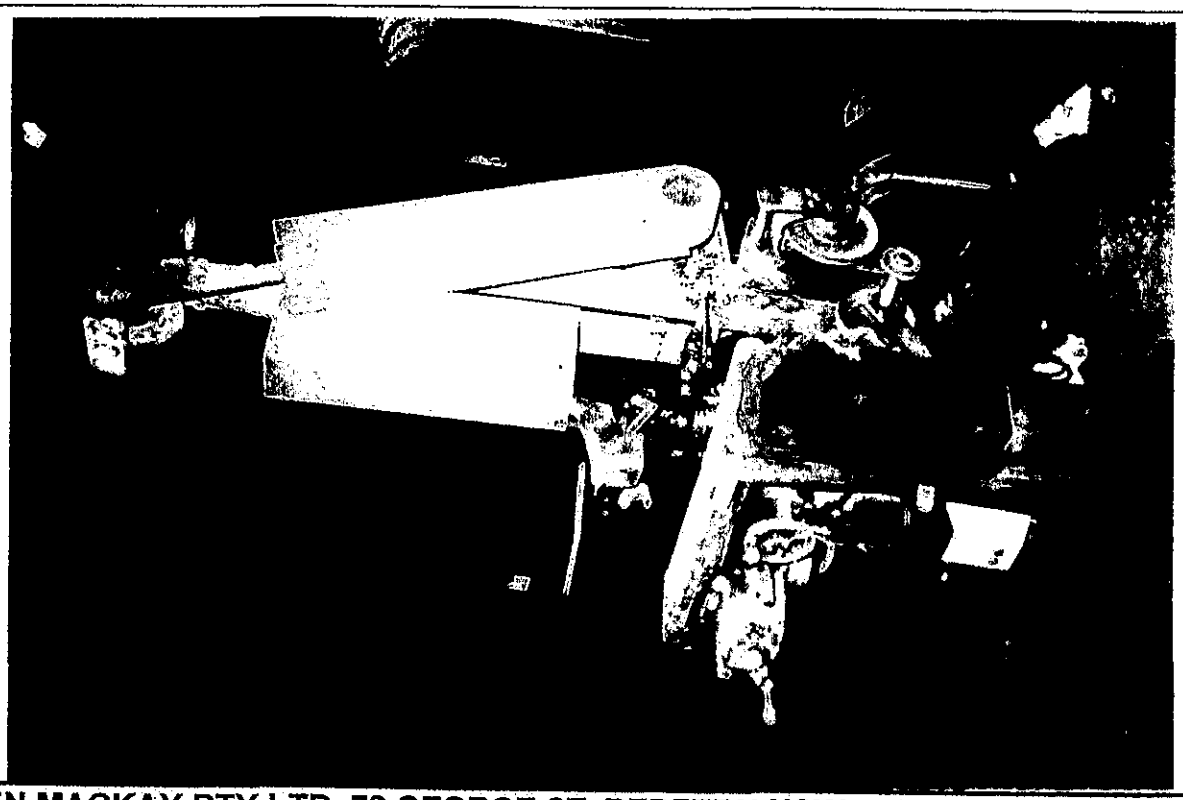


Photo: **FILM No.** 95-169-4-26 **Photographed and inspected December 1995**



Item Name: Small Pedestal Drill | **Item No.** 127

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This drill stands in excess of 2 metres high, 1.5 metres long and about 1 metre wide. The bed for the drill holds the pedestal which has a curved extension at the rear to hold the driving pulleys and two extensions at the front to hold the drill head. This is attached to a series of four variable speed pulleys at the bottom of the pedestal and an equivalent reverse set at the top rear of the pedestal. This four speed could be further modified by two gear trains attached to the driving and driven shafts of the driving head of the drill. The drill head itself was fixed except for limited drill travel and the slotted circular stockbed could be raised and lowered on the cast iron ways cut on the external surfaces of the pedestal.

History: The item is believed to have been originally installed in bay 14 in 1899. It was then transferred to a number of locations before being placed in a number of small workshops to the south of the main suite of buildings. It was moved to this location in 1989.

Function and Operation: The pedestal drill was a general purpose tool used for various operations throughout the workshops.

Location: Bay 3 North 4 East

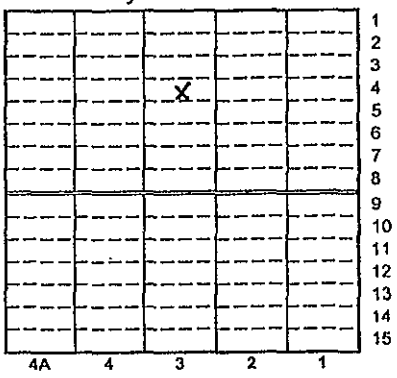
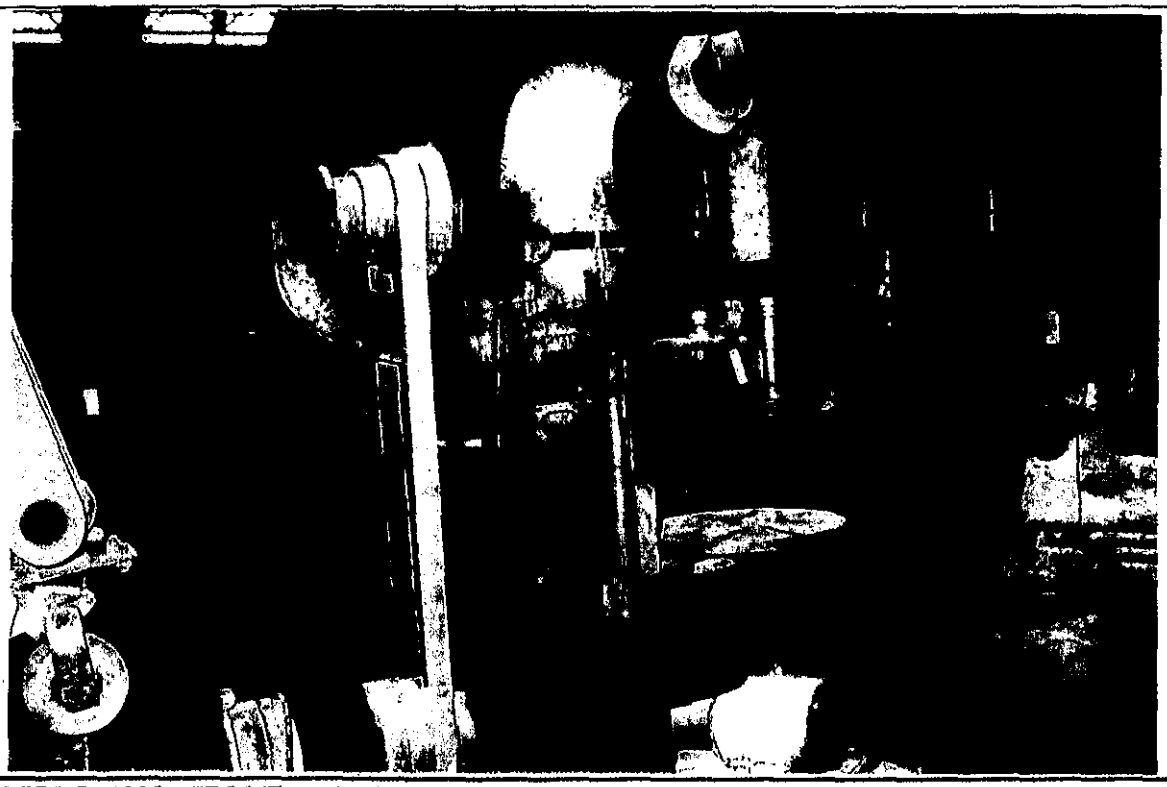


Photo: **FILM No.** 95-169-4-27 **Photographed and inspected December 1995**



Item Name: The Bevel Wheel Planer | **Item No.** 128

Name Plate: NSWGR No. 393 Class P
The Robey-Smith Bevel Wheel Planer
Buck & Smith & Coventry's Patent Manchester

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐

Description: This Bevel wheel planer is an extraordinarily complex early machine used for planing gear wheels. It is about 2.5 metres long, 2 metres wide and stands about 1.8 metres high. It's extremely complex construction involves pre-WWI technology and a close inspection can reveal its mode of operation.

History: The item was manufactured in 1911 and was probably located for most of its life in bay 9.

Function and Operation: The item was used to cut Bevel gears for use throughout the workshops and SRA rail system. It is one of the more complex of the early machines.

Location: Bay 3 North 3-4 East

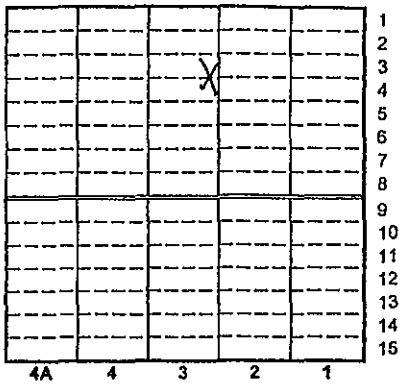
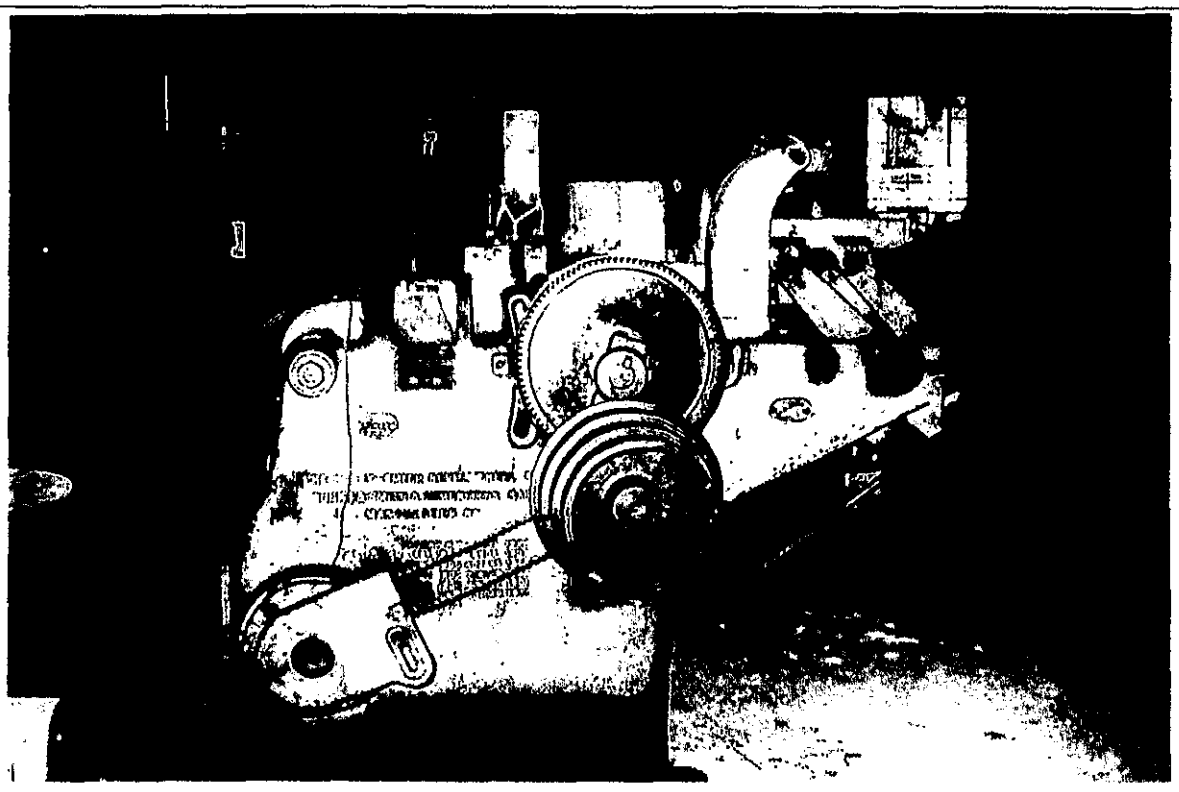


Photo: **FILM No.** 95-169-4-28 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 129

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
Systems	☐	
Operational Groups	☐	

Description: This small heating furnace was operated on gas. It is now missing its front door and is in poor condition.

History: The history of the item is unknown.

Function and Operation: N/A.

Location: Bay 3 North 3 East

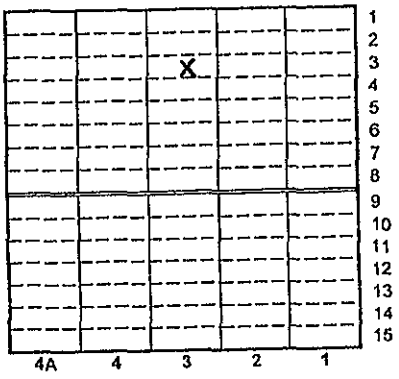
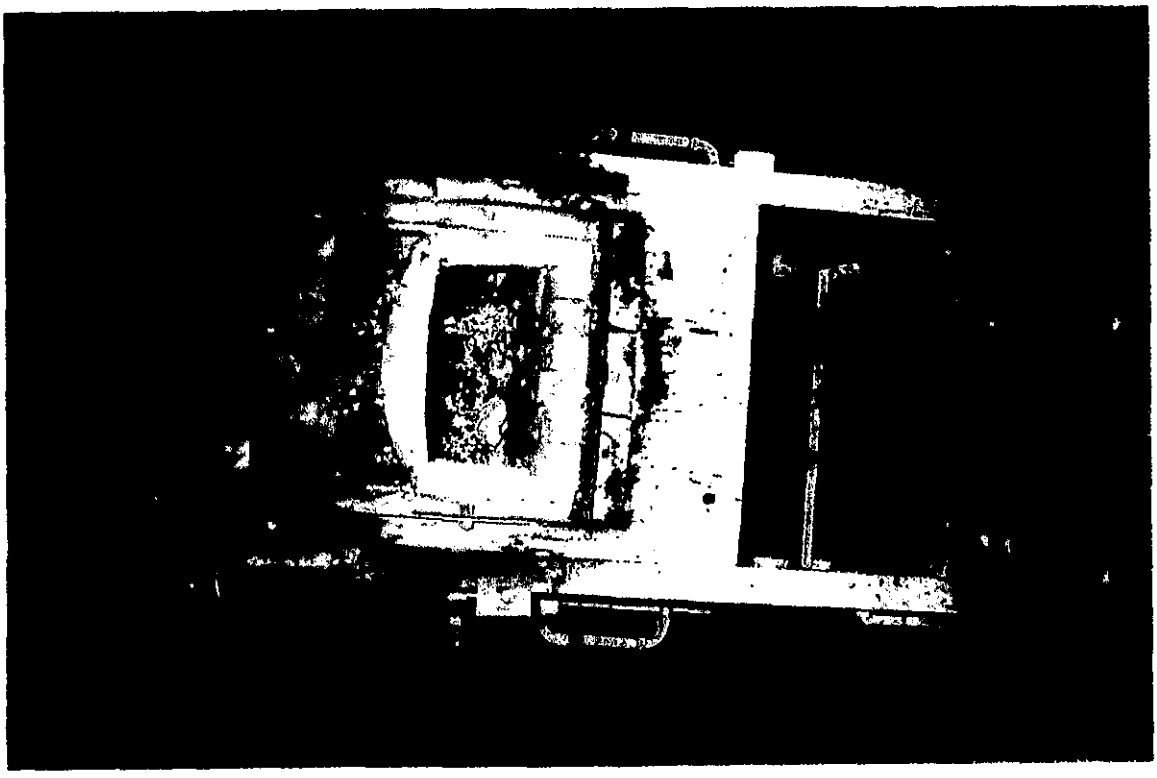


Photo: **FILM No.** 95-169-4-29 **Photographed and inspected December 1995**



Item Name: Centreless Grinder | **Item No.** 130

Name Plate: NSWGR No. 1360 Class G
BSA Tools Ltd, Birmingham England

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: The centreless grinder which is now missing the front and rear supports is a machine for grinding shafts. Rather than set the shaft between two centres on a lathe and grinding it smooth by moving a wheel against the turning shaft, centreless grinding involves supporting the shaft on a series of rollers and bringing it past a spinning stationery grinding wheel.

History: The item was installed in 1941 and exhibits pre-WWII manufacturing technology. It was originally located in bay 13 north and was transferred to this location when the workshop closed down.

Function and Operation: The centreless grinder was used for producing a wide range and size of shafts for various functions throughout the rail network. It functioned by supporting shafts on a series of roller supports which allowed the shaft to turn as it was brought in contact with the grinding wheel.

Location: Bay 3 North 2

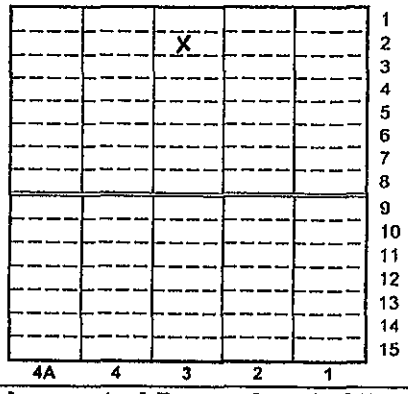
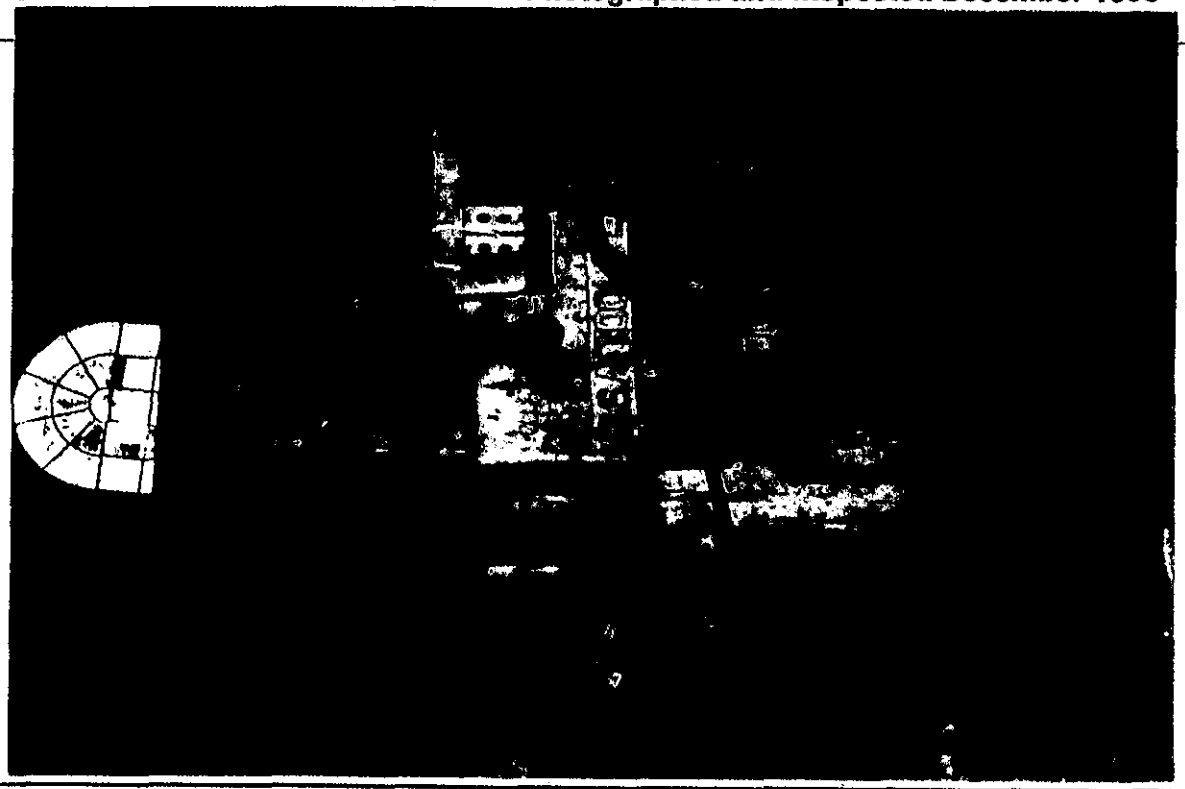


Photo: **FILM No.** 95-169-4-30 **Photographed and inspected December 1995**



Item Name: The Ward Lathe | **Item No.** 131

Name Plate: H.W. Ward & Co. Ltd
Birmingham England

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
Systems	☐	
Operational Groups	☐	

Description: This lathe is in excess of 4 metres long, stands about 1.8 metres high and about 1 metre wide. It is typical of the turret lathes manufactured between the Wars. It exhibits pre-War and hence pre-computer controls. The lathe was extremely versatile and exhibits the epitomy of integrated automatic cutting lathes.

History: The history of the item is unknown but it was installed probably around 1940 in bay 11 north. It was removed from this location at the close of the workshops.

Function and Operation: The lathe is used for a series of operations on a single item. The turret allows tools to be changed in quick succession as each operation is carried out.

Location: Bay 3 North 2

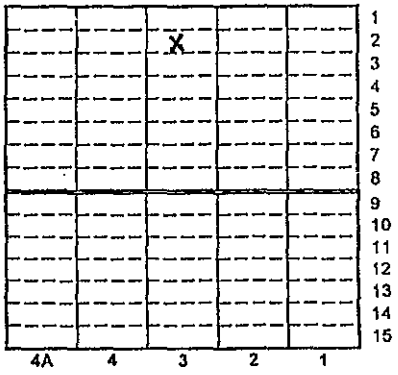
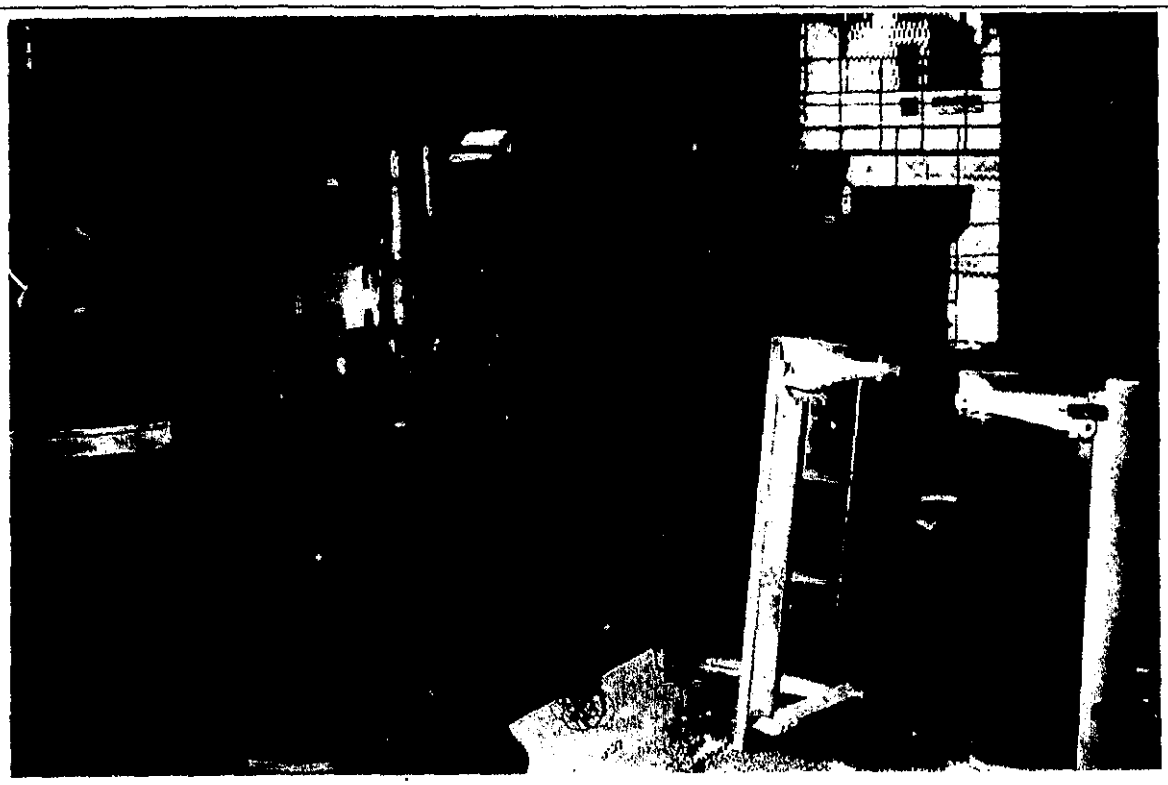


Photo: **FILM No.** 95-169-4-31 **Photographed and inspected December 1995**



Item Name: The Vertical Shaper | **Item No.** 132

Name Plate: NSWGR No. 1396 Class SL Omerod Shapers Ltd Hebden Bridge England

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: The vertical shaper consists of an open style rather than an arch or portal head. The item stands nearly 3 metres tall, is nearly 3 metres long and 1.8 metres wide. The bed can be moved longitudinally, transversally and is fitted with a rotating mounting table with longitudinal and transverse T slots. The vertical shaper has the advantage over the horizontal shaper in that far heavier items and items of much more complex shape can be fitted to the carriage.

History: The item was manufactured between the Wars and is believed to have been installed in the workshops in bay 10 south in 1940. The item was removed to bay 3 north when the workshops closed down.

Function and Operation:

Location: Bay 3 North 2 West

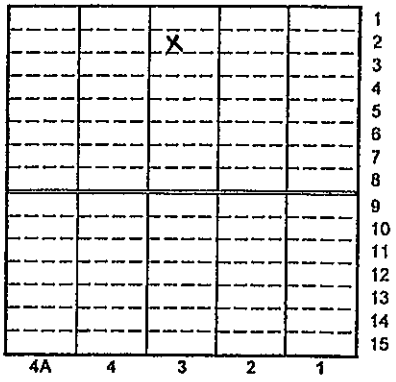


Photo: **FILM No.** 95-169-4-32 **Photographed and inspected December 1995**

Item Name: The Single Vertical Borer | **Item No.** 133

Name Plate: NSWGR No. 913 Class BU Webster & Bennett Ltd .Coventry England

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This boring machine is fitted with a turret head which would take a series of boring tools. The basic C-shape is typical of borers of this style and the exceptionally heavy bed was used to move the stock past the cutting head.

History: The item was installed in bay 9 north in 1940. It was moved to bay 3 when the workshops closed.

Function and Operation: Items to be bored are mounted on the rotating bed and are rotated as the boring takes place.

Location: Bay 3 North 2 West

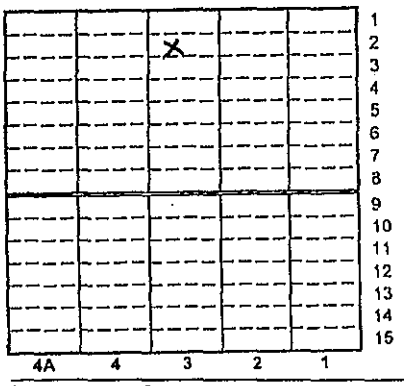
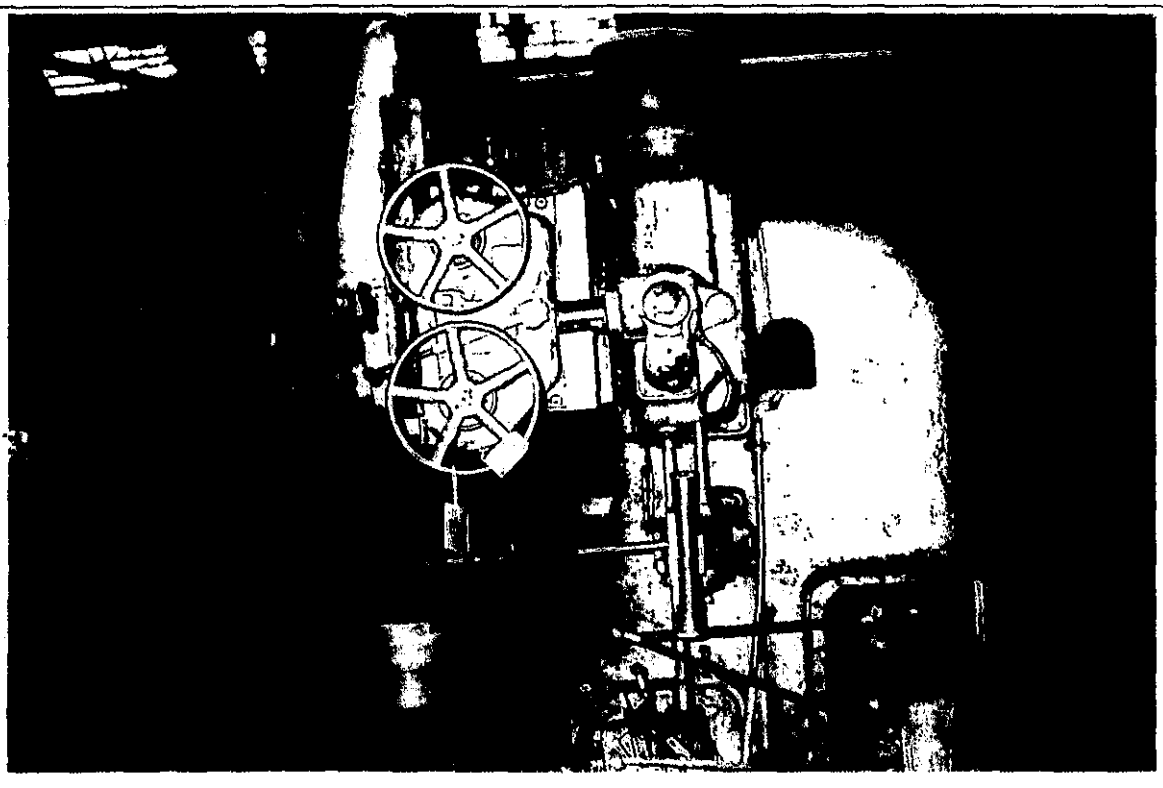


Photo: **FILM No.** 95-169-4-33 **Photographed and inspected December 1995**



Item Name: The Genevoise Drilling and Boring Machine | **Item No.** 134

Name Plate: NSWGR No. 1043 Class X Societe Genevoise. Geneve. Suisse

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This item was regarded as the most impressive of the precision drilling and boring machines in the railway workshops. It consists of a portal which holds a very delicately balanced tool frame head and a stock holder which can be turned through any number of positions in the horizontal plan.

History: The item was brought to the workshops and installed in 1930 in a special room located in the tool room (Bay 7).

