The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Preface

OUR line of hydraulic equipment is so large that we find it more convenient to our customers to issue our printed matter in bulletin form. These bulletins can thus be distributed in such a way that only those tools of interest to a customer would be contained in one of our binders. As we have not attempted to show all the tools manufactured by us, we list on the last page of this folder those tools which we manufacture for which we would be pleased to receive your inquiries.

The

WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York

McCormick Bldg. Chicago, Ill.

Foreword

This company has been engaged in the manufacture of hydraulic machinery since 1848—a significant fact and one that should invite confidence from the prospective purchaser. This long experience has taught us the fundamentals of the applications of hydraulic power to commercial tools.

When we claim that a machine will accomplish a certain fact our claim is based upon actual past performances. We know what can be done and what cannot be done, consequently we do not waste time trying to accomplish the impossible.

The tools illustrated in our bulletins are evolved from designs made many years ago, but now embody all the improvements that time has proved advisable. They are characterized by their strength and simplicity.

It has been our aim to offer a product that will cause the operator the least possible annoyance and delay. If you will try any of our machines we are confident that they will prove that we have succeeded.

Terms

Cash in current New York funds.

Prices given are for immediate acceptance and subject to change without notice.

The time of delivery given is always subject to detentions, over which we have no control.

We are not responsible for condition or prompt receipt of goods after shipment. Delivery in good order to railroad at specified point is considered as delivery to purchaser.

Unless otherwise specified, prices cover delivery F. O. B. cars at our works, Aldene, Union Co., N. J.

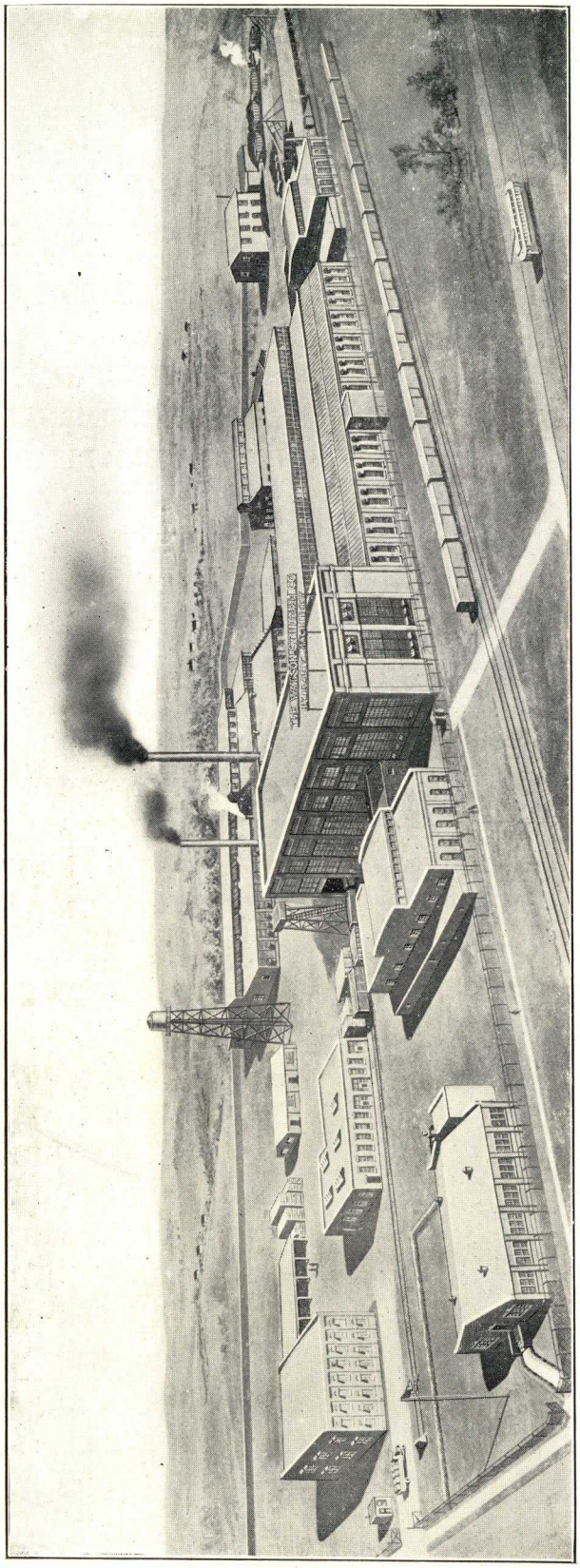
Special boxing and cartage, when necessary, will be added to bill at cost price.

We reserve the privilege of altering details of machines illustrated when from our experience we deem it desirable.

Shipments to our factory should be made either via the Lehigh Valley R. R. or the American Railway Express to Aldene, Union Co., N. J. Parcel Post shipments to Box 26, Roselle, N. J.

The Watson-Stillman Co.

50 Church St. W-S HYDRAULIC TRADE MARK New York



THE WORKS OF THE WATSON-STILLMAN CO., ALDENE, N. J.

The plant of The Watson-Stillman Co. is conveniently situated 15 miles from New York. We welcome the visits of any who are interested in hydraulic equipment as manufactured by us.

Our facilities for manufacturing hydraulic equipment have been increased to such an extent that we are prepared to fill your requirements in the most satisfactory manner possible.

The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Our Product includes the following:

HYD. BEAM BENDERS
HYD. PIPE BENDERS
HYD. RAIL BENDERS
HYD. BOLT FORCERS
HYD. BULLDOZERS
HYD. DRAW BENCHES
HYD. PUSH BENCHES
HYD. HAND PUMPS
HYD. LIFTING JACKS
HYD. PULLING JACKS
HYD. PIT JACKS
HYD. PNEUMATIC PIT JACKS
HYD. MOTOR LIFTS
HYD. SHAFT STRAIGHTENERS
HYD. ARMATURE PRESSES
HYD. BALING PRESSES
HYD. BRIQUETTING PRESSES
HYD. BROACHING PRESSES
HYD. BUSHING PRESSES
HYD. CARBON PRESSES
HYD. CHILLING PRESSES
HYD. CRANK PIN PRESSES
HYD. CRAYON PRESSES
HYD. DIE PRESSES
HYD. DIE SINKING PRESSES
HYD. EXTRUSION PRESSES
HYD. FORCING PRESSES

HYD. ACCUMULATORS
HYD. PNEUMATIC ACCUMULATORS
HYD. INTENSIFIERS
HYD. TUNNEL SHIELD CYLINDERS
HYD. POWER PUMPS
HYD. PUNCHES
HYD. SHEARS
HYD. VALVES
HYD. PIPE AND FITTINGS
HYD. RIVETERS
LEATHER PACKINGS
JACK TRAVERSES
LEVER HAND SHEARS
GAUGE CALIBRATING APPARATUS
HYD. HEATING PRESSES
HYD. JOURNAL BOX PRESSES
HYD. LABORATORY PRESSES
HYD. LEAD PRESSES
HYD. POWDER BLOCKING PRESSES
HYD. POWDER FINISHING PRESSES
HYD. POWDER MIXING PRESSES
HYD. SILK FINISHING PRESSES
HYD. SPRING BANDING PRESSES
HYD. SPRING STRIPPING PRESSES
HYD. SPRING TESTING PRESSES
HYD. WHEEL PRESSES

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC PUMPS

A Standard Line
of Small, Hand Operated
High Pressure
Pumps

BULLETIN A-5

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.

Sales Offices
50 Church St. New York — McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.

50 Church St. W-S HYDRAULIC TRADE MARK New York

Single Plunger Pump

A Self Contained Unit for General Testing Purposes and for Operating Jacks and Other Small Hydraulic Tools.

The pump body is made of hydraulic metal and is mounted on a cast iron stand which forms a reservoir for the liquid. The valve seats and valves are brass and the plunger hardened tool steel. The pressure is released by the hand wheel as shown in the illustration. The pump can be furnished with the pipe connections at the right or the left. The reservoir holds 400 cu. in. of liquid.

Pressure Lbs. Per Sq. In.	Plunger Diameter Inches	Stroke Inches	Pipe Conn. Inches	Weight Pounds	Code	Price
6000 to 10000	⅝	2	½	120	Feltboil	$180.00
3000 to 6000	¾	2	½	122	Feltboila	180.00
1500 to 3000	1	2	¾	126	Feltboilc	180.00

Gauge with gauge fittings is $35.00 extra.

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The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Double Plunger Hand Pump

For Operating Jacks and Other Small Hydraulic Machines, that Require High Speed for the Initial Movement.

The pump is mounted on the top of a cast iron stand which forms a reservoir for the liquid. There are two concentric plungers guided at both the top and the bottom. The small one is connected directly to the lever and produces the high pressure. The large one can be locked to it by the clutch and a larger delivery at a correspondingly lower pressure thus obtained. The pressure is released by the hand wheel.

The construction is very substantial and all parts are accessible for examination and repairs. All the principle parts are made of bronze. The reservoir holds 1,500 cu. in.

Pressure Lbs. per Sq. In. High	Low	Plungers Diam. Ins.	Stroke Ins.	Pipe Conn. Ins.	Weight Pounds	Code	Price
10000	2000	⅝ & 1¼	2	½	200	Billhurt	$220.00
6000	1500	¾ & 1½	2	½	215	Billhurta	220.00

Gauge with gauge fittings is $35.00 extra.

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The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Portable Double Plunger Hard Pump

A Self-Contained Portable Unit for General Testing and Shop Work.

The pump is mounted on a cast iron tank that serves as a reservoir. The whole unit is mounted on a three-wheel truck, making a self-contained portable pump for general shop work. The pump has two concentric plungers which provide two pressures and two deliveries. The change from high to low is made by a small clutch. A safety valve is provided to prevent over-pressure and the pressure is released by the hand wheel. The pump body, valves and bonnets are made of bronze. The reservoir holds 10 gals.

Pressure Lbs. per Sq. In. High	Low	Plungers Diam. Ins.	Stroke Ins.	Pipe Conn. Ins.	Weight Pounds	Code	Price
10000	2000	⅝ & 1¼	2	½	450	Dastgust	$365.00
6000	1500	¾ & 1½	2	½	460	Aridloan	365.00

Gauge with gauge fittings is $35.00 extra.

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The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HIGH PRESSURE OPERATING VALVES

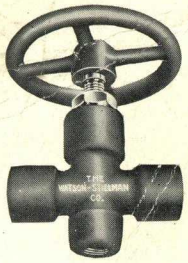
BULLETIN A-16

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.

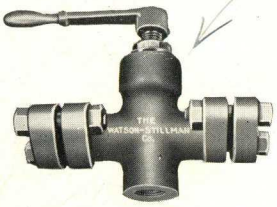
Sales Offices
50 Church St. New York
McCormick Bldg. Chicago, Ill.

operating valves

High Pressure Operating Valves



Not to be used with an accumulator or direct acting steam pump



Unless otherwise ordered valves are furnished with straight handles.

Screwed Connections

Pipe Size Inches	Material	Weight Pounds	Code	Price
⅜	Bronze*	12	Boilflat	$16.00
½	Bronze*	12	Boilcase	18.00
¾	Bronze*	14	Boilbend	23.50
1	Bronze*	16	Boilfelta	32.50
1¼	Bronze†	25	Burnfort	40.00
1½	Bronze†	32	Boilfinea	52.50
2	Cast Stl.‡	48	Conelead	65.00

*Good for 6000 lb. pressure.
†Good for 3000 lb. Pressure. With cast steel body, good for 6000 lb. pressure. Price on application.
‡Good for Pressure to 4000 lbs.

REVISED

Flanged Connections

Weight Without Companion Flanges	Code	PRICE Without Companion Flanges	PRICE With Companion Flanges
26	Hintnote	$ 72.50	$ 80.00
31	Lampcase	87.50	96.50
68	Hurtflat	110.00	125.00

REVISED

Double Valve Release Valve

LEVER TYPE

Screwed Connections

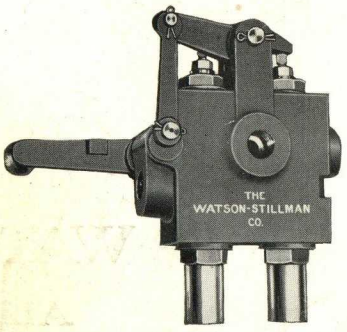
Pipe Size Inches	Material	Pressure Pounds	Code	Price
¾	Bronze	6000	Gentdoll	$ 90.00
1	Bronze	6000	Gatesign	105.00
1¼	Bronze	4000	Gatearea	140.00
1½	Steel	6000	Holemile	175.00
2	Steel	6000	Hintlist	240.00

Two Spindle

CRANK TYPE

4000 lbs.

For use only in connection with an accumulator or direct acting steam pump

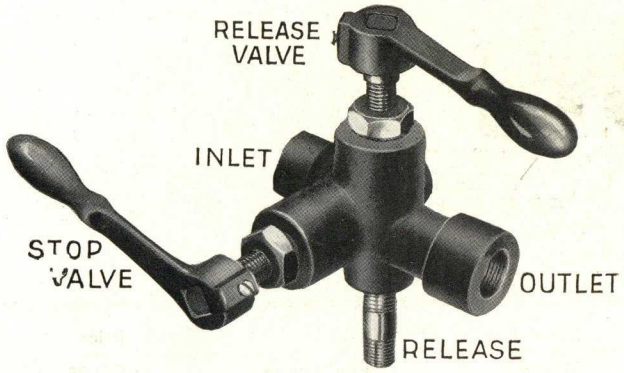


Size Inches	Release	Weight	Code	Price
⅜	⅜	35	Cartpart	$100.00
½	½	35	Bearpail	125.00
¾	¾	41	Dullrealb	190.00
1	¾	50	Dullreal	195.00

High Pressure Combination Valves

Screwed Connections, 6,000 lbs.

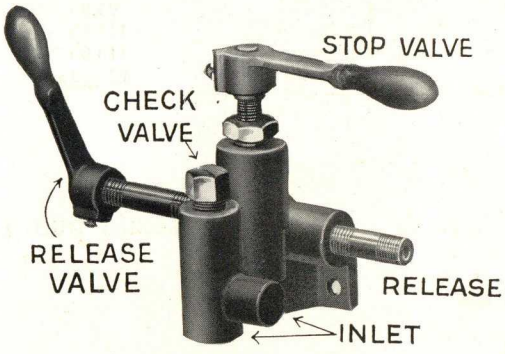
For use only in connection with an accumulator or direct acting steam pump



No. 1 Combination Stop Release

RIGHT HAND

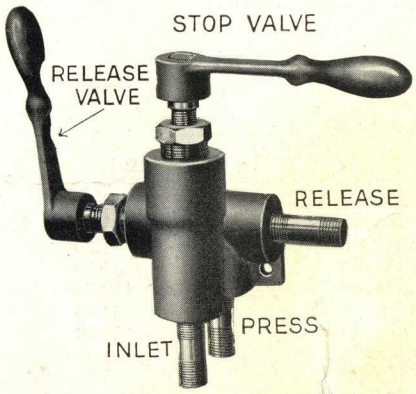
Size in Inches				
Inlet	Outlet	Release	Code	Price
½	½	½	Feltdowna	$37.50
¾	¾	¾	Foaldimea	42.50
1	1	1	Golfboil	57.50



No. 4 Combination Stop, Release and Check

RIGHT HAND

Size in Inches				
Inlet	Outlet	Release	Code	Price
⅜	⅜	⅜	Ironnext	$37.50
½	¾	¾	Failgent	52.50
¾	¾	¾	Darefursc	65.00
¾	1	1	Darefursa	67.50
1	1	1	Darefursb	75.00
1¼	1¼	1¼	Golfrare	95.00
1½	1½	1½	Hallgirl	150.00



No. 5 Combination Stop and Release

RIGHT HAND

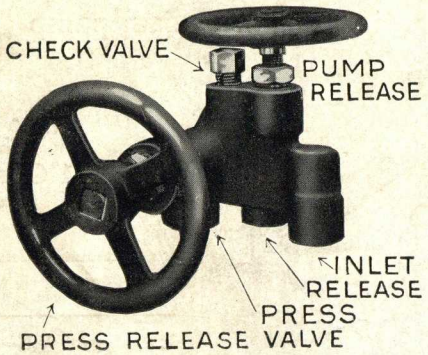
Size in Inches				
Inlet	Outlet	Release	Code	Price
½	½	½	Darebolta	$37.50
½	¾	¾	Dareboltc	40.00
½	¾	½	Dareboltd	40.00
¾	¾	¾	Dareboltb	42.50
1	1	1	Dastnote	60.00
1¼	1¼	1¼	Failboil	75.00

For left hand valves add 10% to above list prices.

Operating Valves

No. 10 Double Release and Check, 6,000 lbs.

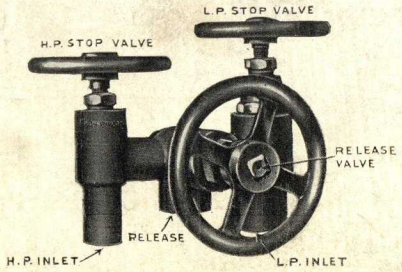
Not to be used with an accumulator or direct acting steam pump



Size in Inches					
Inlet	Outlet	Release	Material	Code	Price
½	½	½	Bronze	Foaldowna	$60.00
½	¾	½	Bronze	Foaldownb	65.00
¾	¾	¾	Bronze	Clamnexta	70.00
¾	1	¾	Bronze	Clamnextc	75.00
1	1	1	Bronze	Coaltoll	95.00
1	1¼	1	Bronze	Dullnexta	110.00
1	1¼	1¼	Bronze	Dullnext	110.00
1¼	1½	1½	Bronze	Bendmile	125.00

Three Stem Operating Valve, 6,000 lbs.

For use only in connection with an accumulator or direct acting steam pump



L. P. Connection	H. P. Connection	Release	To Press	Code	Price
¾	½	½	¾	Boreironc	$ 80.00
¾	½	1	1	Boreirona	85.00
¾	½	1	¾	Hintlast	85.00
¾	½	¾	¾	Hintlasta	85.00
¾	½	1	1¼	Dastgirla	110.00
1	½	1	1	Boreironb	120.00
1	½	1½	1½	Borebill	125.00
1¼	¾	1½	1½	Dentborea	140.00
1¼	½	1¼	1¼	Hurtdoll	140.00
1½	½	1½	1½	Feltmov[illegible]a	175.00
1½	¾	1½	2	Feltmov[illegible]	175.00

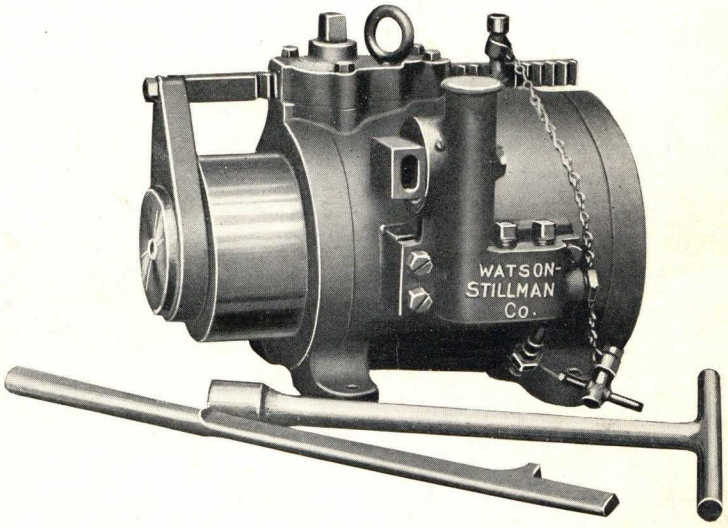
The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

BULLETIN B-1 (Ed. 2)

Horizontal Hydraulic Jack

With Single Plunger Outside Pump

Particularly Adapted to Moving Bridges, Boilers, Machinery, Ship Launching, Etc. Can Be Mounted in Small Press or Frame for a Variety of Bending and Pressing Operations.



The features of these jacks are simplicity of design, accessibility of all parts and sturdy construction, making them the most durable and satisfactory horizontal jacks built. Compactness is not attained at the expense of simplicity, or lightness at the cost of strength. They are made to work.

The working parts of the pump are entirely enclosed in a brass case which prevents dirt or grit finding its way into the pump. The plunger is housed in the vertical cylinder. It has a rack machined into the upper end which meshes with a pinion on the lever socket. The valves are under the bonnets for easy access. The ram is pulled back and can be moved forward by a rack and pinion operated by the hand lever shown.

Power Tons	Movement Inches	Length Inches	Diam. of Base, In.	Weight Lbs.	Code
60	12	22	12	350	Darealum
100	12	22	13	475	Dirtvail
125	12	23	14	590	Aridbaby
150	12	23	15	800	Conenail
200	12	23	15	1200	Hintfort

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC CRANK-PIN PRESSES

BULLETIN B-2

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York — McCormick Bldg. Chicago, Ill.

Crank Pin Presses

THESE PRESSES are used for forcing crank pins in and out of locomotive and engine wheels and for miscellaneous shop and field forcing work.

An hydraulic press of our manufacture is so constructed that the force is necessarily applied precisely on the center line of the pin, there being no eccentric force tending to bend the pin or enlarge the hole.

The presses are equipped with gauges which accurately indicate pressure required to seat the pin. By these means it is easy to detect a loose fit, which might seriously endanger the construction of an engine.

The main portion of the press is an open hearth steel cylinder with heavy forks which support the rods. The reservoir is mounted on the rear of the cylinder. The pumps are mounted in a convenient position on the side of the cylinder, or the rear of the reservoir. The whole unit is carried on screws that are mounted on a flat wheel truck. By turning any one of the screws the center line of the ram can be raised or lowered to meet the center line of the pin. Two tie rods and an abutment beam are used in connection with the press. The distance between the rods is adjustable in the forks so that the rods may be passed through the spokes of the wheel at any convenient opening.

The presses are equipped with either a rack and pinion, single plunger pump, a two pressure double plunger pump of a very efficient type, or an air engine driven pump.

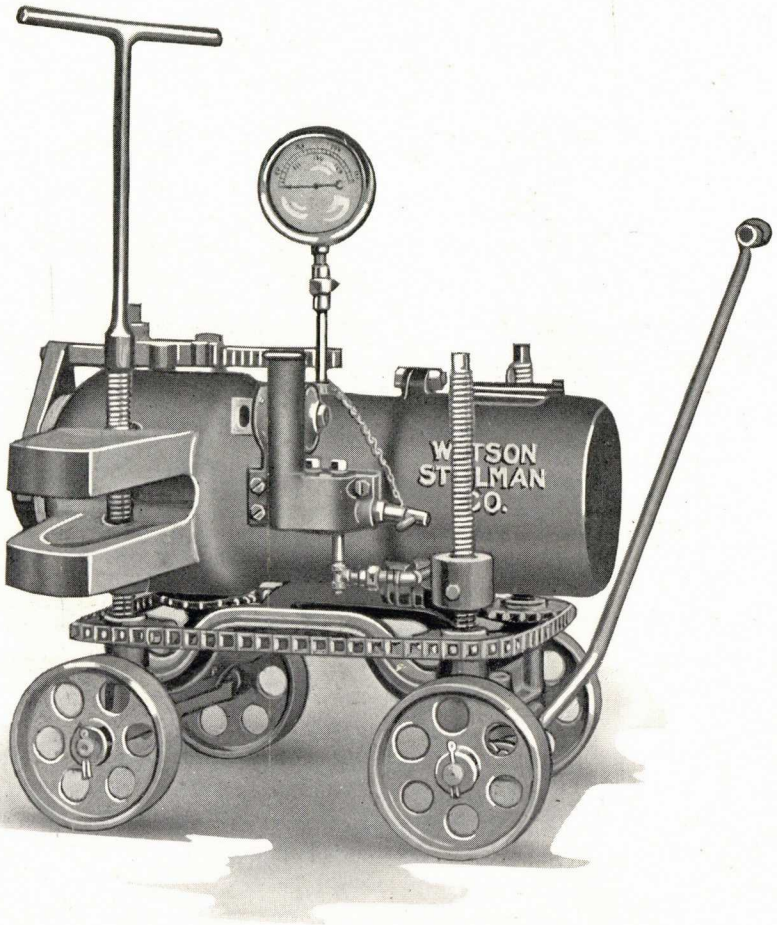
Two different arrangements are made for the return of the ram:

First: One which is furnished on the 250 and 300 ton sizes is the hydraulic pullback. It is a small hydraulic cylinder mounted on the top of the press, with piston connected to a lug on the end of the ram. Both cylinders are controlled by a geared screw stem valve that directs the delivery to one cylinder and automatically releases the other.