Function and Operation: The Genevoise was used for a variety of precision operations. Because of the accuracy, the machine was capable of, it was operated only by selected tool makers.

Location: Bay 3 North 3 West

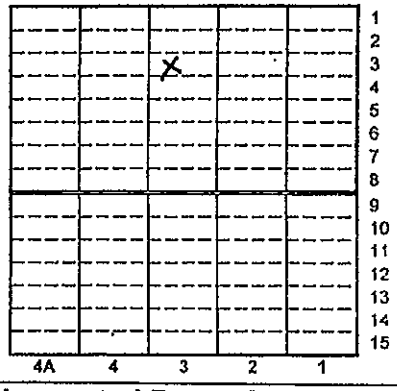
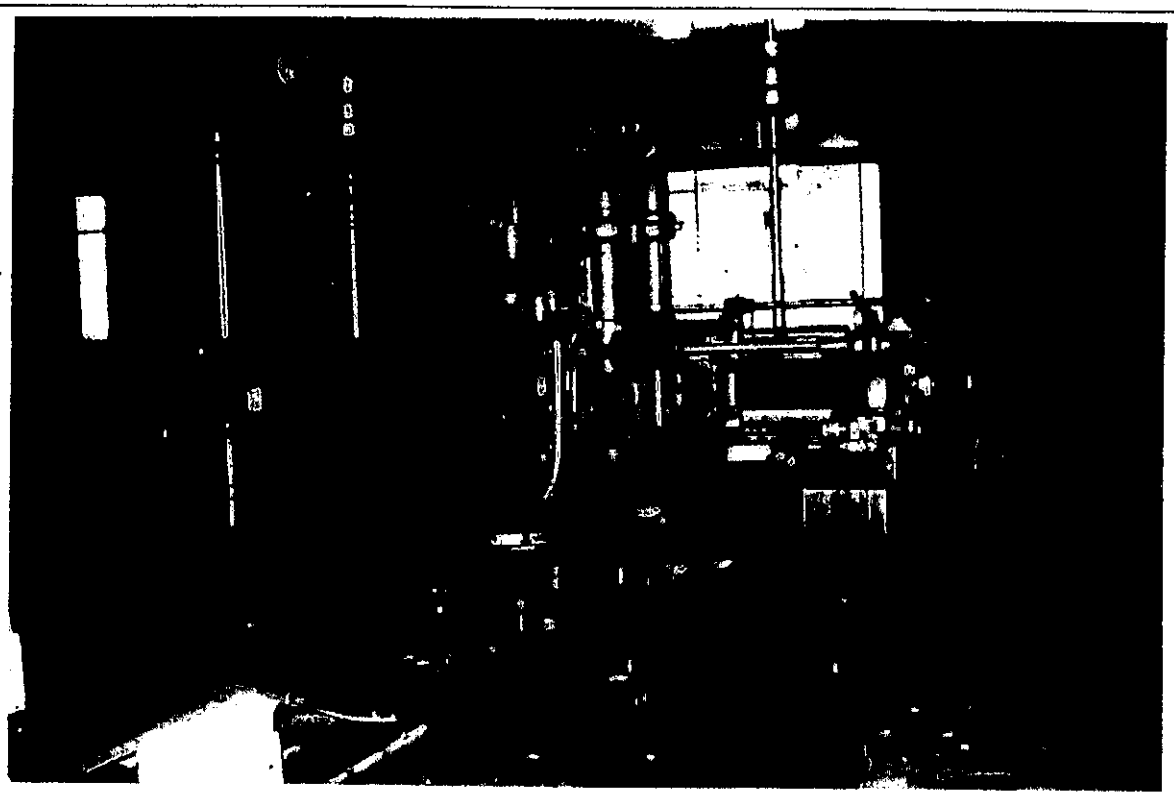


Photo: **FILM No.** 95-169-4-34 **Photographed and inspected December 1995**



Item Name: The Genevoise Drilling and Boring Machine | **Item No.** 135

Name Plate: NSWGR No. 1284 Class X
Societe Genevoise

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This item was regarded as the most impressive of the precision drilling and boring machines in the railway workshops. It consists of a portal which holds a very delicately balanced tool frame head and a stock holder which can be turned through any number of positions in the horizontal plan.

History: The item was brought to the workshops and installed in 1939 in a special room located in the tool room (bay 9).

Function and Operation: The Genevoise was used for a variety of precision operations. Because of the accuracy, the machine was capable of, it was operated only by selected tool makers.

Location: Bay3 North 3 West

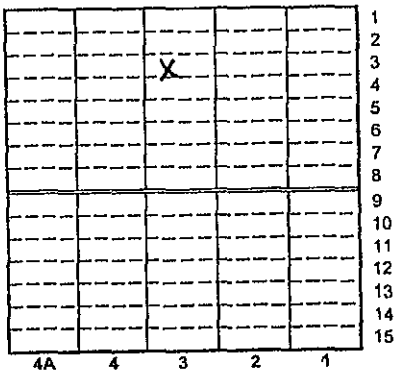
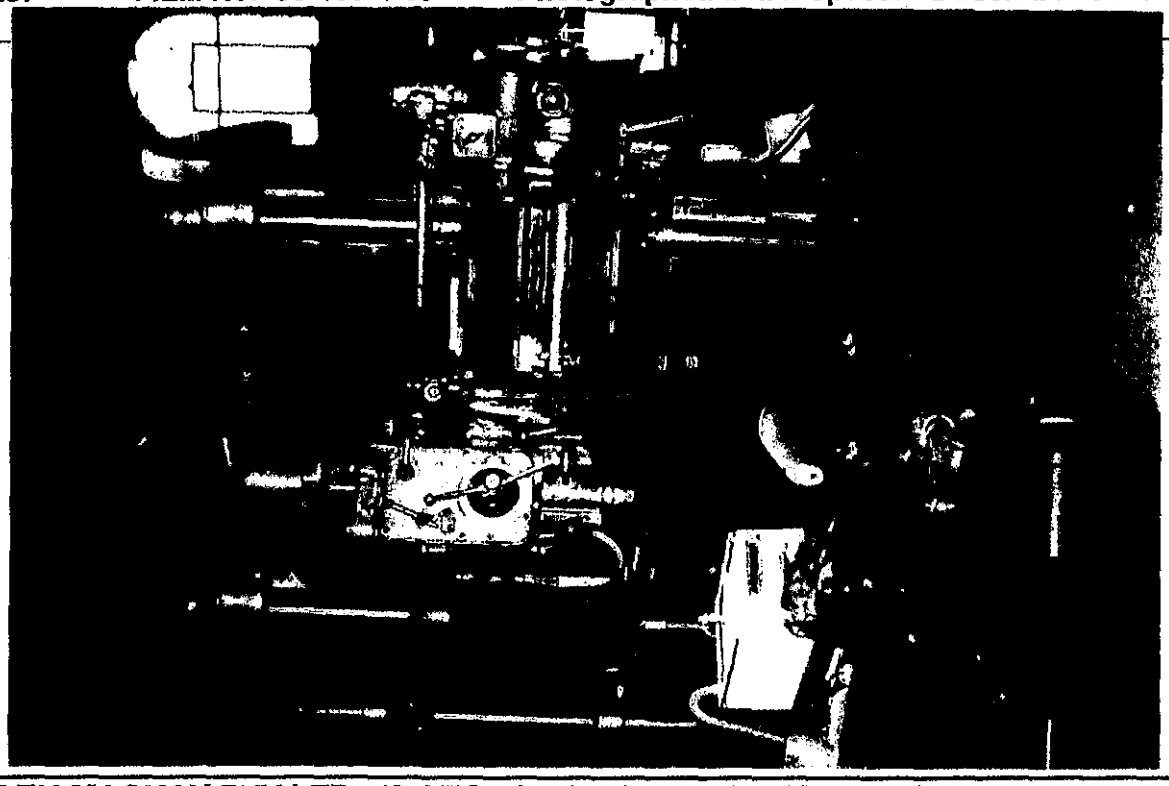


Photo: **FILM No.** 95-169-4-35 **Photographed and inspected December 1995**



Item Name: Mandrel Rack and Mandrels | **Item No.**136a,b

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Spring coiling
Collections	☐	
Systems	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: Rack, of various sized coiling tools and mandrels which are part of the spring coiler assemblage.

History: The history of the item is unknown but the items would appear to date from 1912.

Function and Operation: Mandrels placed in chuck of spring coiler and stock wound around them.

Location: Bay 3 North 3 West

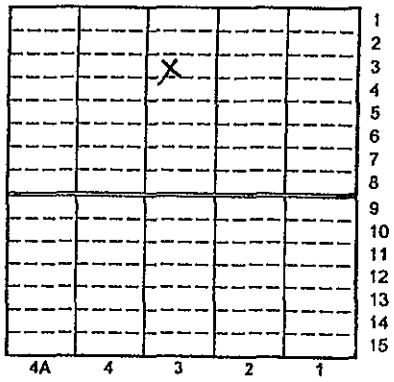


Photo: **FILM No.** **Photographed and inspected December 1995**

Item Name: Universal Grinder | **Item No.**137

Name Plate: NSWGR No. 869 Class G Brown & Sharpe Mfg. Co. Providence USA

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This small grinder is about 3 metres long, 1.2 metres wide and about 1.2 metres high. It consists basically of a cast iron frame and a complex grinding head which could be moved both through the horizontal and vertical planes.

History: The history of the item is unknown, however it is believed to have been installed in the workshops about 1940. It was originally located in bay 14 north and was moved to its present location in bay 3 north when the workshops closed.

Function and Operation: The grinder was used for grinding horizontal and vertical surfaces on machine and engine parts.

Location: Bay 3 North 3-4 West

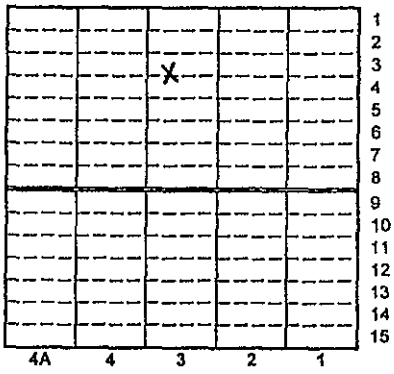
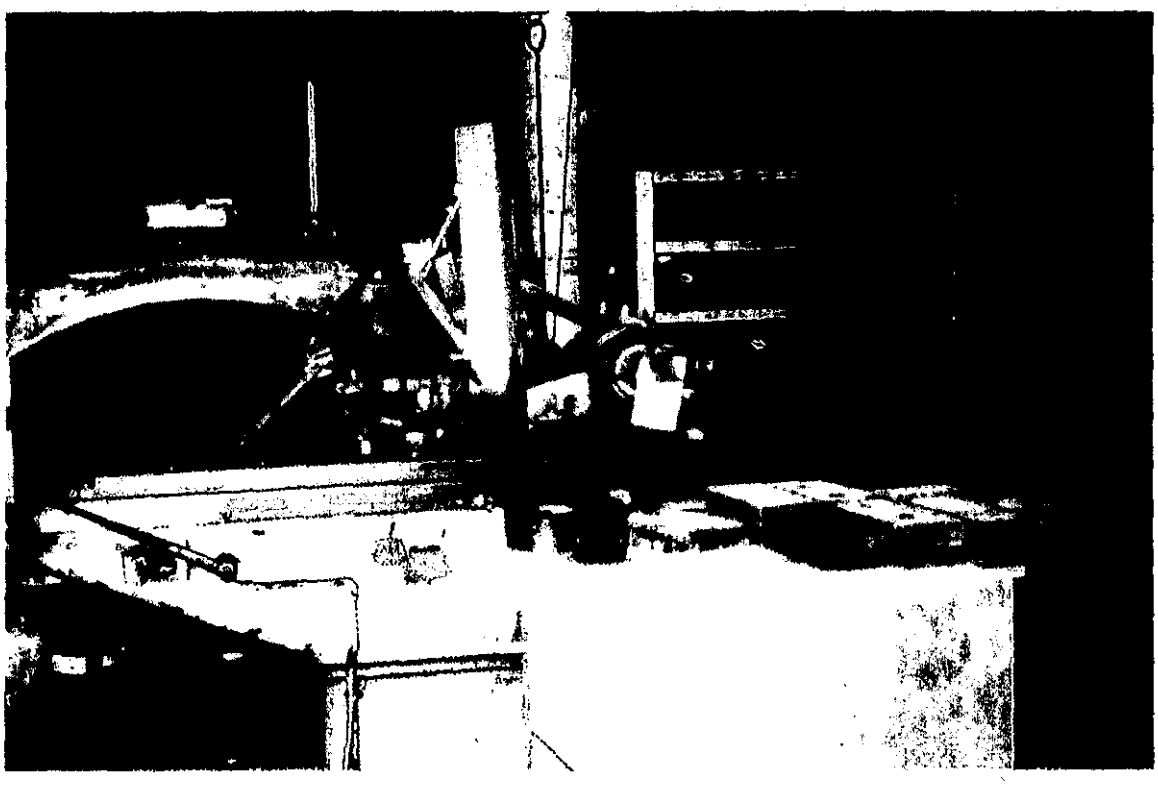


Photo: **FILM No.** 95-169-5-1 **Photographed and inspected December 1995**



Item Name: Herbert Twin Drill/Borer | **Item No.** 138

Name Plate: NSWTD D7 S.O- Herbert. Sydney. Made in Great Britain.

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This twin machine was used for drilling and boring of small items. It stands about 2.5 metres high, about 1.5 metres long and 1 metre wide. It consists of a cast iron pedestal and a cast iron apron supporting a cast iron bed to which the materials are attached.

History: The item would appear to have been manufactured prior to WW2. It was moved to the Eveleigh workshops in 1964 and to bay 3 north for storage when the workshops closed.

Function and Operation: The twin drill/borer was used for a wide variety of operations and was a relatively versatile tool which could be used for drilling and subsequent boring on all the holes.

Location: Bay 3 North 4 West

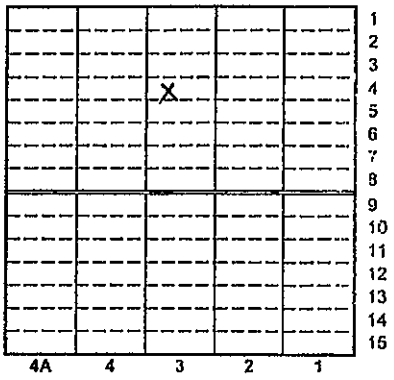
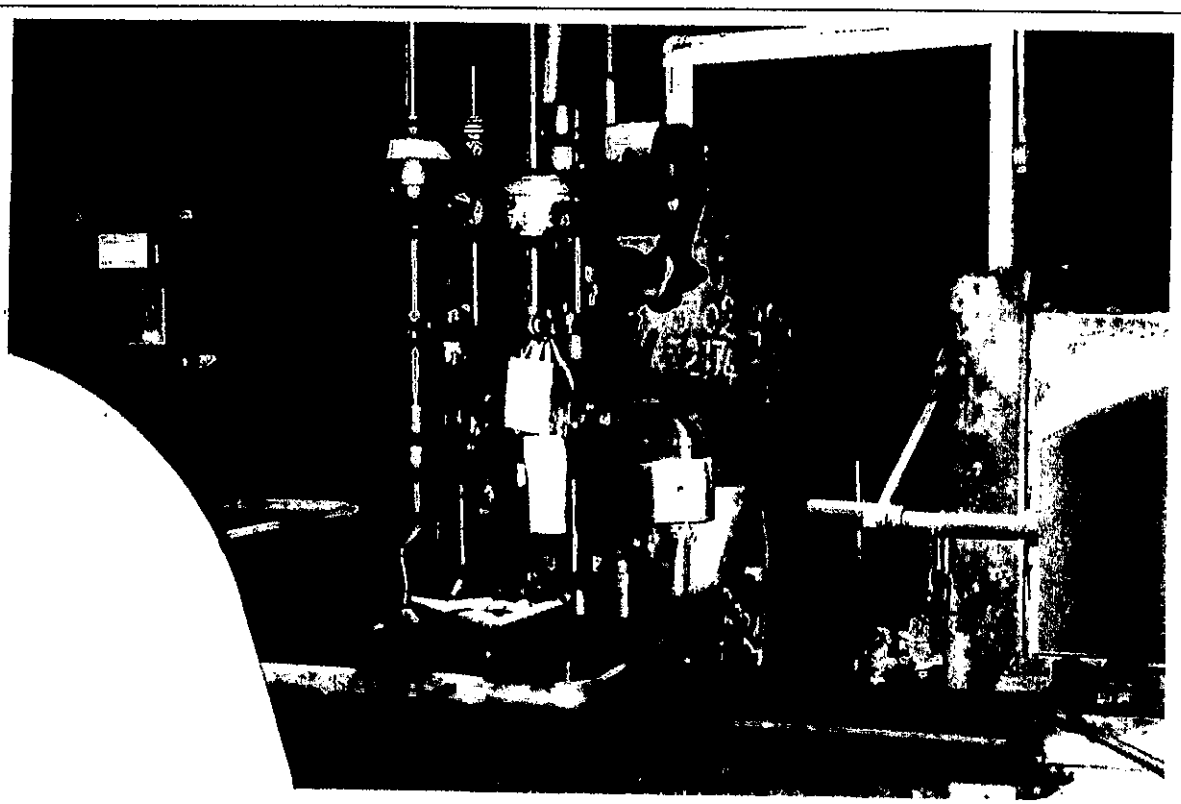


Photo: **FILM No.** 95-169-5-2 **Photographed and inspected December 1995**



Item Name: The Allen Striker | **Item No.** 139

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: The Allen Striker is a small hearth of the helve type, in that the hammer is on the end of a lever which is pivoted on a shaft. The power is applied on both the up and down stroke and the force of the strike is controlled by the operator through the foot pedal. The lever or striker, is of the wishbone shape with the twin bars being attached to the shaft. Especially shaped dials are available for both the striker and for the anvil.

History: This item was formerly located in the Blacksmiths Shop on the Carriage Workshop site. The Allen Strikers are also known as Oliver Forgers. It is believed that most of these forgers were originally located in the Oliver shop which is on the opposite side to the south road to the workshops. This particular striker was installed in the Workshops in 1906.

Function and Operation: The Oliver or Allen Striker was the smallest of the power hammers used at Eveleigh. It was rated at 2CWT which is about 100 kilos. The hammer was used for producing a wide variety of small items used throughout the workshops in the New South Wales Rail System. There was an adjacent furnace where the metal was heated and it was then formed beneath plain hammers, flatters, fullers or swages which were fitted to the jaw and to the anvil.

Location: Bay 3 North 5-6 West

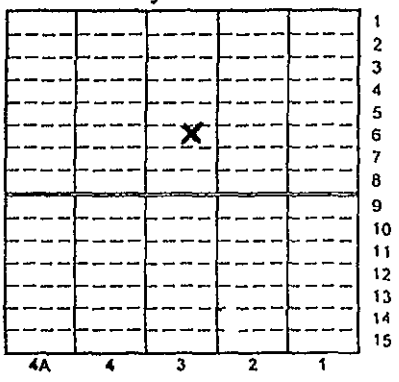
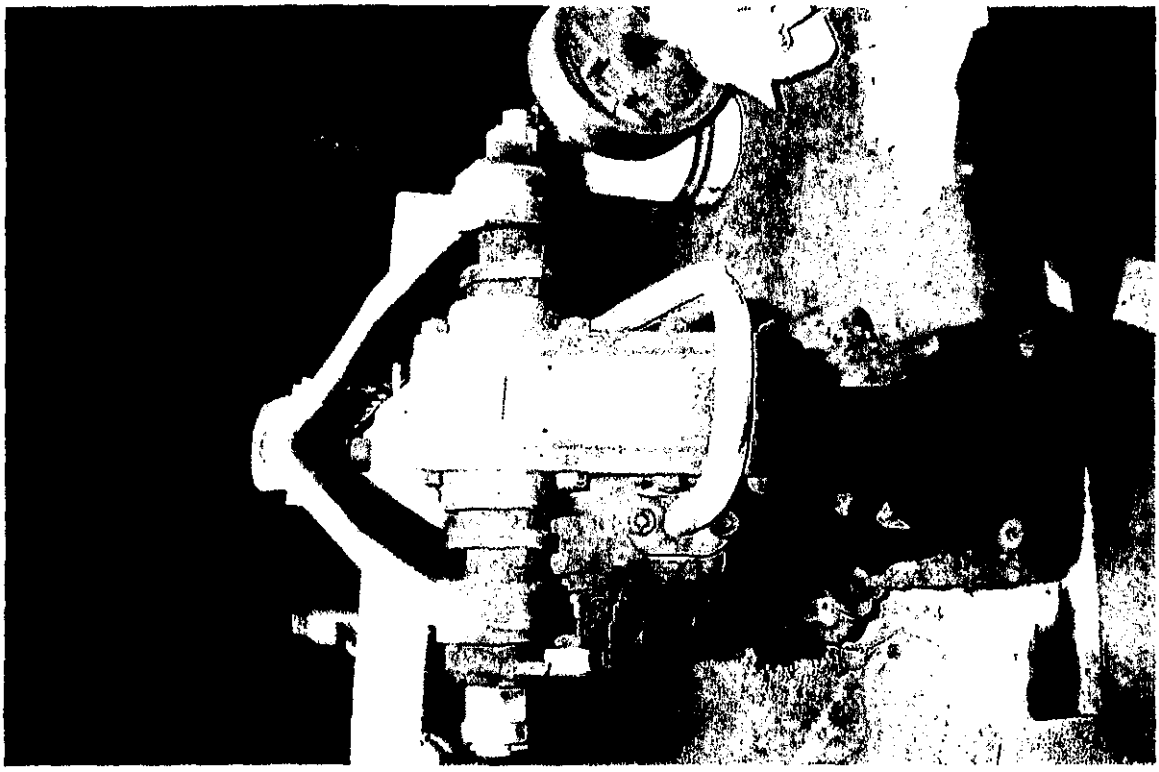


Photo: **FILM No.** 95-169-5-3 **Photographed and inspected December 1995**



Item Name: The Cylindrical Grinder | **Item No.** 140

Name Plate: NSWGR No. 292 Class LX

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This small grinder is basically an adapted lathe. The lathe itself is about 4 metres long, 1 metre wide and stands about 1.5 metres high. It is regarded as an automotive lathe in that the feed of the tool head passed the work is automatically fed.

History: The history of the item is unknown, however it would appear to have been manufactured prior to WW1. It has been modified subsequently at both the head stock and tool rest ends.

Function and Operation: Items to be ground were mounted between centres and the grinding wheel which is attached to the tool rest was passed over the rotating work. The item is probably one of the earliest grinders in the workshops complex when it closed.

Location: Bay 3 North 6 West

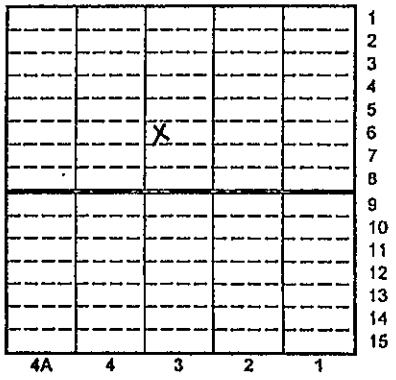


Photo: **FILM No.** 95-169-5-4 **Photographed and inspected December 1995**

Item Name: Lathe | **Item No.** 141

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
Systems	☐	
Operational Groups	☐	

Description: This small lathe is manufactured by the Department of Railways. It has a cast-iron stand and cast-iron bed. It was formerly operated by a belt from the lime shaft but now has its own stand-alone motor attached to the driving shaft which is located at the bottom of the frame beneath the headstock. The lathe is fitted with a swivelling tail stock that can be rotated out of the road for the introduction for removal of stock. It also has an automatic tool rest feed.

History: The history of the item is unknown but it was manufactured prior to 1940.

Function and Operation: The small lathe was used probably in the tool room for the repetitive production of small items.

Location: Bay 3 North 6-7 West

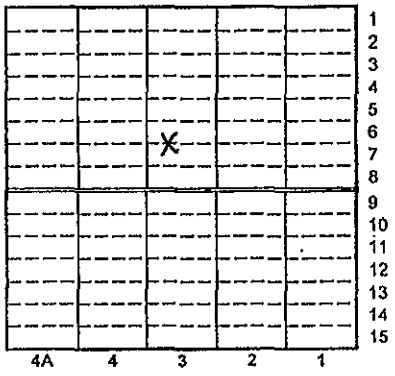
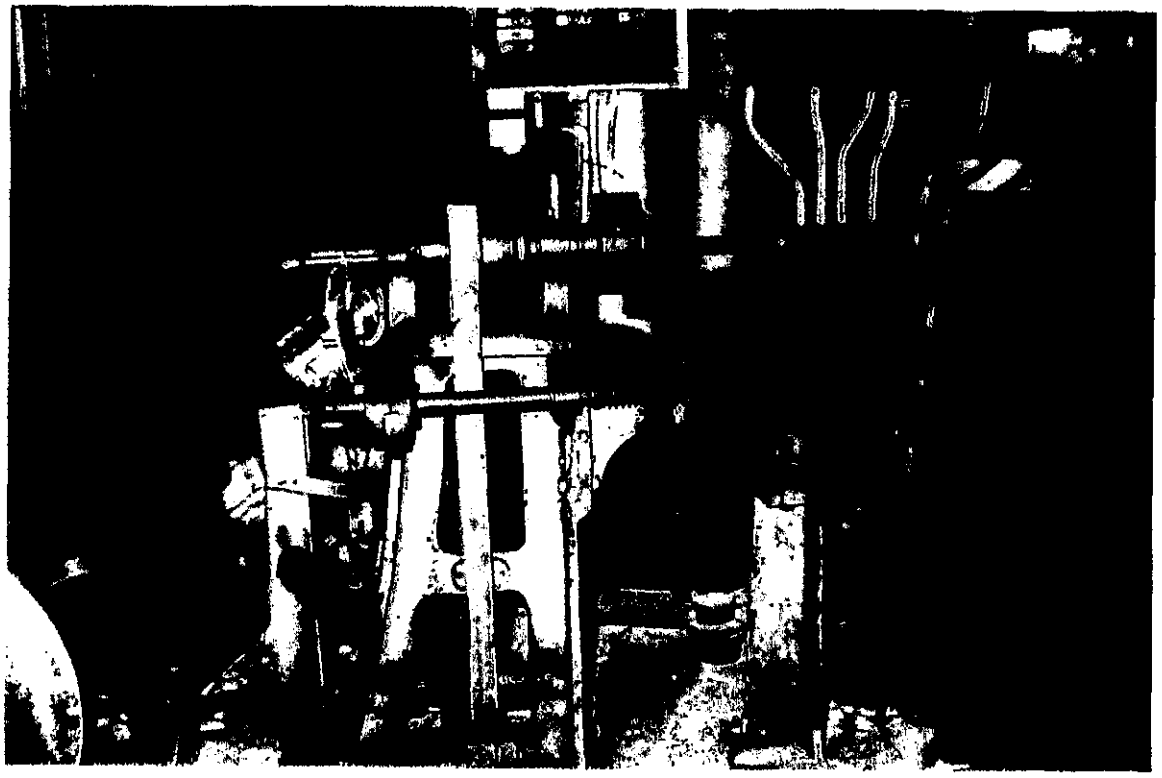


Photo: **FILM No.** 95-169-5-6 **Photographed and inspected December 1995**



Item Name: Furnace	**Item No.** 142

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This gas-fired furnace is about 1.2 metres long, 1 metre wide and stood about 1 metre high.

History: The history of the item is unknown.

Function and Operation: Unknown.

Location: Bay 3 North 6 West

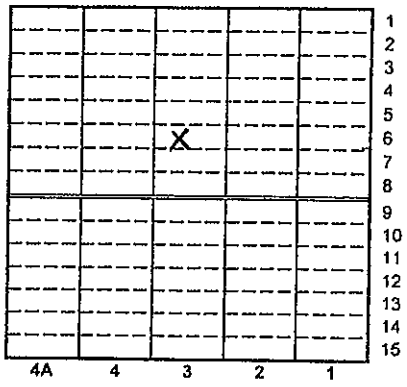
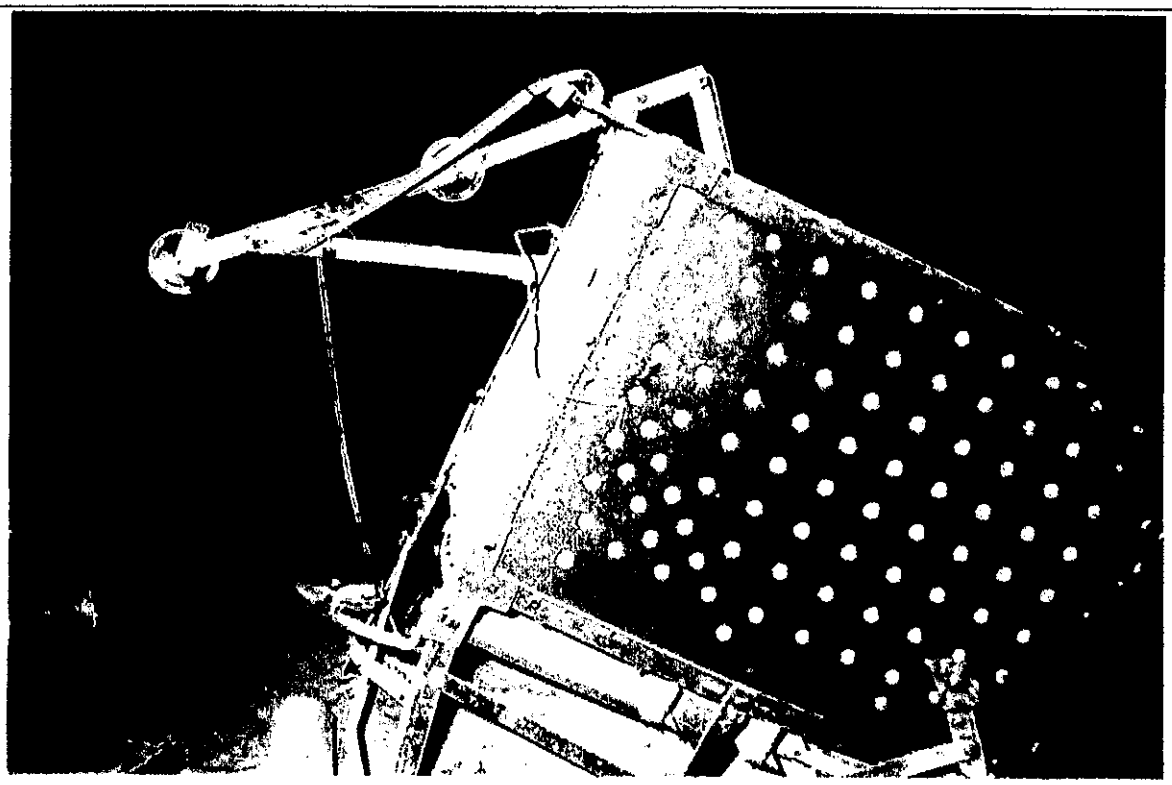


Photo: **FILM No.** 95-169-5-7 **Photographed and inspected December 1995**



Item Name: Hydraulic Ram | **Item No.** 143

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This Hydraulic Ram was located in the foundry and was used to lower and raise a platform which held a section of rail tracks. Raw material and finished items arrived and left the foundry at this point.

History:

Function and Operation:

Location: Bay 3 North 6-7 West

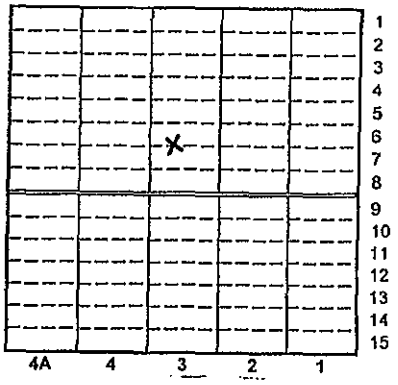
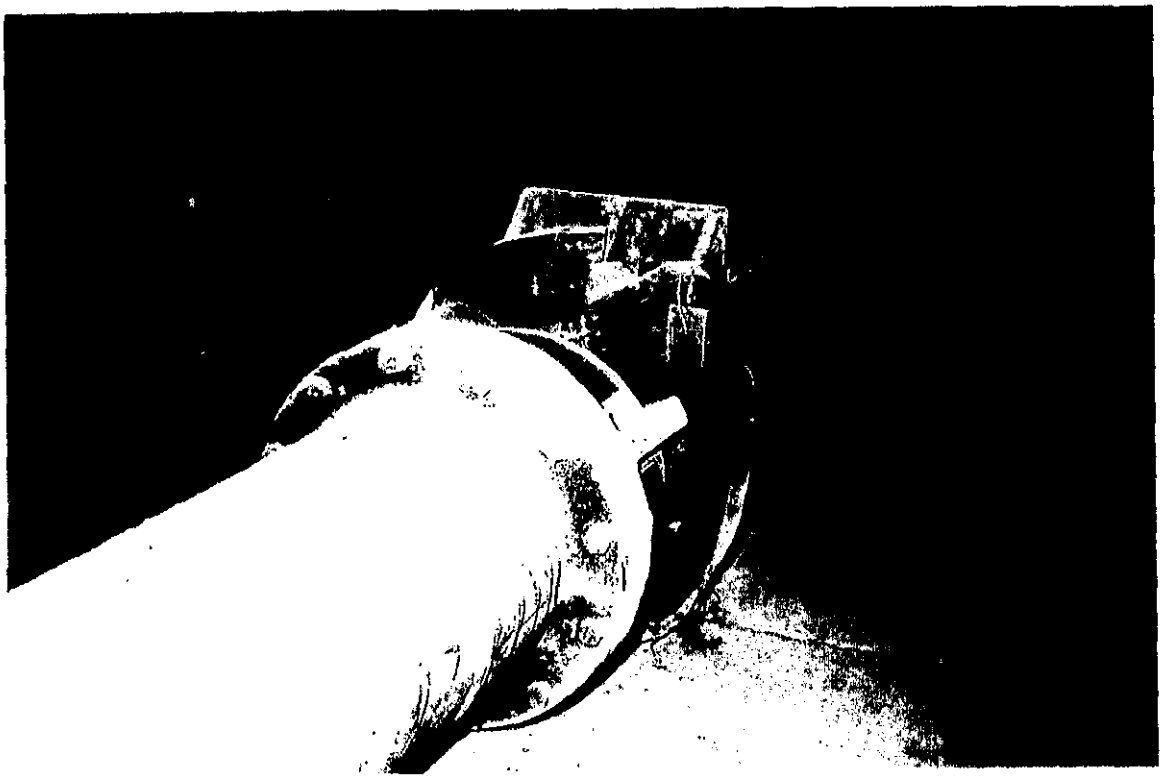


Photo: **FILM No.** 95-169-5-8 **Photographed and inspected December 1995**



Item Name: The Hydraulic Spring Press | **Item No.** 144

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☐	
Systems	☑	Hydraulic. 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☐	

Description: This small spring press which had jaws that opened about 400mm stands about a metre high and is about 600mm long and 400mm wide. It has had a sheet metal surround attached to it to prevent the escape of pieces of spring that fracture under load.

History: The history of the item is unknown but it was manufactured prior to 1939.

Function and Operation: It is believed that the press was used to test coil springs.

Location: Bay 3 North 7 East

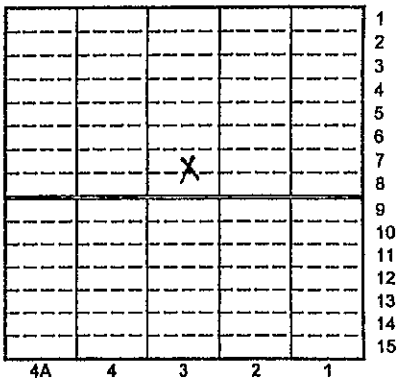


Photo: **FILM No.** 95-169-5-9 **Photographed and inspected December 1995**

Item Name: Spindle Router | **Item No.** 145

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This item is believed to be an early spindle router by Wadkin and Co. of Leicester and which was brought to the Workshop from the Randwick Tramway Workshops.

History:

Function and Operation:

Location: Bay 3 North 7 East

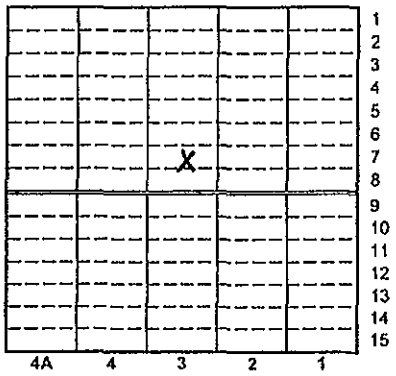


Photo: **FILM No.** 95-169-5-10 **Photographed and inspected December 1995**

Item Name: Interlocking Gear | **Item No.** 146

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This material is to be removed from this location and stored in Bay 14.

History:

Function and Operation:

Location: Bay 3 North 7 East

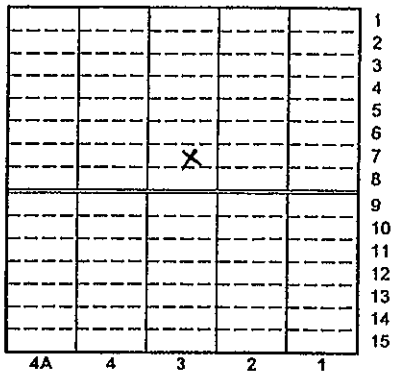
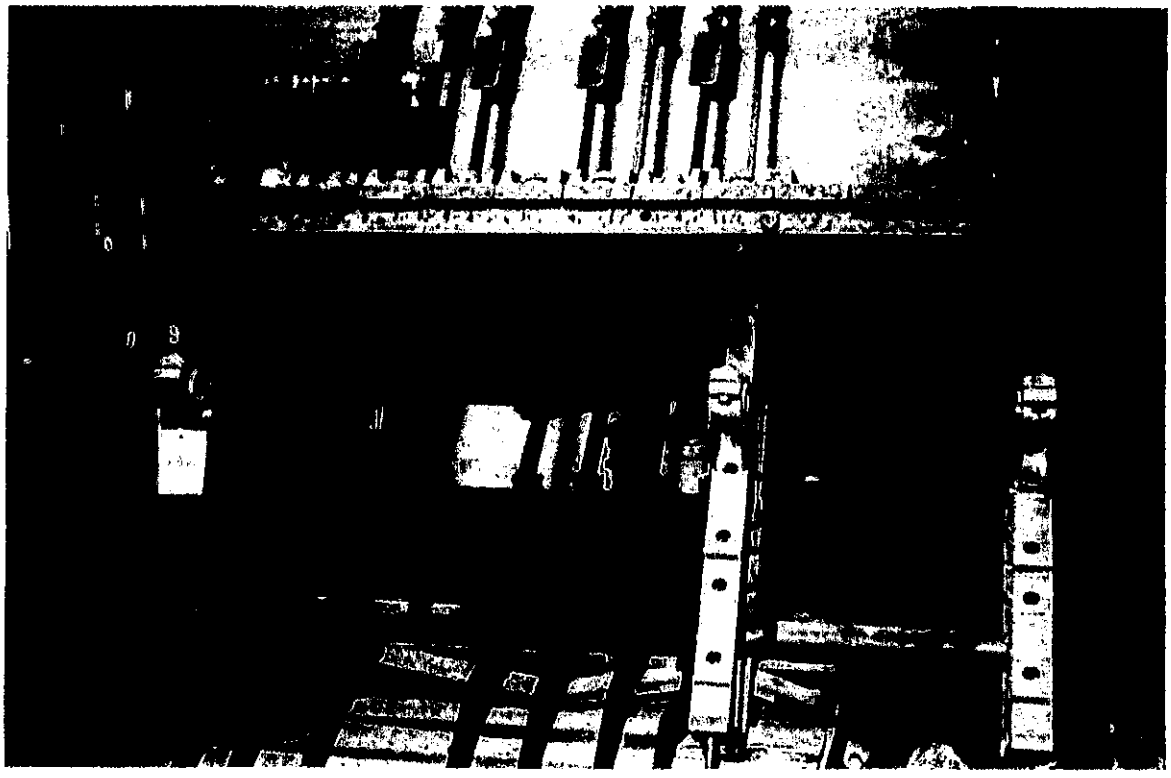


Photo: **FILM No.** 95-169-5-11 **Photographed and inspected December 1995**



Item Name: Signalling Gear | **Item No.** 147

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This item is to be removed to Bay 14.

History:

Function and Operation:

Location: Bay 3 North 6-7 East

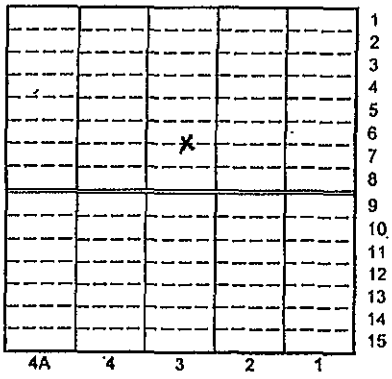
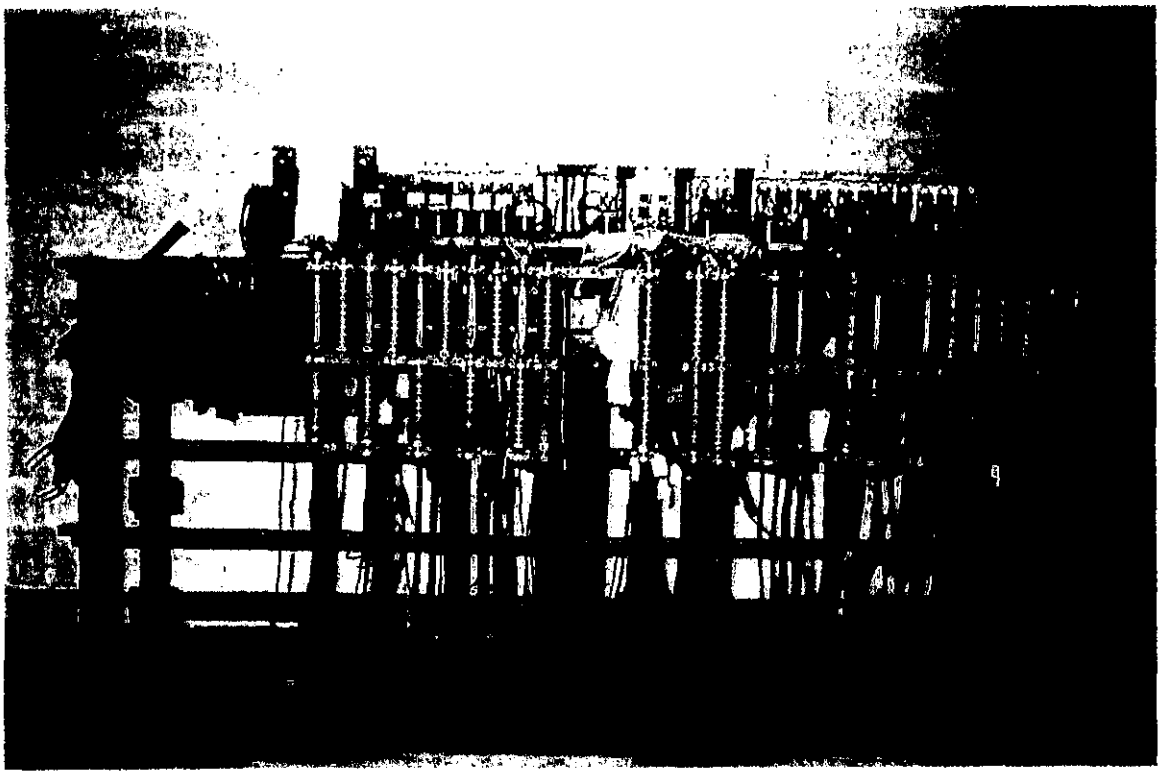


Photo: **FILM No.** 95-169-5-12 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 148

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This small, gas-fired furnace is believed to have heated materials to melting point in crucibles.

History: The history of the item is unknown, but it is believed to have come from the Carriage Workshops.

Function and Operation: The operations of the item is unknown.

Location: Bay 3 North 6 East

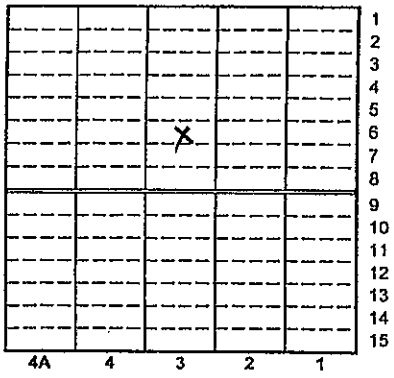


Photo: **FILM No.** 95-169-5-13 **Photographed and inspected December 1995**

Item Name: The Electric Overhead Travelling Crane | **Item No.** 197

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collections	☑	EOHT Cranes 196, 197, 202, 207, 219 A-H
Systems	☐	
Operational Groups	☐	

Description: This crane, manufactured by Craven Brothers in 1886, is one of the oldest cranes in existence in New South Wales. It was originally powered by a continuous rope driven from the south wall by a specially mounted steam engine.

History: The crane had been in continuous use since its installation probably in 1888. It is of a riveted plate type tapered crane beam and has a platform carriage which was originally operated from the crane platform. It has been modified at some stage, converted to electricity and a cabin for the operator has been slung beneath the crane beams.

Function and Operation: The crane is fitted with three electric motors, each one being controlled by its own motor controller in the operators cabin. The crane can run on the crane rails, the length of the workshops, while the carriage provides transverse travel and hoisting capabilities. The width of the workshops was determined not only by the roof stand but also by the width that the crane beam could span.

Location: Bay 3 North 1-2 West

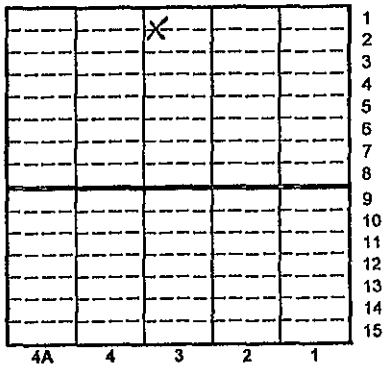
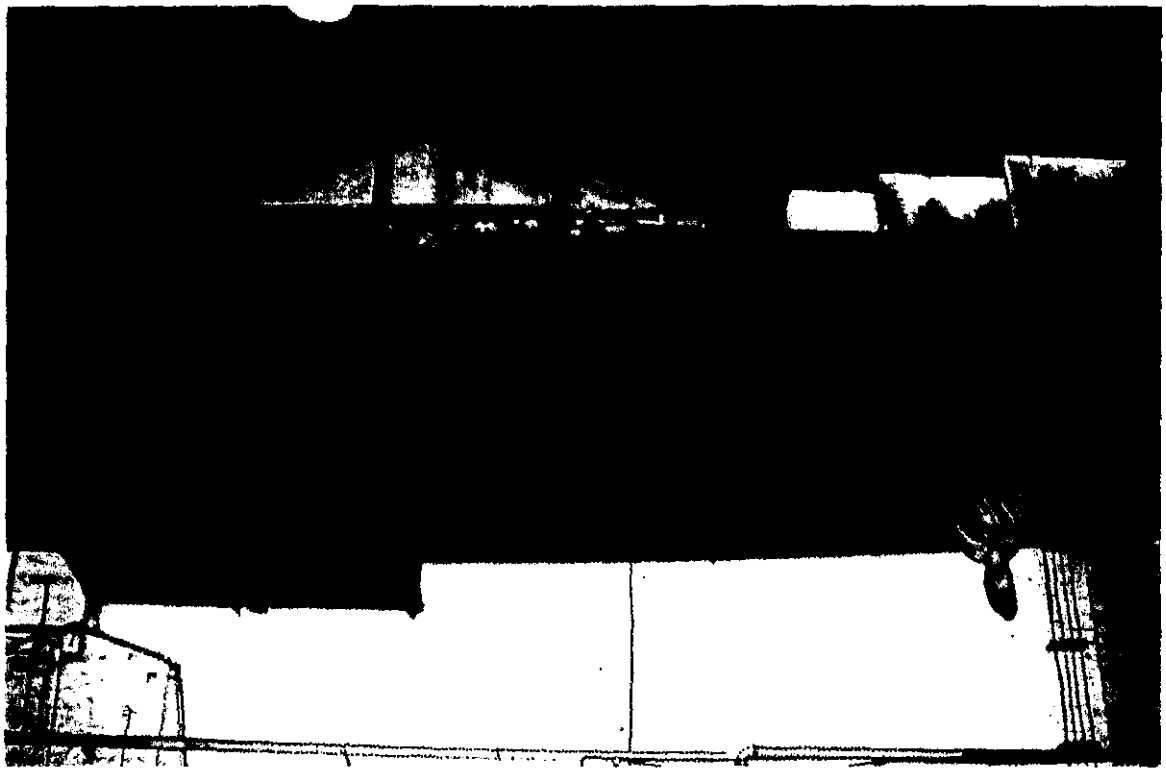


Photo: **FILM No.** 95-169-6-26 **Photographed and inspected December 1995**



Item Name:- Air Receivers	Item No. 199A-B

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: These two air receivers which are about 2.5 metres long and about 1.2 metres wide were used in conjunction with the compressed air hammers located in the blacksmiths shop on the carriage workshop site at Eveleigh.

History: The history of the items is unknown.

Function and Operation: They were used as air receivers for the operation of the compressed air hammers in the Blacksmith's Shop and Carriage Workshop.

Location: Bay 3 North 2 West

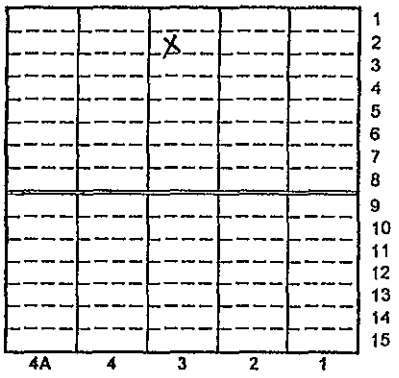
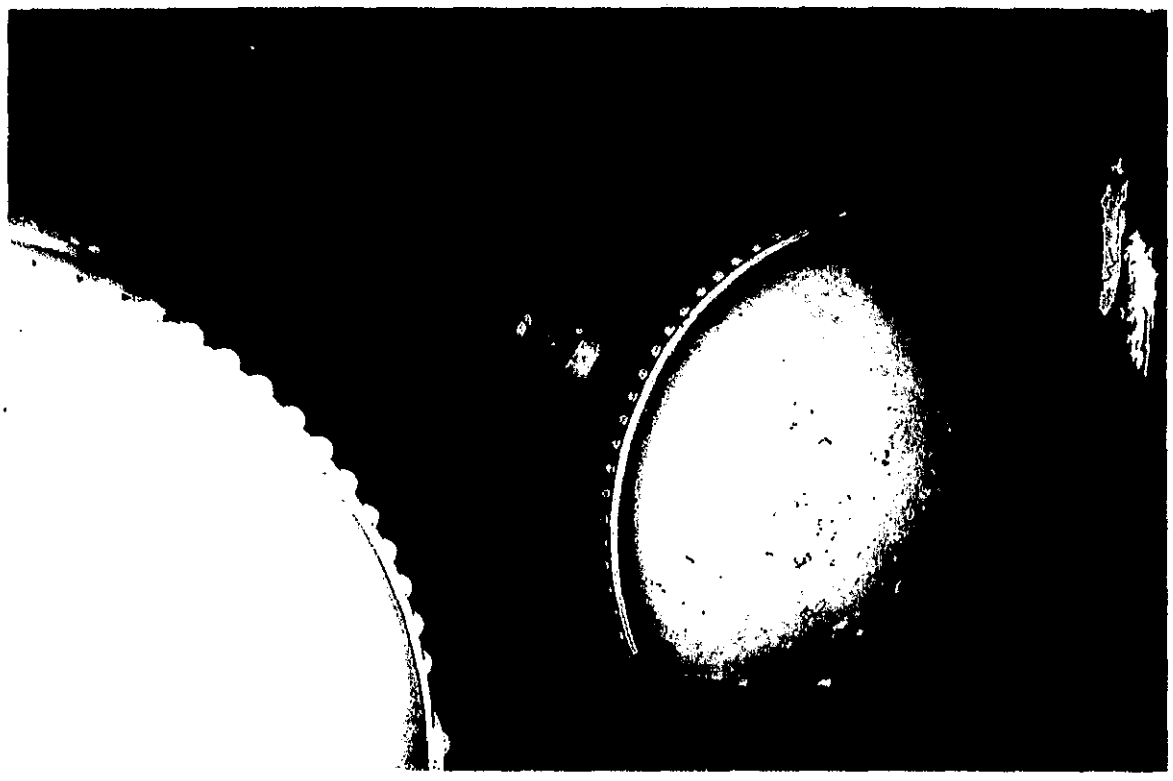


Photo: **FILM No.** No Number **Photographed and inspected December 1995**



Item Name: The Tangye 48" Wheel Lathe | **Item No.** 200

Name Plate: N/A

Associated Items:

Individual ☐
Assemblage ☐
System ☐
Collection ☑ Lathes 38, 107, 109, 131, 141, 167, 168, 200

Description: This massive wheel lathe is now in Bay 9 South where it was originally erected. It is a twin wheel lathe and its setting and operation was partially by a self-contained hydraulic mechanism. The wheel lathe was used for turning two wheels on a bogey assembly at the one time.

History: Unknown.

Function and Operation: Not available.

Location: Bay 9 South

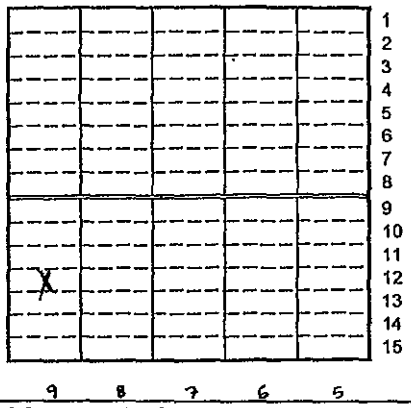


Photo: **FILM No.** 95-169-4-19 **Photographed and inspected December 1995**

Item Name: Lime Shafting	Item No. 204A-D

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: The two long lime shafts were removed from the locksmiths shop at the extreme north-east of the locomotive workshops site. The other shorter shafts were used to power small lathes in Bay 10. The longer shafts have driving wheels or pulleys which are made from timber while the smaller shafts have steel wheels. The bearing blocks on which the shafts were mounted are also located close by.

History: The history of the items is unknown, however, they were in use prior to 1939.

Function and Operation: N/A

Location: Bay 3 North 6 West

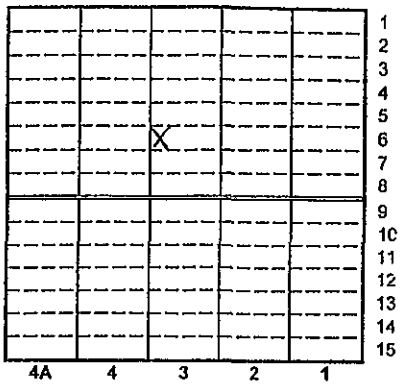


Photo: **FILM No.** No Number **Photographed and inspected December 1995**

Item Name: Platform Trolley | **Item No.** 201

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collections	☐
Systems	☐
Operational Groups	☐

Description: This standard platform trolley is about 2 metres long and a metre wide standing 800mm high. It has a timber decking and a steel frame and has four rubber tired wheels on castors. This type of trolley was used extensively throughout platforms of the NSW Rail Systems.

History: The history of the item is unknown.

Function and Operation: Similar trolleys were joined end to end by simple coupling devices and moved around the platforms either by land power or small motorised trucks.

Location: Bay 3 North 4 West

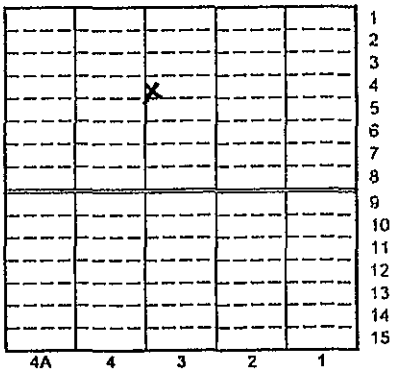
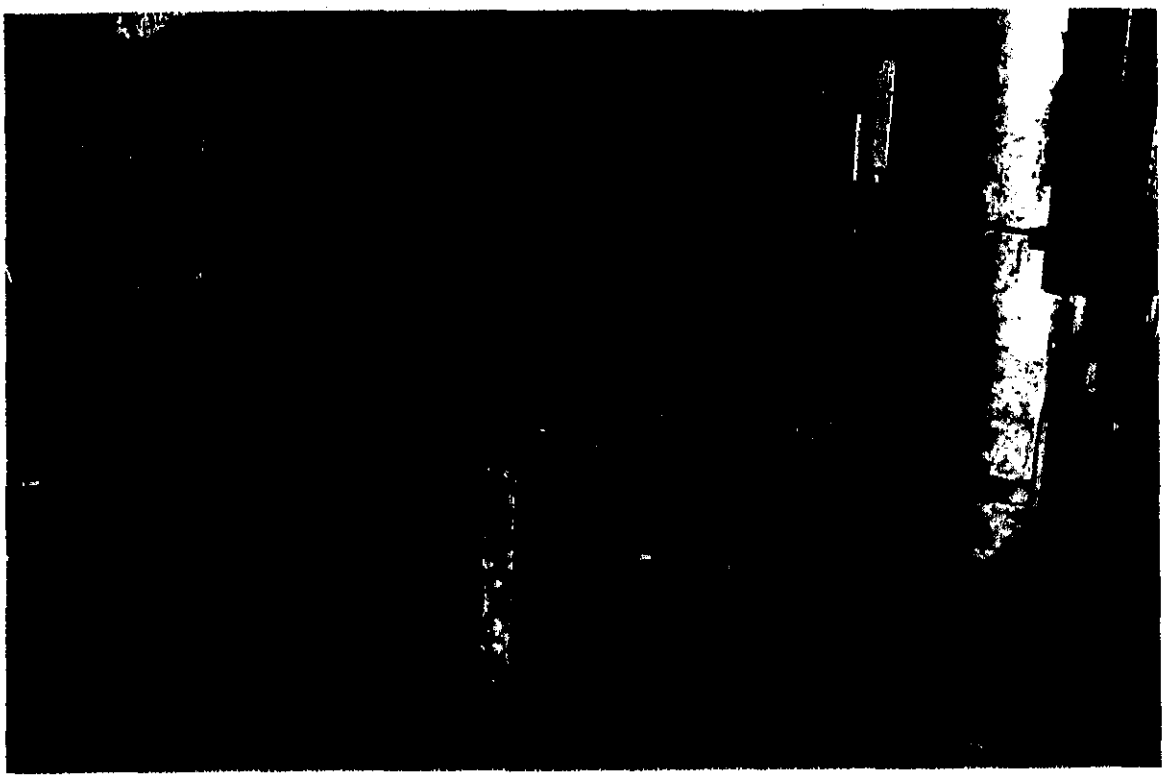


Photo: **FILM No.** No Number **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 4 SOUTH

Item Name: 6' Plate Rollers	**Item No.** 180
Name Plate: NSWGR No. 782 Class RH	

Associated Items:

Individual ☑
Assemblage ☐
System ☐
Collection ☐

Description: This set of plate rollers which are about 4 metres in overall length have an effective length of 6 feet or 1.8 metres. The rollers are adjusted manually at either end and were used for rolling boiler plate up to about 3/8 inch thickness.

History: : The item was manufactured in the workshops probably late last century. The rollers would have been originally upgraded from a line shaft but now have a stand-alone electric motor of some antiquity attached to it.

Function and Operation: By adjusting the height of the top roller, the diameter of the sheet or plate being put through the rollers can be altered.

Location: Bay 4 South 14E

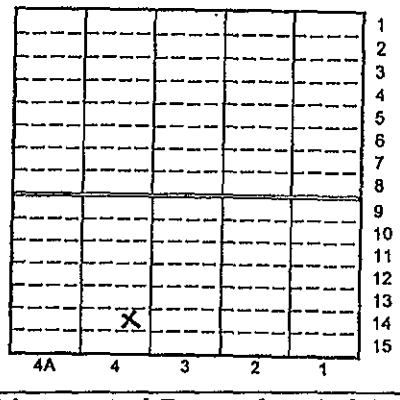


Photo: **FILM No.** 95-169-4-19 **Photographed and inspected December 1995**

Item Name: The Bennie Metal Guillotine | **Item No.** 182

Name Plate: NSWGR No. 458 Class PS
James Bennie & Sons Ltd, Glasgow.