Second: A rack and pinion device which is furnished on the smaller sizes. By this arrangement the ram, in addition to being pulled back into the cylinder, may also be forced out through the preliminary idle portion of the forcing stroke.

Portable Crank Pin Presses

Hand Pump — Rack and Pinion Pullback



This type of crank pin press differs from our others only in the type of pump and pullback, having single plunger hand operated pump and a rack and pinion pullback device. The pump is mounted in a convenient position on the side of the cylinder. The working parts of the pump are entirely enclosed in a brass case to exclude grit and dirt. The plunger has a rack machined into the upper end which meshes with a pinion on the lever socket. The valves are under bonnets and are of easy access.

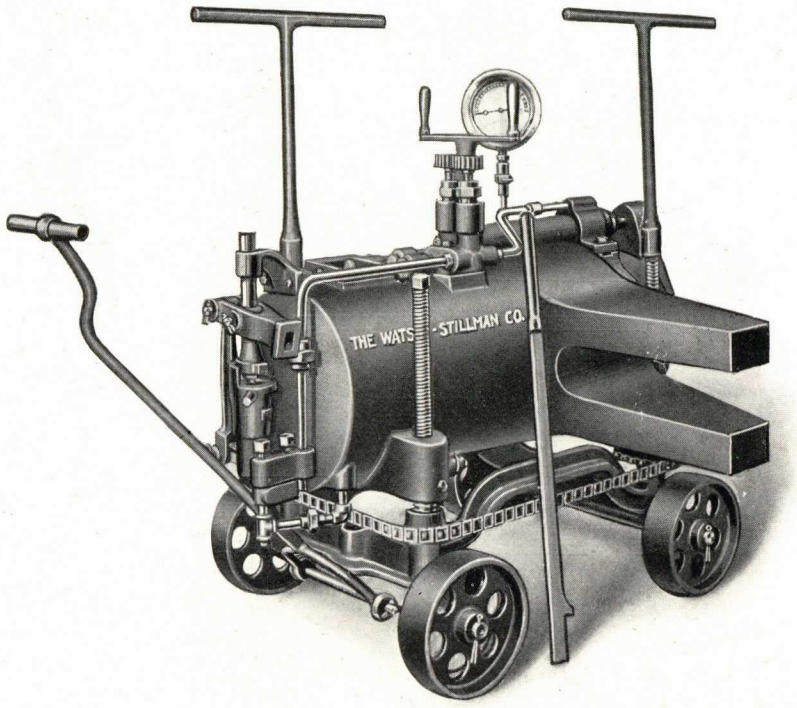
These presses are equipped with gauges which accurately indicate pressure required to seat the pin. By these means it is easy to detect a loose fit, which might seriously endanger the construction of an engine.

Capacity Tons	Beam Length Inches	Ram Stroke Inches	Vertical Adjustment Inches	Weight Lbs.	CODE
60	30	12	16 to 30	700	Areameal
60*	42	12	16 to 30	900	Burntoll
100	40	15	12 to 22	1000	Areaneed
100*	48	12	12 to 22	1500	Burncone
100	60	12	12 to 22	1680	Dastmile
125	34	12	18 to 30	1400	Aridrisk
150	42	12	18 to 28	1650	Areagolf
150†	60	12	18 to 28	2300	Calfmile

†Has a double plunger pump.
*Materials for these Presses are carried in stock and an early delivery can be made.

Portable Crank Pin Presses

Hand Pump — Hydraulic Pullback



This press embodies all the most improved features in design and construction. The pump has two concentric plungers operated by one lever. The large plunger imparts to the ram three times the speed and one-third the pressure of the small one. The pullback device is a small hydraulic cylinder mounted on the top of the press with a piston connected to a lug on the end of the ram. Both cylinders are controlled by a pair of geared screw stem valves that direct the delivery to either cylinder, automatically releasing the other.

The height of the press can be adjusted by turning any of the four supporting screws.

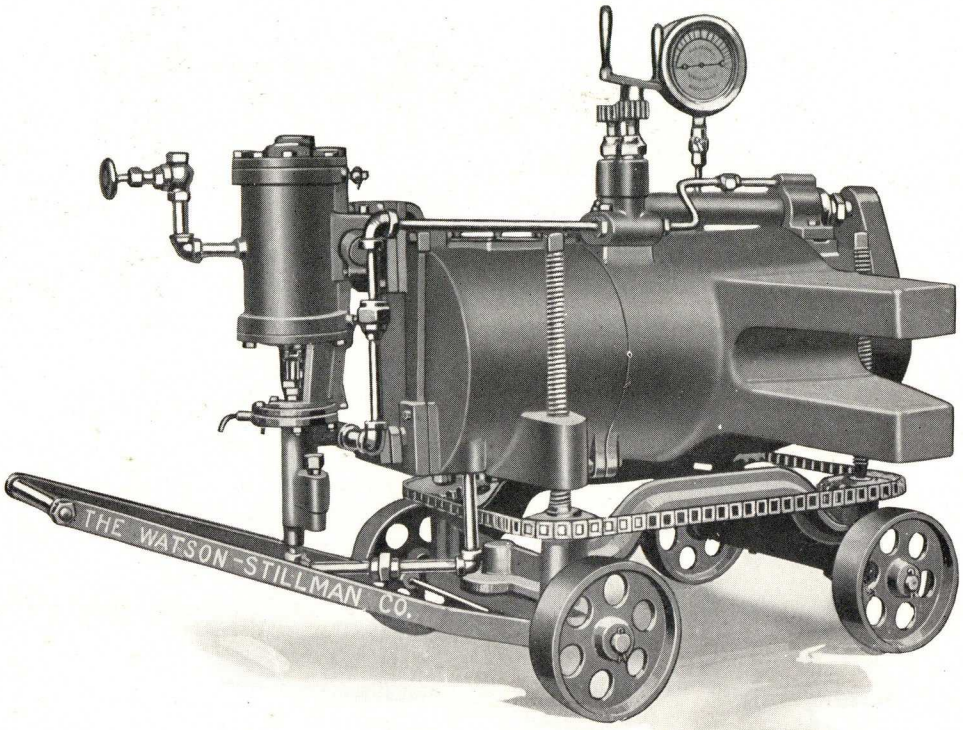
Capacity Tons	Beam Length Inches	Ram Stroke Inches	Ram Diameter Inches	Vertical Adjustment Inches	Weight Pounds	CODE
*250	54	12	10	20 to 32	3000	Aximsore
300	78	12	11	20 to 32	6300	Failbaby

Other sizes to your specifications.

*Materials for these presses are carried in stock and early delivery can be made.

Portable Crank Pin Presses

With Air Engine Pump — Hydraulic Pullback



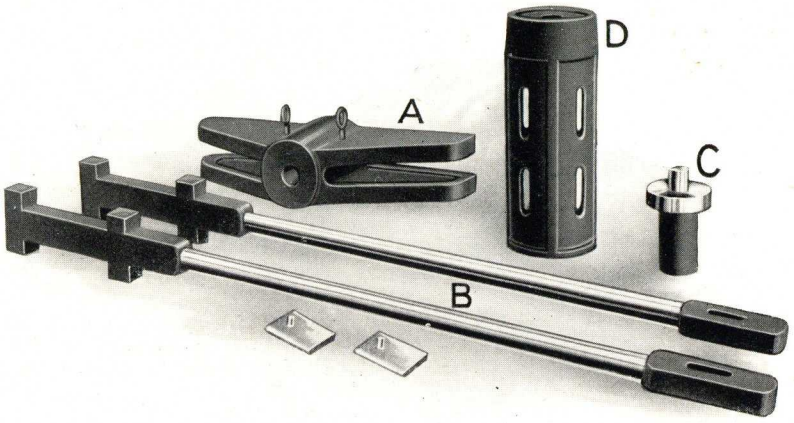
In this type of press, a pump driven by an air engine is substituted for the hand pump usually employed. This change, aside from reducing the number of men required, by one, also increased the speed of operation.

When it is desired to operate the pump, a connection is made through a rubber hose or other flexible tube between the compressed air line in the shop and the pump engine in the same way that pneumatic tools are connected up.

The ram is returned by a small hydraulic cylinder mounted on the top of the press, the piston of which is connected to a lug on the end of the ram. A geared screw stem valve is provided to control all the movements of the ram, and is located so that the man in charge can operate the press as well as direct the work of the crew. The whole unit is carried on screws that are mounted on a flat wheel truck and by turning one of the screws the center line of the ram can be raised or lowered to coincide with that of the pin.

Capacity Tons	Beam Length Inches	Ram Stroke Inches	Ram Diam. Inches	Vertical Adjust. Inches	Weight Pounds	CODE
250	54	12	10	20 to 32	3100	Golfdolt

Fittings for Use With Crank Pin Presses



In connection with the crank pin presses as they are illustrated upon the adjoining sheets, it is necessary to have certain fittings for holding the work up to the press. The size and design of these fittings may vary to suit the particular features of the work in hand.

As an example of how these fittings are used we illustrate the method of forcing crank pins in and out of locomotive driving wheels, with the use of the parts shown above.

One set consists of the following:

a.—One resistance beam.

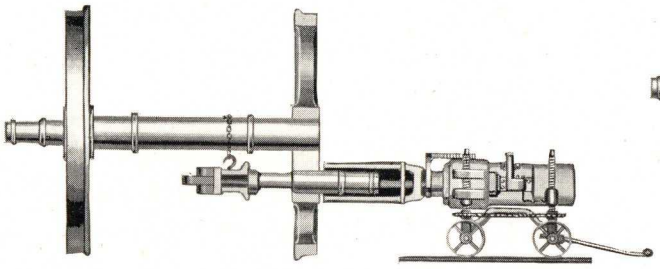
b.—Two tie rods for tying the resistance beam to the press.

c.—One forcing pin for ejecting the crank pins.

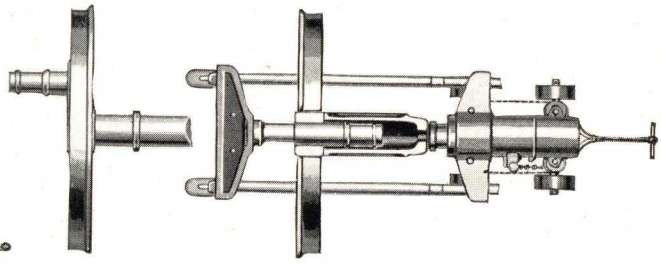
d.—One sleeve for housing the pin and transmitting the thrust from the press ram to wheel.

TIE RODS

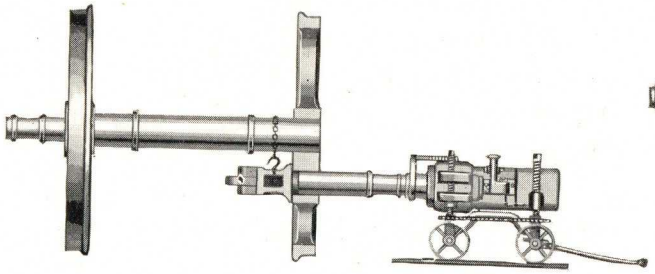
Capacity tons	60	100	135	150	250	300
Length between beams	5′-8¼″	5′-8¼″	5′-8¼″	6′-0″	7′-1¾″	7′-1¾″



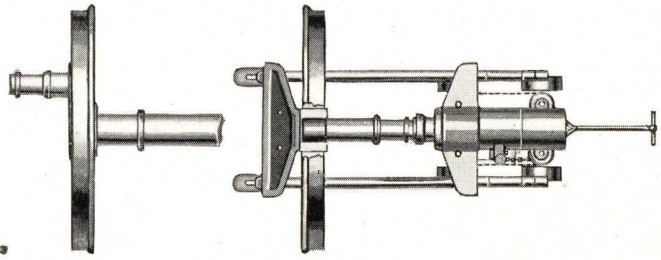
FORCING OUT CRANK PIN



AS SEEN FROM ABOVE

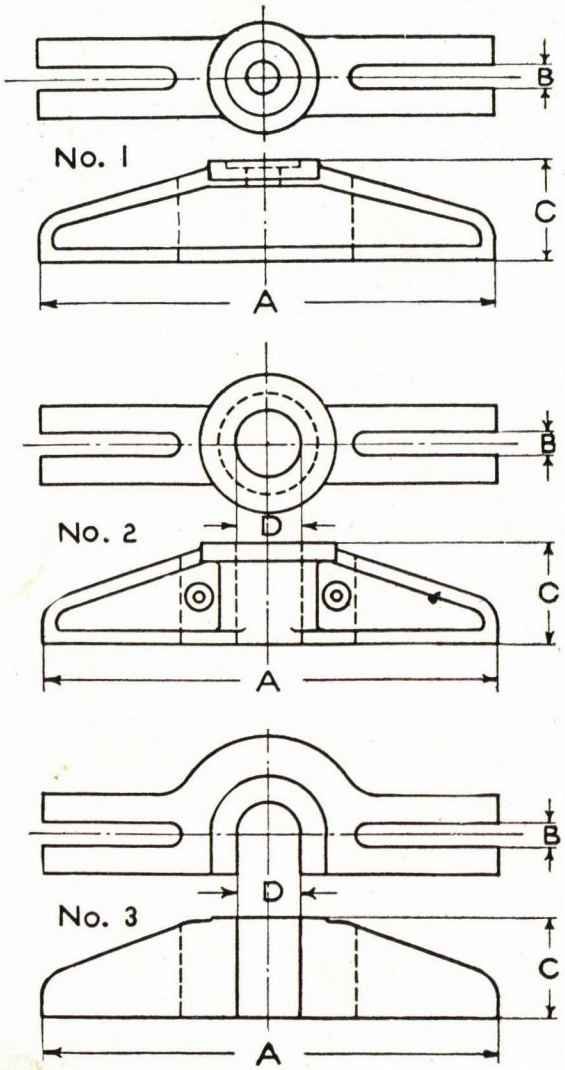


FORCING IN CRANK PIN



AS SEEN FROM ABOVE

Rear Beams for Crank Pin Presses



Capacity Tons	TYPE	A	B	C	D	Weight Pounds	CODE
60	1	30	2½	7¾	....	200	Conerest
60	1	42	2½	10	....	300	Felthole
60	3	30	2½	7¾	7	270	Holecone
100	3	41½	2¾	10¼	6⅛	375	Conside
100	1	40	3	10	....	484	Conesign
100	1	48	3	13	....	815	Conebill
100	1	60	3⅛	13¾	....	850	Conesear
125	1	41	2¾	9	....	340	Conesore
125	2	60	3¼	14	12	1194	Clamsign
150	1	42	3¼	11	....	515	Conering
150	1	42	3¼	10	....	465	Conesalt
150	2	42	3¼	11	8¼	685	Coalsalt
150	3	42	3¼	12½	9½	775	Calfmere
250	1	54	4¼	13½	....	1015	Conerice
250	2	54	4¼	16	10	1635	Finemere
250	2	66	4¼	18	13	2230	Conerisk
250	3	54	4¼	18½	11	1860	Forthint
250	3	66	4¼	18½	11	2340	Forthinta
300	2	54	4¾	18¾	11	.....	Ironreal

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC WHEEL PRESSES

Hand Power
Belt or Motor Drive
Semi-Pneumatic
Full Hydro-Pneumatic

BULLETIN B-3—Ed 2
(January 1, 1921)

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.
Sales Offices
50 Church St. New York
McCormick Bldg. Chicago, Ill.

Wheel Presses

Our experience in the manufacture of wheel presses has been so extensive, and over such a long period of time, that we have evolved several standard types, designed to meet every requirement of modern railroad practice.

CONSTRUCTION: The best grade of material is used throughout the construction of these presses. The cylinder beam and resistance beam are of open-hearth steel casting; tie bars of rolled machinery steel. The ram is of cast iron and has a removable cast steel wearing cap and the cylinder is copper lined. The pump body is made of hydraulic metal in the two-plunger size and steel forging in the three-plunger size. Tool steel is used for pins, pistons, etc.

DESIGN: On our plain, semi-pneumatic and full hydro-pneumatic types, the construction details are as follows:

Four tie bars of substantial dimensions—two above and two below, materially increase the rigidity of the Press.

The resistance beam is supported by rollers on the machined top of the lower tie bars, and is moved from one stop to another with a hand lever and ratchet arrangement. There is a gap in the resistance beam to accommodate the projecting end of the axle and this gap is slotted to receive a filling block when a solid abutment is desired. The post which supports the outer ends of the rods is yoked so that long shafts can be placed on the center line of the press. Two adjustable sling hooks and an extension piece are suspended from rollers on the upper tie bars.

These presses are regularly built as illustrated but can be built inclinable for use in connection with overhead crane and in this type the hooks referred to above are not needed.

The presses are regularly furnished with the crank shafts parallel to the tie bars but, if conditions demand, they will be placed at right angles to them.

Owing to the design and massive construction of our Presses, a base-plate is not necessary, and we recommend a concrete foundation of dimensions governed by the character of soil.

OPERATION: Two wheels can be placed, or one wheel displaced, at one pressing.

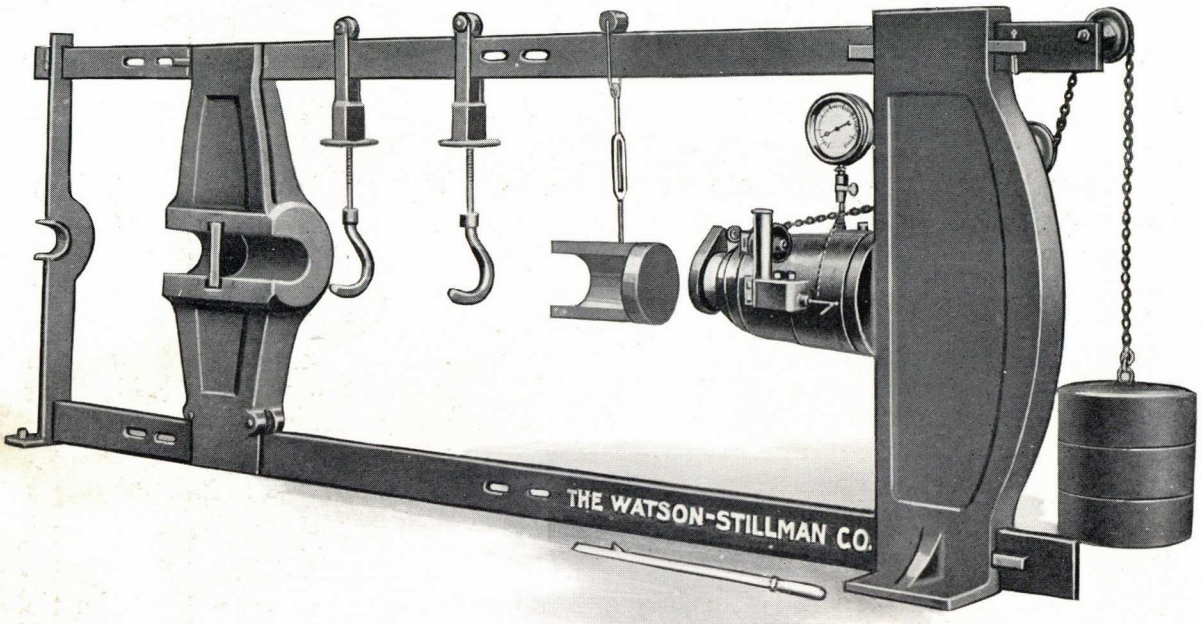
PUMPS: On presses in capacities to and including 300 tons a two plunger pump is furnished. These pumps have one high and one low pressure piston, and can be worked in combination, giving three speeds to the ram.

On our larger sizes, including presses of 400 tons capacities or more, a three plunger pump is furnished. These pumps have two high and one low pressure piston. The delivery from the low pressure piston is controlled by a stop valve on the suction pipe. For high speed and low pressure all pistons are used; for high pressure the low pressure valve on suction pipe is closed. A release valve is used to release pressure from the cylinder.

CAUTION: The **hydro-pneumatic operation of wheel presses** is covered broadly by our patents. Plain wheel presses may profitably be fitted for hydro-pneumatic operation, but unless the attachments for this purpose are made by us, **their use is an infringement.** We issue no permits for others to use our patents on this construction.

Hand Power Hydraulic Wheel Press

A Very Complete Tool for Street Railway Shops, Small Railroad Repair Shops, or for Forcing and Assembling



In this type of wheel press the hydraulic power unit is our outside pump horizontal jack. The pump lever works at right angles to the line of the press, convenient for the operator to watch the work. The pump has a single plunger of the rack and pinion type with piston inclosed to exclude grit and dirt. The valves are large, perpendicular and easy of access. The cylinder is cast steel, the beams cast iron and the rods are machinery steel.

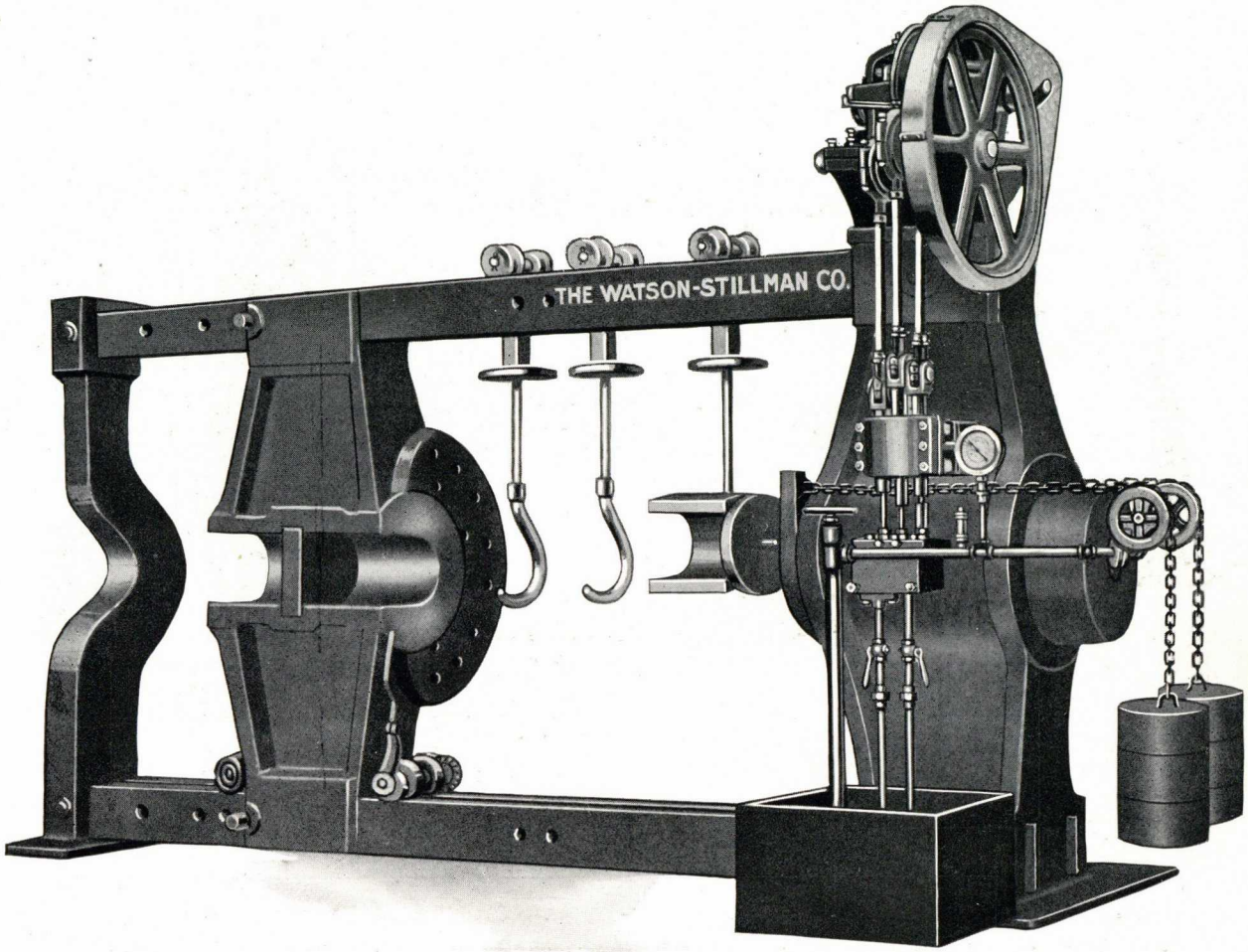
The movable beam has a gap to accommodate the projecting axle. The pull-back weight is suspended from the upper tie-rod and does not require a pit.