Associated Items:

Individual	☑	
Assemblage	☐	
System	☐	
Collection	☐	
Operational	☑	Boilermakers

Description: This early guillotine was used for shearing plate up to 4 foot long and 5/8 inch thick. Again it was originally constructed to be driven from a line shaft. It operates on the inertia principle.

History: The item was installed in the workshops in 1923 in the boiler shop and has been in its present location since 1961.

Function and Operation: Plate is placed on the plate holders at the front of the machine and placed in precisely the correct location, the machine is then started and the massive cast iron blade supports are brought against the material and it is cut to length.

Location: Bay 4 South 9W

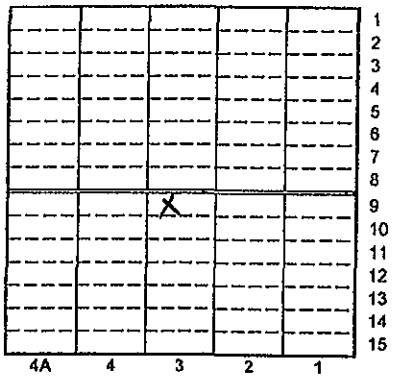
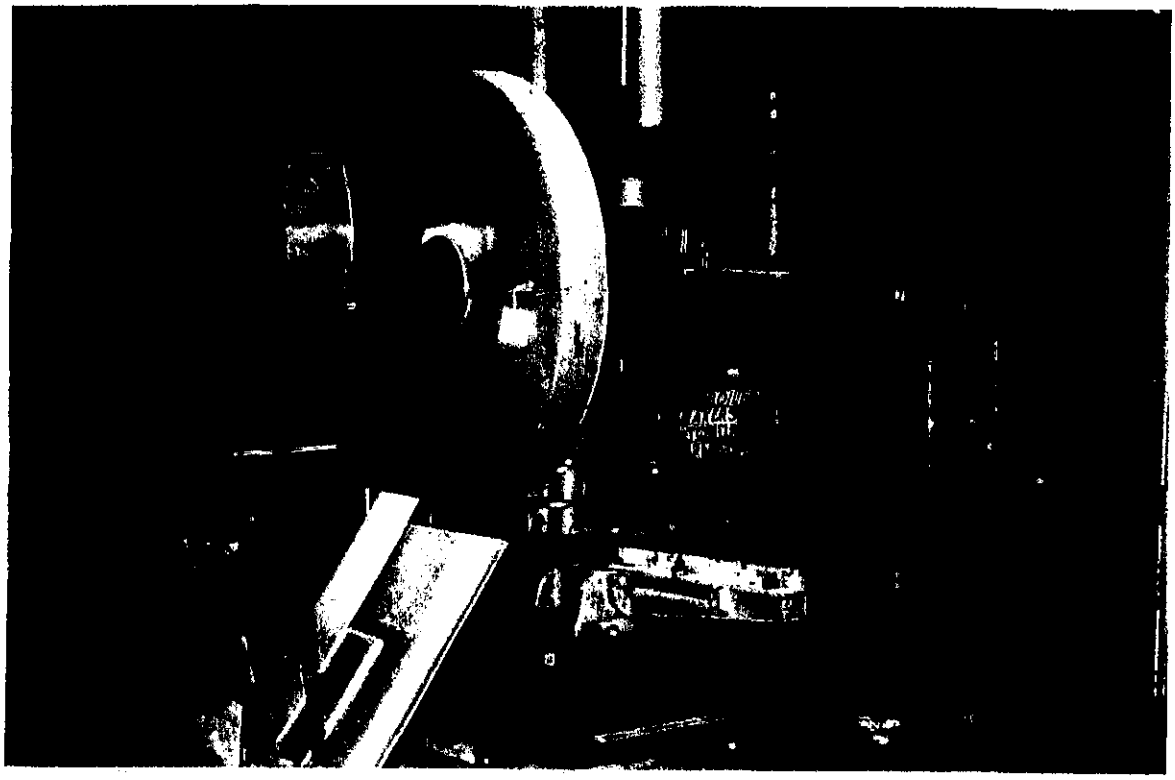


Photo: **FILM No.** 95-169-6-11 **Photographed and inspected December 1995**



Item Name: Plate Rollers | **Item No.** 181

Name Plate: NSWGR No. 543 Class RH
Craven Brothers 1886 Manchester

Associated Items:

Individual	☑	
Assemblage	☐	
System	☐	
Collection	☐	
Operational	☑	Boilermakers

Description: These plate rollers were the heaviest early rollers in use in the workshop. They have heavy cast iron beds which support three rollers. The two bottom rollers are fixed while the top roller can be raised or lowered to alter the diameter of the sheet being rolled.

History: The item was manufactured by Craven Brothers Manchester in 1886 and this is cast into the massive cast iron end frame. The item has been used continuously since it was brought and installed in the workshops probably in 1887.

Function and Operation: The top roller bearing is raised and lowered by wheels together with worm gears attached to the top of the end frames. The adjustment is done manually and the diameter of the item determined by trial and error.

Location: Bay 4 South 13E

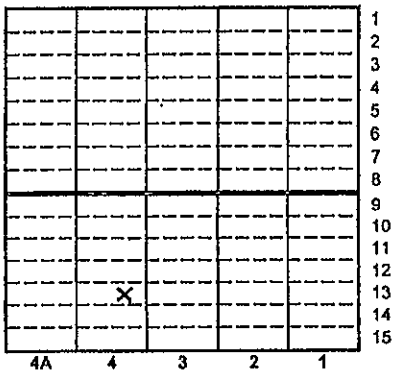


Photo: **FILM No.** 95-169-4-20 **Photographed and inspected December 1995**

Item Name: Pressure Vessel | **Item No.** 192

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
System	☐
Collection	☐

Description: This is located outside bay 4 in the open. It was used as a pressure vessel connected to the air compressors in the air compressor shop.

History: Unknown.

Function and Operation: N/A

Location: Bay 4 South South of Bay

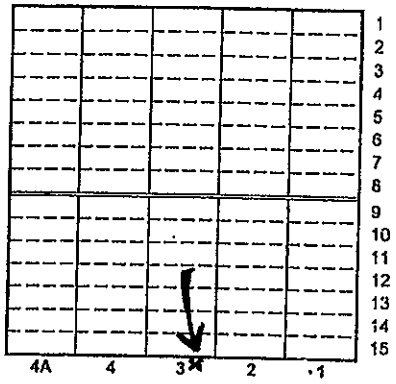
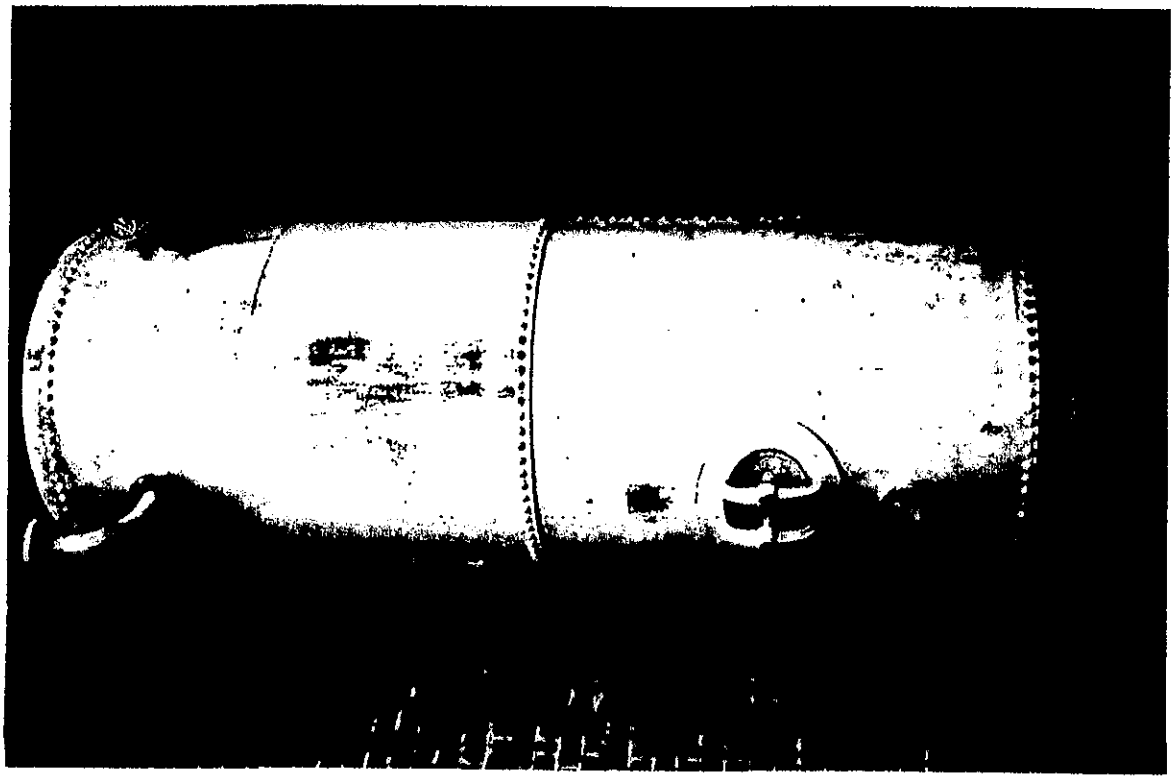


Photo: **FILM No.** 95-169-6-21 **Photographed and inspected December 1995**



Item Name: 10cwt Jib Crane | **Item No.** 183

Name Plate: Not to exceed 10cwt

Associated Items:

Individual ☐
Assemblage ☐
System ☐
Collection ☑ Jib Cranes

Description: This jib crane unlike many of the others has for its kng post, one of the cast iron columns between bay 4 and bay 4A. The jib is about 4.5 metres long, its carriage is still in position but the block and tackle which was used to raise material is missing.

History: History of the item is unknown.

Function and Operation: N/A

Location: Bay 4 South 14-15W

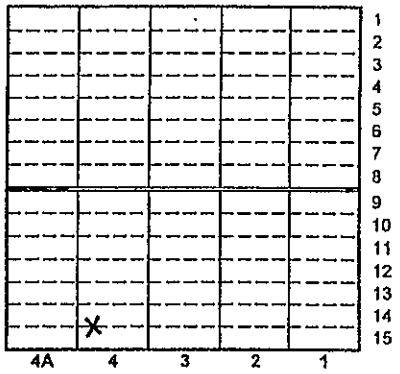
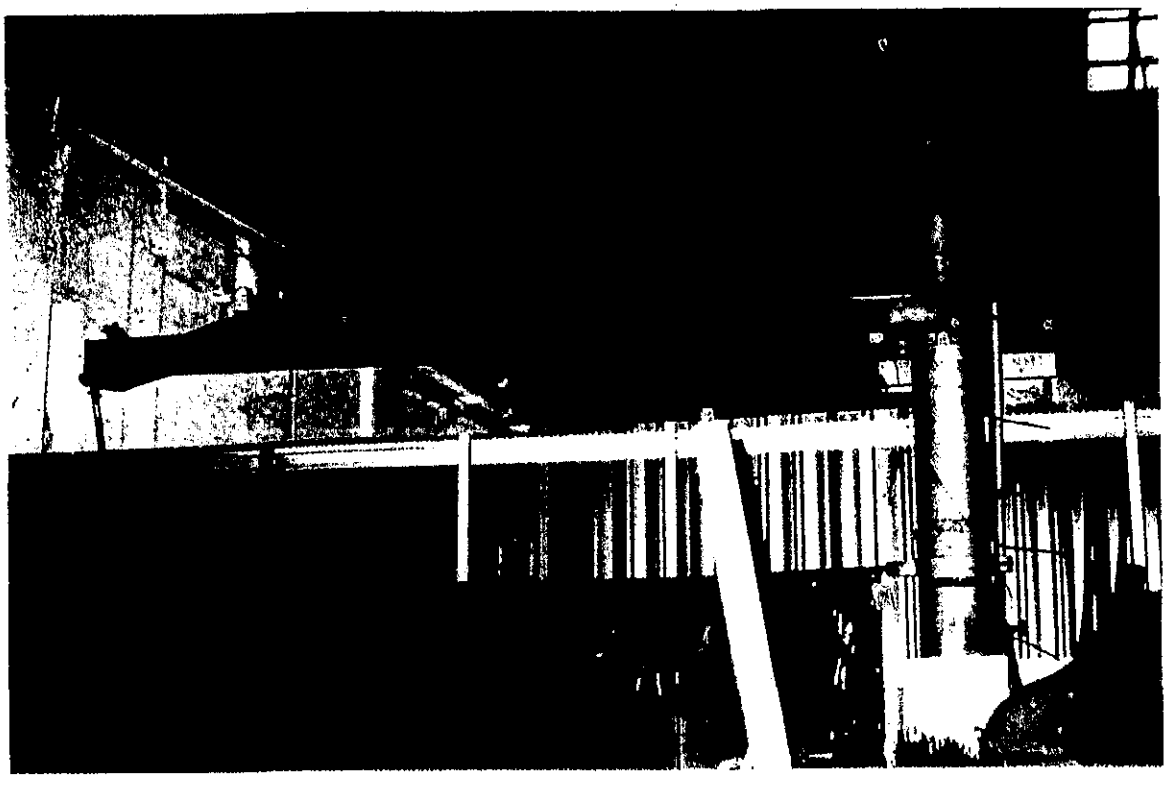


Photo: **FILM No.** 95-169-4-22 **Photographed and inspected December 1995**



GODDEN
MACKAY

BAY 4 NORTH

EVELEIGH LOCOMOTIVE WORKSHOPS MACHINERY CONSERVATION 1996

Item Name: Spring Coiling Machine	**Item No.** 149
Name Plate:	

Associated Items:

Individual	❑	
Assemblage	❑	
Collection	❑	
System	❑	
Operational Groups	❑	Spring Shop 123-125, 149-157, 159, 161

Description: The Spring Coiling Machine is adapted from the machine lathe. Because of the size of the springs being produced at the workshops the lathes are of exceptionally heavy quality. This one by John Lang and Co. is of the Johnston Patent type and is set with a series of exceptionally heavy gearings both for the drive and back gears. The chuck is fitted with a morse taper and wedge holes which hold the various sizes of mandrels. The stock was fed onto the lathe via a specially formed set of tool rests. These lathes were manufactured for making compression springs rather than tension springs. As with all the spring manufacturing the coiler has automatic drive.

History: This spring coiling machine was manufactured before World War II and was originally installed in the Spring Shop which was located near Bay 1 and the Loco Shop. It was moved to its present location when the Spring Shop was moved back into the main workshops building. Apart from the Wheel Shop, the Spring Shop was the most specialised of all of the shops in the workshops. The springing of locomotives and rolling stock was essential for the operation of the railways.

Function and Operation: These Spring Coiling Machines were originally constructed to be powered via belts from overhead line shafts. More recently they have been fitted with their own small, stand-alone electric motor. Power is transmitted from the driven wheel to the lathes gearing via a short fabric, timber studded backing belt. Stock was fed via the special tool holder which was located on the opposite side of the tool rest to the operator. Once coiled, the lathes were sent to have their seats ground. They were then hardened and tempered.

Location: Bay 4 North 5 West

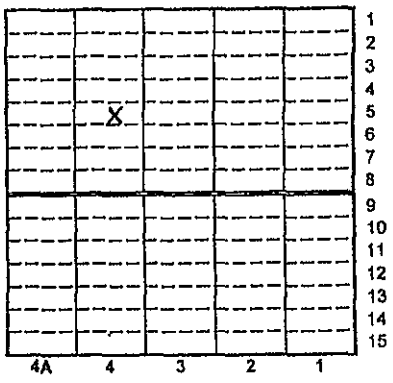
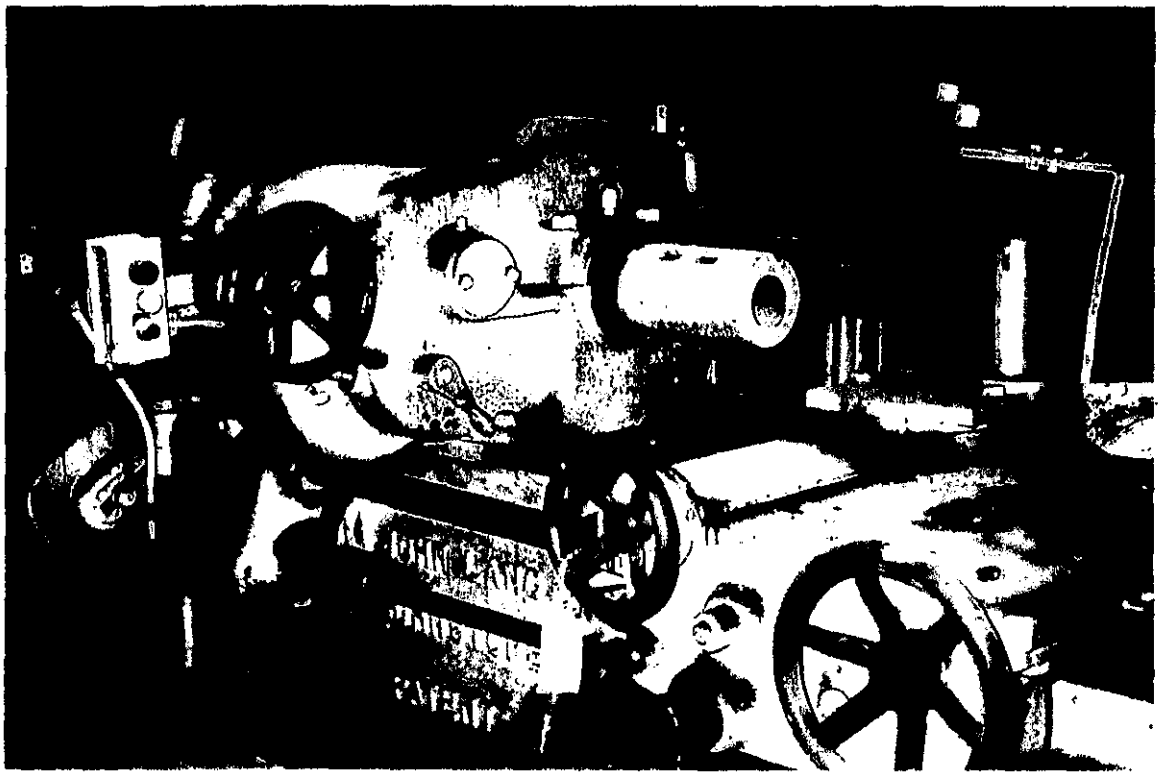


Photo: **FILM No.** 95-169-5-14 **Photographed and inspected December 1995**



Item Name: Spring Coiling Machine | **Item No.** 150

Name Plate:

Associated Items:

Individual	☐
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐ Spring Shop 123-125, 149-157, 159, 161

Description: The Spring Coiling Machine is adapted from the machine lathe. Because of the size of the springs being produced at the workshops the lathes are of exceptionally heavy quality. This one by John Lang and Co. is of the Johnston Patent type and is set with a series of exceptionally heavy gearings both for the drive and back gears. The chuck is fitted with a morse taper and wedge holes which hold the various sizes of mandrels. The stock was fed onto the lathe via a specially formed fuse of tool rests. These lathes were manufactured for making compression springs rather than tension springs. As with all the spring manufacturing the lathe has automatic drive.

History: This spring coiling machine was manufactured before World War II and was originally installed in the Spring Shop which was located near Bay 1 and the Loco Shop. It was moved to its present location when the Spring Shop was moved back into the main workshops building. Apart from the Wheel Shop, the Spring Shop was the most specialised of all of the shops in the workshops. The springing of locomotives and rolling stock was essential for the operation of the railways.

Function and Operation: These Spring Coiling Machines were originally constructed to be powered via belts from overhead line shafts. More recently they have been fitted with their own small, stand-alone electric motor. Power is transmitted from the driven wheel to the lathes gearing via a short fabric, timber studded backing belt. Stock were fed via the special tool holder which was located on the opposite side of the tool rest to the operator. Once coiled the lathes were sent to have their seats ground. They were then hardened and tempered.

Location: Bay 4 North 4 West

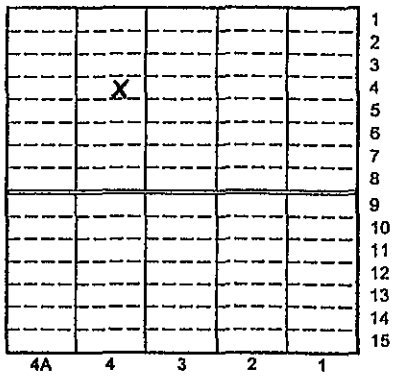
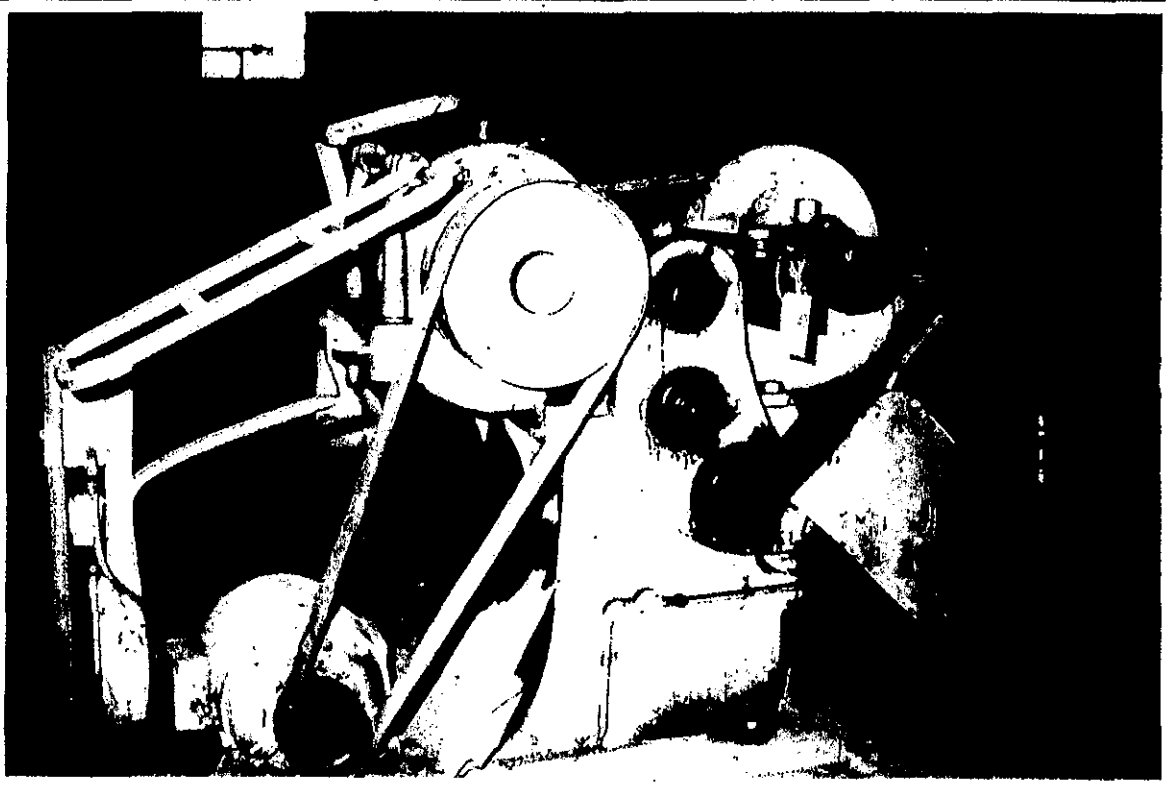


Photo: **FILM No.** 95-169-5-15 **Photographed and inspected December 1995**



Item Name: The Quenching Tank | **Item No.** 151

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: The Quenching Tank was used for quench hardening or for tempering of springs. Springs were normally loaded into a small steel tray and dropped into the quenching bath via a counterweighted cable. This Quenching Tank which measures about 1.3 metres long, 500 metres wide and is about 900mm deep. It is sunk into the floor of the spring shop and is located close to the Ryerston Spring Forming Machines.

History: The history of the item is unknown.

Function and Operation: Once formed and the seats ground the coil springs were heated in a special heating chamber and then quenched to harden and then tempered.

Location: Bay 4 North 2-3 West

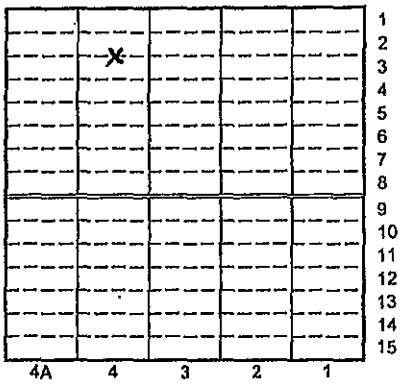
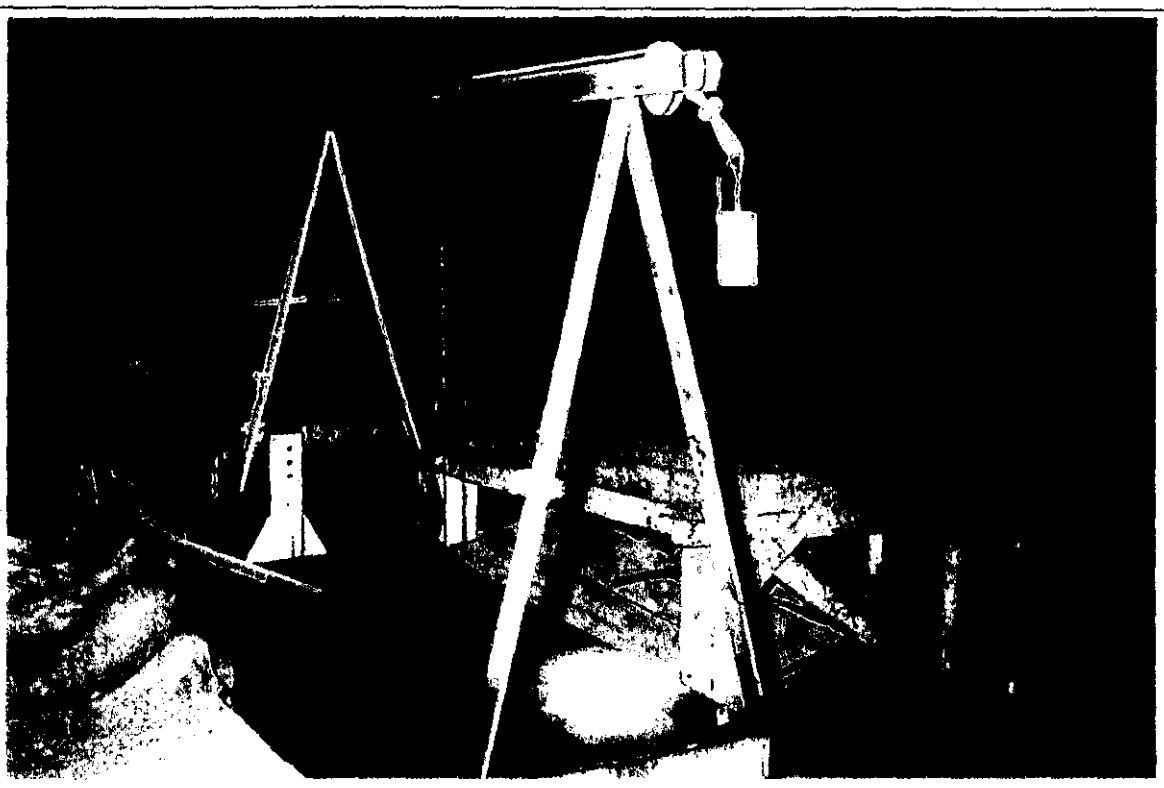


Photo: **FILM No.** 95-169-5-16 **Photographed and inspected December 1995**



Item Name: The Craven Brothers Spring Dissembler | **Item No.** 152

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This massive, cast-iron item was made for pressing springs to allow a stripping or disassembling of the collars.

History: The item was installed in the original Spring Shop in 1887 and moved to this location when the Spring Shop was relocated from its former position between Bay 1 and the New Loco Shop.

Function and Operation: Springs were loaded into the jaws of the item and hydraulic power was used to remove the collars of seats from the springs.

Location: Bay 4 North 1 East

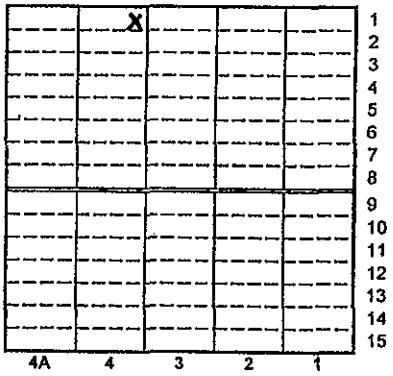


Photo: **FILM No.** 95-169-5-17 **Photographed and inspected December 1995**

Item Name: The Ryerson Spring Forming Machine | **Item No.** 153

Name Plate:

Associated	**Items:**	
Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This heavy, cast-iron framed spring bending machine is used for forming leaf springs. The appropriately curved dolly or mandrel is fixed to the moving front of the machine. The red hot steel spring lead is placed against it and the spring is then forced against a flexible steel chain belt. The spring then takes the shape of the dolly.

History: The Ryerson Spring Forming Machines were manufactured prior to World War I and were formerly located in the Spring Shop which was established between Bay 1 and the New Engine Shop. They were moved to this position probably in 1972.

Function and Operation: The Ryerson Spring Forming Machines were the principle methods of forming leaf springs from hot stock. The stock was simply placed between the dolly and the steel mesh and forced against it through hydraulic pressure. The formed lead springs were then heat treated.

Location: Bay 4 North 2 West

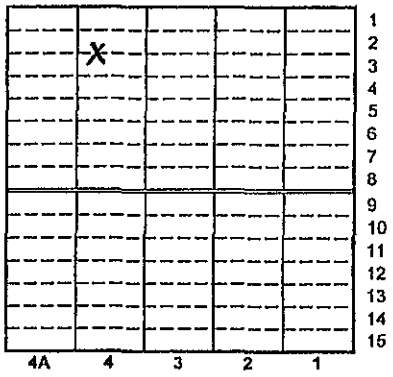
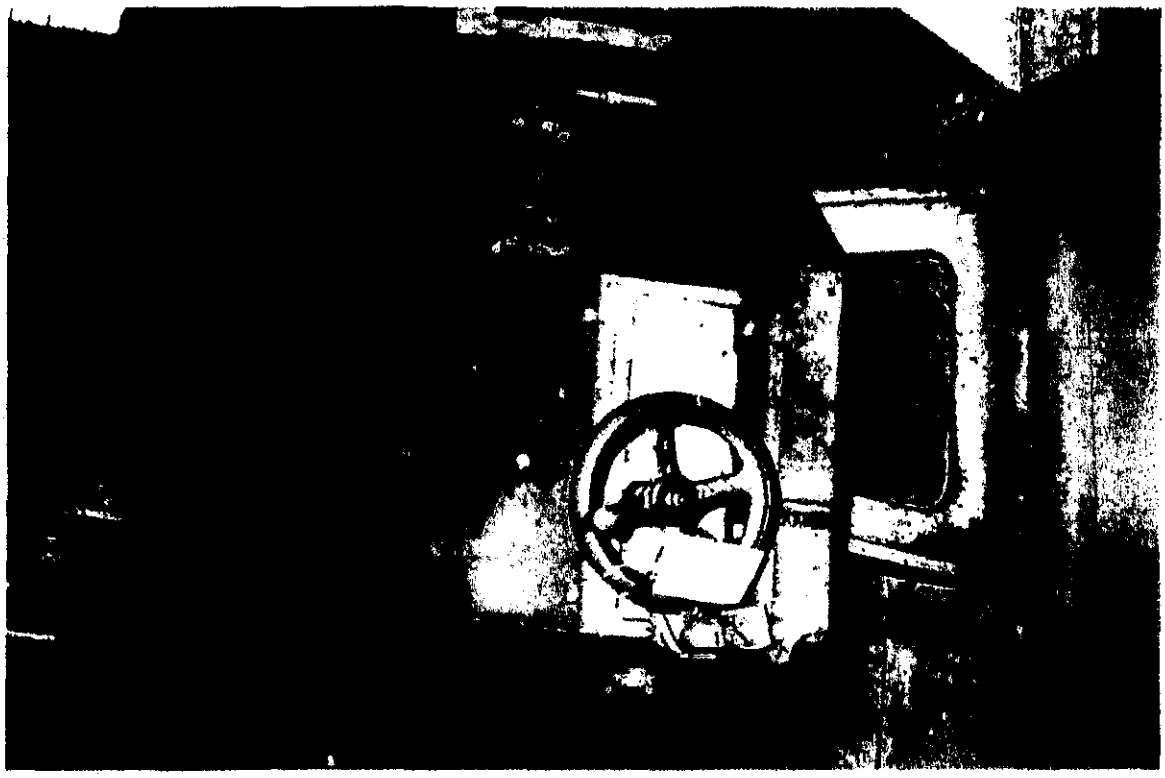


Photo: **FILM No.** 95-169-5-18 **Photographed and inspected December 1995**



Item Name: The Ryerson Spring Forming Machine	**Item No.** 154
Name Plate:	

Associated	**Items:**	
Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This heavy, cast-iron framed spring bending machine is used for forming lead springs. The appropriately curved dolly or mandrel is fixed to the moving front of the machine. The red hot steel spring lead is placed against it and the spring is then forced against a flexible steel lead belt. The spring then takes the shape of the dolly.

History: The Ryerson Spring Forming Machines were manufactured prior to World War I and were formerly located in the Spring Shop which was established between Bay 1 and the New Engine Shop. They were moved to this position probably in 1972.

Function and Operation: The Ryerson Spring Forming Machines were the principle methods of forming leaf springs from hot stock. The stock was simply placed between the dolly and the steel mesh and forced against it through hydraulic pressure. The formed lead springs were then heat treated.

Location: Bay 4 North 2 West

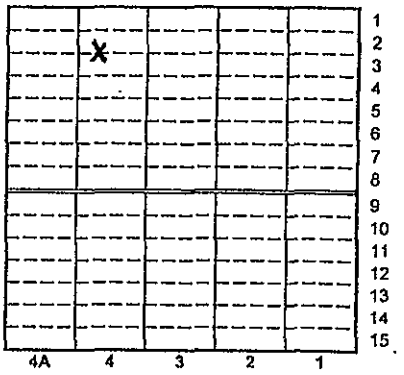
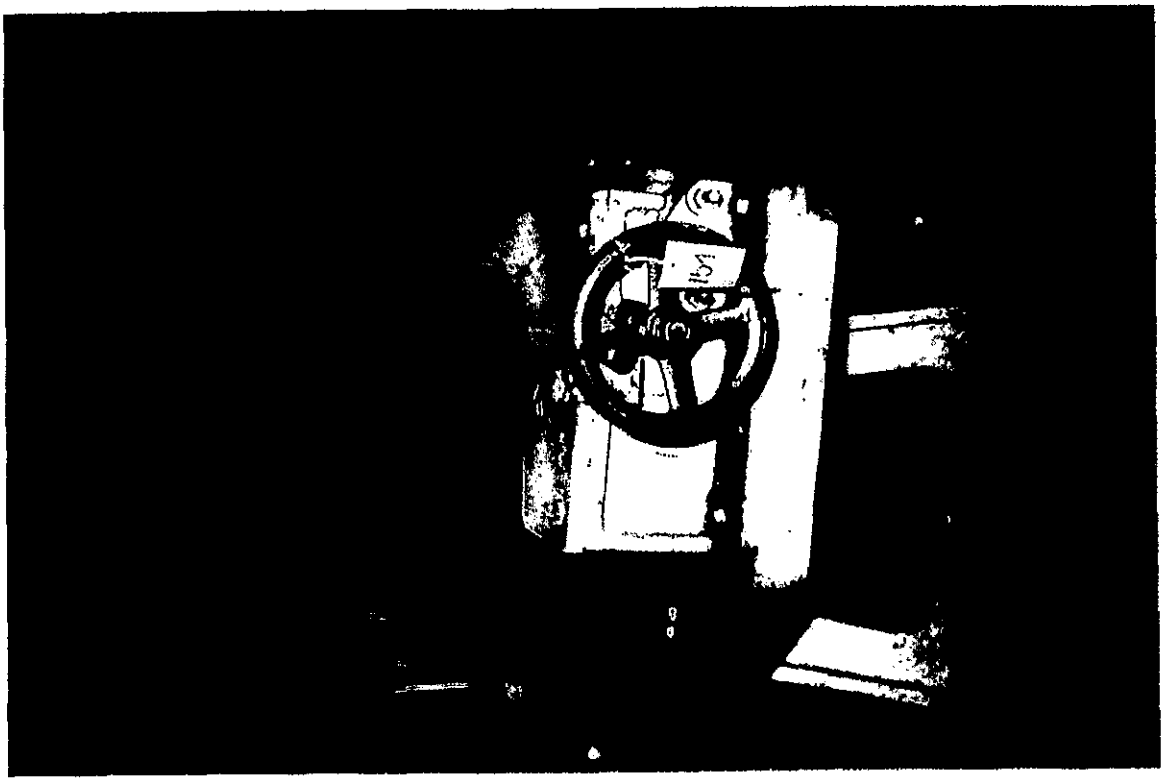


Photo: **FILM No.** 95-169-5-19 **Photographed and inspected December 1995**



Item Name: The Quenching Tank **Item No.** 155

Name Plate:

Associated Items:

Individual	☐
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☑ Spring Shop 123-125, 149-157, 159, 161

Description: The Quenching Tank was used for quench hardening, tempering or cooling of springs. Springs were normally loaded into a small steel tray and dropped into the quenching bath via a counterweighted cable. This Quenching Tank which measures about 1.3 metres long, 500 metres wide and is about 900mm deep. It is sunk into the floor of the spring shop and is located close to the Ryerston Spring Forming Machines.

History: The history of the item is unknown.

Function and Operation: Once formed and the seats ground the coil springs were heated in a special heating chamber and then quenched to harden and then tempered.

Location: Bay 4 North

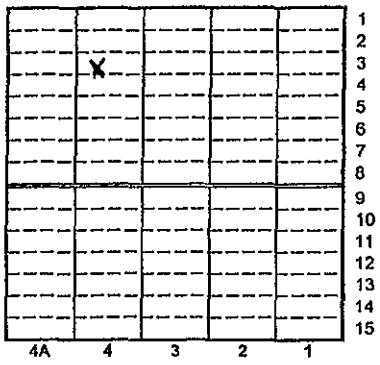
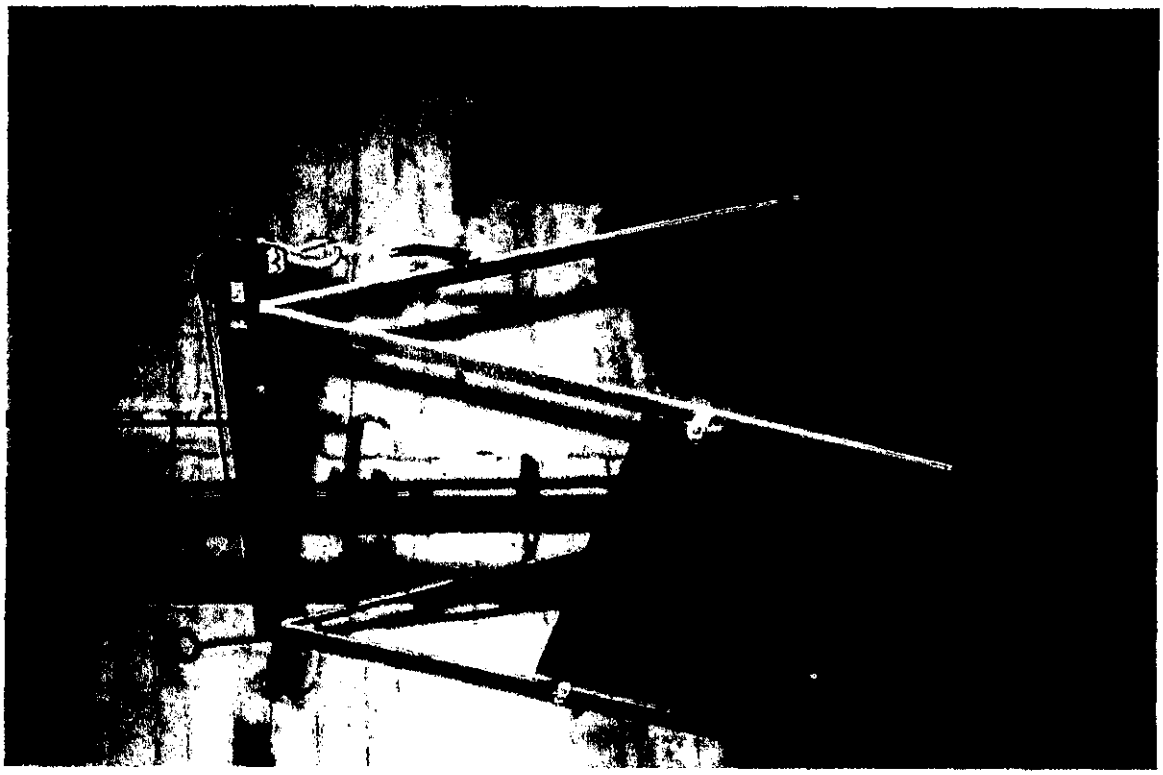


Photo: **FILM No.** 95-169-5-20 **Photographed and inspected December 1995**



Item Name: Hydraulic Press and Spring Tester | **Item No.** 156

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☑	Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This small press has been adapted by the workshops from a true press to a spring testing machine. It consists of a massive, cast-iron holding bed and a very large high pressure cylinder and ram.

History: The history of the item is unknown but it was made in the workshops. It exhibits considerable age in its construction. It was probably first erected in the Spring Shop between Bay 1 and the New Engine Shop before World War I.

Function and Operation: The machine was used for testing springs. The leafs were placed on the machine bed, fastened into place on a sliding bracket and pressed to a testified test pressure. If the spring recovered without deformity it was passed for use on locomotive carriages.

Location: Bay 4 North 3-4 West

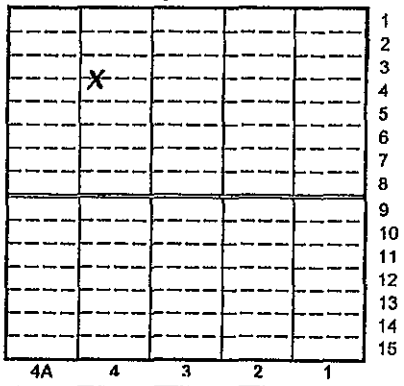


Photo: **FILM No.** 95-169-5-21 **Photographed and inspected December 1995**

Item Name: The Department Double Floor Grinder	**Item No.** 157

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Frazing Wheels 33, 78, 82, 83, 92
System	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This machine consists of a cast-iron frame which holds a spindle, the ends of which support large (450mm grinding wheels). A single stand-alone motor has been attached to the back of the frame and this is direct coupled by V-belt to a pulley located in the centre of the main shaft. The main shaft is supported on two bearings, the blocks of which have been cast into the main frame. Two very heavy flat tool rests are attached with nut and bolt to the slots in cast brackets on the front of the machine.

History: The history of the item is unknown but it was made in the workshops possibly before the First World War and was possibly located in the original Spring Shop.

Function and Operation: The Double Floor Grinder was used for general cleaning of cut stock and for taking off rough edges from spring collars.

Location: Bay 4 North 3 West

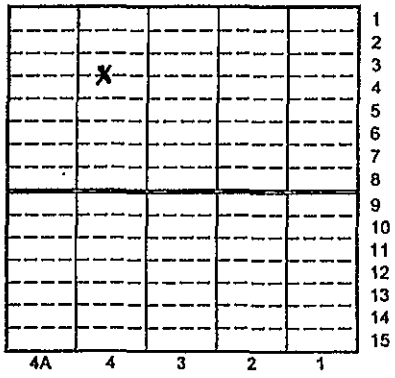


Photo: **FILM No.** 95-169-5-22 **Photographed and inspected December 1995**

Item Name: The Tweddells System Spring Buckling Press | **Item No.** 158

Name Plate: Tweddell's System - Fielding & Platt. Gloucester England

Associated Items:

Individual	☐
Assemblage	☐
Collection	☐
System	☑
Operational Groups	☑

Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Spring Shop 123-125, 149-157, 159, 161

Description: This rather complex machine is about 3 metres long and 2.5 metres wide and stands at its highest point at 2 metres high. The machine was used for the buckling or the placing of collars on leaf springs. It was subsequently modified to allow the removal of collars or buckles. The item consists of several hydraulic rams which allow the assembling of the springs and the forcing of the collars or buckles on to the coupled springs.

History: The machine was installed in 1908 probably in the newly constructed spring shop between bay 1 and the new locomotive shop.

Function and Operation: The operation of the item was through the manipulation of hydraulic valves which admitted high pressure water from the hydraulic system into the rams which brought pressure to bear on the springs and buckles as appropriate.

Location: Bay 4 North 4-5 West

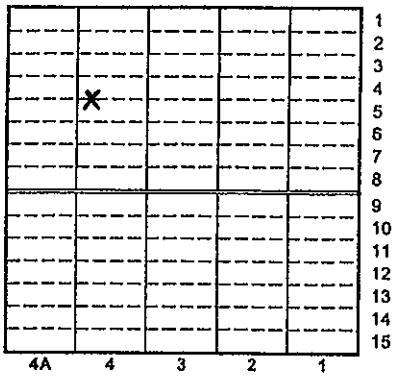
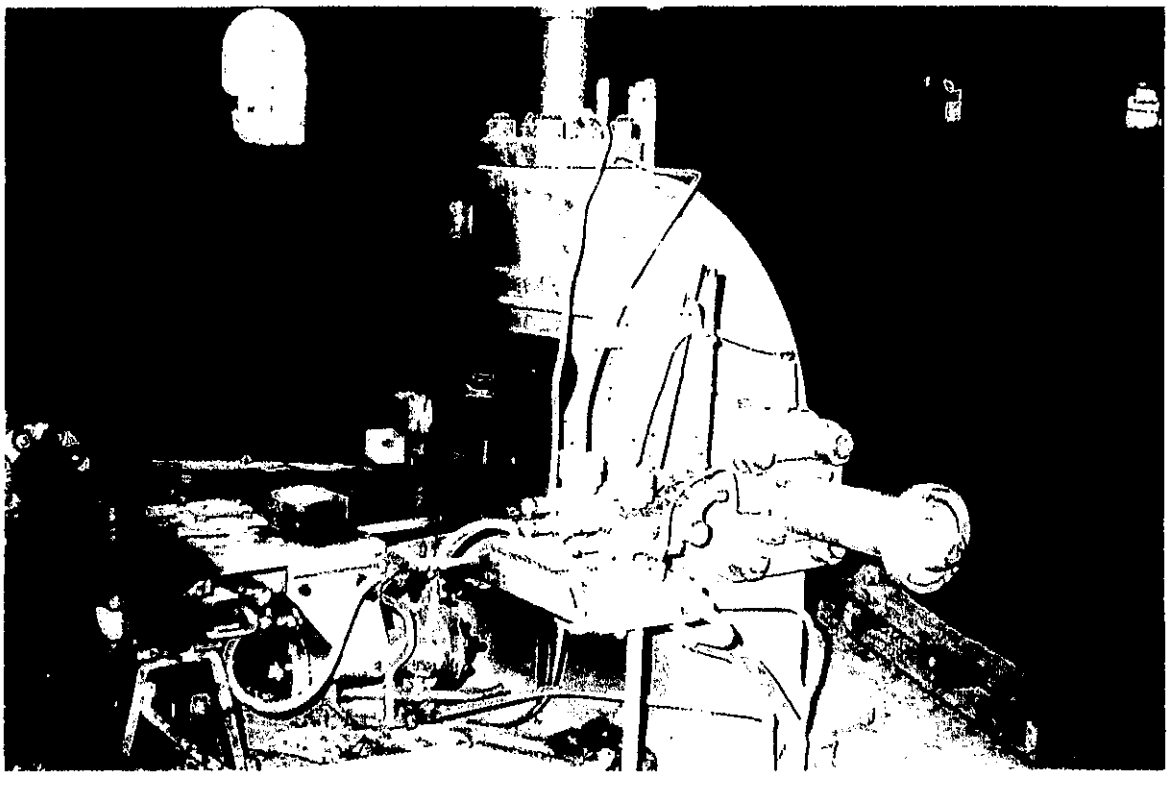


Photo: **FILM No.** 95-169-5-23 **Photographed and inspected December 1995**



Item Name: The Furnace | **Item No.** 159

Name Plate: NSWTD FR71 S.O.

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This furnace has a cast iron and plate steel sheathing and stands on cast iron legs. It is fired by gas and it was used for heating springs or buckles prior to the assembly of springs.

History: The history of this item is unknown but it is probably manufactured prior to WW1 and has been used for the manufacture of springs since that time. It was installed in this location about 1972.

Function and Operation: N/A

Location: Bay 4 North 4 West

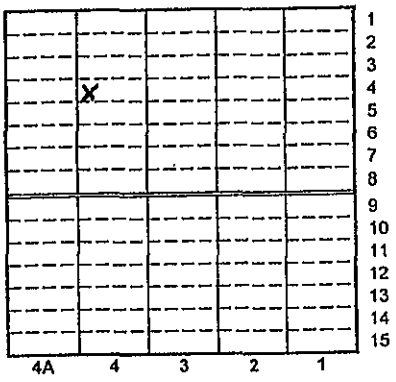


Photo: **FILM No.** 95-169-5-24 **Photographed and inspected December 1995**

Item Name: The Hydraulic Spring Buckling Press | **Item No.** 160

Name Plate: NSWGR No. 653 Class SP Rice & Co (Leeds) Ltd.

Associated Items:

Individual	☐
Assemblage	☐
Collection	☐
System	☑
Operational Groups	☑

Hydraulic 49, 52, 144, 152-154, 158, 184-187, 193, 194, 213
Spring Shop 123-125, 149-157, 159, 161

Description: This specialist hydraulic spring buckling press like the previous one has also been modified. This rather complex machine is about 3 metres long and 2.5 metres wide and stands at its highest point at 2 metres high. The machine was used for the buckling or the placing of collars on leaf springs. It was subsequently modified to allow the removal of collars or buckles. The item consists of several hydraulic rams which allow the assembling of the springs and the forcing of the collars or buckles on to the coupled springs.

History: The machine was installed in 1915 probably in the newly constructed spring shop between bay 1 and the new locomotive shop

Function and Operation: The operation of the item was through the manipulation of hydraulic valves which admitted high pressure water from the hydraulic system into the rams which brought pressure to bear on the springs and buckles as appropriate.

Location: Bay 4 North 4 West

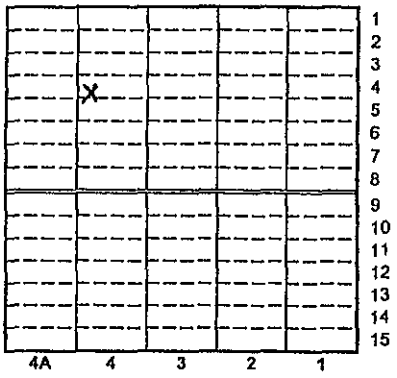
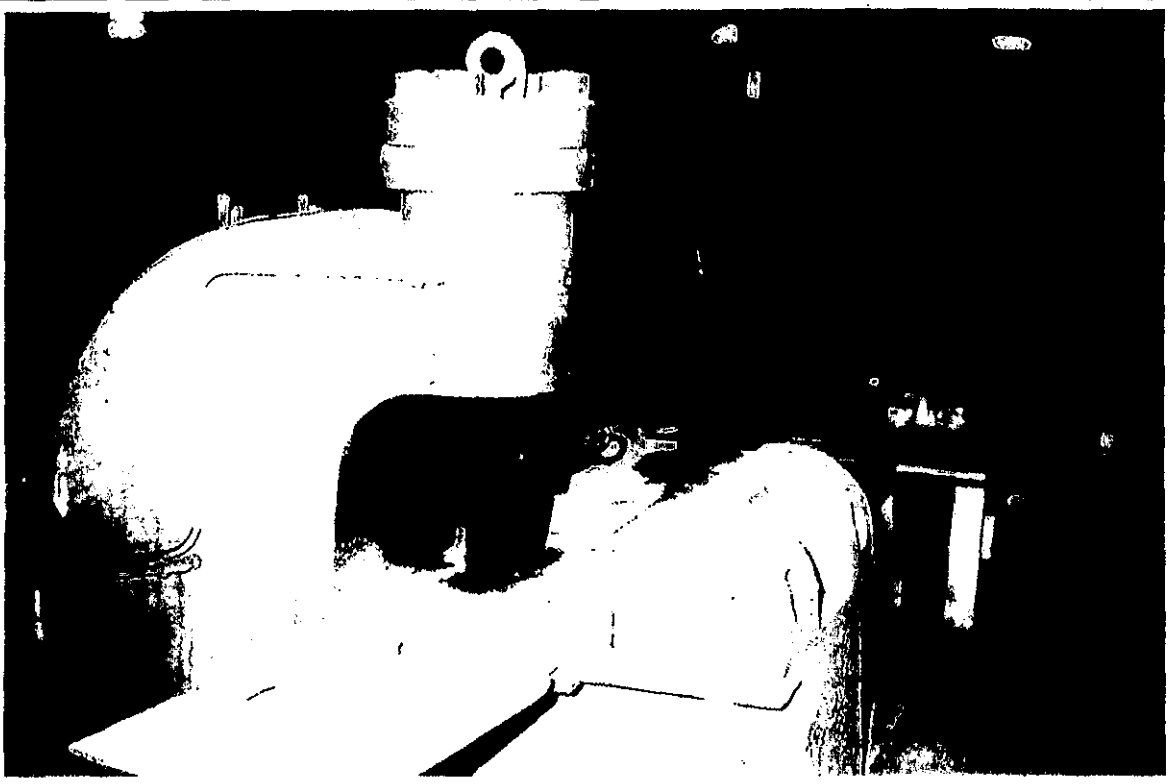


Photo: **FILM No.** 95-169-5-25 **Photographed and inspected December 1995**



Item Name: Furnace | **Item No.** 161

Name Plate: NSWTD FR 73 S.O.

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Furnaces 47, 48, 53, 56, 59, 79, 86, 95, 97, 99, 106, 110, 111, 129, 159, 161, 198
System	☑	
Operational Groups	☐	Spring Shop 123-125, 149-157, 159, 161

Description: This furnace has a cast iron and plate steel sheathing and stands on cast iron legs. It is fired by gas and it was used for heating springs or buckles prior to the assembly of springs.

History: The history of this item is unknown but it is probably manufactured prior to WW1 and has been used for the manufacture of springs since that time. It was installed in this location about 1972.

Function and Operation:

Location: Bay 4 North 5-6 West

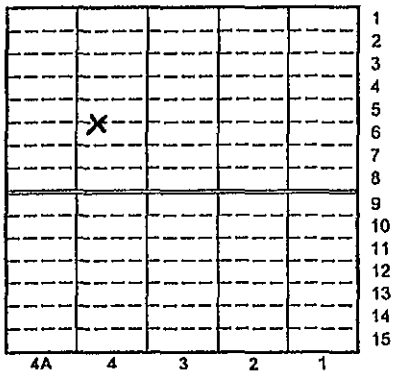


Photo: **FILM No.** 95-169-5-26 **Photographed and inspected December 1995**

Item Name: Work Table | **Item No.** 162

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small work table on timber legs and with a steel plate top was used for a variety of setting out and marking operations as springs were manufactured in the spring shop.

History: Not known.

Function and Operation: Work Table.

Location: Bay 4 North 5-6 East

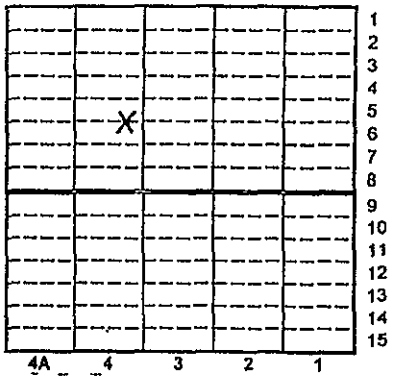
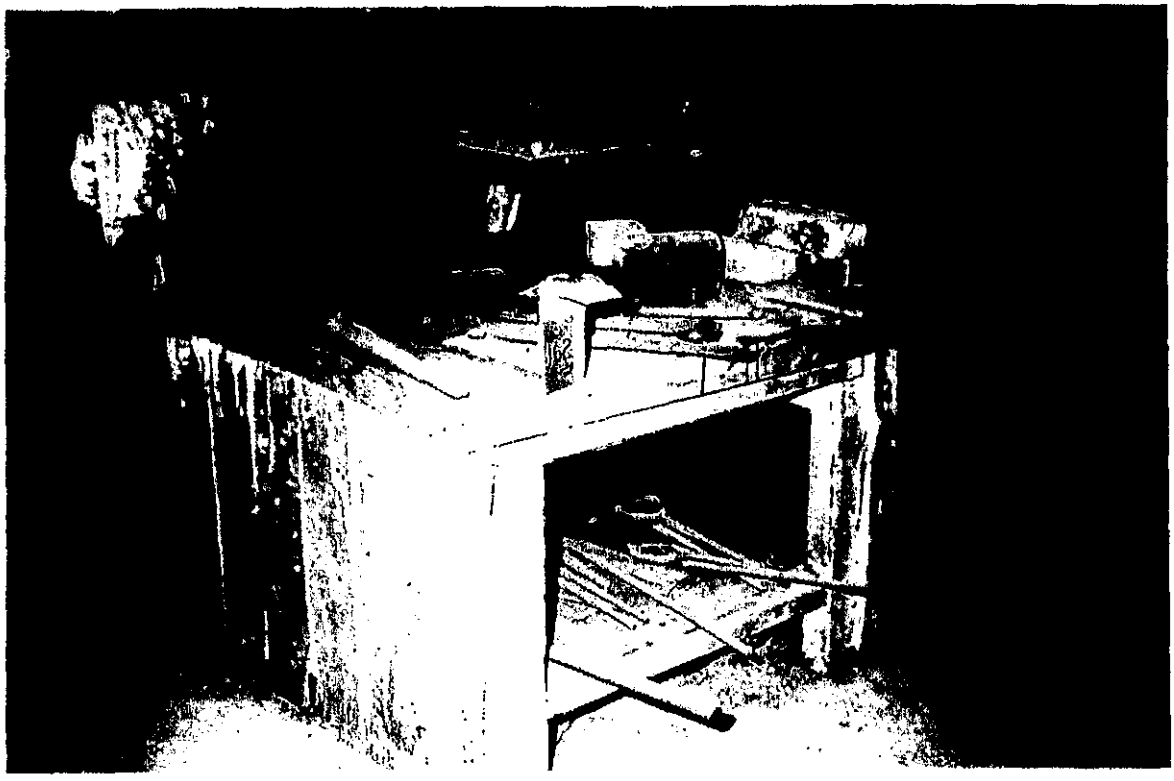


Photo: **FILM No.** 95-169-5-27 **Photographed and inspected December 1995**



Item Name: Electric Motor	**Item No.** 163

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: (To be returned to Chullora)

History:

Function and Operation:

Location: Bay 4 North 4 East

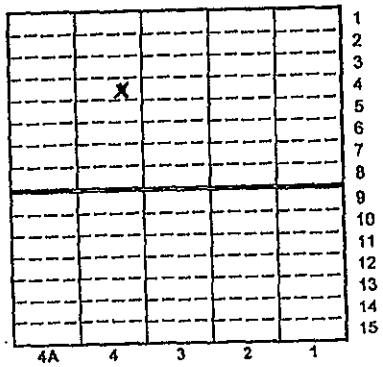
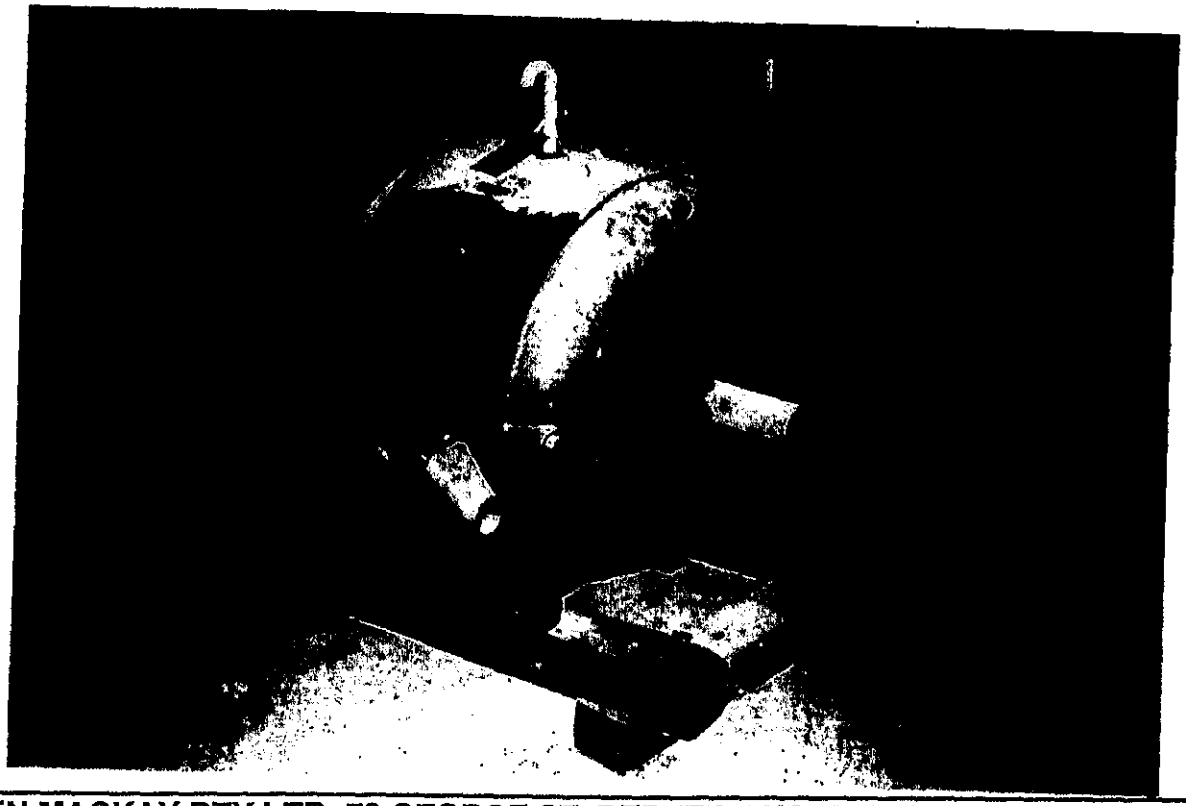


Photo: **FILM No.** 95-169-5-28 **Photographed and inspected December 1995**



Item Name: Electric Starter Cabinet | **Item No.** 164

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small starter cabinet is associated with machinery which has been moved from Bays 1-5.