Each press is furnished with complete equipment as illustrated, including the two supporting hooks and extension piece moving on rollers and adjustable as to height, and a pressure gauge.

Capacity, Tons	Between Bars, Inches	Between Ram and Beam, Inches	Gap in Beam, Inches	Floor Space	Weight, Pounds	Code
60	34	84	5¼	12″ x 13′-2″	1900	Armstoll
100	40	91½	5¼	16″ x 15′-4″	3320	Aridhurt
100	46	91½	6	18″ x 15′-4″	3500	Abedvoid
125	52	91½	7½	18″ x 15′-0″	4500	Foalring

Plain Hydraulic Wheel Press

Weighted Pullback — Belt or Motor Drive



This Press is designed for use in shops not equipped with a pneumatic system. It can be arranged for either belt or motor drive.

The same sturdy construction and accessibility of working parts which characterize all Watson-Stillman Wheel Presses are embodied in this machine.

The pump which is two or three plunger, according to size of the press, is used only for the pressure stroke of the ram, the return or pullback is effected by counterweights. The three plunger pump shown in the illustration is furnished only on presses of 400 tons capacity and over.

Each press is furnished with complete equipment, as illustrated, including spring weighted safety valve and hydraulic gauge.

SPECIFICATIONS FOR ALL SIZES FROM 60 TO 600 TONS CAPACITY ARE GIVEN ON PAGE SIX.

SPECIFICATIONS

Plain Hydraulic Wheel Presses

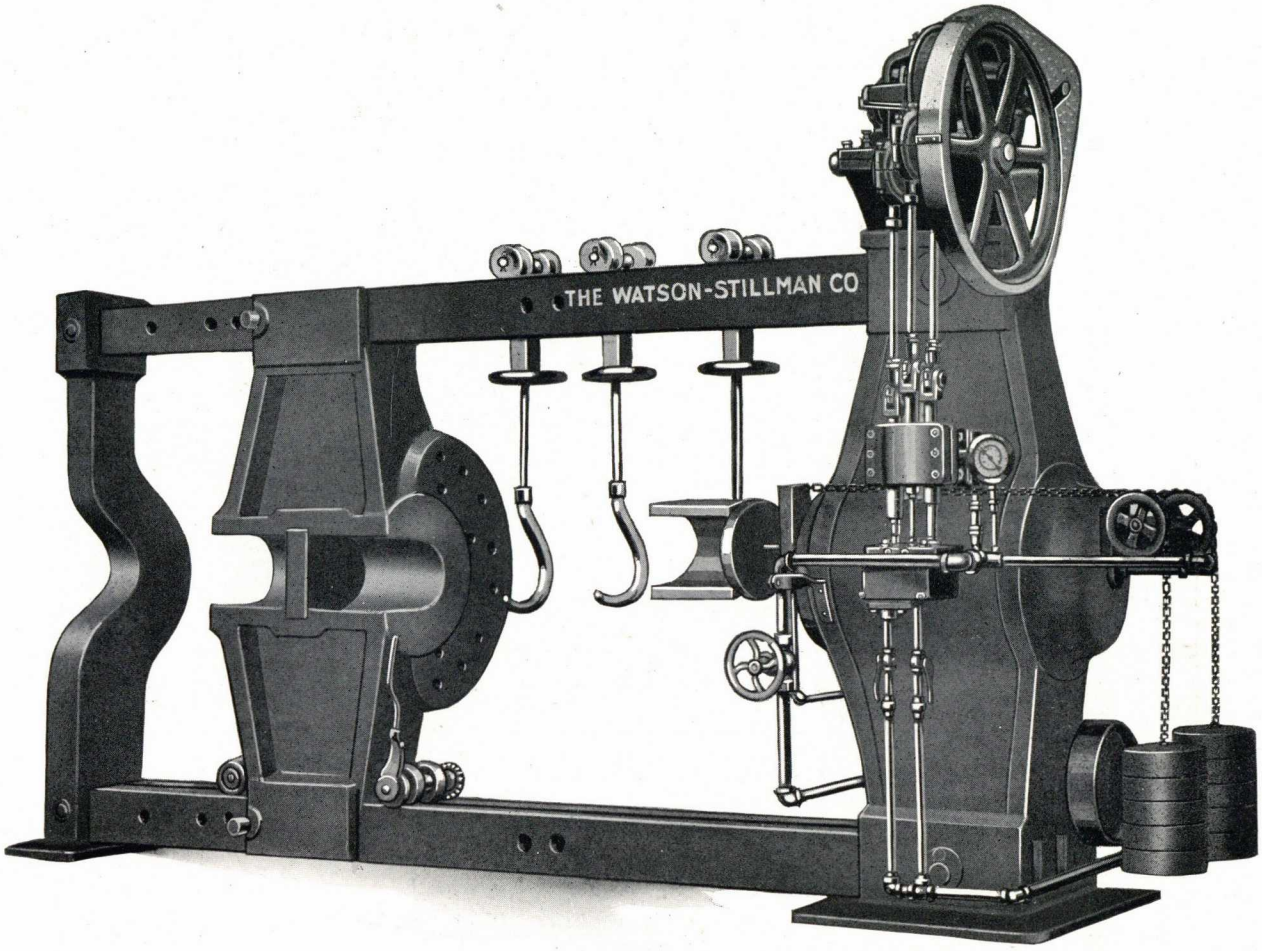
Capacity, Tons	Between Bars, Inches	Ram Stroke, Inches	Ram Diameter, Inches	RAM SPEEDS Inches per minute			No. of Pump Plungers	Size of Pump Plungers, Inches	Ram to Beam, Inches	Gap in Beam, Inches	Horse Power	BELT DRIVE			ARRANGED FOR MOTOR DRIVE	
				H. P.	Intermediate Pressure	Low Pressure						Pulleys, Inches	Weight, Pounds	Code	Weight, Pounds	Code
60	34	15	6½	4½	9	13½	2	⅞ x 1¼	102	4½	2	30 x 4	3300	Doltfine	3750	Doltfinehe
100	40	18	8	3	6	9	2	⅞ x 1¼	102	5¼	3	30 x 4	5000	Cartbaby	5450	Cartbabyhe
100	52	18	8	3	6	9	2	⅞ x 1¼	102	6	3	30 x 4	5300	Cartbend	5750	Cartbendhe
100	60	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	5700	Cartbest	6150	Cartbesthe
100	72	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	6300	Casegust	6750	Casegusthe
150	40	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	7500	Coltbill	7950	Coltbillhe
150	52	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	8500	Culmfort	8950	Culmforthe
150	64	18	10	3	7	10	2	1 x 1½	102	8½	3½	36 x 4	9100	Calfvail	9550	Calfvailhe
200	40	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	9400	Culmcomb	9950	Culmcombhe
200	48	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	10400	Culmcone	10850	Culmconehe
200	52	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	11000	Clamhall	11450	Clamhallhe
250	76	18	11	2½	5¾	8¼	2	1 x 1½	102	12	5	36 x 4	14500	Clammove	15900	Clammovehe
300	52	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	14500	Culmdare	15900	Culmdarehe
300	60	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	15200	Faceabed	16600	Faceabedhe
*400	52	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	19200	Flatlamp	20600	Flatlamphe
400	84	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	22150	Darehelp	23550	Darehelphe
400	96	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	26600	Golfalum	27800	Golfalumhe
500	54	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	25000	Halllamp	26400	Halllamphe
500	96	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	32000	Voidvoid	33400	Voidvoidhe
600	78	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	34700	Gateflat	35900	Gateflathe
*600	96	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	40000	Hintreal	41400	Hintrealhe

*Materials for these sizes are carried in stock and early delivery can be made.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Semi-Pneumatic Wheel Press

Weighted Pullback — Belt or Motor Drive



The term "Semi-Pneumatic" means that shop air pressure is employed to increase the initial speed of the press ram in its forward movement only, the return of the ram being effected by counterweights. This pneumatic feature not only saves time in operation, but reduces the vibration of the press. In place of the open reservoir, as furnished with our "Plain" type, we supply a closed cylindrical air tight tank to contain the water. Admission of air to the tank forces the water through the pump valve and into the cylinder at a pressure equal to the air gauge reading, thus pushing the ram out to the work at several times the speed that can be obtained by the action of the pump.

Each Press is furnished with complete equipment, including spring weighted safety valve and hydraulic pressure gauge.

SPECIFICATIONS FOR ALL SIZES FROM 60 TONS TO 600 TONS CAPACITY ARE GIVEN ON PAGE EIGHT.

SPECIFICATIONS

FOR

Semi-Pneumatic Wheel Presses

Capacity, Tons	Between Bars, Inches	Ram Stroke Inches	Ram Diameter, Inches	RAM SPEEDS Inches per minute			No. of Pump Plungers	Size of Pump Plungers, Inches	Ram to Beam, Inches	Gap in Beam, Inches	Horse Power	BELT DRIVE			ARRANGED FOR MOTOR DRIVE	
				H. P.	Intermediate Pressure	Low Pressure						Pulleys, Inches	Weight, Pounds	Code	Weight, Pounds	Code
60	34	15	6½	4½	9	13½	2	⅞ x 1¼	102	4½	2	30 x 4	3300	Doltfineno	3750	Doltfineby
100	40	18	8	3	6	9	2	⅞ x 1¼	102	5¼	3	30 x 4	5000	Cartbabyno	5450	Cartbabyby
100	52	18	8	3	6	9	2	⅞ x 1¼	102	6	3	30 x 4	5300	Cartbendno	5750	Cartbendby
100	60	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	5700	Cartbestno	6150	Cartbestby
100	72	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	6400	Casegustno	6750	Casegustby
150	40	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	7600	Coltbillno	7950	Coltbillby
150	52	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	8600	Culmfortno	8950	Culmfortby
150	64	18	10	3	7	10	2	1 x 1½	102	8½	3½	36 x 4	9200	Calfvailno	9550	Calfvailby
200	40	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	9500	Culmcombno	9850	Culmcombby
200	48	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	10500	Culmconeno	10850	Culmconeby
200	52	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	11100	Clamhallno	11450	Clamhallby
250	76	18	11	2½	5¾	8¼	2	1 x 1½	102	12	5	36 x 4	14600	Clammoveno	15900	Clammoveby
300	52	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	14600	Culmdareno	15900	Culmdareby
300	60	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	15300	Faceabedno	16600	Faceabedby
*400	52	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	19300	Flatlampno	20600	Flatlampby
400	84	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	22250	Darehelpno	23550	Darehelpby
400	96	18	13	2½	7¾	10¼	2	1 x 1¾	108	12½	7½	42 x 6	26700	Golfalumno	28000	Golfalumby
500	54	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	25100	Halllampno	26550	Halllampby
500	96	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	32100	Voidvoidno	33400	Voidvoidby
600	78	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	34800	Gateflatno	36000	Gateflatby
*600	96	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	40100	Hintrealno	41400	Hintrealby

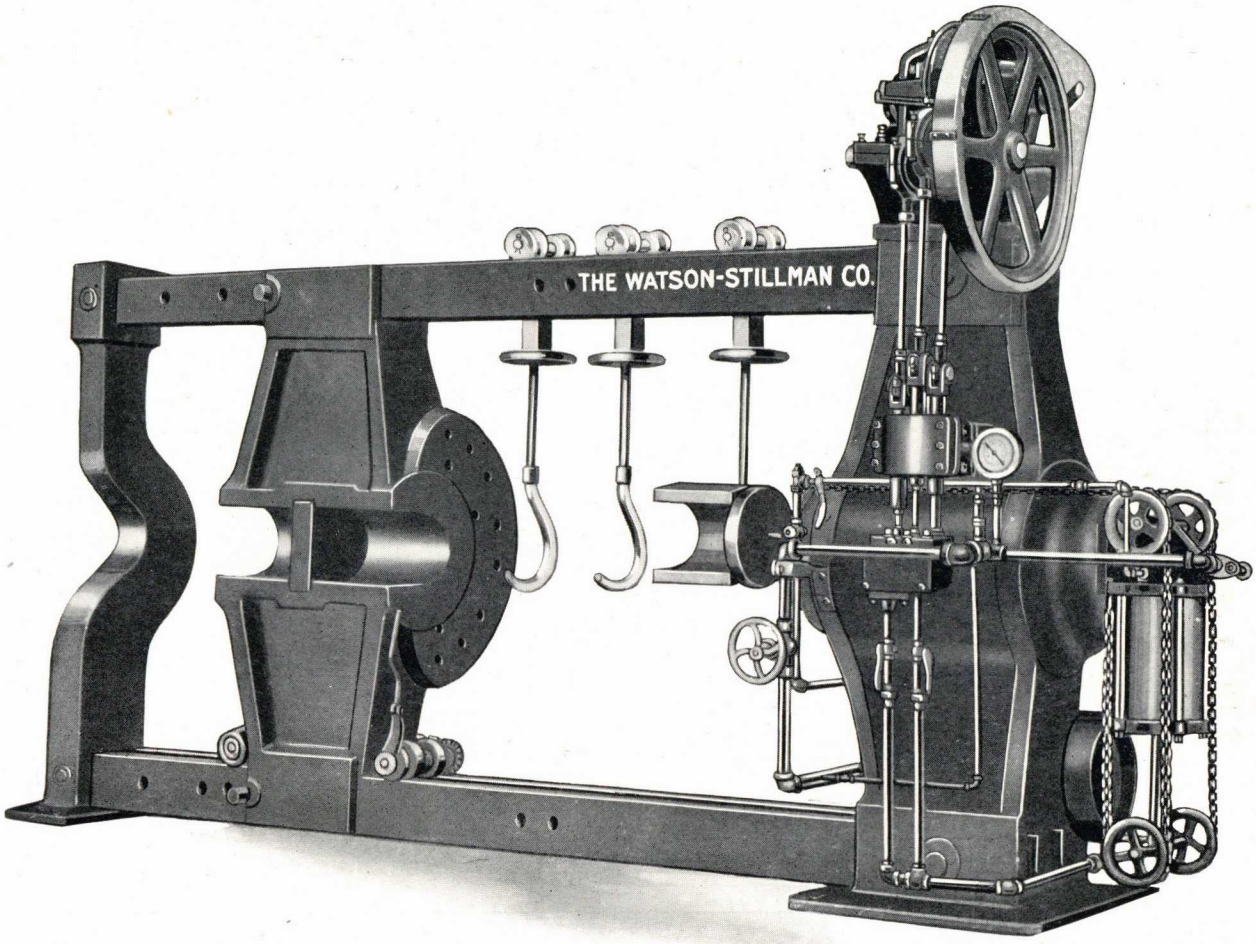
*Materials for these sizes are carried in stock and early delivery can be made.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Full Hydro-Pneumatic Wheel Press

Belt or Motor Drive

THIS IS THE MOST MODERN AND EFFICIENT PRESS YET DEVISED FOR FORCING LOCOMOTIVE DRIVING WHEELS ON AND OFF



The term "Full Hydro-Pneumatic" means that shop air pressure is employed to increase the initial speed of the Press ram in its forward movement and also to return it, the counterweights being replaced by a pneumatic piston, as shown in the above illustration.

With the release of the hydraulic pressure from the ram, the air, which is piped direct to the plunger of the pullback from the shop main (no control valves being used) returns the ram and forces the liquid back to the reservoir. The pneumatic pullback eliminates a pit for counterweight.

Each Press is furnished with complete equipment, including spring weighted safety valve and hydraulic pressure gauge.

SPECIFICATIONS FOR ALL SIZES FROM 60 TONS TO 600 TONS CAPACITY ARE GIVEN ON PAGE TEN.

SPECIFICATIONS

Full Hydro-Pneumatic Wheel Presses

BELT OR MOTOR DRIVE

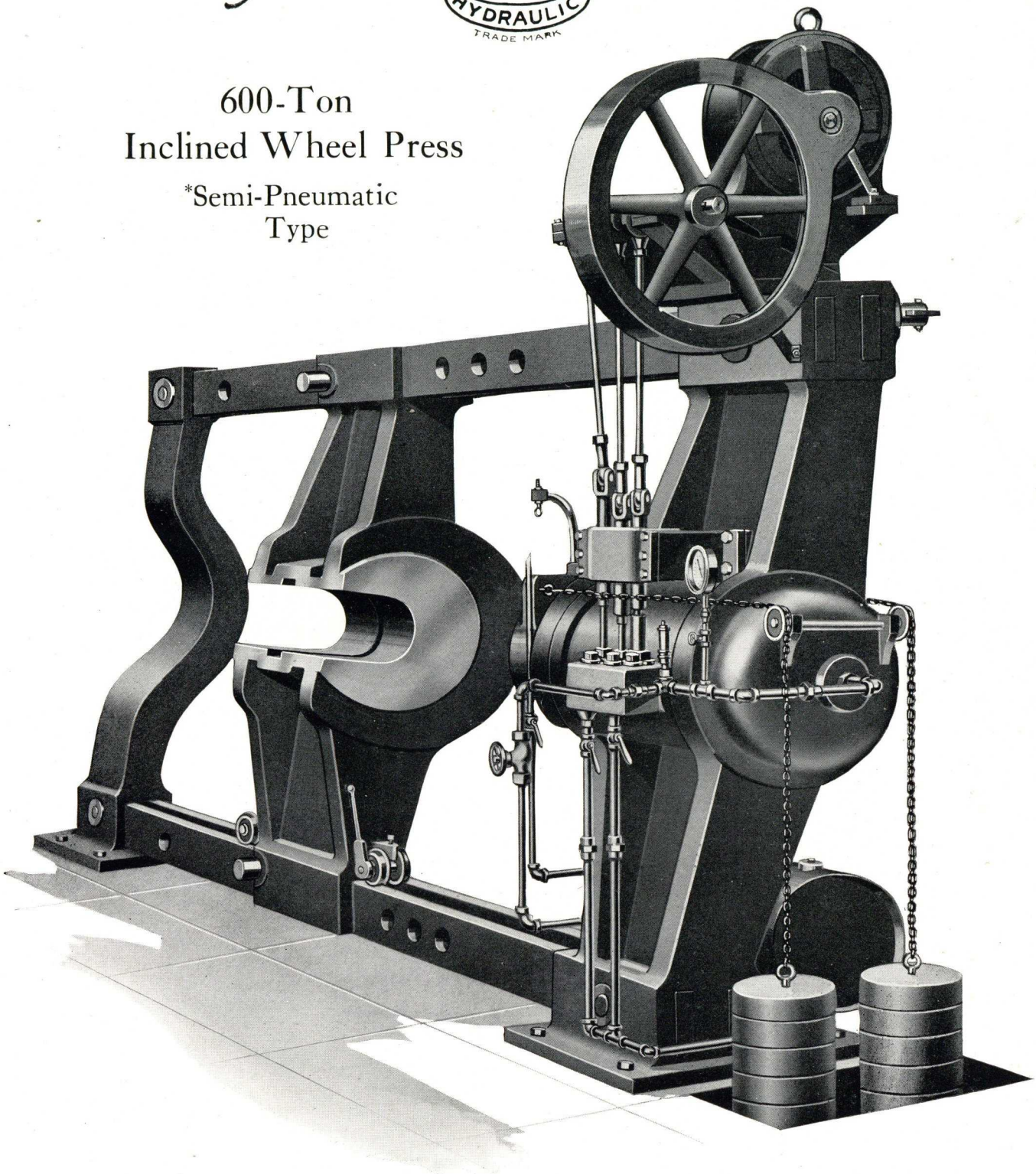
Capacity, Tons	Between Bars, Inches	Ram Stroke Inches	Ram Diameter, Inches	RAM SPEED Inches per minute			No. of Pump Plungers	Size of Pump Plungers, Inches	Ram to Beam Inches	Gap in Beam, Inches	Horse Power	BELT DRIVE			ARRANGED FOR MOTOR DRIVE	
				H. P.	Intermediate Pressure	Low Pressure						Pulleys, Inches	Weight, Pounds	Code	Weight, Pounds	Code
60	34	15	6½	4½	9	13½	2	⅞ x 1¼	102	4½	2	30 x 4	3250	Doltfineit	3700	Doltfineup
100	40	18	8	3	6	9	2	⅞ x 1¼	102	5¼	3	30 x 4	4950	Cartbabyit	5400	Cartbabyup
100	52	18	8	3	6	9	2	⅞ x 1¼	102	6	3	30 x 4	5200	Cartbendit	5650	Cartbendup
100	60	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	5600	Cartbestit	6050	Cartbestup
100	72	18	8	3	6	9	2	⅞ x 1¼	102	8½	3	30 x 4	6200	Casegustit	6650	Casegustup
150	40	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	7300	Coltbillit	7750	Coltbillup
150	52	18	10	3	7	10	2	1 x 1½	102	6½	3½	36 x 4	8300	Culmforit	8750	Culmfortup
150	64	18	10	3	7	10	2	1 x 1½	102	8½	3½	36 x 4	8900	Calfvailit	9350	Calfvailup
200	40	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	9200	Culmcombit	9650	Culmcombup
200	48	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	10100	Culmconeit	10550	Culmconeup
200	52	18	10	3	7	10	2	1 x 1½	102	8½	5	36 x 4	10700	Clamhallit	11150	Clamhallup
250	76	18	11	2½	5¾	8¼	2	1 x 1½	102	12	5	36 x 4	14100	Clammoveit	14600	Clammoveup
300	52	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	14000	Culmdareit	15400	Culmdareup
300	60	18	11	3½	11	14½	2	1 x 1¾	108	12½	7½	42 x 6	14700	Faceabedit	16100	Faceabedup
*400	52	18	13	2½	7¾	10¼	3	1 x 1 x 2	108	12½	7½	42 x 6	18500	Flatlampit	19900	Flatlampup
400	84	18	13	2½	7¾	10¼	3	1 x 1 x 2	108	12½	7½	42 x 6	21450	Darehelpit	22850	Darehelpup
400	96	18	13	2½	7¾	10¼	3	1 x 1 x 2	108	12½	7½	42 x 6	26500	Golfalumit	27900	Golfalumup
500	54	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	24300	Halllampit	25700	Halllampup
500	96	18	15	3¾	7½	11¼	3	1 x 1 x 2	108	12½	15	42 x 6	31150	Voidvoidit	32550	Voidvoidup
600	78	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	31750	Gateflatit	33150	Gateflatup
*600	96	24	16	3¼	6½	9¾	3	1 x 1 x 2	108	12½	15	42 x 6	39000	Hintrealit	40400	Hintrealup

*Materials for these sizes are carried in stock and early delivery can be made.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

600-Ton Inclined Wheel Press

*Semi-Pneumatic Type



Capacity, Tons	Between Bars, Inches	Ram Stroke, Inches	Ram Diameter, Inches	RAM SPEEDS			No. of Pump Plung'rs	Size of Pump Plungers, Inches	Ram to Beam, Inches	Gap in Beam, Inches	Horse Power	BELT DRIVE			Arranged for Motor Drive	
				H. P., Inches per min.	H.P. Inches per min.	L. P. Inches per min.						Pulleys, Inches	Weight, Pounds	CODE	Weight, Pounds	CODE
600	96	24	16	3¼	6½	9¾	3	1x1x2	108	12½	15	42x6	40100	Lanegate	41400	Lanegatea

*This press can be furnished in Plain type, belt drive, Code Lanegated; Plain type, motor drive, Code Lanegatee; Full pneumatic type, belt drive, Code Lanegatec; Full pneumatic type, motor drive, Code Lanegateb.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC FORCING PRESSES

VERTICAL TYPE

BULLETIN B-4

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York — McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.

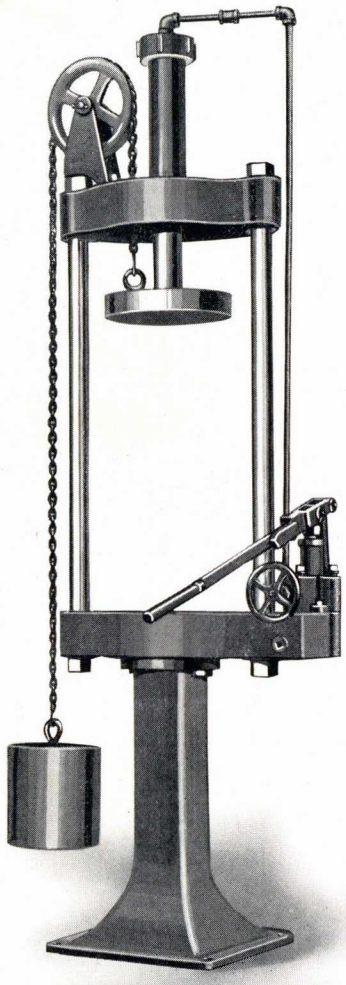
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Forcing Press

Reversed Cylinder — Two Rod Type

For General Use and Small Repair Work, Such as Bushing Wheels, Placing Gears, Pulleys, Etc., on Shafts, Forcing Mandrels, Etc.



Pressure is supplied by a single plunger self-contained pump, mounted on the bottom platen at a convenient height to enable the operator to hold or guide the work while pumping. The ram is counterweighted for speedy return.

Capacity Tons	Stroke	Opening	Diam. Ram	Pressure, Lbs.	Rod Center	Code
10	10	32	2¾	3400	20 In.	Daremule

The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Forcing Press

For General Use in Garage or for Small Repair Work, such as Bushing Wheels, Placing Gears, Pulleys, etc., on Shafts, Straightening Shafts, Crank Shafts and Similar Service.

There is a hole in the center of the table for projecting shafts, that can be plugged when a smooth surface is desired.

The ram is quickly moved to and from the work by rotating the hand lever on the end of a pinion meshing with a rack in the ram. The suction and exhaust pipes are large and the counterweight balances the ram so that this movement is made with little effort. The pump is operated for the high pressure part of the stroke only.

The pump is a single plunger hand operated unit.

The pump body is made of hydraulic metal and is mounted on a cast iron stand which forms a reservoir for the liquid. The valve seats and valves are brass and the plunger hardened tool steel. The pressure is released by the hand wheel as shown in the illustration.

Capacity Tons	Platen Inches	Stroke Inches	Opening Inches	Operating Pressure	Floor Space Inches	Weight Lbs.	Code
30	36 x 36	18	60	6250	36 x 60	2280	Dullhall

Other sizes to your specifications.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC RAIL BENDERS

BULLETIN B-5

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

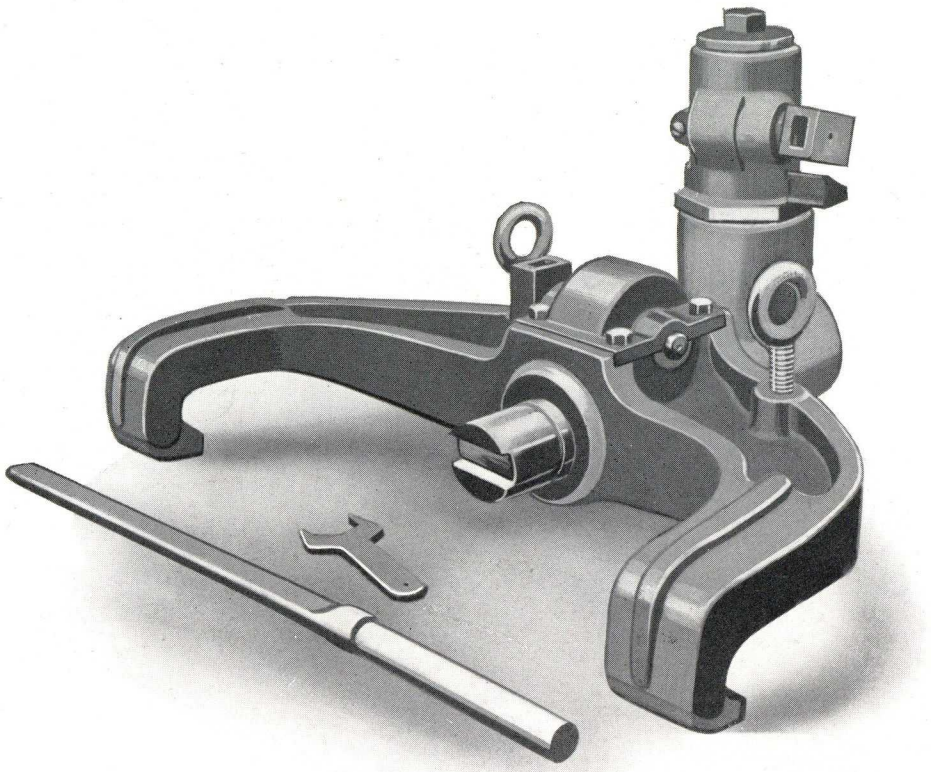
50 Church St. New York

McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Hydraulic Rail Bender

For "T" Rails



This is a very efficient tool for medium heavy rails. It is portable, easily handled and much more rapid than screw type benders.

While it weighs little more than the screw type, it is not so clumsy to handle, and can be quickly applied and worked by a smaller force of men.

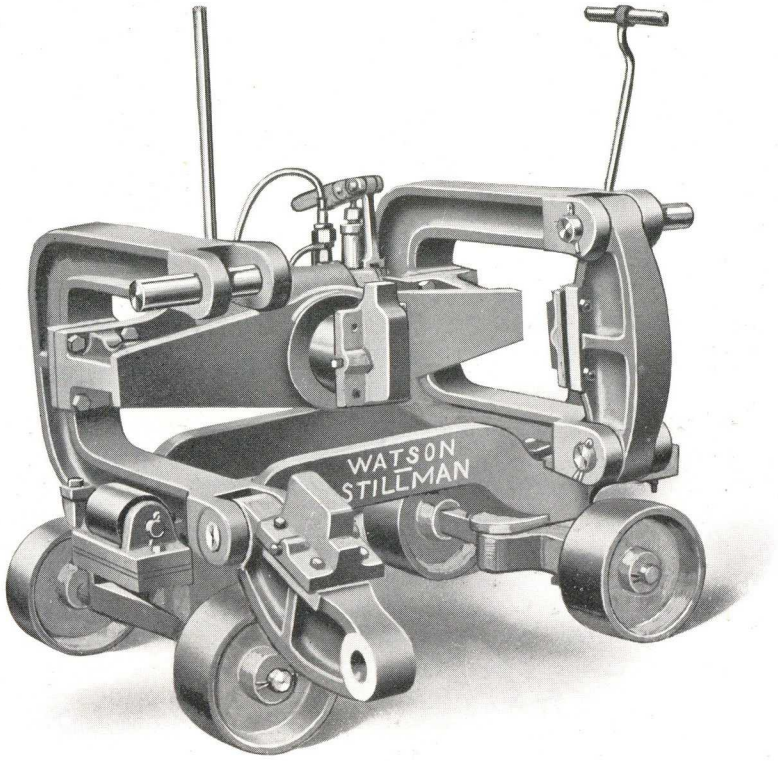
In this tool the ram may be run in and out without pumping for a distance of 3½ inches. This allows the tool to be placed over the rail and the ram brought up to its work on the rail head, when a few strokes will bend the rail to the desired curvature. It may then be slid along easily and another pressure given. The ram is graduated to show the spring of rail and has a loose head which fits the rail.

	Bending Capacity	Weight	Center to Center of Hooks	CODE
No. 2	90 lb. 40 Carbon Rail	325	27½ in.	Aximburn
No. 3	100 lb. 70 " "	465	28½ "	Boilfail

Portable Rail Bender

For Girder Rails

Hinged Yoke Type



This tool is an improvement over similar forms. It is much stronger and is equipped with formed bending blocks. The yokes swing back for the rail to be inserted sideways. One set of blocks are necessary for each shape of rail to be bent. The ram has a motion 2¾ inches, and is graduated to assist in making regular bends. The outer blocks are 26 inches apart. With the No. 5 machine we have bent 141 lb. rails easily.

The ram can be thrown out against the work or withdrawn by rack and pinion and there is easy accessibility of working parts. The truck is made of iron; the rest of the tool except the pump is steel. Only one set of four bending blocks is furnished with the tool.

Bender No. 4 is not equipped with rollers for moving rail lengthwise as shown in this cut which Illustrates No. 5.

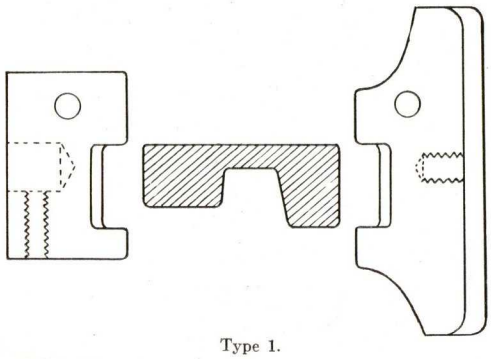
	Power	Weight	CODE
No. 4	120 ton	1150 lbs.	Bestlist
No. 5	175 ton	2000 lbs. (for 10-in. guard rails)	Dirtloin

Bender Blocks

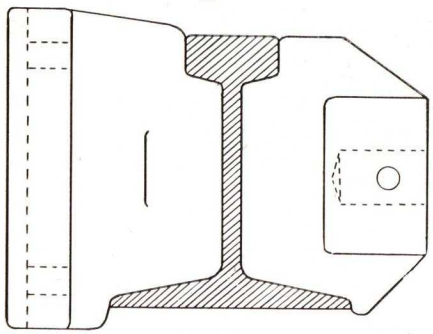
For Girder Rail Benders

The four cuts shown below have been selected as types of blocks. With the exception of the "T" Rail Bender, a set consisting of four blocks is required for bending both ways. The blocks sent with the bender are interchangeable in method of attachment as indicated in the drawings below. On inspecting the machine and blocks the operator will have no difficulty in arranging them for bending in either direction.

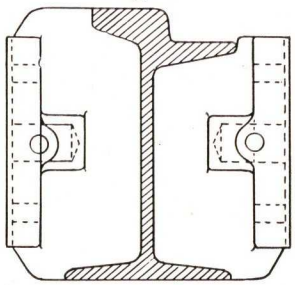
Our bender blocks are made of steel.



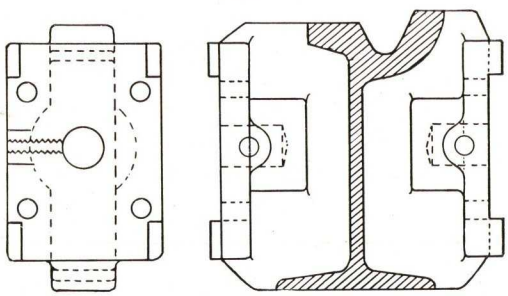
Type 1.



Type 2.



Type 3.



Type 4.

In ordering bending blocks, give name of maker and furnish a section of rail, if possible. If this is not convenient, then supply us with an exact cross-sectional drawing of the rail.

Type	Rail Section	Number of Blocks Required	CODE
1	Flatrail	4	Celtus
2	T Rail	3	Centaro
3	Girderrail	4	Cerasin
4	Guardrail	4	Cerbera

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC
BENDERS AND STRAIGHTENERS

For Shafts, Rods, Bars, Pipe,
Structural Shapes, Etc.

BULLETIN B-6

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.

Sales Offices
50 Church St. New York
McCormick Bldg. Chicago, Ill.

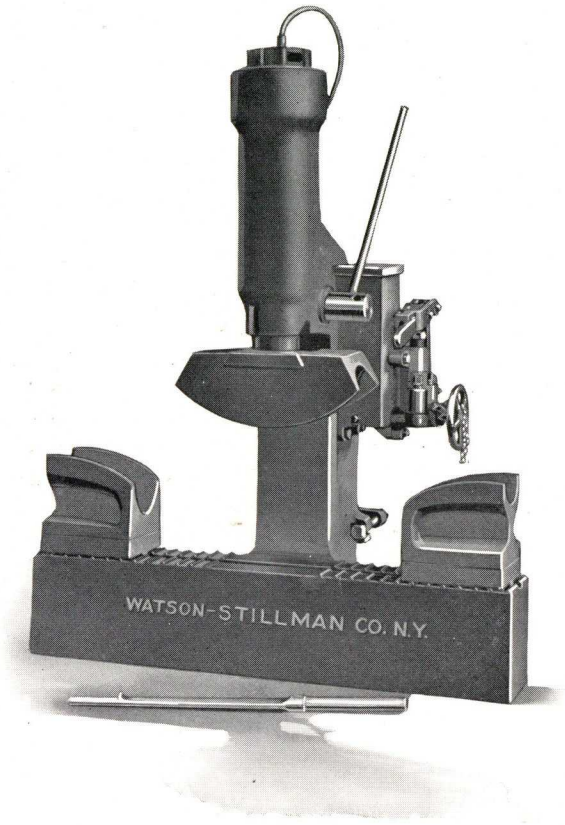
The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Bender and Straightener

For Bending Conduit and Other Pipe of Various Kinds, and for Straightening Shafts, Etc.



The body frame has V straps and clamps at the rear for clamping to stanchions of from three to five inches in diameter. The base is ribbed so that the lower bending blocks may be placed wherever desired to bend a required curvature. The upper block is held on the ram by a dove-tail joint. Unless otherwise specified a set of three blocks for bending pipe of the size listed below accompanies each machine. A set of blocks is required for each size of pipe to be bent.

The rack and pinion facilitates bringing the ram to or away from the work.

The hand pump shown is used on all benders of this type.

Power	Base	Capacity	Total Height	Weight	CODE
30 ton	32 in. long	4 in.	50 in.	550 lbs.	Calfsign
40 "	36 " "	6 "	60 "	940 "	Burnreal
75 "	48 " "	8 "	70 "	2590 "	Holesurf

Portable Shaft Straightener

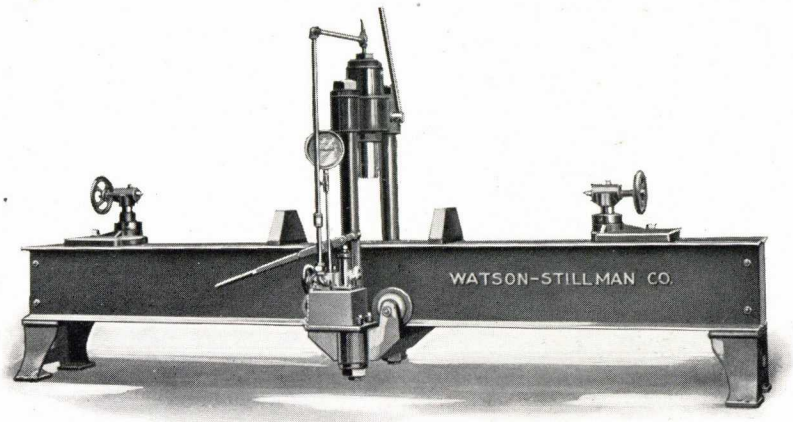
For Use in Connection With Lathe Centers for Straightening Shafts, Etc.

These tools are an adaptation of the pipe bender and are designed to be used in connection with a lathe, or may be used as portable shop tools. The tools are mounted on wheels which are placed upon axles between collars so that the gauge of the wheel can be made to suit the space between the Vs of the lathe. The working features are the same as our pipe bender, that is, rack movement to the ram, ready access to all working parts, bronze pump, steel pinion shaft and tool steel ram.

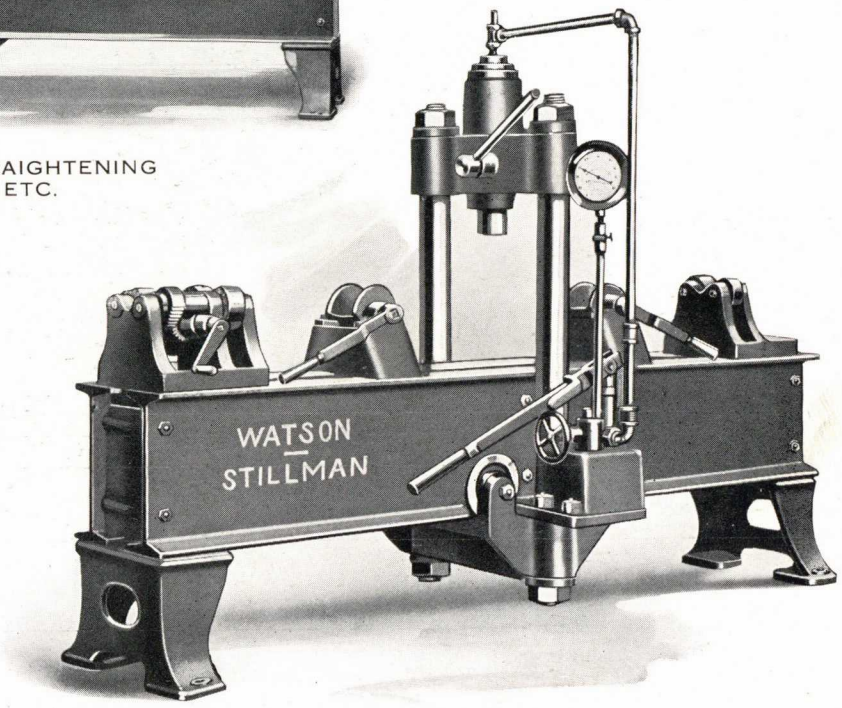
No.	Table in.	Capacity in Shaft	Depth of Jaw, in.	Weight, lbs.	CODE
*1x	25	3½	4	400	Culmlimb
2	28	4½	4	520	Bustpail
3x	32	5¼	6	950	Dullmere
4	40	6	3½	1280	Centflat

*1x is built with punch head, other sizes with outside pump as illustrated.

Hydraulic Straightening Presses



WITH CENTERS FOR STRAIGHTENING SHAFTS, AXLES, ETC.



ROLLER TYPE FOR STRAIGHTENING SHAFTING BARS, ETC.

The bed of this tool is built from steel beams with a cylinder and ram mounted on a carriage which rolls freely from end to end upon the flanges of the beam. The pump is placed down low enough for operating from the floor. The machines are provided with either centers or rollers as illustrated. These are adjustable on the bed of the press. The ram, which has a motion of 4 inches, can be moved up or down, to or from bending positions, without the labor of pumping by means of a rack and pinion. Greater variations from this can be accomplished in the blocking. In operating the machine the carriage holding the bending device is rolled to one end of the machine, and then the machine is free to have the work placed upon the blocks from over head.

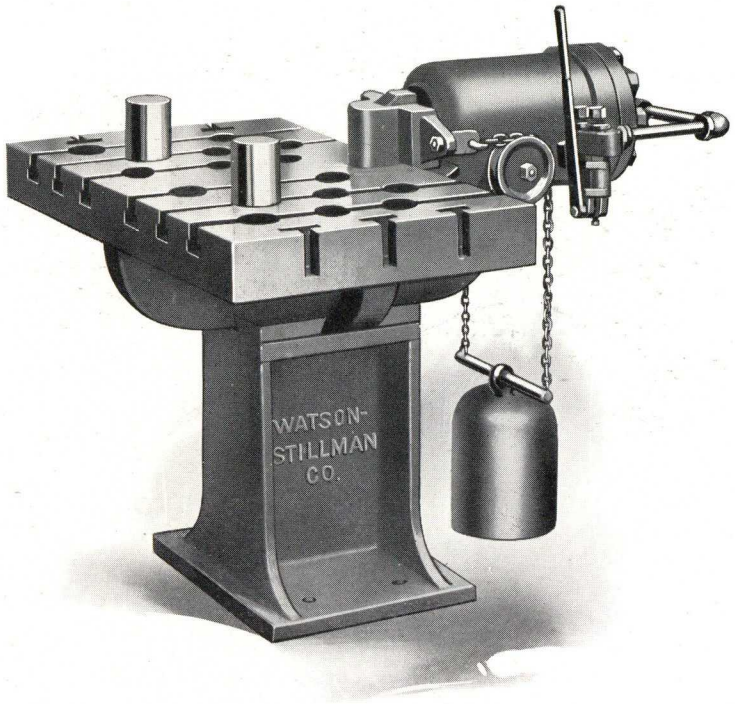
The distance between the centers is dependent upon the length of beams wanted.

Power Tons	Distance between Rods, In.	Capacity Shaft Dia. Inches	On Centers Inches	Depth Beams Inches	Beam Length Feet	Weight Pounds	CODE
*75	17	4½	30	15	12	2780	Conehole
75	17	4½	30	15	18	3300	Golfdime
*125	18	6	36	20	12	4800	Bestgate
125	18	6	36	20	18	5300	Bestgatea
125	18	6	36	20	25	6800	Dastfail

*Material for these machines are carried in stock and early delivery can be made.

Bending and Straightening Presses

For Bending Structural Shapes, Rails, Bars, Pipe, Etc., of Various Dimensions



While this machine is designed particularly for structural shapes, it will be seen that it is adaptable to a wide range of bending and straightening operations.

The two pins shown are 3½ in. in diameter and can be placed in any of the 18 round holes in the table top. The work may further be held in place by bolts set in any of the key slots on the top and sides of the table. The pin holes are staggered in rows which are symmetrical with respect to the ram. The ram is provided with a weighted pullback, which, with the stop and release valve at the side of the cylinder, gives the operator perfect control over the press at all times. The ram is further provided with a positive stop for safety.