History: No information is available on the history of this item.

Function and Operation: Associated machinery for this item is unknown.

Location: Bay 4 North 3-4 East

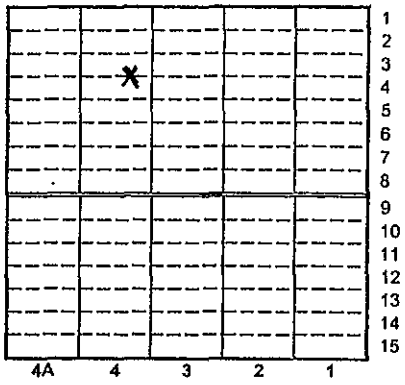
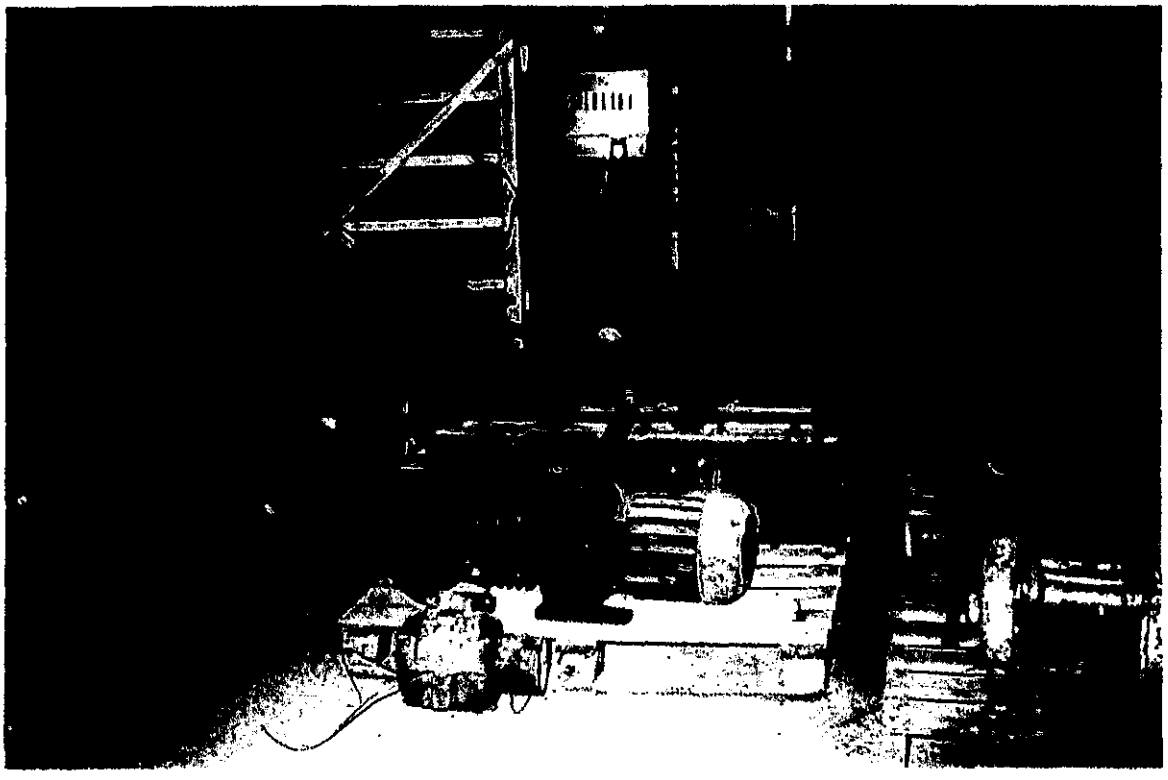


Photo: **FILM No.** 95-169-6-29 **Photographed and inspected December 1995**



Item Name: Small Electric Motor | **Item No.** 165

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small electric motor mounted on the base plate with a five belt V-pulley is believed to belong to one of the machines removed from Bay 5.

History: The history of the items is unknown.

Function and Operation: Unknown.

Location: Bay 4 North 2 East

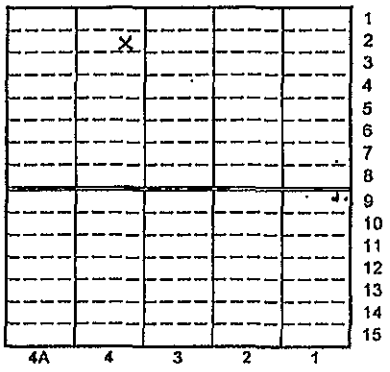
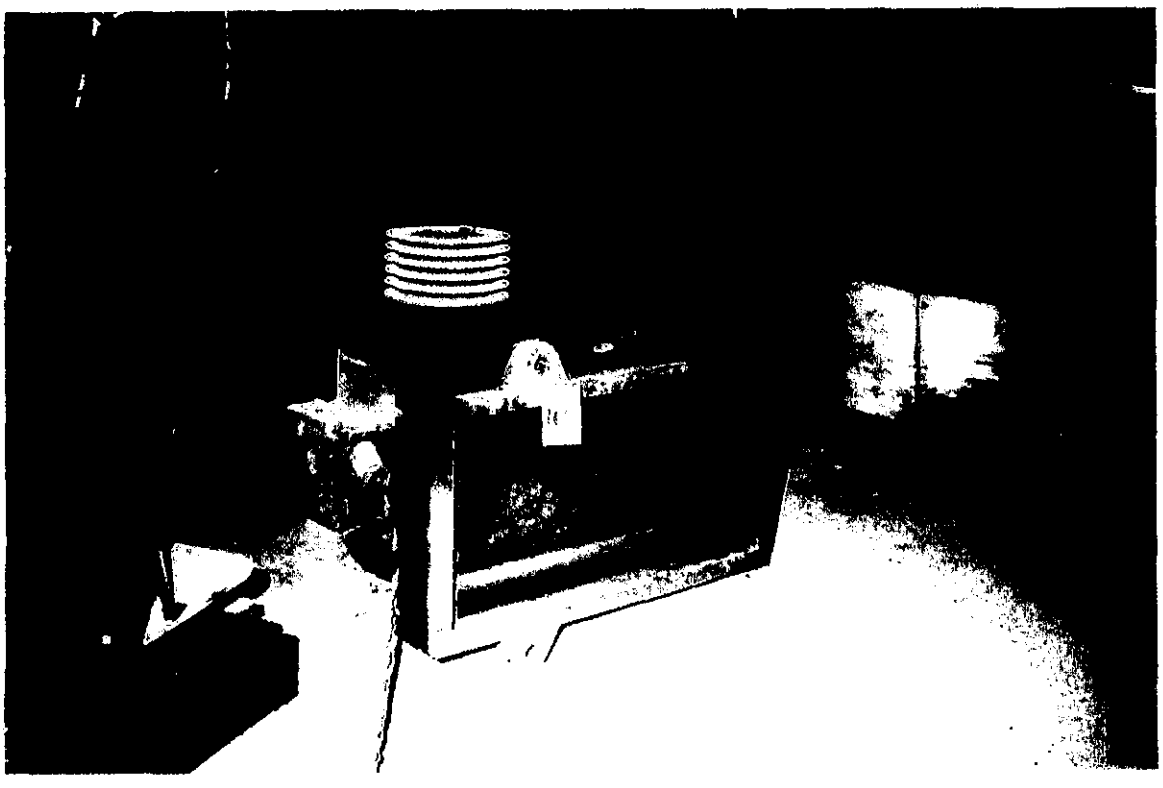


Photo: **FILM No.** 95-169-5-31 **Photographed and inspected December 1995**



Item Name: Machine Parts | **Item No.** 166

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: Machine parts in this category consists of two layed centres and a large bed bracket.

History: The history of the items is unknown.

Function and Operation: Unknown.

Location: Bay 4 North 2 East

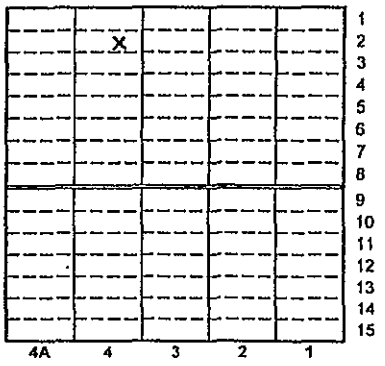


Photo: **FILM No.** 95-169-5-31 **Photographed and inspected December 1995**

Item Name: The Centre Lathe | **Item No.** 167

Name Plate:

Associated Items:

Individual	☐
Assemblage	☐
Collection	☑ Lathes 38, 107, 109, 131, 141, 167, 168, 200
System	☐
Operational Groups	☐

Description: This large machine lathe with its massive cast-iron bed and cast-iron gear cover was one of the last of the traditional type lathes to be produced before the advent of built-in gear changing mechanisms. It is of exceptionally sturdy construction and all operating parts are visible.

History: The lathe was introduced to Bay 10 in 1940 and served most of its life in the machine shop in Bay 10. It was moved to its present location in Bay 4 North when the Workshops closed in 1989.

Function and Operation: The lathe was only operated by fitters and machinists although final year fitters and machinist apprentices are also able to use the lathe under supervision.

Location: Bay 4 North 2 East

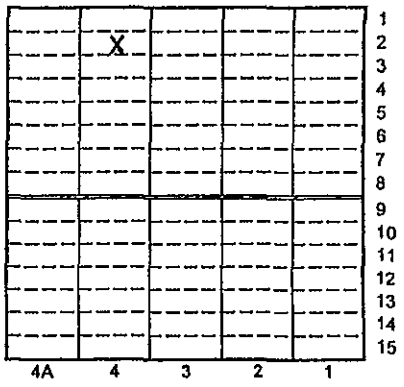
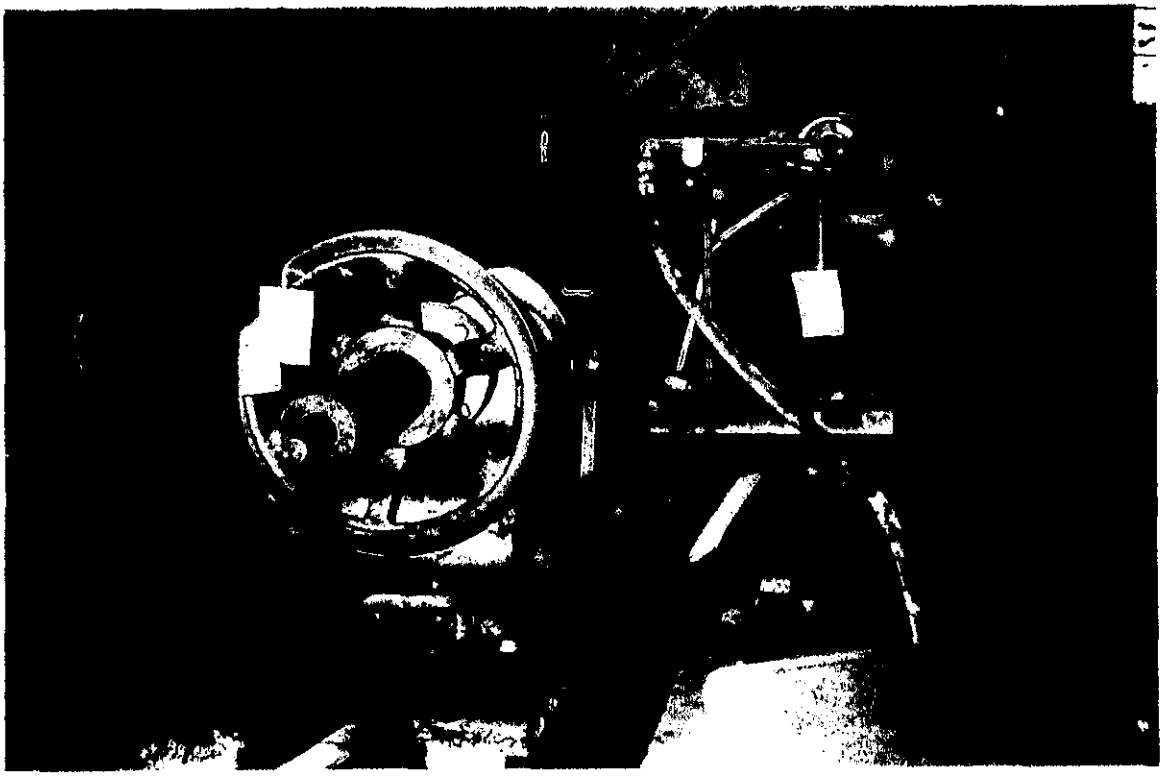


Photo: **FILM No.** 95-167-5-32 **Photographed and inspected December 1995**



Item Name: The Axle and Journal Lathe by Craven | **Item No.** 168

Name Plate:

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Lathes 38, 107, 109, 131, 141, 167, 168, 200
System	☐	
Operational Groups	☐	

Description: An extremely heavy lathe with an integrated motor driving the chuck and tool holder through a complex set of covered gears. Gear changing was achieved by a series of gear levers.

History: The axle and journal lathe was introduced to Bay 9 North in the machine shop in 1956. It was one of the first of the modern types of lathes to be introduced to the workshops.

Function and Operation: The lathe was used for axle turning and burnishing and was one of the more complex specialist lathes used in the machine shop.

Location: Bay 4 North 2 West

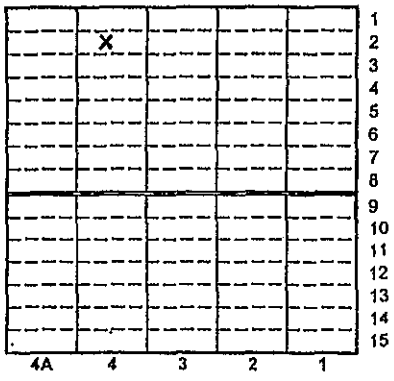
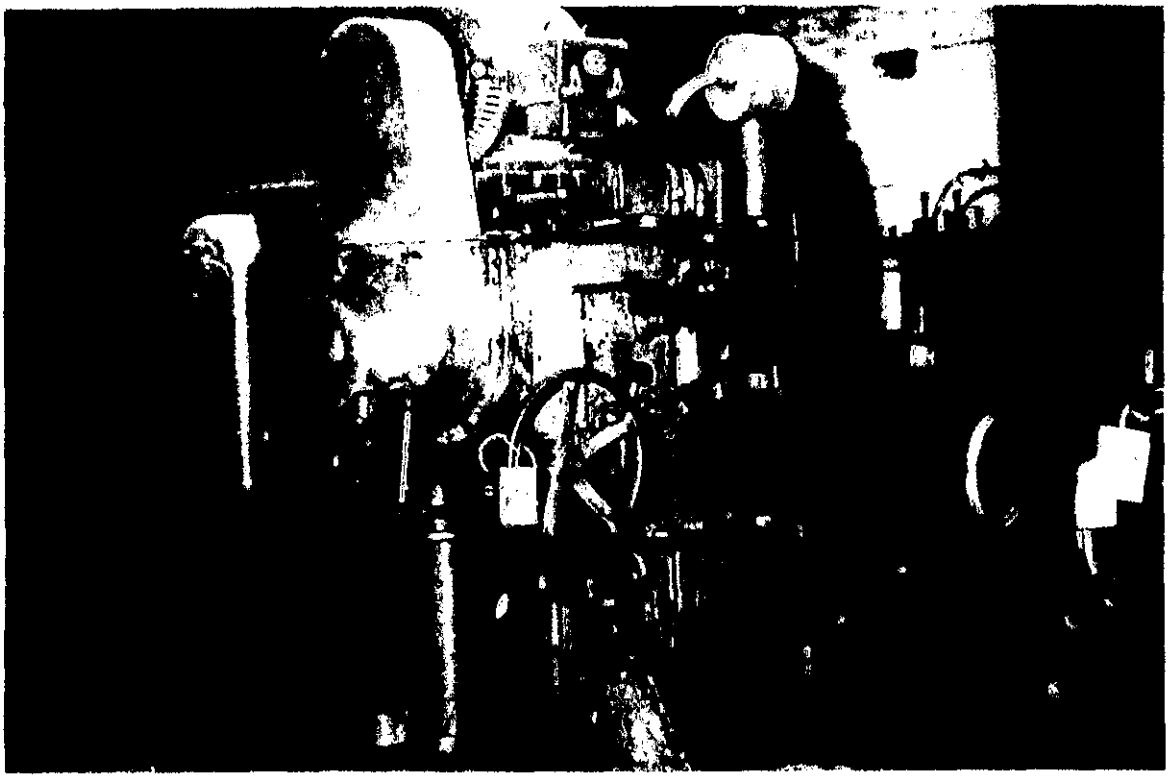


Photo: **FILM No.** 95-169-5-33 **Photographed and inspected December 1995**



Item Name: Planing Machine | **Item No.** 169

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This large variable speed reversing motor drive planer, by John Stirk and Son of Halifax wax used for general planing work form the other bays and from outside the workshops.

History: The planer was introduced to Bay 10 South in 1953 and it was one of several used by the fitters and machinists.

Function and Operation: The planing machine which has a very large cast iron bed was used for general use for levelling and truing. This planer was of typical construction with a horseshoe type bed or ways on which the tool carriage ran. The platten or bed was moved backwards and forwards by means of a spiral gear located at 45^0 to the axis of the planer. The planer was used only by fitters and machinists.

Location: Bay 4 north 2 West

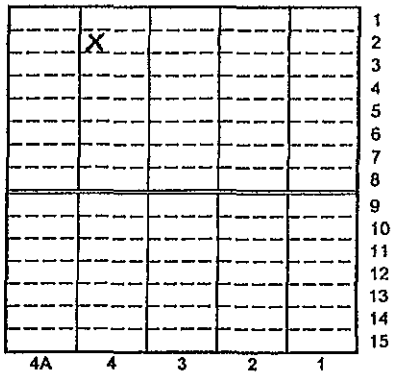
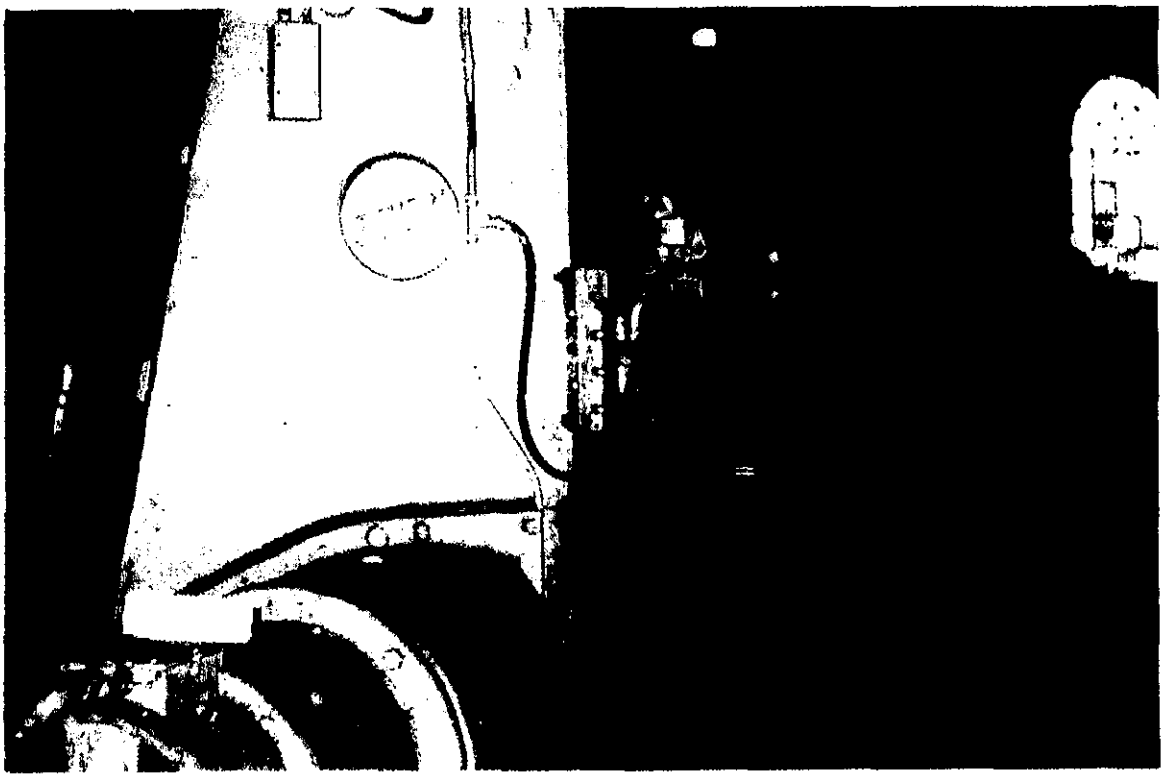


Photo: **FILM No.** 95-169-5-34 **Photographed and inspected December 1995**



Item Name: Electric Motor | **Item No.** 170

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small electric motor has a five belt V-pulley attached to it.

History: Unknown

Function and Operation: Unknown

Location: Bay 4 North 2-3 West

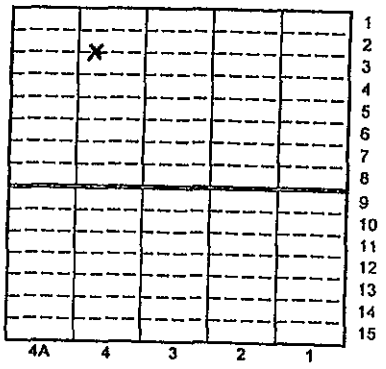
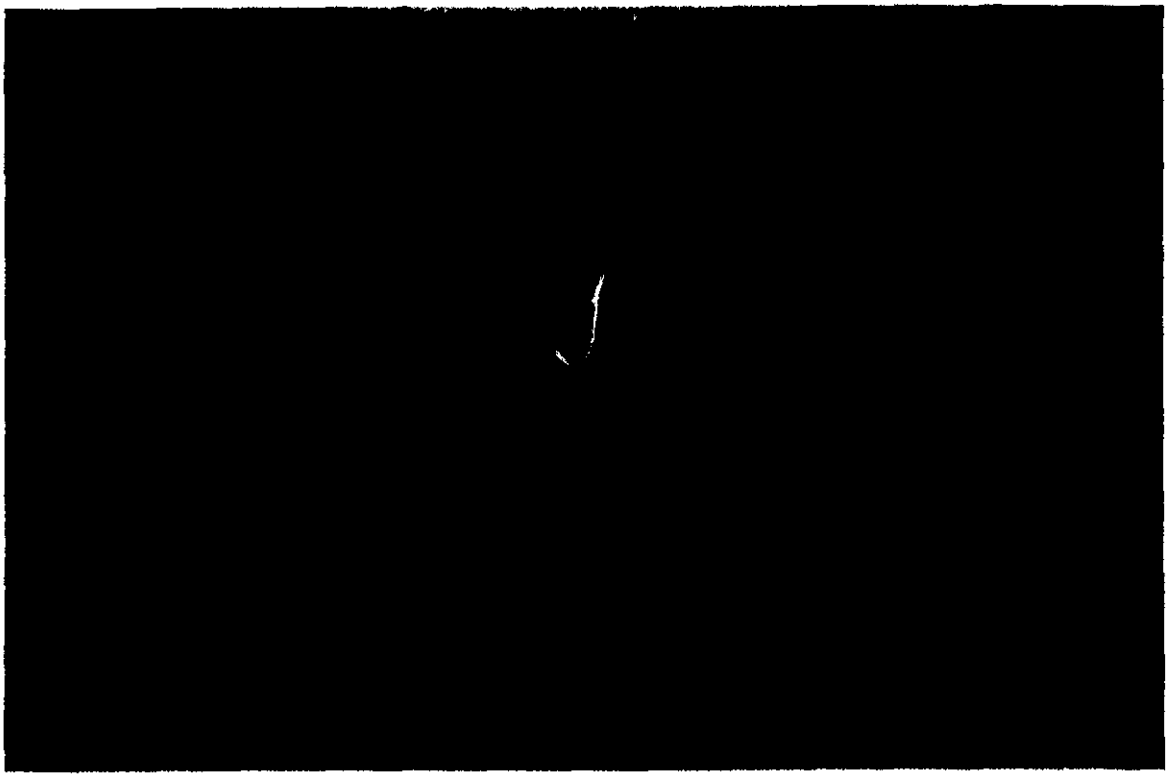


Photo: **FILM No.** 95-169-5-35 **Photographed and inspected December 1995**



Item Name: Small Motor Generator | **Item No.** 171

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description:

History: The history of the item is unknown.

Function and Operation: The location and mode of operation is unknown. This item is to be moved to Bay 15.

Location: Bay 4 North 2 West

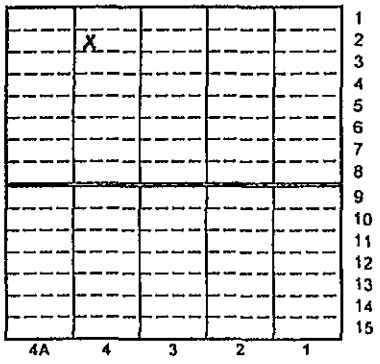


Photo: **FILM No.** 95-169-5-36 **Photographed and inspected December 1995**

Item Name: Workbench and Vice | **Item No.** 172

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☑ Spring Shop 123-125, 149-157, 159, 161

Description: This small workbench and vice was used in the setting out of special springs in the Spring Shop.

History: The history of the item is unknown but it was probably located in this workshop since the Spring Shop was established here.

Function and Operation: The workbench and vice functioned as part of a larger workshop operation.

Location: Bay 4 North 3 West

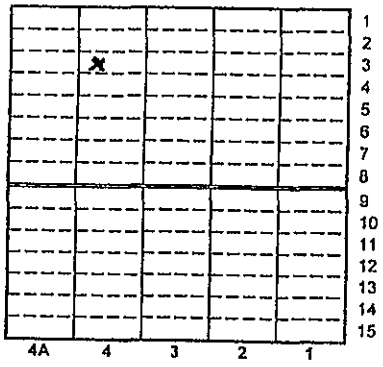


Photo: **FILM No.** 95-169-6-1 **Photographed and inspected December 1995**

Item Name: Armatures | **Item No.** 173

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: These items are to be moved to Chullora for disposal.