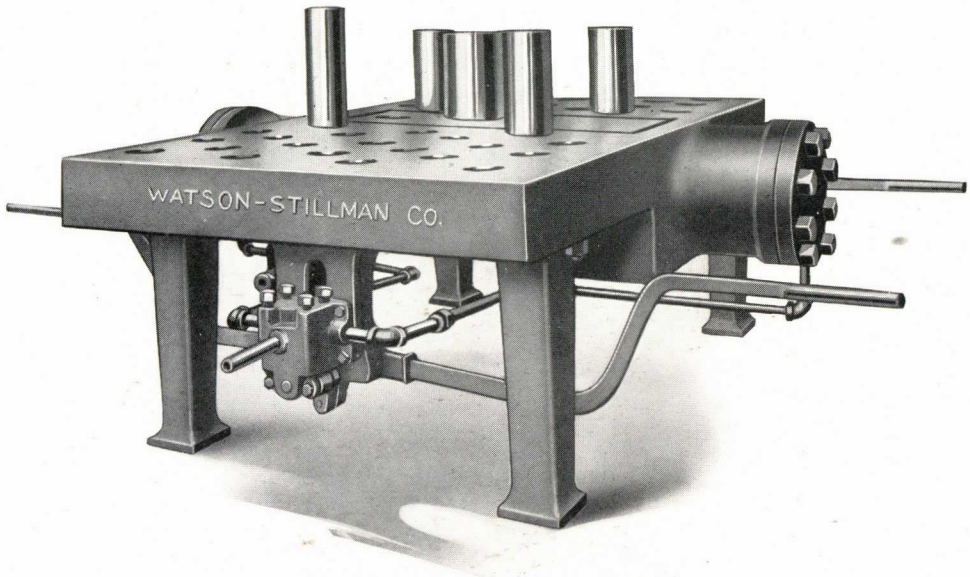
The cylinder head is removable and provided with passages for removing entrained air and for draining if desired in cold weather.

Capacity Tons	Diam. Ram Inches	Ram Mov't Inches	Pressure Lb. Per Sq. In.	Center of Ram Above Table Top In.	Height of Pins In. Table In.	Table Dimensions Inches	Height of Table Above Floor	Weight Lbs.	CODE
25	5	8	2200	2¼	5	24x40	35	2350	Dimehelp
30	5½	8	2600	3	6	36x40	35	3250	Finenail

Other sizes

Hydraulic Bending Presses

Especially Adapted for Pipe Bending



These machines are made in sizes suitable for bending pipe up to and including 12 in. in diameter. The table has 21 holes staggered in six rows on either side of ram. The pins are interchangeable in any of these holes.

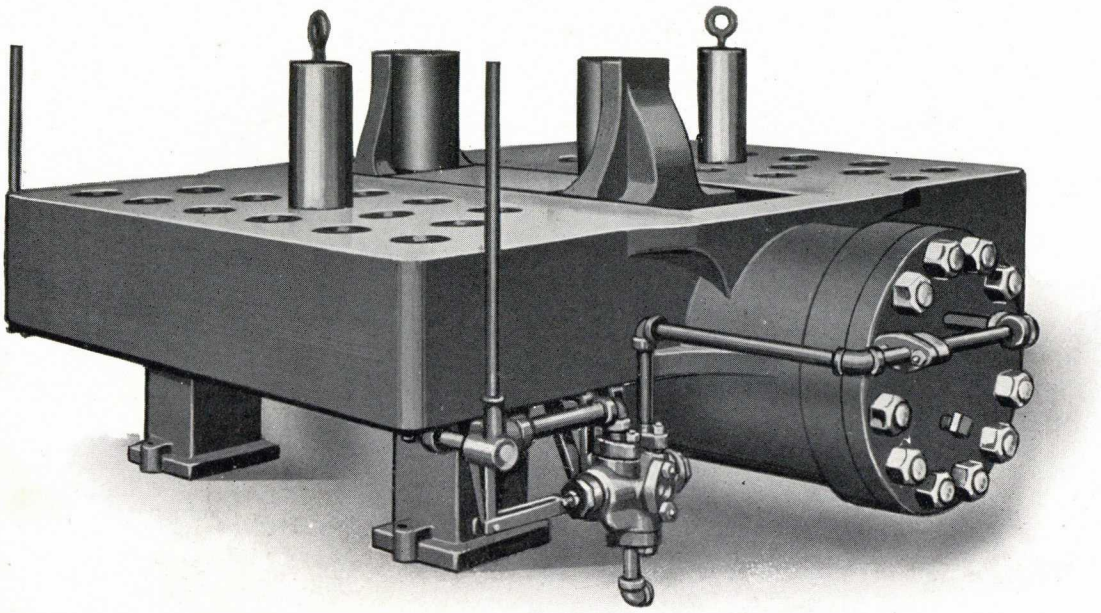
The ram is double headed and extends from one cylinder to the other. The center or bending pin is attached to a saddle on the ram. The saddle on the ram slides in guides which are covered to prevent scale or dust from dropping on them. The oil holes on the cover are provided with screw plugs. Both cylinder heads are removable and provided with passages to allow the air to be driven out, or to permit draining the fluid from the cylinders in cold weather if desired.

The presses are built as illustrated with the valves placed in one body, and connecting levers at each corner of the press or with the valve placed at the side of the cylinder and operated by a hand wheel. A positive stop is provided to prevent the ram from being moved beyond safe limits.

Capacity Tons	Distance Between Pins Min.	Max.	Pressure Lbs. per Sq. In.	H'ght of Bending Pin In.	Table Dimen. In.	Diam. Ram In.	Stroke In.	Weight Lb.	CODE
37½	22	62	1500	10	48 x 60	8	12	8000	Cartlane
60	27½	65½	1500	12	54 x 78	10	14	14450	Golfmove
100	27½	65½	2500	16	54 x 78	10	14	16000	Lampdolt

Hydraulic Bending Presses

For Bending Beams and Structural Shapes, Etc.



These bending machines are designed to bend channels, Z-bars and beams. We make holes in the table round or square and in sizes and arrangement desired by the user. The bending blocks are dovetailed into a double-headed saddle, which is firmly attached to the ram. The blocks slide in grooves that are covered to prevent scale from dropping into them. There are also covers to prevent the scale from blowing on to the surface of the ram and finding its way into the cylinder itself and cutting it. The oil holes in the cover are provided with screw plugs, which prevent the dirt from reaching the slide. The heads of both cylinders are removable, and provided with air passages for allowing the air to be driven out, or to drain the water or fluid from them in cold weather if desired. The valves are placed in one body, can be operated from either side of the press, and govern the motion completely, opening the release valve for one cylinder when pressure valve is opened for the other. The motion is automatically stopped by removing the hand from the lever.

Machine illustrated is Hintpour.

Capacity Tons	Distance Between Pins Min. Inches	Distance Between Pins Max. Inches	Pressure Lb. per Sq. In.	Gap Between Bending Blocks In.	Height of Bending Blocks In.	Table Dimen. In.	Diam. Ram In.	Stroke In.	Weight Lbs.	CODE
25	24	60	1500	9	4½	60x72	6¼	16	7700	Boltlist
30	24	60	1500	9	4½	48x72	7	12	7500	Aridflat
40	22	62	1500	10	10	48x72	8	10	8500	Hurtlast
40	24	46	1500	6	5½	36x52	8	4	5000	Aridbust
60	27½	65½	1500	12	12	52x78	10	8	14500	Golfmovea
200	44	82	1500	27	15	72x96	18	10	28300	Hintpour

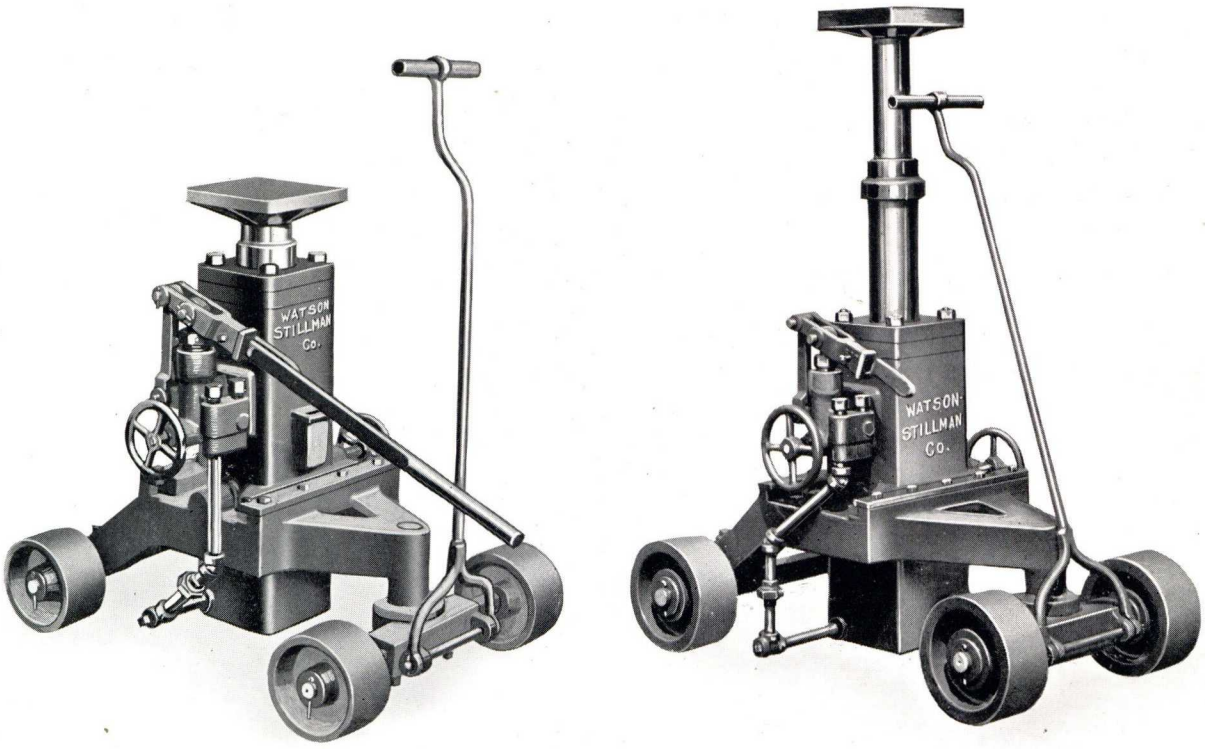
The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

BULLETIN B-7

Portable Motor Lift

Telescopic Ram



This is a self-contained portable machine designed to remove and replace street railway car motors. It has a telescopic ram and does not require a sub-pit. It is mounted on flat, broad wheels so that it can be moved easily on the floor. The ram and cylinder are steel and the pump, valves and pump pistons are bronze. There is a side adjustment of the cylinder of 2 inches.

Lifting Capacity, Lbs.	Length of Lift, In.	Overall Height with Ram Closed, In.	Weight, Lbs.	Code
3,000	37	32	700	Calfrisk

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRO-PNEUMATIC PIT JACKS

BULLETIN B-8

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York

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The Watson-Stillman Co.
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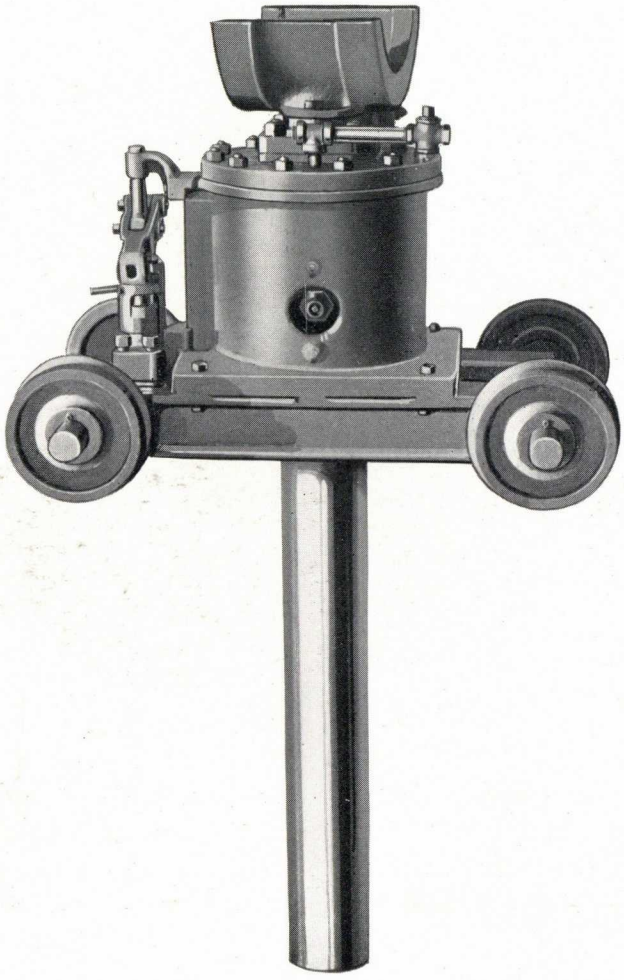
W-S HYDRAULIC TRADE MARK

Hydro-Pneumatic Pit Jacks

Plain Ram

For Removing Driving Wheels and Trucks from Under Locomotives



These jacks are designed to work on about 90 lbs. air pressure supplementing hydraulic pressure by hand pump. The air is admitted to the water cistern, forcing the water rapidly through the pump into the cylinder until the ram comes to a bearing under the load. The air is then cut off, confining the liquid in the cylinder where a few strokes of the hand pump will put it under sufficient pressure to lift the load. The jack is lowered by a movement of a release lever.

The jack shown here has plain ram, outside packed, with pump and all parts accessible. The cistern is made circular to better resist air pressure, and is equipped with safety valve to prevent injury to the cistern in case the load should be lowered with the exhaust valve closed.

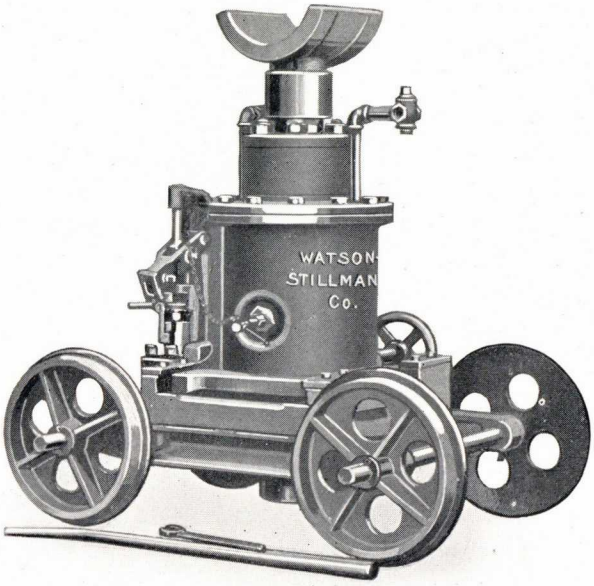
The pump has two concentric plungers guided at top and bottom. The smaller one is connected directly to the lever and produces the higher pressure. The larger plunger can be locked to it by throwing a latch and a greater delivery at a correspondingly lower pressure thus obtained.

The wheels are roller bearing.

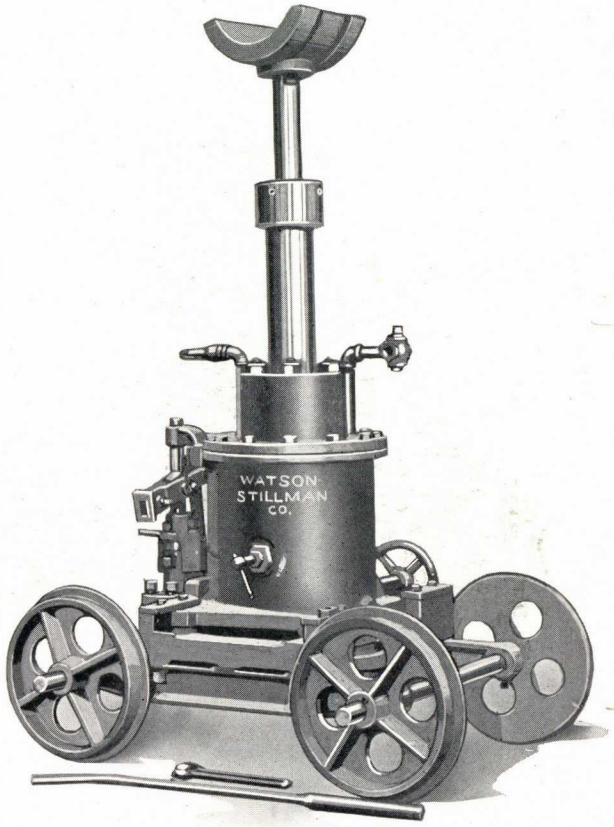
Cap. Tons	Lift In.	Rails to Saddle In.	Rails to End of Cylinder In.	Track Gauge In.	Diam. Wheels In.	Wt. Lbs.	CODE
15	54	27½	43¾	24	10	1310	Cartbust
30	60	34	44	24	14	1850	Golfpail

Hydro-Pneumatic Pit Jacks

Telescopic Ram



Hand Pump



The jacks operate exactly like our plain ram hydro-pneumatic jacks, but by telescoping the rams the cylinder is only half as long for about the same lift of the saddle. For ordinary lifts this precludes the necessity of a sub-pit and maintains a minimum height above the rails, which, of course, allows the jack to run in the shallowest possible pit.

If the dimensions of the jacks, measured from the rail head, as listed in the table, do not conform with your pit dimensions they can be varied by changing the "throw" of the truck frames or the diameter of the wheels.

The jacks are equipped with double plunger hand pumps and the wheels are large and have roller bearings.

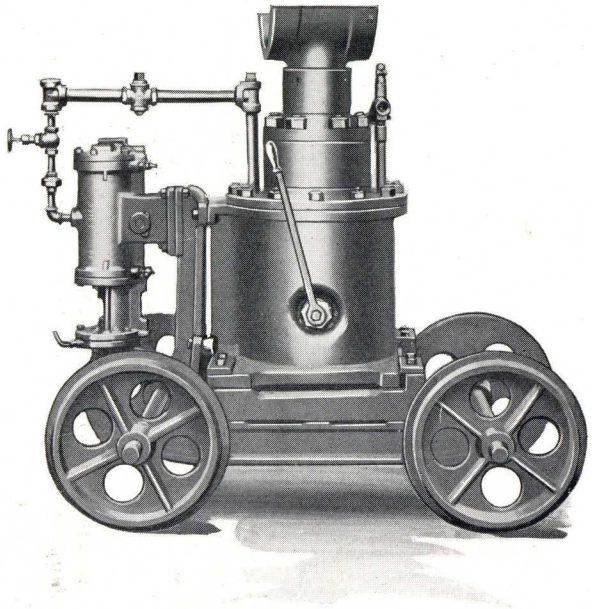
Cap. Tons	Lift In.	Rails to Saddle In.	End of Cyl. from Rails In.	Track Gauge In.	Diam. of Wheels In.	Side Adjust-ment, In.	Weight Lbs.	CODE
15	49½	40	above 1	24	14	6	2200	Holebolt
30	60	41	below 6¼	24	14	6	2900	Gatelane

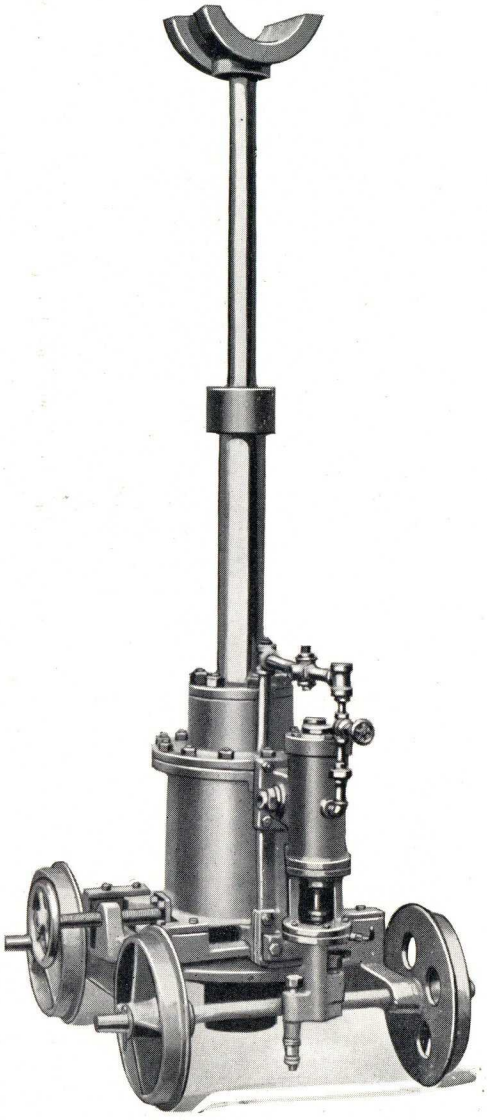
The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Hydro-Pneumatic Pit Jacks

Telescopic Ram — Air Engine Pump

The Most Complete, Rapid, Efficient and Safest Pit Jack on the Market





This type of pit jack is the same as our telescopic ram machine, except that the pump is driven by an air engine instead of by hand.

This change, aside from reducing the number of men required, by one, also increases the speed of operation.

Connection is made through a rubber hose or other flexible tube between the compressed air line in the shop and the pump engine in the same way that pneumatic tools are connected up.

The rams are made exceptionally large to provide rigidity, and the wheels are on roller bearings to reduce starting friction and the vibration or sway that results therefrom. The jack is lowered by a movement of the hand lever shown in the illustration.

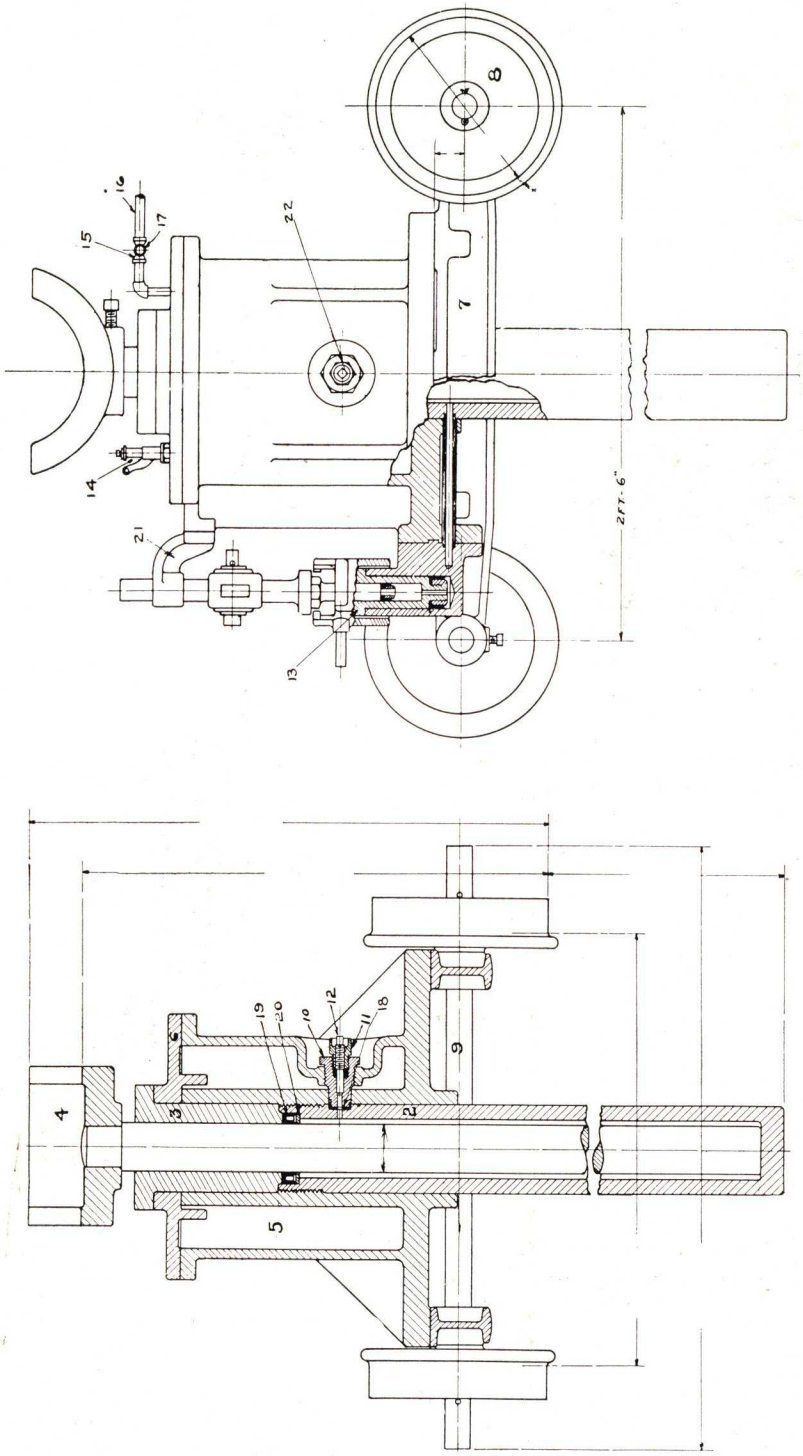
If the dimensions of the jack measured from the rail head, as listed in the table, do not conform with your pit dimensions they can be varied by changing the "throw" of the truck frames or the diameter of the wheels.

Cap. Tons	Lift In.	Rails to Saddle In.	End of Cyl. from Rails In.	Track Gauge In.	Diam. of Wheels In.	Side Adjustment, In.	Weight Lbs.	CODE
15	49½	40	above 1½	24	14	6	2300	Gatehall
30	60	41	below 6¼	24	14	6	3000	Gentbear

Hydro-Pneumatic Transfer Pit Jack

Hand Pump — Plain Ram

Diagram Showing Location of Parts



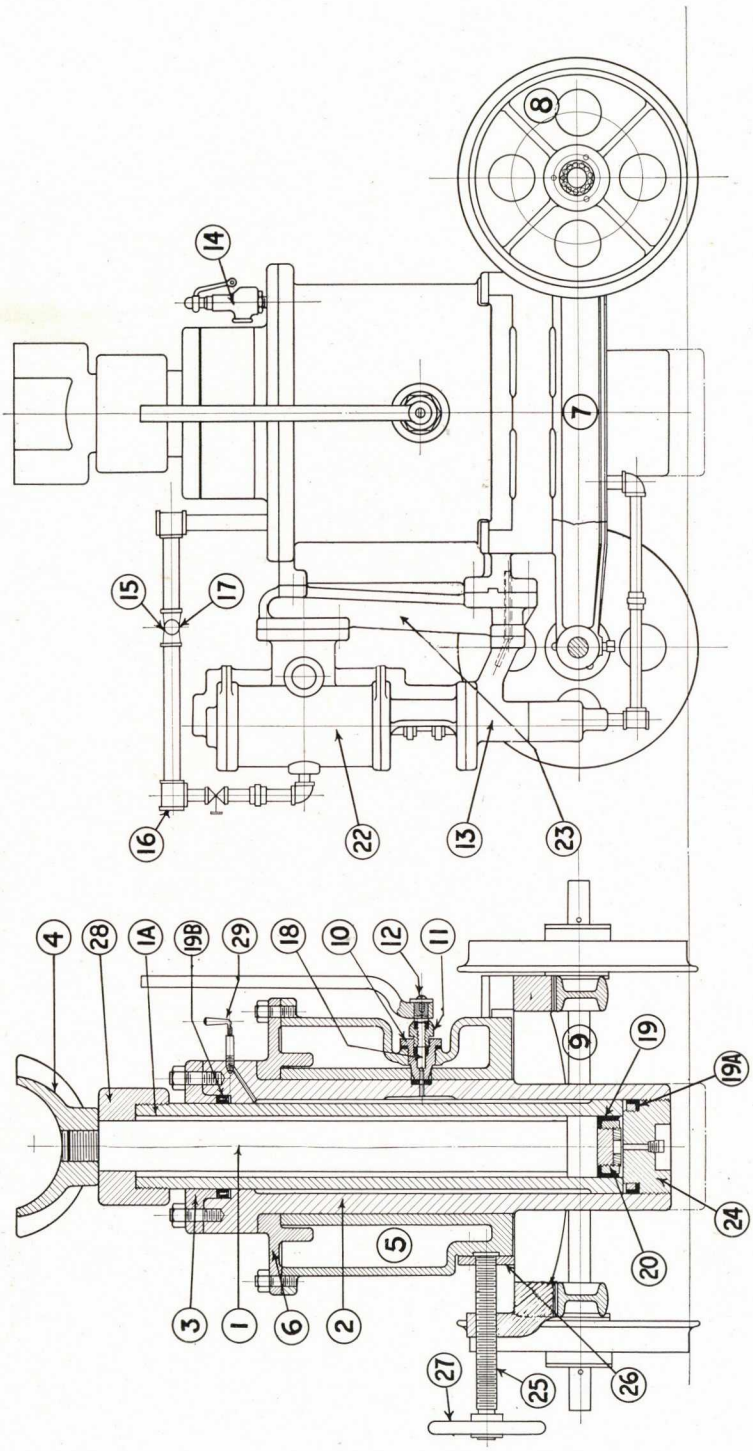
1 Ram
2 Cylinder
3 Gland
4 Saddle
5 Cistern
6 Cistern Cover
7 Beams
8 Wheels
9 Axles
10 Release Valve Stuffing Box
11 " " Gland
12 " " Stem
13 Pump Body Complete
14 Pop Safety Valve
15 Three Way Cock
16 Air Inlet
17 Air Release
18 Hyd. Release Valve Cup Pack'g
19 Ram Packing
20 " " Ring
21 Piston Guide Bracket

NOTE.—When ordering parts for Jacks, specify capacity, diameter of ram, stroke of ram, distance below rails, distance from rails to saddle, track gauge, and center line wheels to bottom of cistern.

Hydro-Pneumatic Transfer Pit Jack

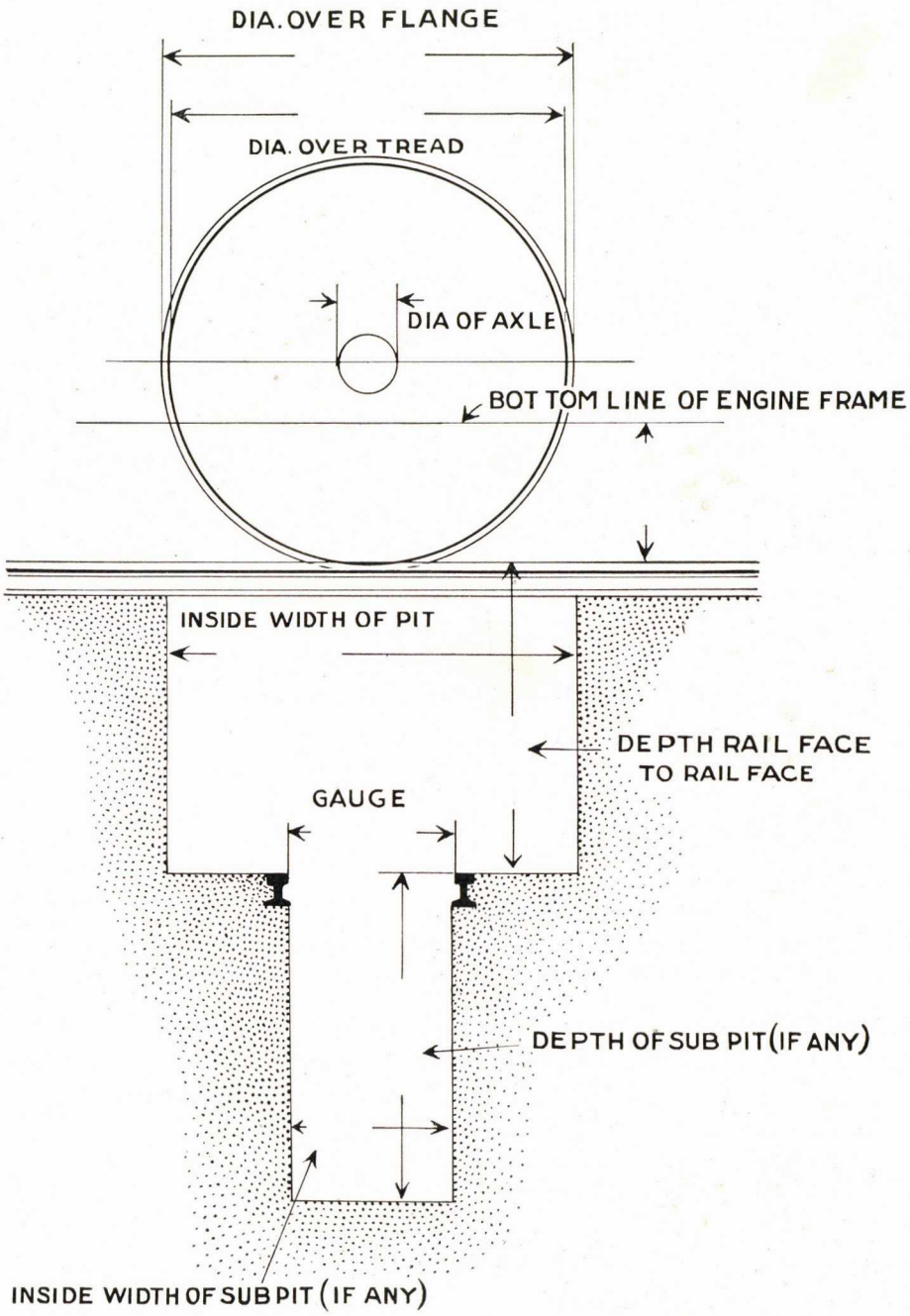
Air Engine Driven Pump — Telescopic Ram

Diagram Showing Location of Parts



1 Ram (small)
1a Ram (large)
2 Cylinder
3 Gland
4 Saddle
5 Cistern
6 Cistern Cover
7 Beams
8 Wheels
9 Axles
10 Release Valve Stuffing Box
11 Release Valve Gland
12 Release Valve Stem
13 Pump Body Complete
14 Pop Safety Valve
15 Three Way Cock
16 Air Inlet
17 Air Release
18 Hyd. Release Valve Cup Packing
19 Ram Packing (small)
19a Ram Packing (large)
19b Cylinder Packing
20 Ram Packing Ring
22 Air Engine
23 Air Engine Bracket
24 Ram Packing Ring Bonnet
25 Adjusting Screw
26 Adjusting Screw Cover
27 Hand Wheel
28 Ram Gland
29 Air Release Valve

How to Order Pit Jacks



Dimensions as diagramed above should all be given. Dimensions given should apply to locomotives having largest drivers to be handled.

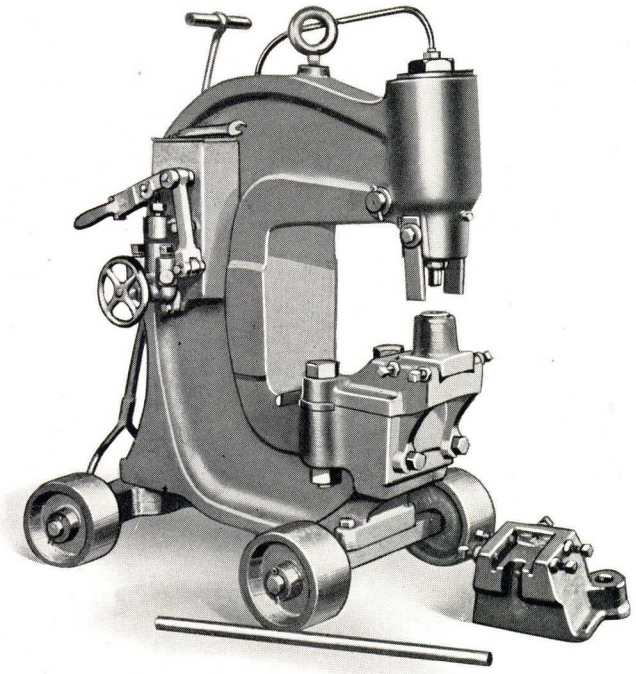
Extra sheets of this diagram will be sent on request.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

BULLETIN B-9

Universal Hydraulic Punch

A Portable Hydraulic Punching Machine of Great Power for Beam Flanges and Other Special Shapes.



This tool, by using two removable jaws, can punch, within the limit of its power, within ¾ inch of the front of the machine. The jaw shown on the machine is for web punching, and the jaw shown loose holds a large flat die beveled on one side, and is under cut to allow a beam as small as 4 in. to be punched on the flange, and the section can be punched without pushing lengthwise through the jaw. The frame is of steel, and amply heavy to withstand the greatest strain applied in ordinary work. The punch is operated by a pump attached at the rear of the frame. For small work the little handle shown on the pump gives sufficient power for operating. On larger work the extension lever shown in the foreground is used.

One movement of a lever in the socket of a pinion (not shown in the illustration), which meshes with the ram, withdraws the punch entirely from the work, or brings the punch down on the work without the labor and loss of time necessary to pump it down.

The punches are prevented from turning, thus allowing the use of irregular-shaped dies without danger of the punch coming down on the die.

All of these tools are fitted with No. 6 gland, No. 6 punch and No. 5 die.

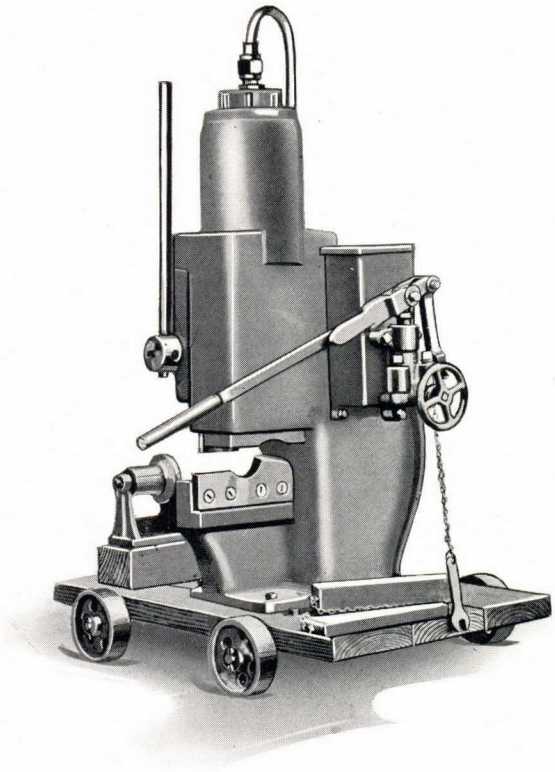
Size	Depth of Jaw	Height of Jaw	Weight Pounds	Code
3	9½ in.	13 in.	825	Boilsear
3	12 "	13 "	1250	Bearburn

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

BULLETIN B-10

Hydraulic Shears

For Shearing Round Iron, Bars and Wire Rope.



This is a convenient type of shear, especially adapted to cutting round iron and wire rope. The construction is steel throughout and the whole tool is of a rugged compact design in keeping with the work it is to perform.

Sizes 3 and 4 are equipped with outside pumps as illustrated, while size 2 has the pump inclosed in the head. In both types the pumping action is used for the downward working stroke of the shear blade only, the return being affected by a pinion meshing with a rack in the ram itself. This also aids in the speed of action.

The machine can be mounted on a bench or small portable truck as desired.

No.	Capacity	Blade	Weight	Code
2	2 in. diam.	4 in.	225 lbs.	Dandruff
3	2½ " "	5 "	490 "	Diamede
4	3 " "	8 "	1050 "	Bestcone

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC

DIE PRESSES

BULLETIN B-11

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.

Sales Offices
50 Church St. New York McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.
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W-S HYDRAULIC TRADE MARK

Hydraulic Die Presses

The construction of this press is very rigid because of the manner of securing the rods to the platens. Spacer bars are bolted to the outside of each rod to secure exact alignment of the platens.

The cylinder is lined with copper and the packing is at the bottom of the ram. While it is primarily a die press, it can be used for heating and chilling operations by attaching separate plates to the platens.

Capacity Tons	Size of Platens Inches	Stroke of Ram Inches	Diam. of Ram Inches	Max. Opening Inches	Operating Pressure Lb. Per Sq. In.	Approx. Weight Pounds	Code Word
40	8x12	3	6½	7	2500	650	Dentboil
62	12x12	6	8	8	2500	960	Dentaxim
65	14x14	3	8	3½	2500	1150	Helpnext
70	12x12	3	7½	5¾	3000	830	Halltire
70	15x15	3	8½	3½	2500	1275	Culmhole
75	12x12	6	8	8½	3000	1100	Centreal
*100	12x12	6	7½	24	4500	1000	Combhint
100	12x12	3	7½	7	4500	800	Cartburn
100	12x12	9	7½	18	4500	1200	Aunthelp
135	15x15	3	10	15	3500	2100	Darearms
135	15x20	3	10	6	3500	1900	Gatefort
135	15x15	6	10	30	3500	2800	Culmvoid
135	16x16	3	11¼	5¾	2700	3100	Ironneed

*Materials for this size are carried in stock and early delivery can be made.

The Watson-Stillman Co.
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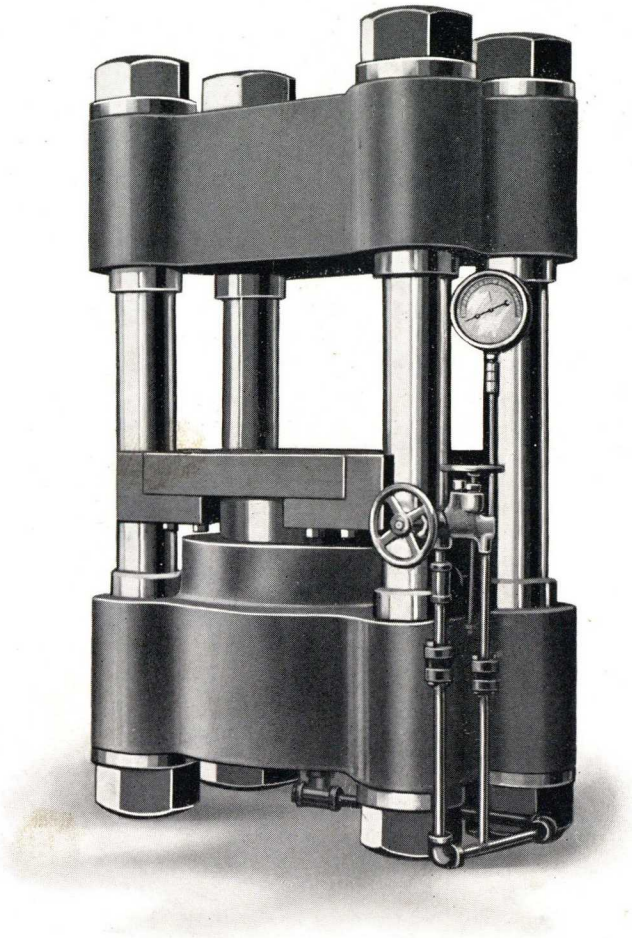
W-S HYDRAULIC TRADE MARK

Hydraulic Die Presses



This is another type of our standard presses designed for die forming, forcing, etc., and by the addition of plates to the platens, adaptable to a wide range of heating and chilling operations. Nothing but the best grade of material is used throughout this press, making it a machine of long service.

Capacity Tons	Size of Platens Inches	Stroke of Ram Inches	Diam. of Ram Inches	Max. Opening Inches	Operating Pressure Lbs. Per Sq. In.	Approx. Weight Pounds	Code Word
150	12x12	6	8	16	6000	1825	Bustcolt
*200	14x14	6	9	18	6300	2300	Bustfelt
200	14x15	6	12	16½	3500	2650	Cartring
300	16x16	6	12	24½	5300	3550	Gentdent
400	18x16	6	14	20½	5200	5000	Boltcoal
500	18x20	6	15	30	5650	6300	Fortgent
600	23x24	6	16	36	6000	9220	Dastburn
800	27x26	6	18½	30	6000	13500	Coneclam
1000	30x30	6	20	22	6350	15700	Dolldoll

*Materials for these presses are in stock and early delivery can be made.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC DIE SINKING PRESSES

BULLETIN B-12

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

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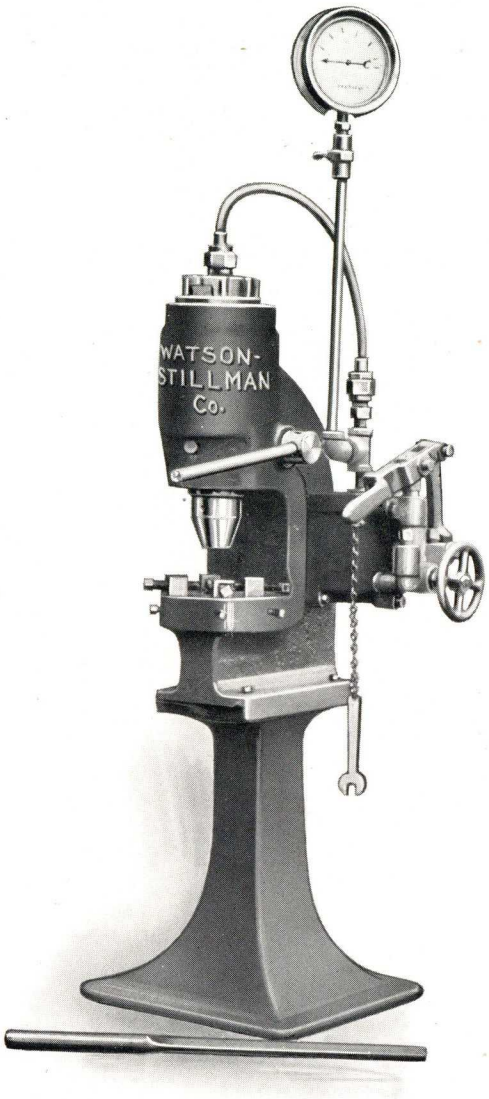
The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Open Jaw Die Sinking Presses



This press is used for making dies for coins, medals, watch backs, etc. It has a single plunger hand pump attached, making it a self-contained unit. The ram is moved up and down through the idle portion of the stroke by a handlever. This makes the operation of the press very rapid because it is necessary to use the pump only after the dies have been brought together.

Capacity Tons	Stroke of Ram Inches	Diam. of Ram Inches	Max. Opening Inches	Operating Pressure Lb. Per Sq. In.	Approx. Weight Pounds	Code Word
75	2	6½	5½	5000	580	Bearpale
100	1½	5	7⅛	10000	600	Coltgolf
125	3¾	5½	7⅛	10000	700	Foalpale

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

Die Sinking Presses

This is our standard four-column die sinking press equipped with self-contained hand pump and reservoir. The face of the ram is a hardened tool steel plate, and directly beneath it, embedded in the bottom platen, is another plate of the same material.

The ram can be moved up and down very rapidly by the hand bar, which slips through the end of the pinion shaft as shown. The pinion meshes with a rack machined into the side of the ram. The pump is used only after the dies have been brought together. The gauge registers the pressure exerted.

Capacity Tons	Size of Platens Inches	Size of Anvil Inches	Stroke of Ram Inches	Diam. of Ram Inches	Max. Opening Inches	Operating Pressure Lb. Per Sq. In.	Approx. Weight Pounds	Code Word
160	12½x12½	5	1¾	7	9	8000	1700	Bestrare

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC BALING PRESSES

BULLETIN B-13

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York

McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Baling Presses

The presses shown in this bulletin are selected from our line as being adaptable to ordinary baling purposes. Where unusual conditions are to be met, we can usually modify or alter one of our standard machines to fill the requirements.