History:

Function and Operation:

Location: Bay 4 North 4-5 West

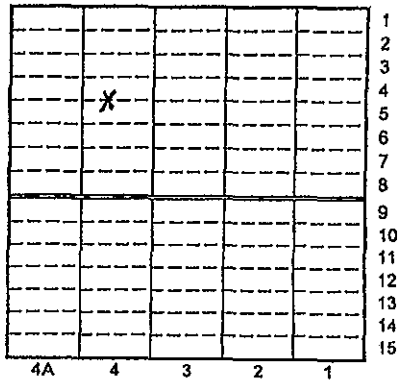
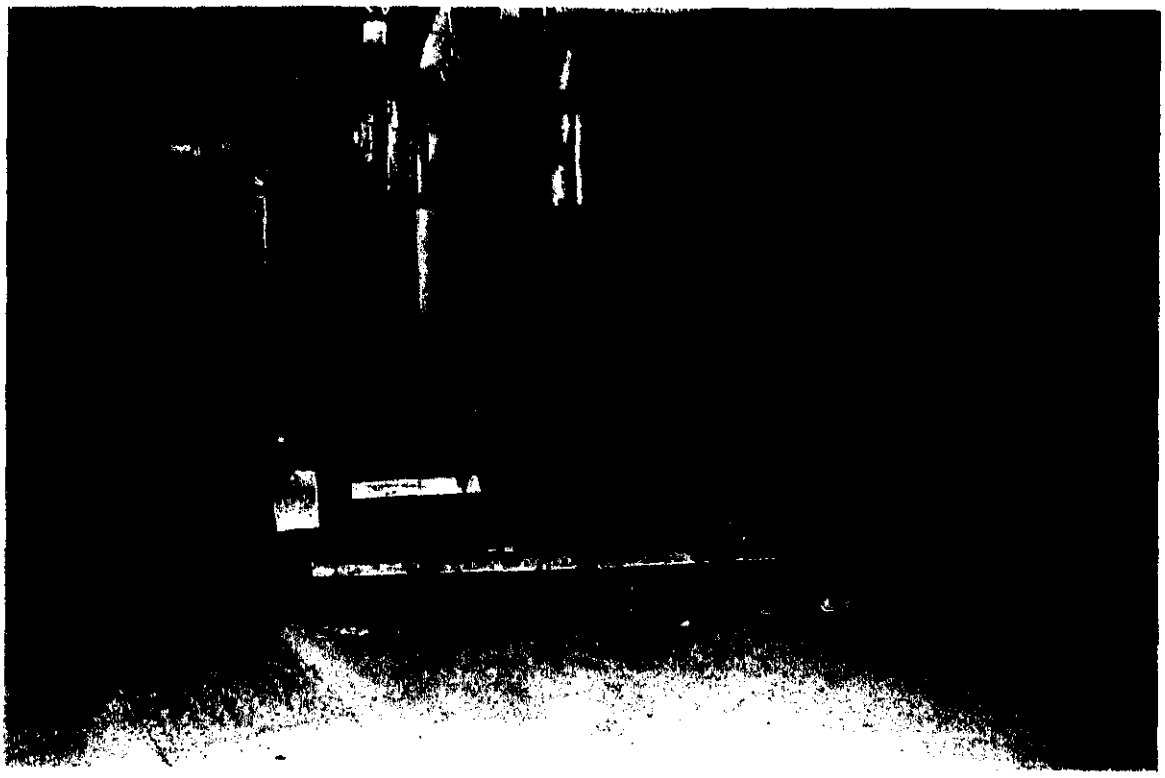


Photo: **FILM No.** 95-169-6-2 **Photographed and inspected December 1995**



Item Name: The Grinding Table	**Item No.** 174

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small grinding table was used in the Spring Shop. It consists of a heavy cast iron pedestal, head and apron all cast in one piece with two relatively small grinding wheels attached to the ends of the single shaft.

History: The item was installed in the Workshop in 1940.

Function and Operation: The Grinding Wheel was used for general small grinding within the Spring Shop.

Location: Bay 4 North 5 West

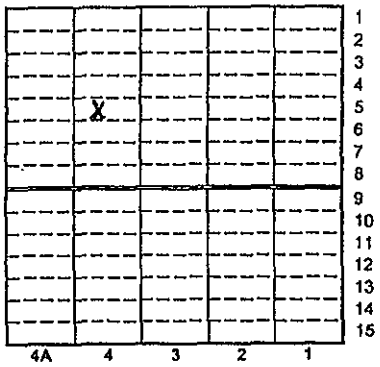
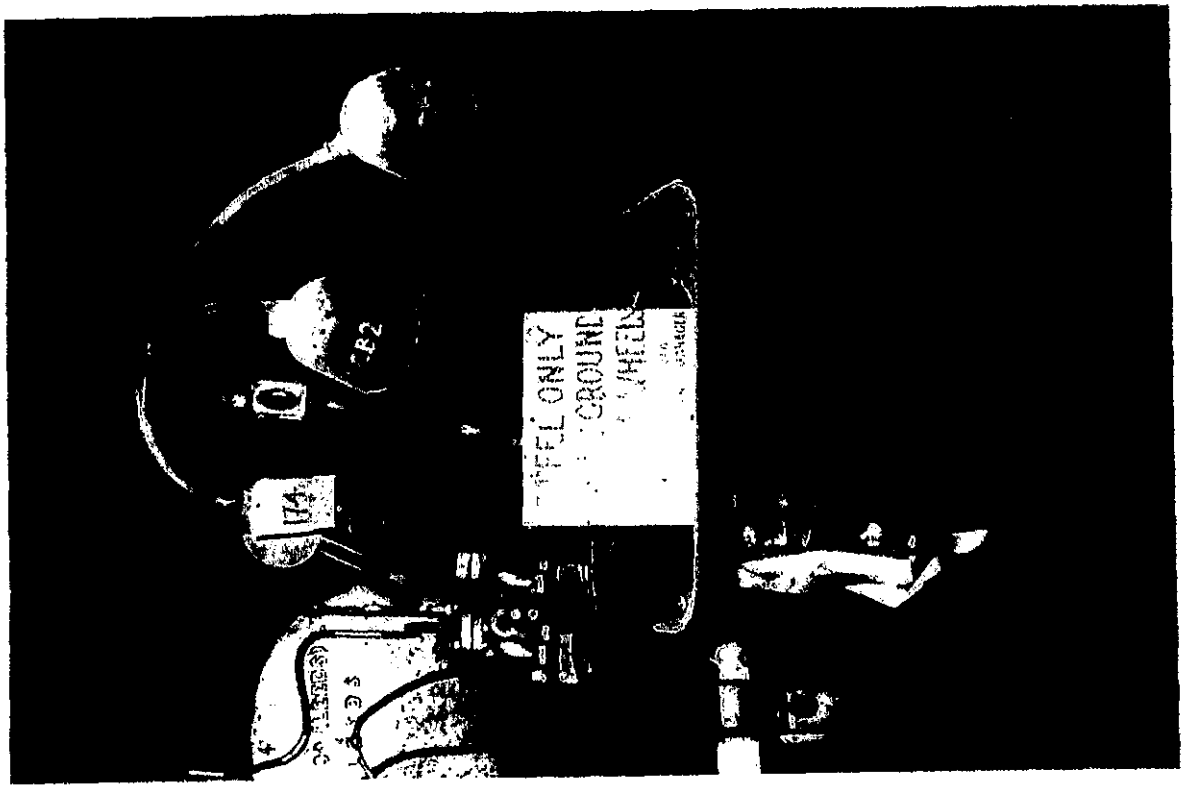


Photo: **FILM No.** 95-169-6-3 **Photographed and inspected December 1995**



Item Name: Electric Motor	**Item No.** 175

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This item which bears no name plate is to be moved to Bay 15 for storage and further assessment.

History:

Function and Operation:

Location: Bay 4 North 6 West

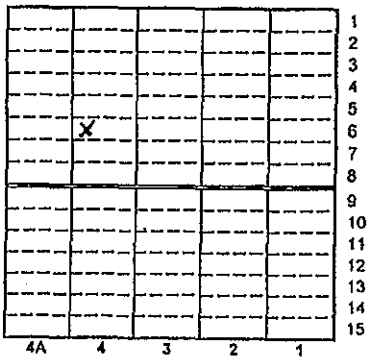
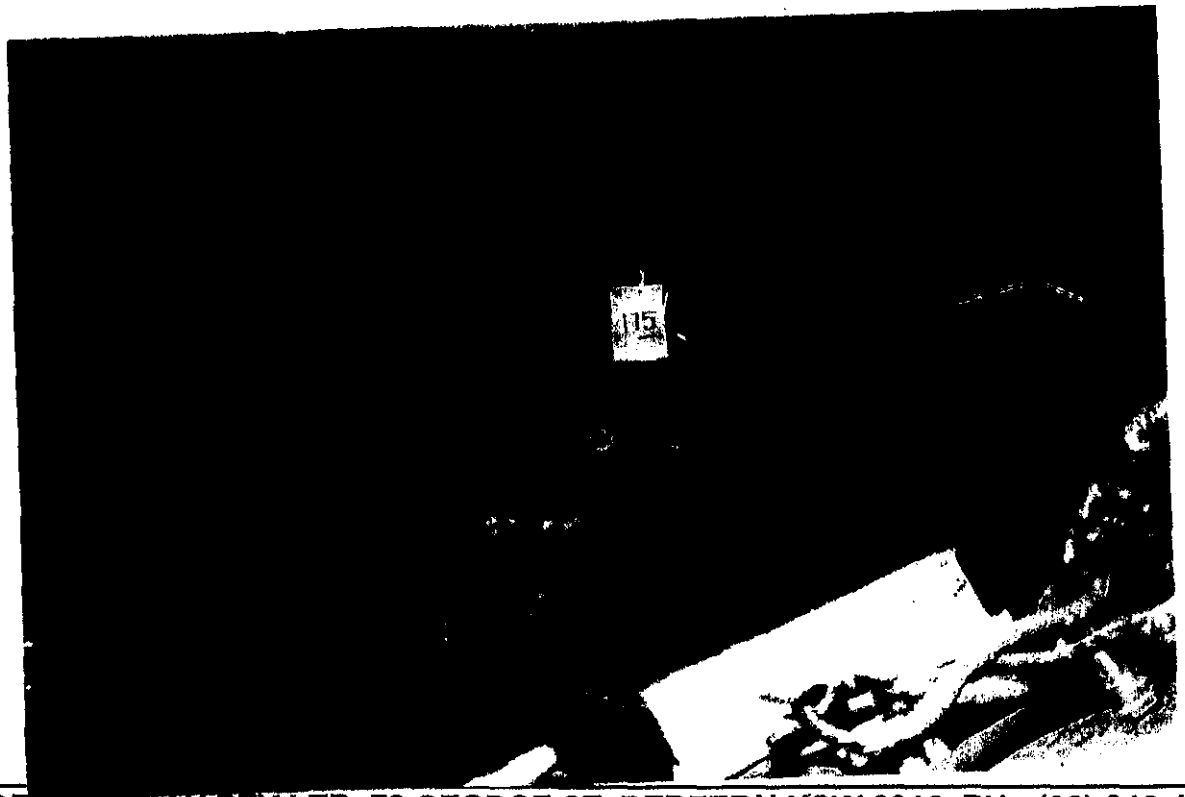


Photo: **FILM No.** 95-169-6-4 **Photographed and inspected December 1995**



Item Name: Electric Motor and Parts | **Item No.** 176

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This small electric motor formerly flexibly coupled to a machine is of considerable age. The motor and the assembled parts are of unknown providence. These items should be:

1. moved to Chullora for disposal;
2. moved to Bay 15 for further assessment.

History:

Function and Operation:

Location: Bay 4 North 6 West

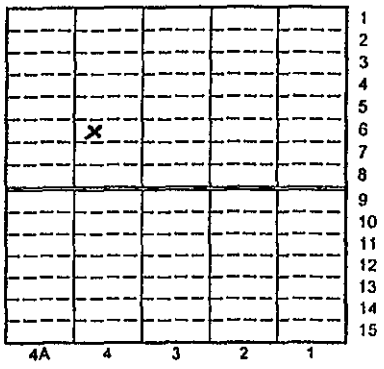


Photo: **FILM No.** 95-169-6-5 **Photographed and inspected December 1995**

Item Name: The Single Bed Vertical Borer with Dual Heads | **Item No.** 177

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This large machine which is in excess of three metres long, two metres wide and almost four metres high is a very large vertical boring machine. The material for turning, or boring, is set up on a large horizontal chuck and the two tool holders which can be used to cut work in tandem or to carry out different operations on either side of the object being turned, can also be set to cut at an angle. This tapered setting, along with the extraordinarily robust construction made this a most versatile machine tool.

History: The Single Bed Vertical Borer by Richards was installed in Bay 9, the machine shop in 1955. It remained here until it was moved to Bay 4 after the closure of the Workshops in 1899.

Function and Operation: The Borer was used on a wide range of cylinders and general work for both steam and diesel locomotives.

Location: Bay 4 North 6 West

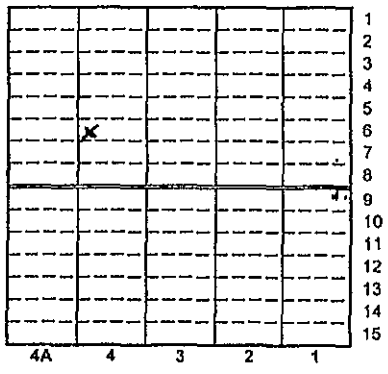
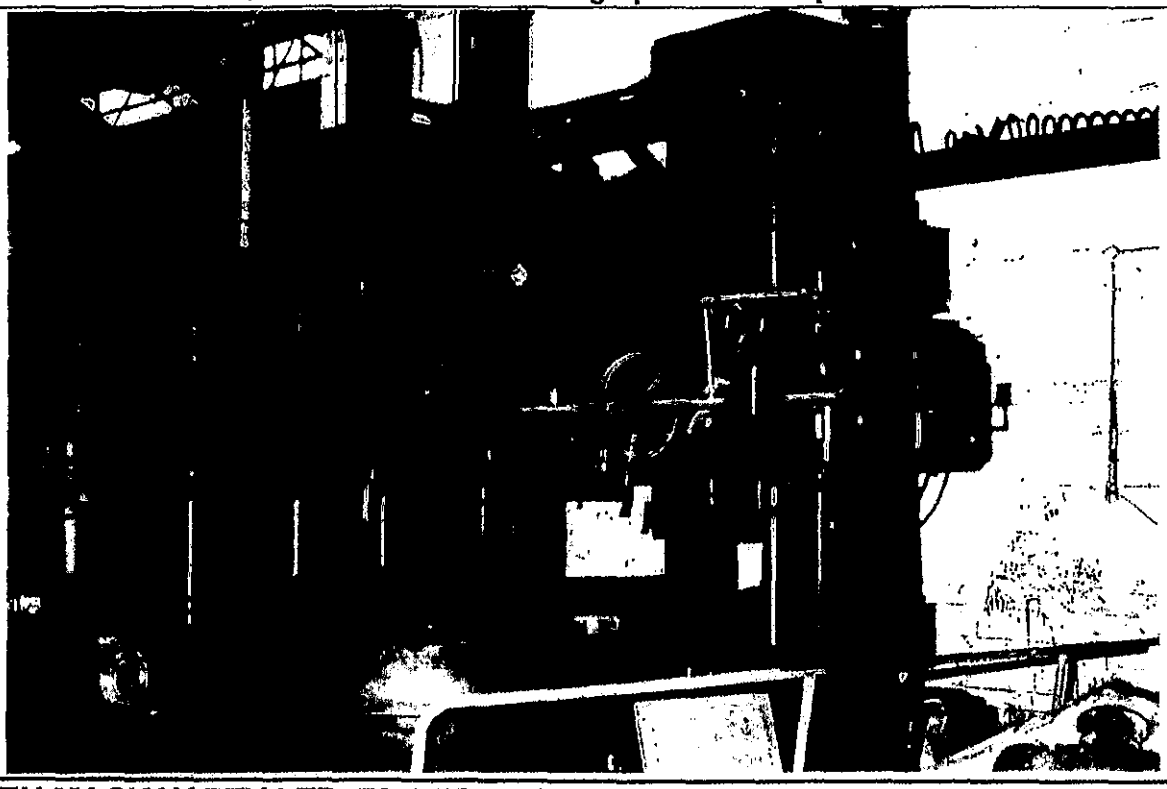


Photo: **FILM No.** 95-169-6-6 **Photographed and inspected December 1995**



Item Name: Rectifier | **Item No.** 178

Name Plate:

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: This large mercury arc rectifier moved to Bay 15 for further assessment.

History:

Function and Operation:

Location: Bay 4 North 6-7 West

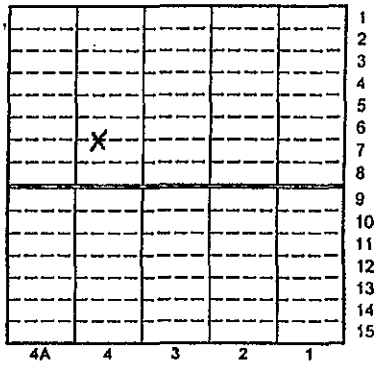
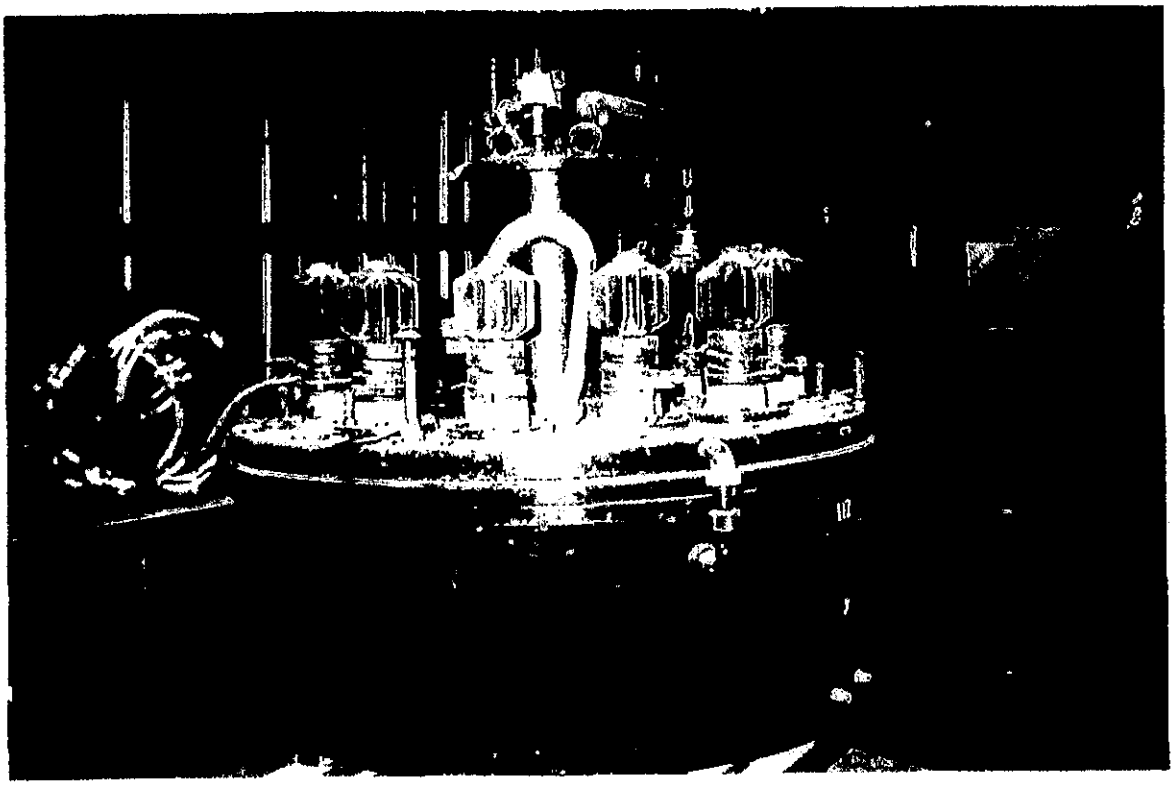


Photo: **FILM No.** 95-169-6-7 **Photographed and inspected December 1995**



Item Name: The Pneumatic Gap Riveter | **Item No.** 179

Name Plate:

Associated Items:

Individual	❑
Assemblage	❑
Collection	❑
System	❑
Operational Groups	❑

Description: This riveter was used in conjunction with boiler making and spring making technologies. The gap riveter itself was placed over the items to be riveted and pressure to the dollies was applied through a pneumatic hydraulic hose.

History: The item was established in the workshops in 1946. It is not known where it was located originally or when it was placed in this location.

Function and Operation: N/A

Location: Bay 4 North

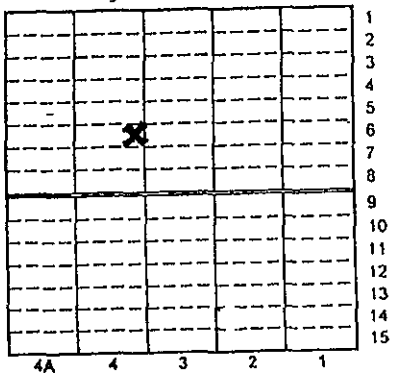
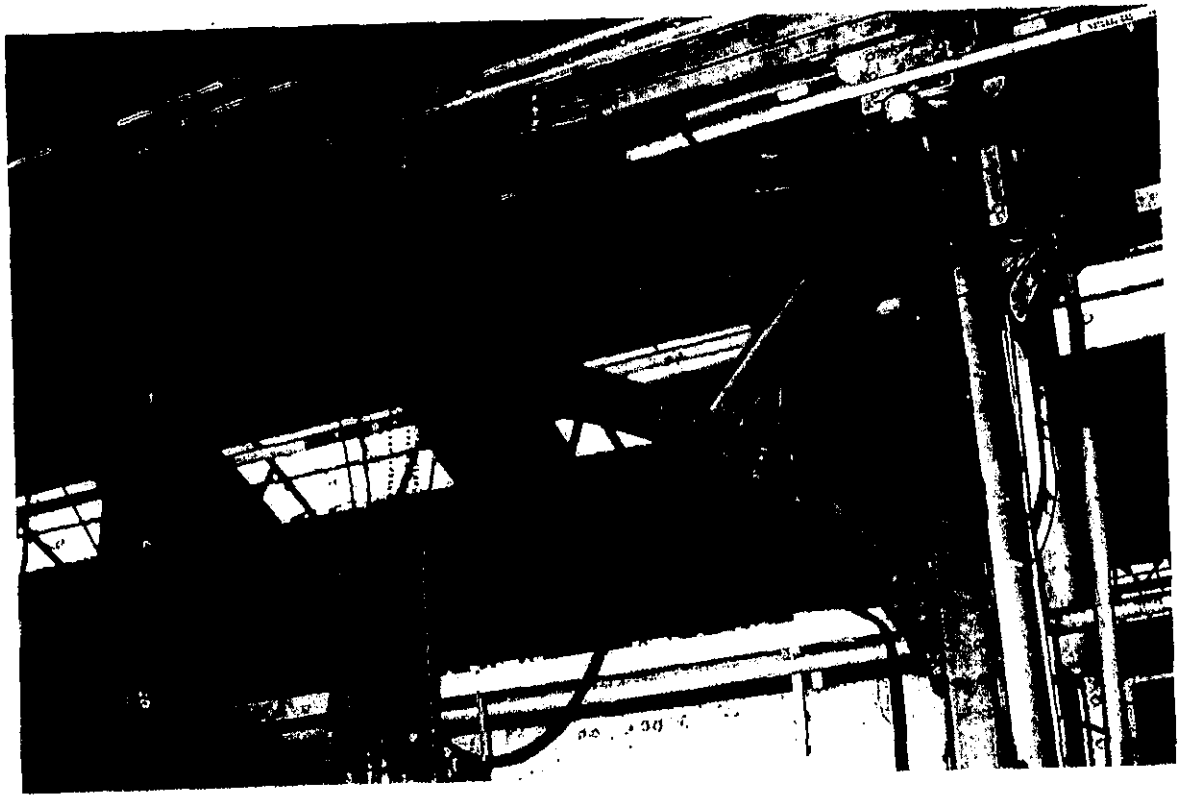


Photo: **FILM No.** 95-169-6-8 **Photographed and inspected December 1995**



Item Name: The Overhead Crane | **Item No.** 196

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	EOHT Cranes 196, 197, 202, 207
System	☐	
Operational Groups	☑	Spring Shop 123-125, 149-157, 159, 161

Description: This overhead crane was built at the workshops of Sir William Arrowfield of Glasgow. It has a rating of 25 ton and is used for general work throughout the workshops. It is a composite lattice and plate girder beam crane which is electrically powered and is driven from an operators cabin slung beneath the beam.

History: The history of the item is unknown.

Function and Operation: The crane was operated from the cabin by three motor controllers. One motor operated the longitudinal travel, one the transverse travel of the carriage and one the hoist.

Location: Bay 4 North 1-2 East

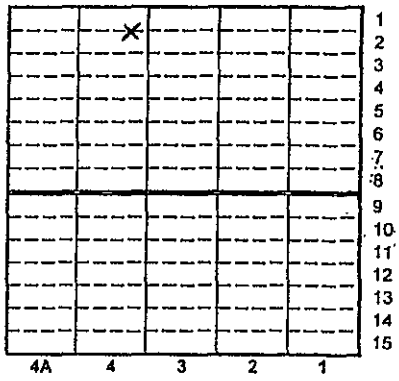


Photo: **FILM No.** **Photographed and inspected December 1995**

Item Name: Overhead Crane | **Item No.** 202

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☑	Davy
Collection	☑	EOHTs
System	☐	
Operational Groups	☐	

Description: Typical EOHT manufactured by Craven Bros of Manchester and similar to the crane in Bay 3.

History: The history of the item is unknown.

Function and Operation: The crane was operated from a cabin by three motor controllers. One motor operated the longitudinal travel, one the transverse travel of the carriage and one the hoist.

Location: Bay 4A North

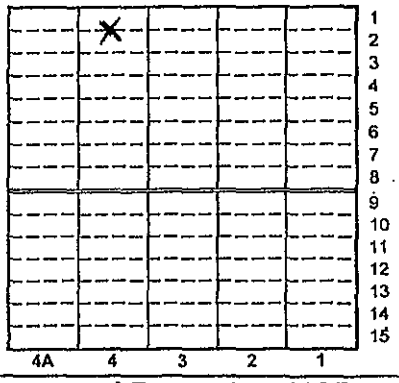


Photo: **FILM No.** **Photographed and inspected December 1995**

GODDEN
MACKAY

BAY 4A NORTH

Item Name: The Wheel Press | **Item No.** 211

Name Plate: Fielding and Platt Ltd, Gloucestor, England. There were no other readily observable markings.

Associated Items:

Individual	❑
Assemblage	❑
Collection	❑
System	❑
Operational Groups	❑ Wheel Pressing 208, 209, 210, 211

Description: The Wheel Press consists of a massive vertical frame, the horizontal bars of which support a hydraulic ram and a massive cast steel retaining bar which held the axle of bogey assemblies, the wheels of which were to be removed or pressed on. The Wheel Press is almost 6 metres long, 3 metres high and about 1 metre wide. Its mass is estimated at 10 tonne.

History: The item was installed in the Wheel Press Shop in 1917. It has remained in that position and was used until about 1986. A new Wheel Press was located in Bay 9 of the Workshops and this press was used only on certain occassions.

Function and Operation: The Wheel Press was used to press newly tired wheels or new wheels onto axles. It was also used to remove wheels from axles for re-tiring or repair. The bogey assembley, or axle, was placed in grooves in the support mechanism and the wheel was pushed on or taken off by hydraulic pressure generated by the Wheel Press itself.

Location: Bay 4A North 2 West

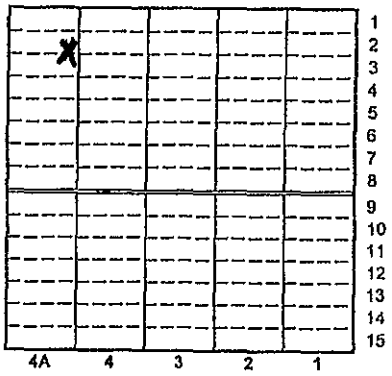
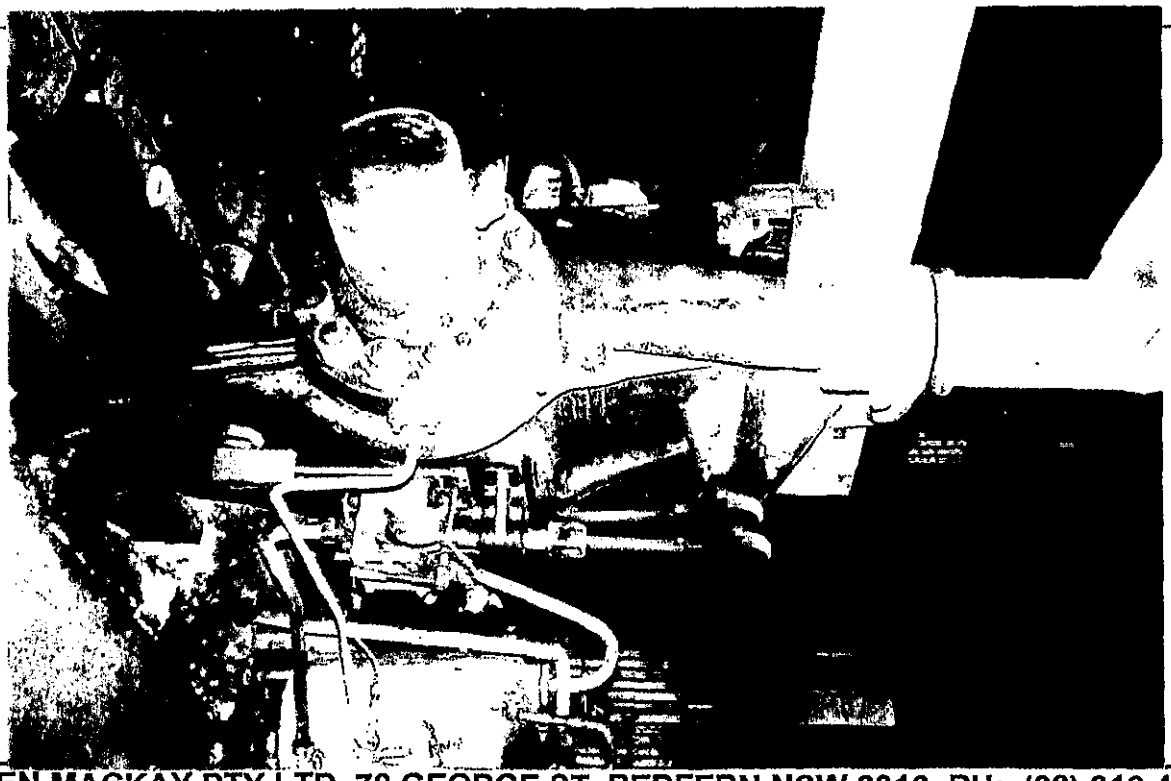


Photo: **FILM No.** 93-169-1-10 **Photographed and inspected December 1995**



Item Name: Wheel Shop Crane | **Item No.** 208

Name Plate: No nameplate. Following marks: Henry Berry and Co. Leeds, SWL 7 TONNE, Class 3 LC40

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☐	
Operational Groups	☑	Wheel Pressing 208, 209, 210, 211

Description: The crane consists of a heavy cast-iron pedestal which supports a large ring gear and a vertical king post. Suspended from the king posts is a rotatable crane assembly which consists of a horizontal jib, a vertical mast surrounding the king post, a pair of diagonal braces and a heavy counter weight. The operators cabin is also suspended from the king post. Mounted on the crane assembly are three electric motors, drive chains and rope tackle to enable loads to be hoisted, traversed or slewed.