CONSTRUCTION—These presses have cylinders of cast steel with the packing placed at the throat under a gland so that the packing can be renewed when required without taking down the press. The beams are made of structural steel, cast steel or iron, according to the purpose to which the presses are to be put. The strain rods are machinery steel, secured to the beams by heavy nuts.

PUMPS—These presses all require a high pressure pump for their operation; the type to be used depending on the speed of operation and the individual preference as to method of drivé. Specifications of several pumps that will meet all but very unusual conditions are given herewith:

1. Two-plunger belt-driven pump, high and low pressure, with one ¾-inch piston and one 1½-inch piston having a stroke of two inches. This pump has a capacity of 84 cu. in. per min. at 6000 pounds per sq. in., and 420 cu. in. per min. at 1500 pounds per sq. in. With one ⅞-inch piston and one 1¾-inch piston the pump will deliver 114 cu. in. per min. at 5000 pounds per sq. in., and 570 cu. in. per min. at 1250 pounds per sq. in. 2 H. P. required. Code—**AUNTMEREBA.**

2. Four-plunger pump with pistons arranged as above except that there are four plungers instead of two. The delivery is twice that of the two plunger pump at the same pressure per sq. in. 4 H. P. required. Code—**ABADULLBA.**

3. Four-plunger pump, high and low pressure with two ¾-in. pistons and two 1½-in. pistons having a stroke of four inches. This pump has a capacity of 336 cu. in. per min., at 6750 pounds per sq. in., and 1680 cu. in. per min., at 1750 pounds per sq. in. Code—**GOLFHINTCI.** With two ⅞-in. pistons and one ¾-in. pistons, the pump will deliver 456 cu. in. per min. at 5000 pounds per sq. in., and 2280 cu. in. per min. at 1250 pounds per sq. in. 10 H. P. required. Code—**GOLFHINTDK.**

The Watson-Stillman Co.

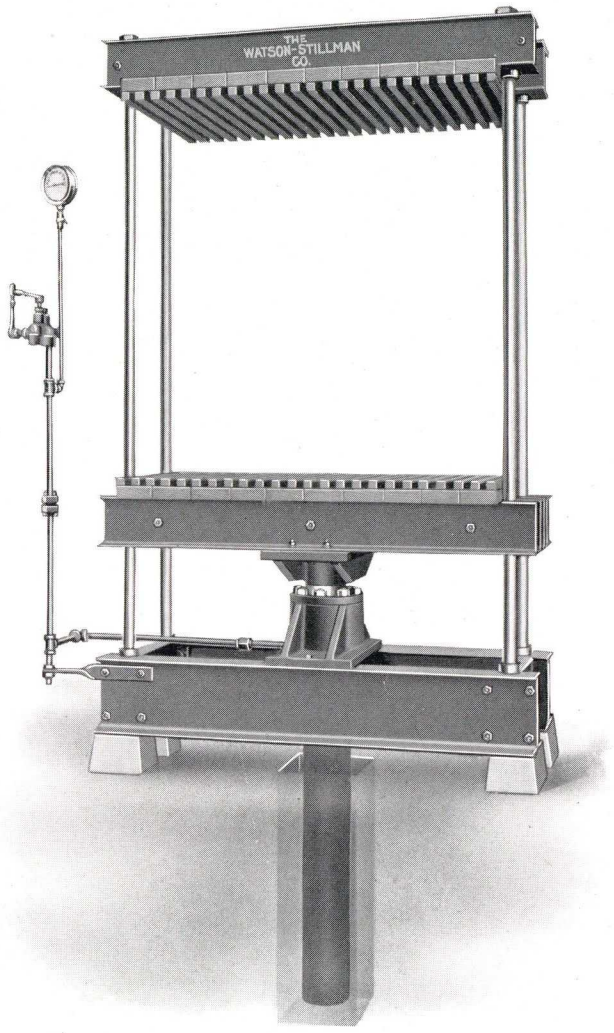
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Baling Presses

Open Type — I Beam Construction

For Baling Dry Goods, Clothing, Bags and Similar Materials.



The construction of these presses is light, rigid, and economical. The frame is made of rolled steel "I" beams and the platens and slats of wood arranged so that tie bands can be inserted. The cylinder is packed from the outside and packing can be renewed without tearing down the press.

Capacity Tons	Platens Inches	Ram Stroke Inches	Ram Diam. Inches	Operating Pressure Lbs.	Opening Inches	Floor Space Inches	Weight Lbs.	Code
50	36x60	48	5	5100	60	36x71	4000	Foalmile
120	36x54	48	7	6400	72	36x66	7000	Cartvail
150	42x54	40	8	6000	60	42x57	8600	Boltdime

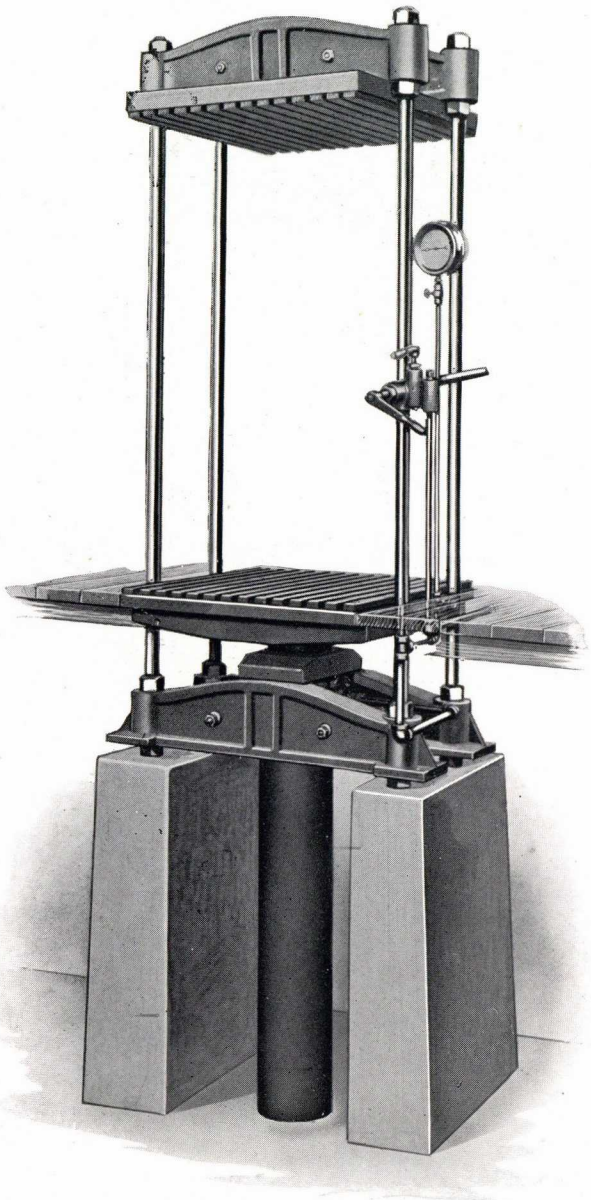
The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Baling Presses

Open Type — Cast Steel Beams

For Baling Dry Goods, Clothing, Bags and Similar Materials.



This press differs from our open type press shown on the preceding page in that the beams are made of cast steel instead of "I" beams which makes a more rigid press. The cylinder is open hearth steel and the ram is solid rolled machinery steel. The illustration shows the method of installing with lower platen even with the floor.

Capacity Tons	Platens Inches	Ram Stroke Inches	Ram Diam. Inches	Operating Pressure Lbs. sq. in.	Opening Inches	Floor Space Inches	Weight Lbs.	Code
80	36 x 42	52	6½	5000	60	48 x 60	6340	Cartname

The Watson-Stillman Co.
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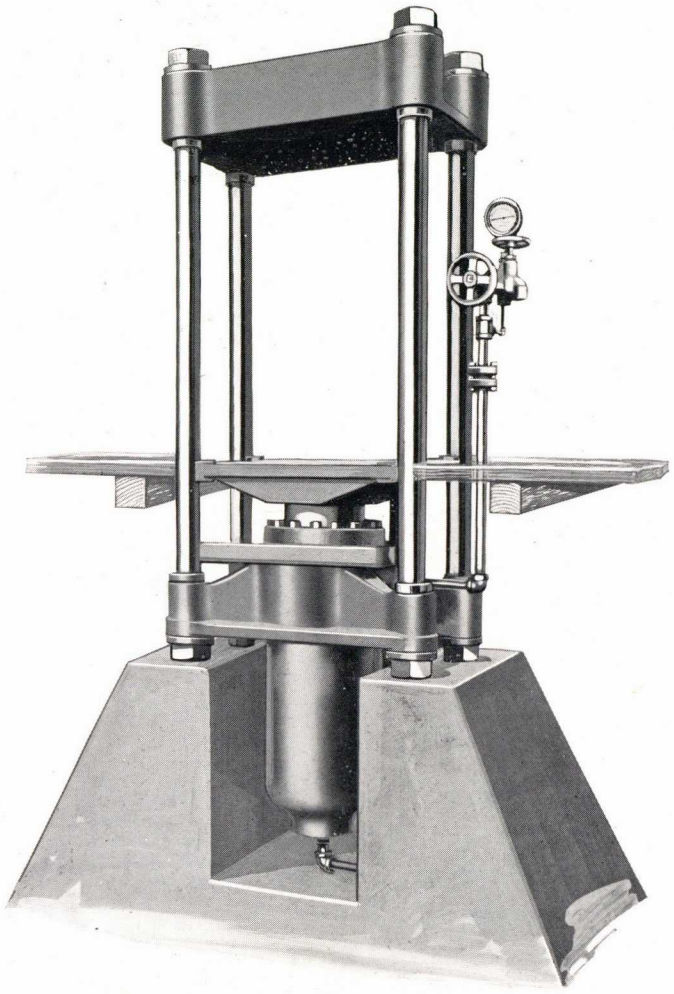
W-S HYDRAULIC TRADE MARK

Hydraulic Baling Presses

Open Type — Solid Cast Platens



This type of press is designed to sustain the stresses of baling materials requiring extra heavy pressures.

The ram is outside packed and the packing is easily accessible for renewal. The presses are built as listed below.

Capacity Tons	Platens Inches	Operating Pressure Lbs. per sq. in.	Ram Inches	Stroke Inches	Opening Inches	Floor Space Inches	O. A. Height above floor line	Code
200	27¾ x 35¼	4200	11	52	58	34 x 58	6′-10 ″	Hurttoll
400	32 x 38	4000	16	36	63	34 x 58	6′- 8¼″	Hurtvail

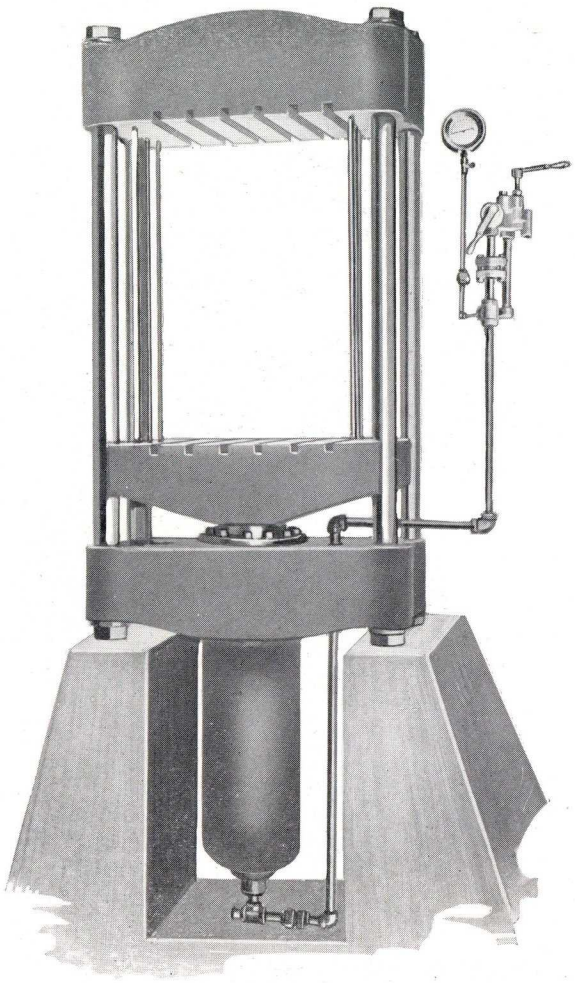
The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Baling Press

Open Type with Guide Rods Cast Iron Platens



This press was originally designed to bale newspapers for export shipment. It is provided with guide rods to prevent the material from bulging while under pressure. There is sufficient room between the guide rods to permit stacking of three piles of half section newspapers, and there is ample space for the insertion of the wrapper or burlap without disturbing the bale. The platens are slotted to allow the insertion of the tie bands. The press will bale 560 lbs. of paper to a cubical content of 13½ cu. ft.

The general sturdy character of this press suggests its application to baling of other materials requiring very heavy pressure.

Capacity Tons	Platens Inches	Opening Inches	Operating Pressure Pounds	Stroke Inches	Ram Diameter Inches	Floor Space Inches	O. A. Height	Code
200	44x22	56	3550	42	12	55x22	12'-4¾"	Lakecase

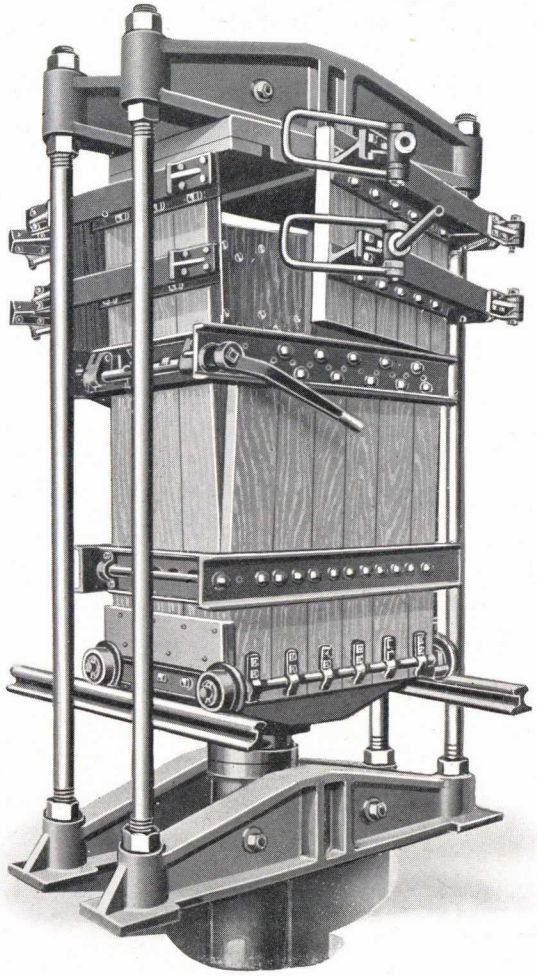
The Watson-Stillman Co.

50 Church St. W-S HYDRAULIC TRADE MARK New York

Hydraulic Baling Presses

Movable Box Type

For Baling Cotton, Jute, Cloth, Cotton Waste, Cork Chips, Excelsior and Other Loose Materials.



This press is equipped with boxes mounted on rollers. In operation the box is filled with the loose material away from the press, and is then rolled into the press directly over the press ram and under the top platen, which then becomes the top of the bale box. Pressure is then applied, and the ram forces the bottom of the box upward, thus compressing the material into the top of the box. The sides of the box are then unlatched and the bale, after tieing, removed. Two boxes are furnished with each press.

Capacity Tons	Stroke of Ram Inches	Diam. of Ram Inches	Oper. Pressure Lbs.	Height From Floor	Depth Below Floor	Size of Box Inches	Weight Lbs.	Code
60	72	6½	3600	9′- 5½″	7′-10″	24x48x90	8650	Hintabed
80	54	6½	5000	6′-11 ″	6′- 4″	20x36x60	6500	Burncent
80	54	6½	5000	7′-11 ″	6′- 4″	20x36x72	6800	Burncenta
80	72	6½	5000	8′-11½″	7′-10″	20x36x84	8900	Girltape

The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

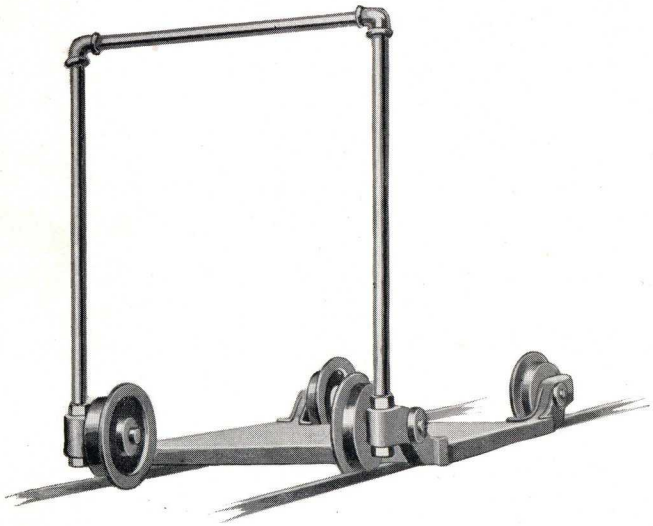
Baling Boxes and Trucks

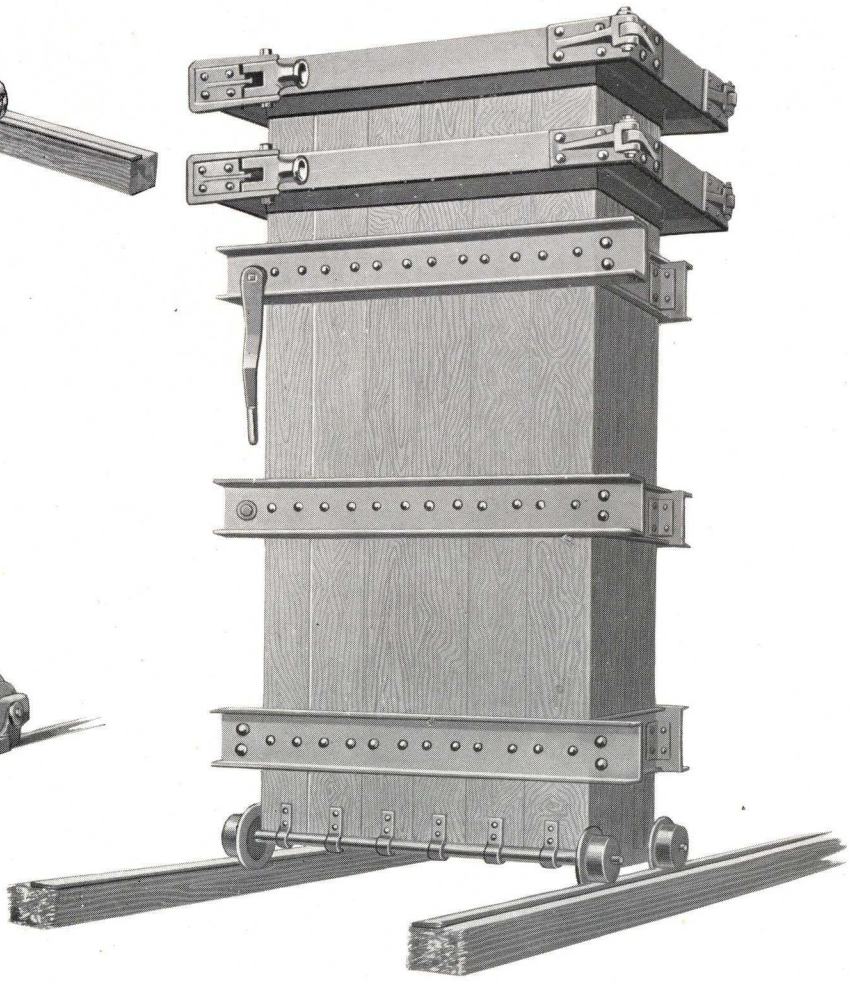
In baling some materials it is necessary to use boxes or trucks, such as are shown here. We have built many such devices and can adapt standard types or design others to suit our customer's requirements.

The purpose of either the truck or box is to permit the loading of the material previous to being placed under compression.

Two units are usually required with each press—one being loaded while the other is in the press under compression.

This method increases materially the speed and output of the press.





The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

PORTABLE HYDRAULIC FORCING PRESSES

BULLETIN B-14

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

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McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Portable Hydraulic Forcing Press

Open Jaw Type

For Forcing Sleeves, Bushings, Mandrels, Broaches, Cylinder Linings and for General Shop Use.

This is a handy type of press for general shop work, the open jaw allowing large or irregular shaped pieces to be placed under the ram.

The main body casting is made of the best grade of open hearth steel. The ram is a steel forging. The pump is mounted in a convenient position near the floor to enable the operator to hold or guide the work while pumping. The ram is rapidly moved up or down by turning the lever in the pinion, which meshes with a rack in the ram. The pump is used only when the ram is resting on the work.

Capacity Tons	Platen Inches	Ram Stroke Inches	Ram to Platen Inches	Ram to Frame Inches	Floor Space Inches	Weight Lbs.	Code
35	24 x 28	8	36	12	28 x 40	1250	Burntire

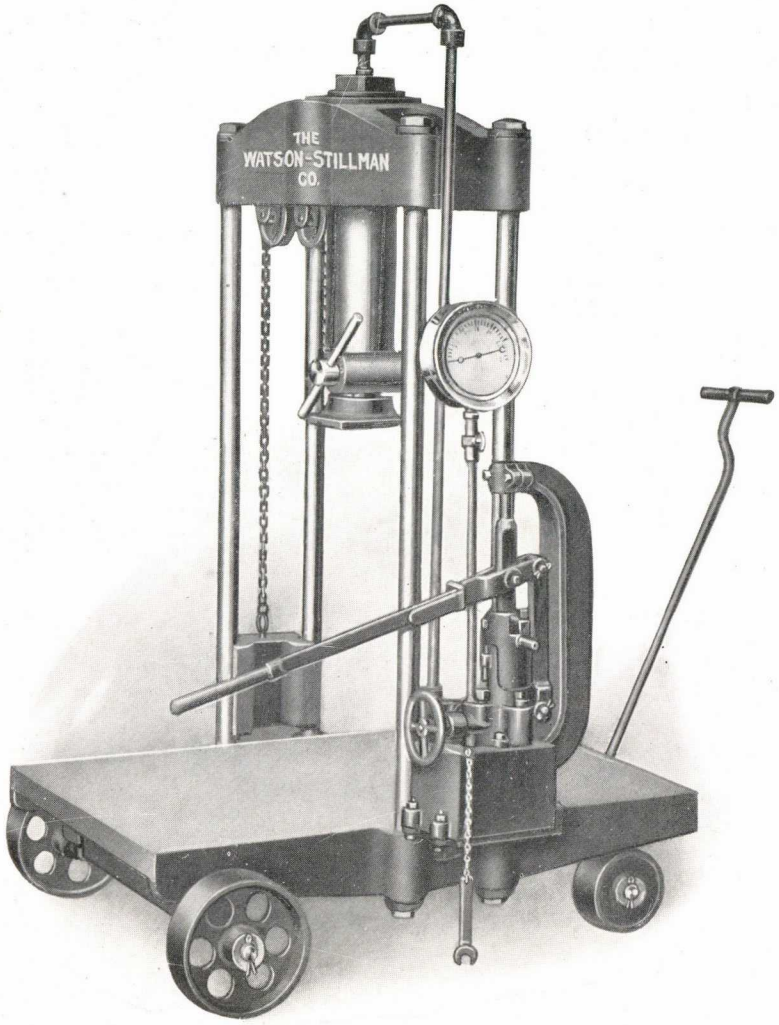
The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Portable Hydraulic Forcing Press

**For Forcing Sleeves, Bushings, Mandrels,
Cylinder Linings, Broaches and
for General Shop Use.**



A double plunger pump giving two speeds and pressures to the ram is mounted so that the operator can conveniently guide the work while pumping. The ram is quickly moved to and from the work by rotating the hand lever on the end of a pinion, meshing with a rack in the ram. The suction and exhaust pipes are large and the ram is counterbalanced so that this movement is made with little effort. The pump therefore need be operated for the high pressure part of the stroke only. The gauge indicates the total pressure in tons that the ram is exerting. There is a hole in the center of the table for projecting shafts, and a plug is provided for filling when a smooth surface is desired.