History: The crane was installed in the wheel press shop in 1917 or 1918. It operated continuously from that time until its decommissioning in 1988. It was then dismantled and moved to Bay 4A for storage.

Function and Operation: The cranes were installed to lift and maneouvre bogies or bogy sets and individual wheels over the wheel press itself and onto the ring machine. The crane was operated by the crane driver using three motor controllers located within the cabin.

Location: Bay 4A North 3 West

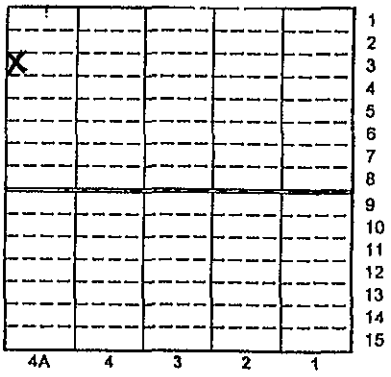
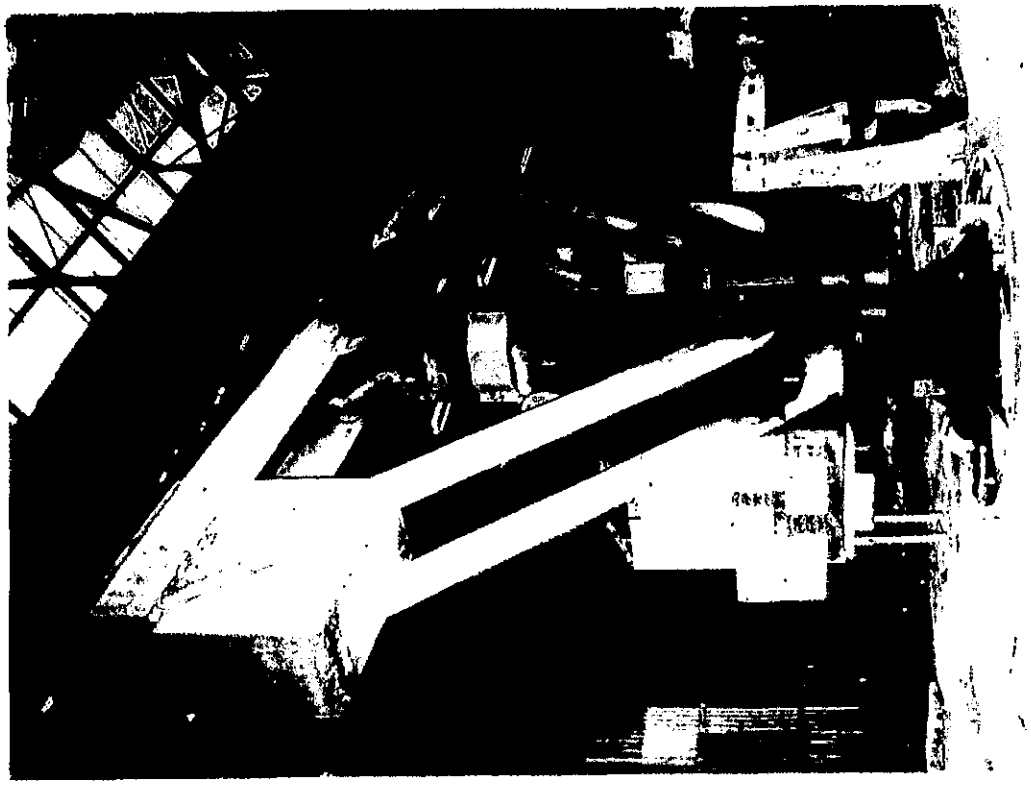


Photo: **FILM No.** 93-169-1-20 **Photographed 1993. Inspected December 1995**



Item Name: Height Setting Tables | **Item No.** 205A-C

Name Plate:

Associated Items:

Individual	❑
Assemblage	❑
Collection	❑
System	❑
Operational Groups	❑ Spring Shop 123-125, 149-157, 159, 161

Description: A large table with timber frame and two timber shelves beneath a cast iron setting out surface.

History: The history of the item is unknown but is certainly pre-World War 1.

Function and Operation: Used for Spring Shop fitters for setting out springs.

Location: Bay 4A North

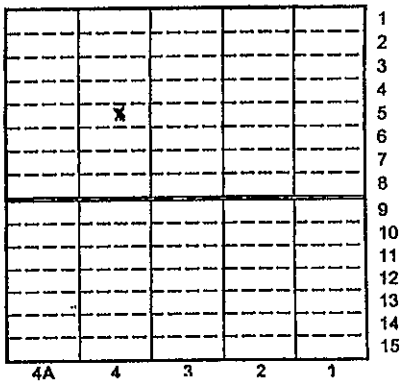
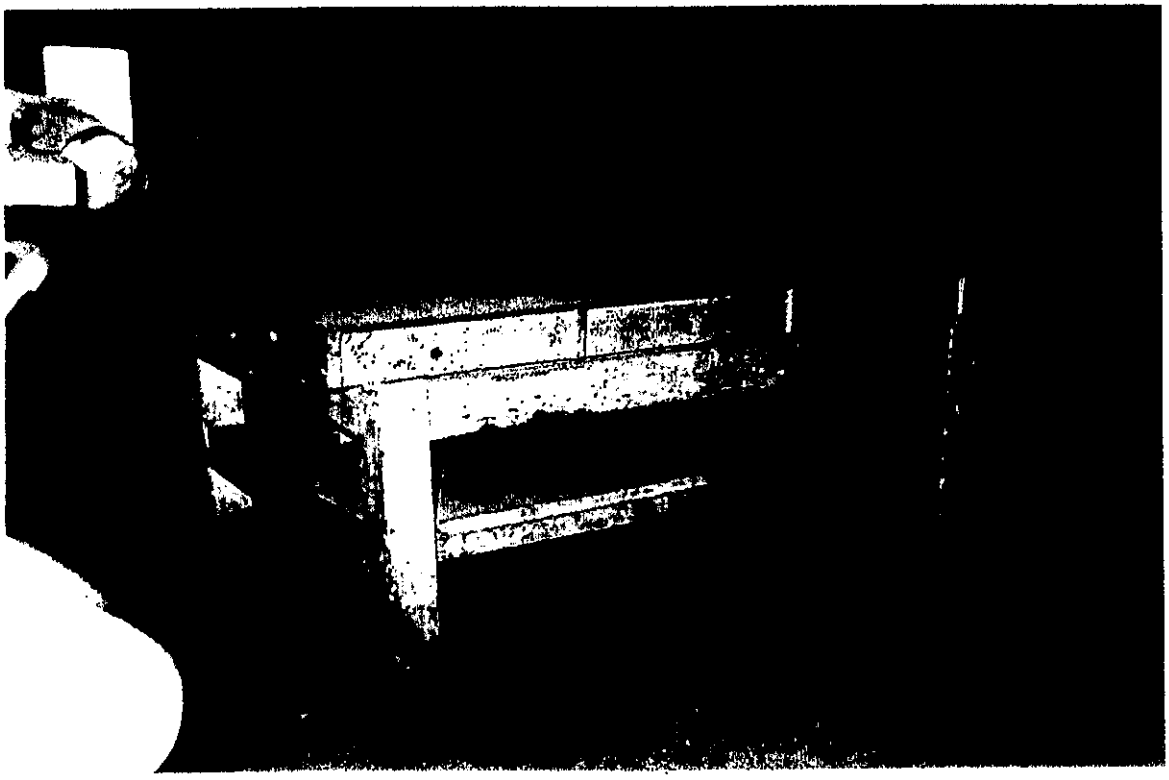


Photo: **FILM No.** No Number **Photographed and inspected December 1995**



Item Name: The Flange Press	**Item No.** 210
Name Plate: B & S Massey Ltd Manchester, England. NSWTD HT 3753 SO.	

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☐	
Operational Groups	☑	Wheel Pressing 208, 209, 210, 211

Description: The Press consists of an upright chassi housing a drive mechanism and hydraulics and a set of horizontal wheel support arms near the floor level. The chassi is 1240mm long, 830mm wide and stand 1460 mm high. The chassi is in two sections, comprising a hollow base 1330 high of cast iron or cast steel with a wall thickness of 40mm and a ferrous cap 160mm high. The machine itself is complex and each one of the parts of the machine consists of several items.

History: This Flange Press or Rim Press was originally located at Chullora Workshops and was transferred to Eveleigh in 1965. Its construction and mode of operation indicates that it was manufactured prior to World War I.

Function and Operation: The Flange Press was specifically designed to lock rims onto the wheel centre. It is believed a circlip was placed into a recess on the outer edge of the wheel and the edge of the rim was rolled over this circlip to retain it. None of the informants interviewed had seen the Flange Press in operation.

Location: Bay 4 North 3-4 East

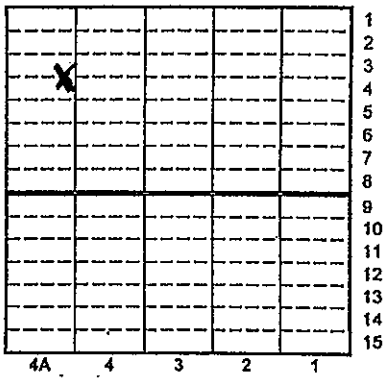


Photo: **FILM No.** 93-169-1-8 **Photographed and inspected December 1995**

Item Name: Wheel Shop Crane | **Item No.** 209

Name Plate: No nameplate. Following marks: Henry Berry and Co. Leeds, SWL 7 TONNE, Class 3 LC41

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☐	
System	☐	
Operational Groups	☑	Wheel Pressing 208, 209, 210, 211

Description: The crane consists of a heavy cast-iron pedestal which supports a large ring gear and a vertical king post. Suspended from the king posts is a rotatable crane assembly which consists of a horizontal jib, a vertical mast surrounding the king post, a pair of diagonal braces and a heavy counter weight. The operators cabin is also suspended fro the king post. Mounted on the crane assembly are three electric motors, drive chains and rope tackle to enable loads to be hoisted, traversed or slewed.

History: The crane was installed in the wheel press shop in 1917 or 1918. It operated continuously from that time until its decommissioning in 1988.

Function and Operation: The cranes were installed to lift and maneouvre bogies or bogy sets and individual wheels over the wheel press itself and onto the ring machine. The crane was operated by the crane driver using three motor controllers located within the cabin.

Location: Bay 4A North 6-7 West

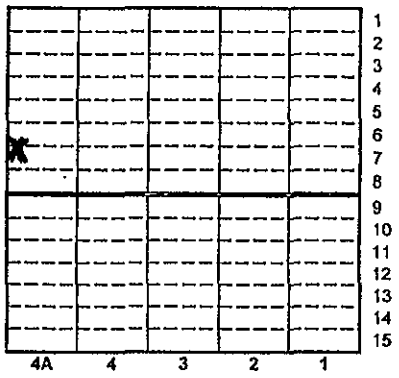


Photo: **FILM No.** 93-169-3-8A **Photographed and inspected December 1995**

Item Name: Hydraulic Pipe Bender | **Item No.** 212

Name Plate:

Associated Items:

Individual	☐
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: The Hydraulic Pipe Bender consists of a truly massive cast-iron bed which can best be described as over-designed. It has a hydraulic ram which is fitted with a return valve. There are two large rotating mandrels, dies in which the pipe is pressed.

History: There is no information on the history of this item.

Function and Operation: The item was operated by the plumbers and coppersmiths. A pipe to be bent was placed between the dies and a specially shaped mandril. In some cases the mandrel was made from a block of oregon. The hydraulic was allowed into the ram by means of a lever and the mandrel moved onto the pipe which was supported against the dies and was bent through the desired angle. The bent pipes were used for a wide variety of functions throughout the workshop.

Location: Bay 4A North 5-6 East

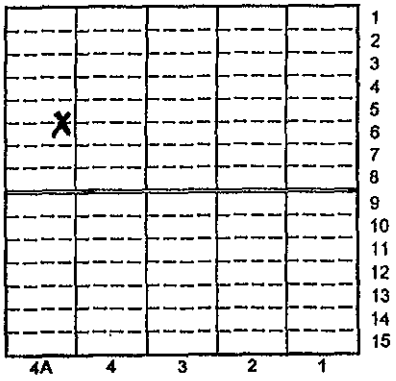
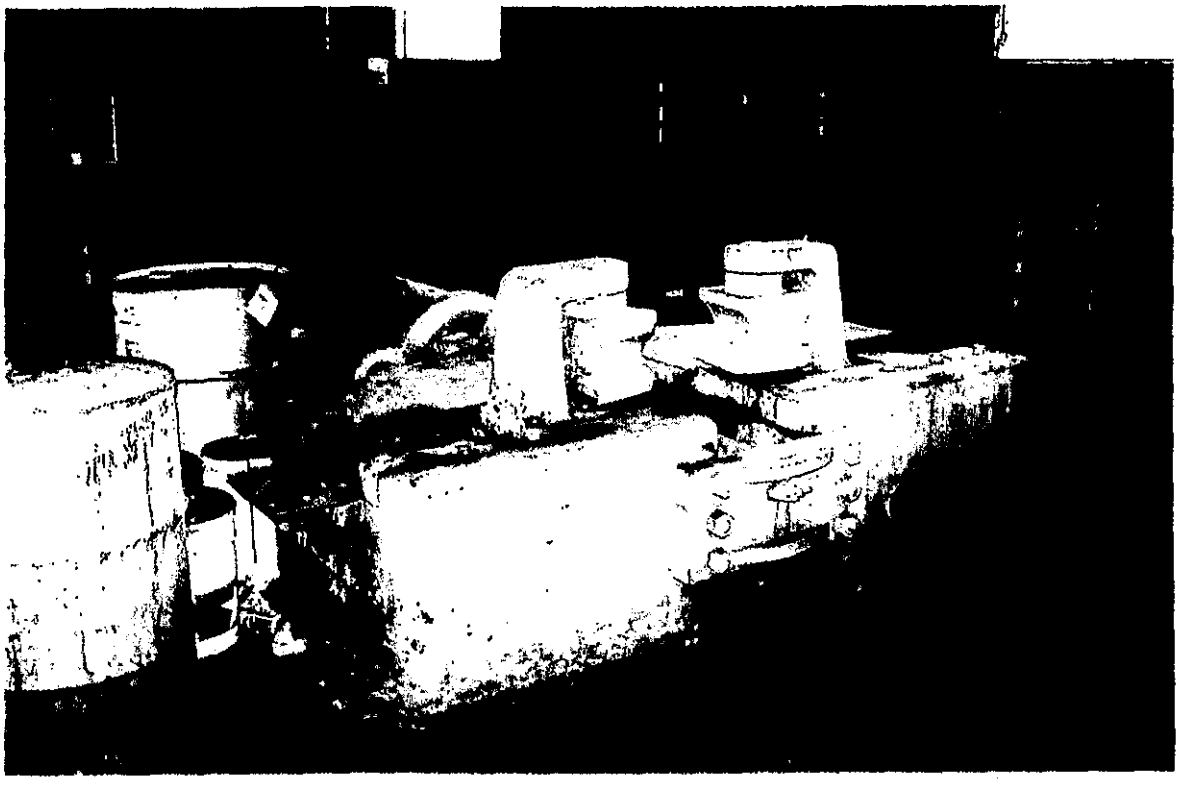


Photo: **FILM No.** 93-169-1-1 **Photographed and inspected December 1995**



Item Name: Thompson 90 degree V Twin 2 Stage Compressor | Item No. 217

Name Plate: Thompsons Machine (Castlemain) Ltd Australia. Machine No: 418. Size: 22½ - 13½ 12". Speed: 333 Date 8-4-52

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Air Compressor 214-217
System	☐	
Operational Groups	☐	

Description: This air compressor has a stand-alone motor with an attached starter motor. The starter motor is direct coupled to the main motor and the brushes of the main motor are open with a mesh cover. The large inter-cooler is vertical and is placed on the south side of the second cylinder. Air enters the primary cylinder through a 250mm pipe via the roof, passes to an air filter and then to the vertical No.1 cylinder. The whole machine is of massive cast-iron construction bolted together. There is the most impressive power panel at the end of the machine against the south wall. It contains a start switch for the pump, fan and the compressor. This machine, like all others, is fitted with an emergency stop.

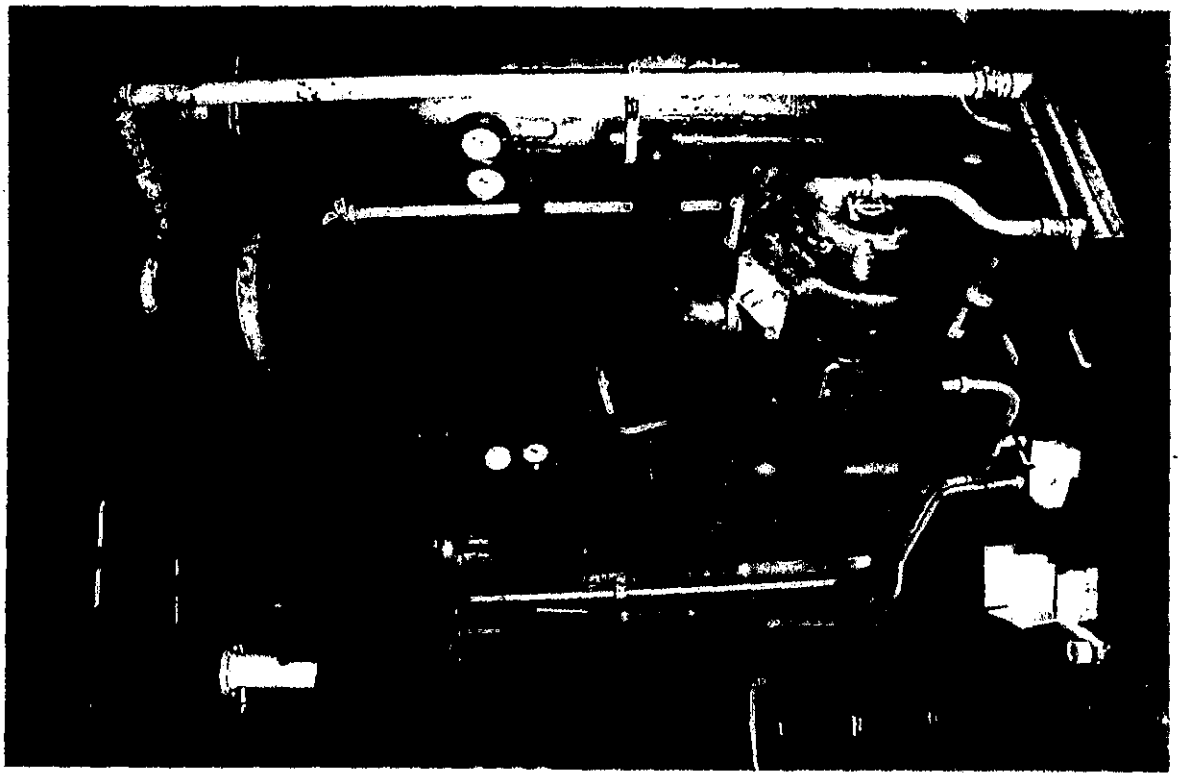
History: The compressor house supplied a high pressure air for the whole of the Eveleigh Workshops including the Carriage Workshops. Originally, there were four cooling towers mounted on the north side of the building, two of these have been removed and are believed to be down at the ACDEP Depot. The cooling towers at ACDEP would be suitable for connecting to this type of machinery. The coolers supplied cool water to reduce the temperature of the compressed air.

Function and Operation: The air compressors at Eveleigh tended to work continuously for eight hours a day pressing compressed air through a number of receivers throughout the site. In general, the Thompsons supplied air on demand. When the demand was reduced the electric motor still functioned but the machine was not under load.

The cabinet containing the transformers for this item is immediately to its south. These cabinets contained the usual array of circuit breakers under current control and feed the excitor, the motor and the small water pump which pushed the circulating water through the system.

Location: Air Compressor House adjacent to the Explorer Maintenance Workshop. (North of the new Erecting Shop and outside the Masterplan area.

Photo: **FILM No.** 95-169-8-4 **Photographed and inspected December 1995**



Item Name: Thompson 90 degree V Twin 2 Stage Compressor	Item No. 216

Name Plate: Thompsons Machine (Castlemain) Ltd Australia. Machine No: 417. Size: 22½ - 13½ 12". Speed: 333 Date 8-4-52

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	Air Compressor 214-217
System	☐	
Operational Groups	☐	

Description: This air compressor has a stand-alone motor with an attached starter motor. The starter motor is direct coupled to the main motor and the brushes of the main motor are open with a mesh cover. The large inter-cooler is vertical and is placed on the south side of the second cylinder. Air enters the primary cylinder through a 250mm pipe via the roof, passes to an air filter and then to the vertical No.1 cylinder. The whole machine is of massive cast-iron construction bolted together. There is the most impressive power panel at the end of the machine against the south wall. It contains a start switch for the pump, fan and the compressor. This machine, like all others, is fitted with an emergency stop.

History: The compressor house supplied a high pressure air for the whole of the Eveleigh Workshops including the Carriage Workshops. Originally, there were four cooling towers mounted on the north side of the building, two of these have been removed and are believed to be down at the ACDEP Depot. The cooling towers at ACDEP would be suitable for connecting to this type of machinery. The coolers supplied cool water to reduce the temperature of the compressed air.

Function and Operation: The air compressors at Eveleigh tended to work continuously for eight hours a day pressing compressed air through a number of receivers throughout the site. In general, the Thompson supplied air on demand. When the demand was reduced the electric motor still functioned but the machine was not under load.

The cabinet containing the transformers for this item is immediately to its south. These cabinets contained the usual array of circuit breakers under current control and feed the excitor, the motor and the small water pump which pushed the circulating water through the system.

Location: Air Compressor House adjacent to the Explorer Maintenance Workshop. (North of the new Erecting Shop and outside the Masterplan area.

Photo: **FILM No.** 95-169-8-6 **Photographed and inspected December 1995**

Item Name: Stephenson 7 Tonne Loco Crane 1083 | **Item No.** 218

Name Plate: N/A

Associated Items:

Individual	☑
Assemblage	☐
Collection	☐
System	☐
Operational Groups	☐

Description: See Over

History: See Over

Function and Operation:
Like most small loco cranes, this one had jibbing and slewing only and was not equipped for hoisting. The item to be lifted was simply slung from one of the hooks beneath the crane and lifted to the extent that the jib could be raised. This particular crane had three hooks, one which operated at a capacity of 3.5 tonnes, the second 5 tonnes and the third, which was closest to the engine itself, could lift 7 tonnes. However, the height by which the 7 tonne hook could be raised was severely restricted. The loco crane was also fitted with a steam turbine which provided current for an electro magnet to lift scrap iron and steel.

Location: In the Forecourt, between the National Innovation Centre and Bay 1 of the Workshops.

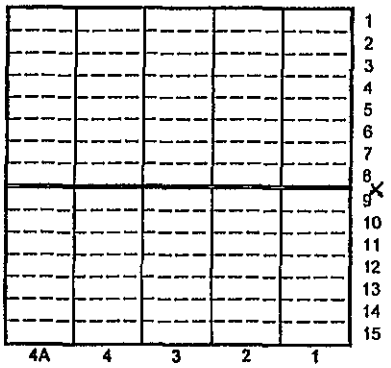
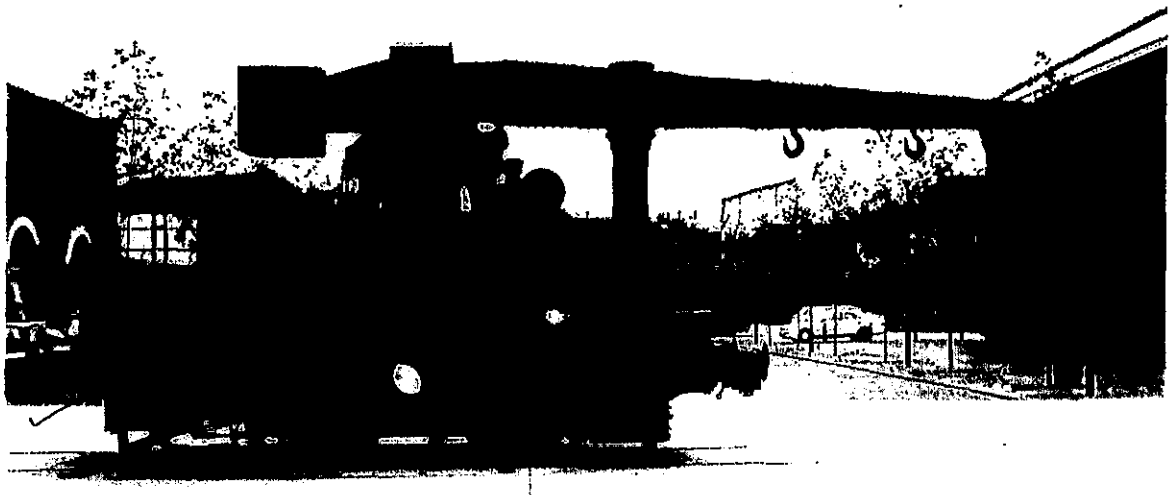


Photo: **FILM No.** 95-169-8-13 **Photographed and inspected December 1995**



Item Name: Electric Overhead Travelling Crane | **Item No.**219A-H

Name Plate: N/A

Associated Items:

Individual	☐	
Assemblage	☐	
Collection	☑	EOHTS 196, 197, 202, 207, 219 (A-H) 8 cranes
System	☐	
Operational Groups	☐	

Description: All of the cranes have twin crane beams made from box, plate or lattice girders. Each has a small carriage which runs on the upper surface of the beams and supports the transverse motion, the cable drum and the cable drum/motor. Longitudinal movement of the crane is via the longitidunal motor which is generally mounted on a bracket attached to the leading crane beam. Each crane has a small cabin, slung below the crane beams. The cabin contains a fuse box and three controllers, one for each of the longitudinal travel, transverse travel and hoist mechanisms. Power for each crane is via six cables which run on insulators along the western crane beam of each bay. Most of these power cables appear to be intact, but they have all been disconnected from the electricity power supply.

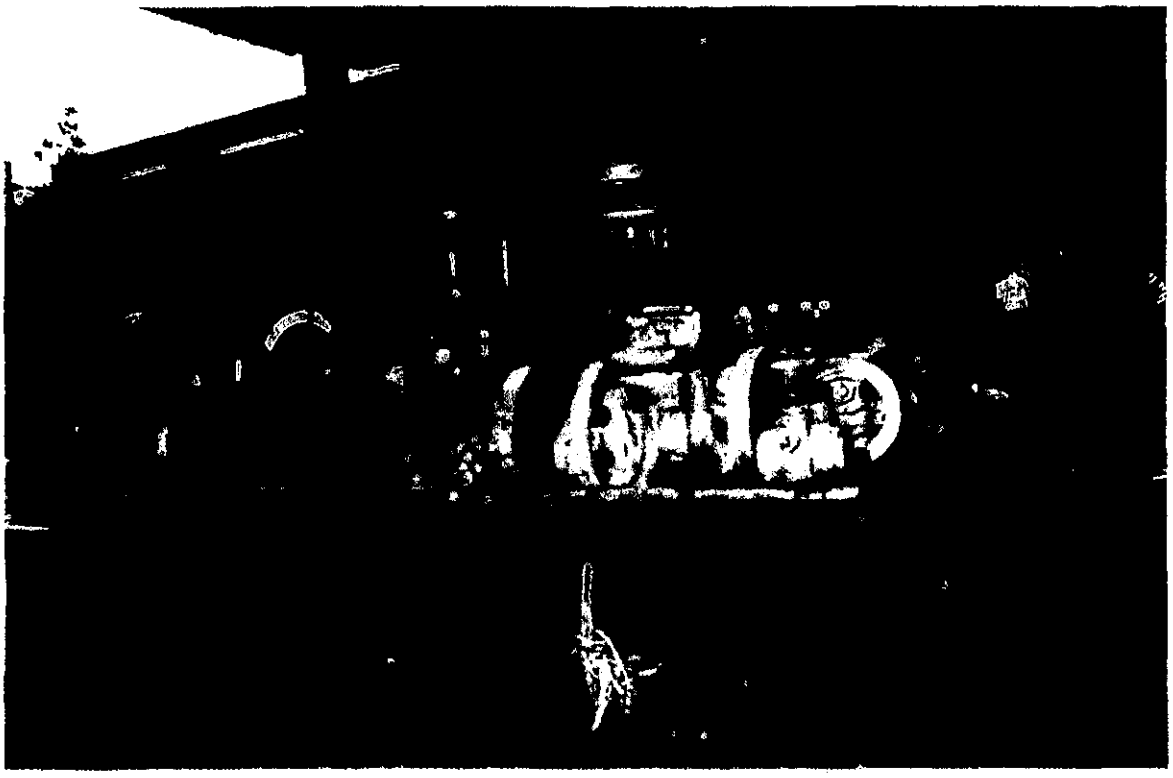
History: There are electric cranes in Bays 6, 8, 9, 10, 11, 14 and 15. Those in Bays 6, 8, 9 South, 10 and 15, were originally powered by a steam engine mounted on the south wall of the workshops and are all by Craven Bros of Manchester. Between 1901 and 1907 most of these cranes were converted to electric power. Cranes in Bays 6, 9 North, 11 and 13 were electrically powered when installed and are by Craven Bros, Vaughan & Son, Babcock & Wilcox. All the Craven cranes have plate or box-girder beams and all appear to be manufactured in 1884 or 1886. The other cranes have lattice girder beams and all appear to have been manufactured prior to 1914. No information is available on the conversion of steam driven cranes to electric power.

Function and Operation: The cranes were driven from the drivers cabin and frequently each driver had an assistant who carried out any necessary work on the crane beam. This included attending to the motors and switching the gears which could not be controlled from the cabin. Each crane could run the length of the bay. Bay 9 had two cranes to assist with the high frequency movement of wheel bogeys. The driver used the three motor controllers, each of which had five forward and five reverse speeds, to place the slung load in any position on the bay floor. Loads were slung and then moved from one location to another while directly over a dedicated path, usually free of workers.

Location:
Bay 6 North
Bay 8 North
Bay 9 North
Bay 9 South
Bay 10 North
Bay 11 South
Bay 13 North
Bay 15 North

Photo: **FILM No.** **Photographed and inspected December 1995**

Steam crane cylinder, connecting rod, cross lead and side rods.



Slewing motor and turret of jib.