Capacity Tons	Platen Inches	Ram Stroke Inches	Opening Inches	Ram Cap Inches	Hole in Platens Inches	Floor Space Inches	Weight Lbs.	Code
30	30 x 48	15	18	6 x 6	4	43 x 48	1770	Casefoal
50	30 x 48	15	30	8 x 8	4	48 x 48	3100	Feltbaby

Prices on application.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC FORCING PRESSES

HORIZONTAL TYPE

BULLETIN B-15

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

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Sales Offices

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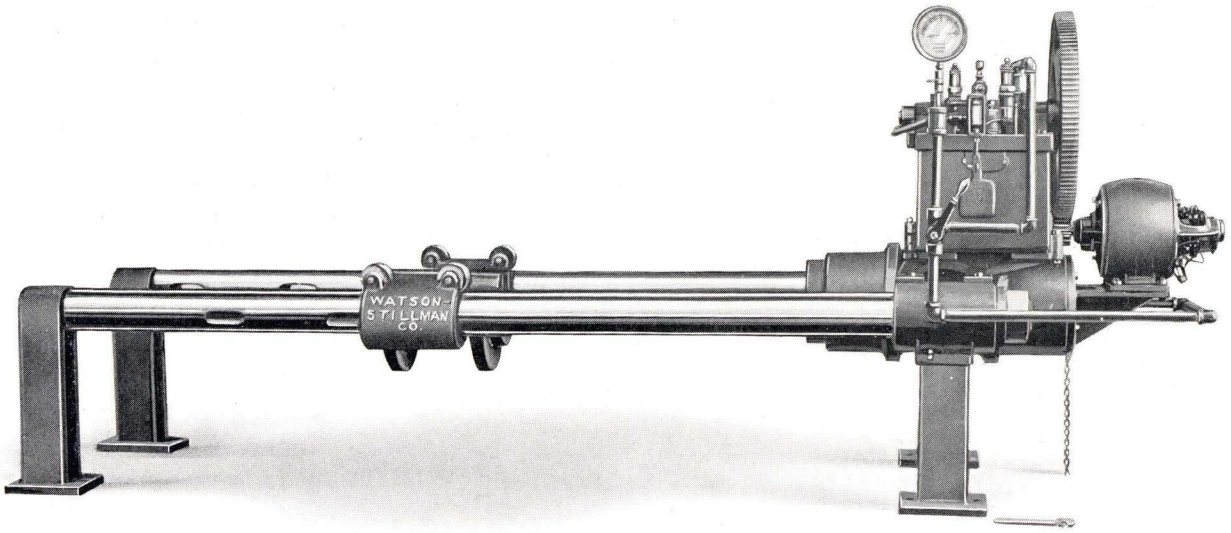
The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

Horizontal Hydraulic Forcing Press

For Forcing Wheels, Pulleys, Gears, Bushings and Armatures On and Off Shafts. For Assembling Machinery and Other Shop Work.



This press is self-contained, compact, and available for instant use. The resistance beam has a gap in its center so that shafts may be lowered by a crane to the cented line of the press, and it is on rollers which makes it easily adjustable. The pump is of our two plunger variable delivery type, giving two pressures and two speeds to the ram. The motor is 3½ H. P.

The illustration shows the 150-ton size with motor and pump mounted on the press, but since it is a separate unit it can be mounted anywhere. This arrangement is possible with all presses of 150 tons or more. The resistance beams can be made either with or without the gap as desired.

Capacity Tons	Between Rods Inches	Ram Stroke Inches	Ram Diam. Inches	Max. Opening Inches	Gap in Beam Inches	Floor Space Inches	Weight Lbs.	Code
60	25	12	5	67	4	45x135	3000	Clamrarea
100	42	18	8	54	5¼	55x123	4500	Burnlane
150	30	18	10	84	5¼	48x144	7200	Feltaxim
200	84	24	10	247	15¼	108x357	21000	Clamtear

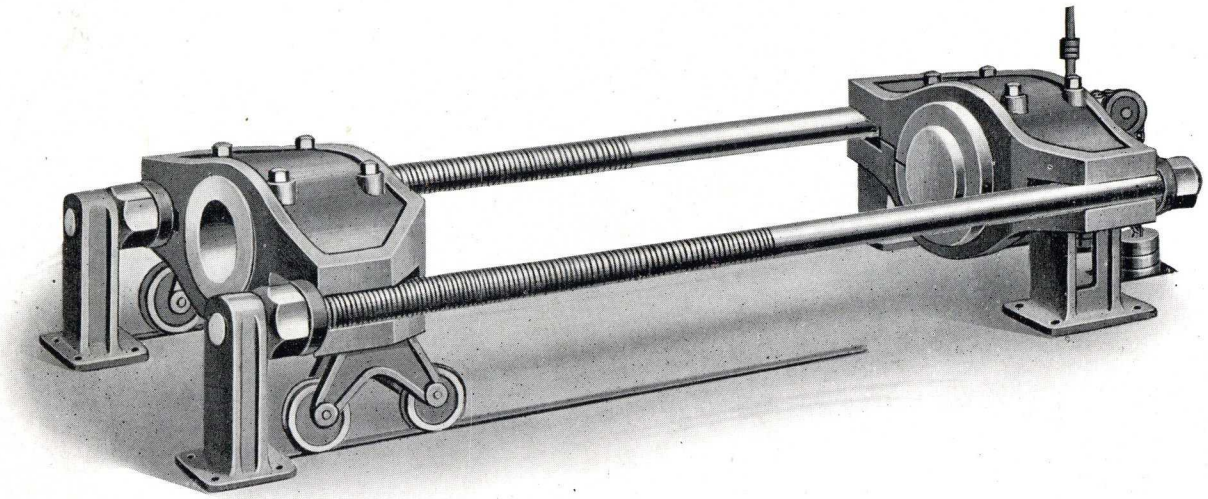
The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Horizontal Hydraulic Forcing Press

With Adjustable Beam

Particularly Adapted to Forcing Journals Into Sugar Rolls and Other Heavy Forcing Work.



This horizontal press is designed to take work of an extra heavy character. The material can be dropped into it from over head crane.

The press has one fixed beam holding the cylinder and ram and one adjustable beam mounted on trucks that run on tracks set in the floor. The rods are threaded for nuts that take the thrust of the adjustable beam. This beam has a hole in its center to accommodate projecting shafts, gears, lugs, etc. Both beams are slotted so that the distance between the tie rods may be varied. The ram is pulled back by the cast iron counterweights.

Hydraulic power is supplied by any of our hand or power driven pumps with or without the use of an accumulator. The speed of operation is proportional to the power of the pump.

The type of valve employed depends upon operating conditions.

Capac. Tons	Rod Space Inches	From Floor Inches	Stroke Inches	Ram Inches	Oper. Pressure Lbs.	Maximum Opening Inches	Floor Space	Weight Lbs.	Code
600	48	24	12	16	6000	72	5′-11″x22′-8″	18900	Coneaunt
1000	54	27	18	20	6350	15′- 0″	6′- 9″x25′-6″	37775	Failhelp
1500	48	27	24	24	6650	7′- 0″	6′- 9″x18′-6″	60000	Lakearid

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC FORCING PRESSES

REVERSED CYLINDER TYPE

FOR

General Use In Electric and
Steam Railroad Shops

BULLETIN B-16 Ed. 3

(May 1, 1922)

The
WATSON-STILLMAN CO.
WORKS AT
ALDENE, UNION COUNTY, N. J.
Sales Offices
50 CHURCH ST., NEW YORK
McCormick Bldg., Chicago
Widener Bldg., Philadelphia

Hydraulic Forcing Presses

Reversed Cylinder Type

ARRANGED FOR BELT OR MOTOR DRIVE

For General Use in Electric and Steam Railroad Shops

The line of presses shown herein cover various types and sizes developed for different railroads to handle primarily the forcing of brasses in and out of journal boxes; but are used also for pressing on and off of gears, bushings, etc.

These presses are all self contained having their own water reservoir, attached 2-plunger pump, single stem operating valve, gauge and the necessary pipe and fittings and can be furnished for motor or belt drive as preferred.

Type 1. Has gap in the lower platen, extension piece at back of lower platen to hold work and a crane for handling work into and out of the press.

Type 2. Has a hole in lower platen and extension pieces at front and back of lower platen to hold work and a crane for handling work into and out of the press.

Type 3. Has a long bed on lower platen which allows its use as a bending press. There is a hole in lower platen and yoke provided for brasses. The crane facilitates the handling of work into and out of press. The ram is moved quickly to and from the work by rotating the hand lever on end of pinion meshing with a rack in the ram. The pump being used for the actual pressure.

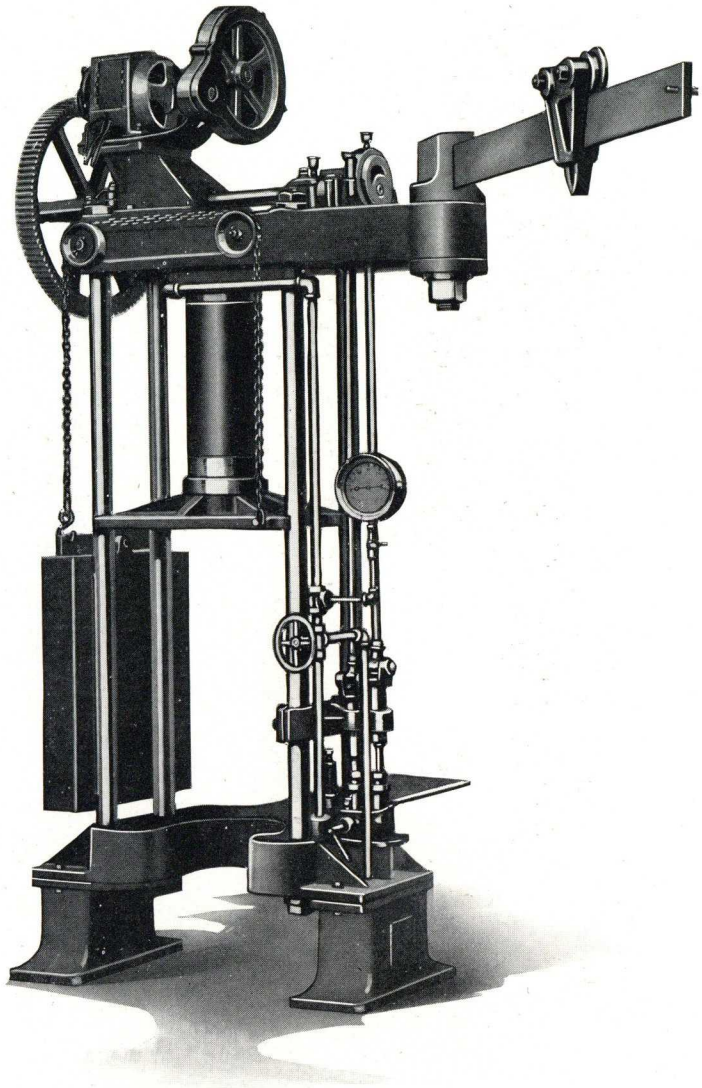
Type 4. Has solid lower platen, no extension pieces and no crane.

Type 5. Shows hydro-pneumatic attachment that can be applied to any of the above presses that have platens 30 in. x 20 in. or larger. The ram is brought down to the work and returned by means of pneumatic pull back cylinders. This does away with the weight pull back and makes this press much quicker acting than the other types.

Hydraulic Forcing Presses

Reversed Cylinder

TYPE 1



Showing press with a gap in lower platen extension piece at back of lower platen to hold work and crane for handling work into and out of press.

Capacity Tons	Platens Inches	Stroke Inches	Opening Inches	H. P. Motor	Gap in Platen Inches	Crane Swing or Floor Space	Weight Lbs.	CODE With Gap In Platen
60	24 x 18	21	42	3	13½	8′– 8″ dia.	5165	Failmule
60	30 x 24	30	50	3	13½	8′–10″ "	7900	Holearms
100	24 x 18	18	36	5	13½	8′–10″ "	7600	Dastbolt
*100	30 x 20	24	48	5	13½	8′–10″ "	8500	Furssurf
100	36 x 24	30	48	5	13½	10′– 8″ "	9725	Hintvoid
125	24 x 18	18	36	5	13½	8′–10″ "	8400	Hintdent
125	30 x 20	18	36	5	15¼	10′–10″ "	8700	Lampsear
125	36 x 24	30	50	5	16	10′–10″ "	11626	Holesore

Opening and Stroke can be altered at small additional expense.

*Materials for this size are carried in stock and early delivery can be made.

Hydraulic Forcing Presses

Reversed Cylinder

TYPE 2

Showing press with a hole in lower platen, extension pieces at front and back of lower platten to hold work and crane for handling work into and out of the press.

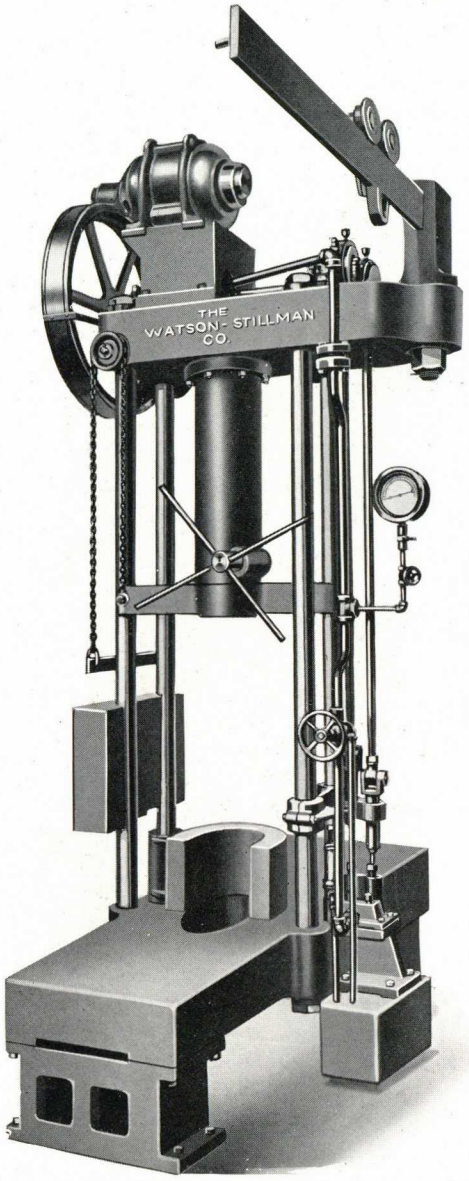
Capacity Tons	Platens Inches	Stroke Inches	Opening Inches	H. P. Motor	Dia. of Hole in Platen Inches	Crane Swing or Floor Space	Weight Lbs.	Code
60	24 x 18	21	42	3	6	8′– 8″ dia.	5165	Failmulex
60	30 x 24	30	50	3	7½	8′–10″ "	7900	Holearmsx
100	24 x 18	18	36	5	6	8′–10″ "	7600	Dastboltx
*100	30 x 20	24	48	5	6	8′–10″ "	8500	Furssurfx
100	36 x 24	30	48	5	6	10′– 8″ "	9725	Hintvoidx
125	24 x 18	18	36	5	6	8′–10″ "	8400	Hintdentx
125	30 x 20	18	36	5	6	10′–10″ "	8700	Lampsearx
125	36 x 24	30	50	5	6	10′–10″ "	11626	Holesorex

Opening and Stroke can be altered at small additional expense.
*Materials for this size are carried in stock and early delivery can be made.

Hydraulic Forcing and Bending Presses

Reversed Cylinder

TYPE 3



Showing press with a long bed on lower platen which allows its use as a bending press. There is also a hole in lower platen and a yoke for brasses. A crane is provided for handling work in and out of press. The ram can be moved quickly to and from the work by the hand wheel shown in illustration.

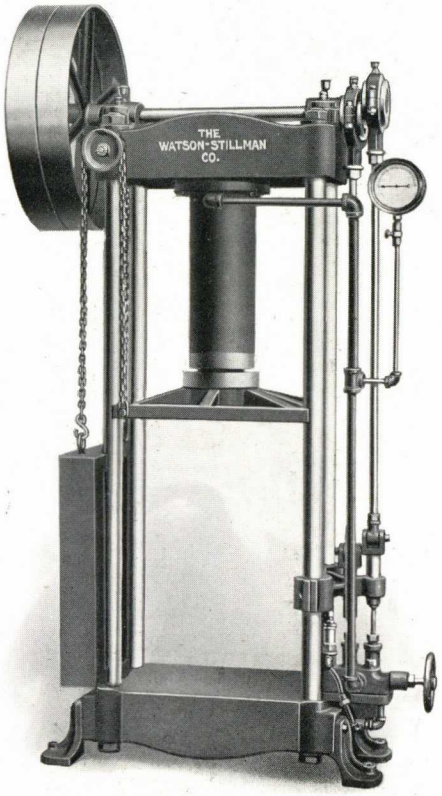
Capacity Tons	Platens Inches	Stroke Inches	Opening Inches	H.P. Motor	Crane Swing or Floor Space	Hole through Platen	Weight Lbs.	Code
75	24 x 72	21	42	5	8′–10″	8″ x 14″	7300	Lastbest
100	30 x 72	24	48	5	10′– 8″	10″ x 14″	8200	Lastlead
125	36 x 72	30	50	5	10′–10″	10″ x 14″	11200	Lastlimb

Prices on application.

Hydraulic Forcing Presses

Reversed Cylinder

TYPE 4



Showing press in its simplest form, with solid lower platen, no extension pieces and no crane.

Capacity Tons	Platens Inches	Ram Stroke Inches	Opening Inches	Pulleys Inches	RPM	Floor Space Inches	Weight Lbs.	Code
30	24 x 18	20	36	30 x 4	100	54 x 30	3600	Hintlimb
60	24 x 18	18	36	30 x 4	100	54 x 30	3900	Daregolf
100	24 x 18	18	36	30 x 4	100	55 x 30	6450	Dimereal

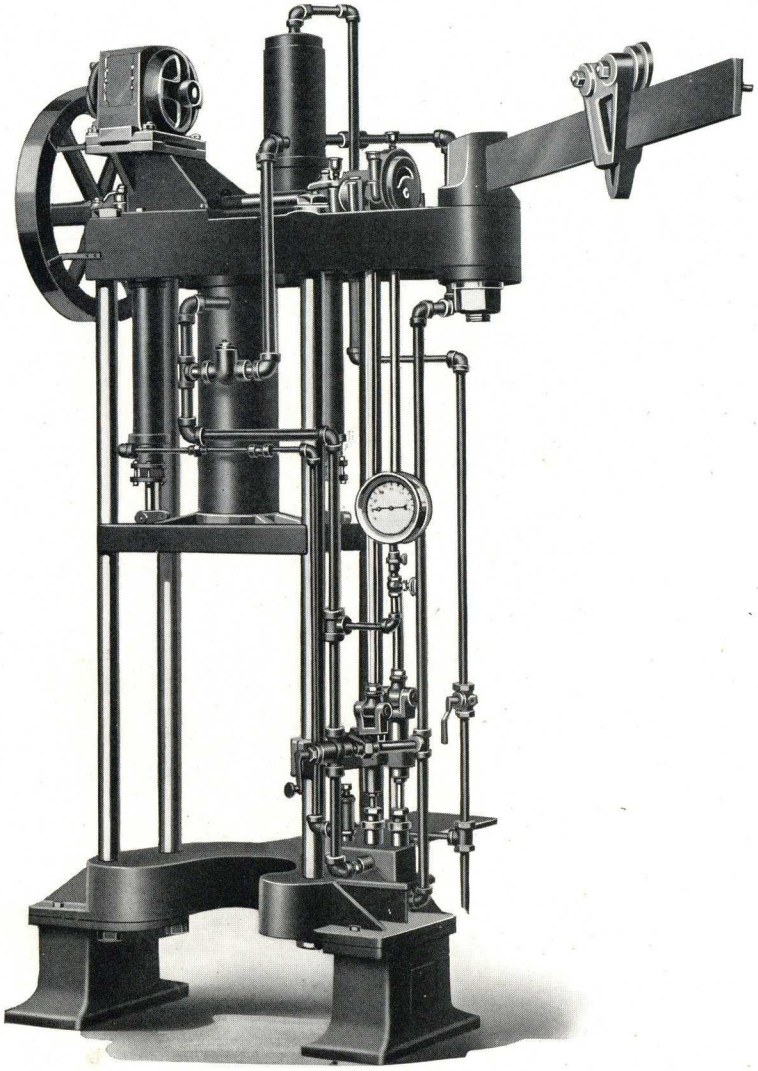
Other sizes to your specifications. Prices on application.

Hydraulic Forcing Presses

Reversed Cylinder

TYPE 5

ARRANGED WITH HYDRO-PNEUMATIC PULL BACK CYLINDERS



Showing hydro-pneumatic attachment that can be applied to any of the presses shown in this bulletin that have platen 30 x 20 or larger. The ram is brought down to the work and returned by means of pneumatic pull back cylinders. This does away with the weight pull back and makes this press much quicker acting than the other types.

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HIGH SPEED HYDRAULIC BROACHING PRESSES

BULLETIN B-17

The WATSON-STILLMAN CO.

MAIN OFFICE AND WORKS

ALDENE, UNION COUNTY N. J.

Sales Offices

50 Church St. New York — McCormick Bldg. Chicago, Ill.

The Watson-Stillman Co.
50 Church St. New York
W-S HYDRAULIC TRADE MARK

High Speed Broaching Press

The hydraulic press shown herewith is designed in power, capacity and size to suit the large percentage of broaching work requiring accuracy in the finishing of round, square or irregular holes of medium size.

The press is arranged with either a 7½ or 15 Horse Power motor, whichever the speed of operation necessitates, and the construction is rigid throughout.

The platens are cast steel; the moving platen, connected to the ram, is guided on the rods to secure absolute alignment of broach with the work. The press cylinder is of machinery steel.

The operation of the press is controlled by a single lever valve. The pressure is exerted by moving a lever downward, and is released by moving a lever upward. A safety valve is attached between the pump and press, and can be set to release at any desired pressure, at which point the water is by-passed into the pump tank through a free opening in the valve, and water does not enter the press system again until the operating lever is moved either up or down.

This system prevents any overload, and obviates any shifting of belts while in operation.

The advantages of the hydraulic, over the horizontal geared press are—

1st: More uniform and greater speed of operation.

2nd: The use of shorter and cheaper broaches, with consequent decrease in replacement broach charges.

3rd: Less floor space required.

4th: Absolute control of pressure required on the work, and the absolute control of pressure by means of the gauge readings and safety valve.

5th: The small number of moving parts, and the absence of gear thrust bearing troubles.

The standard equipment consists of Press, Pump, Operating Valve, Safety Valve, and Pipe and Fittings to connect the units shown in the cut.

If necessary, special arrangements can be made to allow the placing of the pump any distance from the press that restricted floor space may require.

The Watson-Stillman Co.

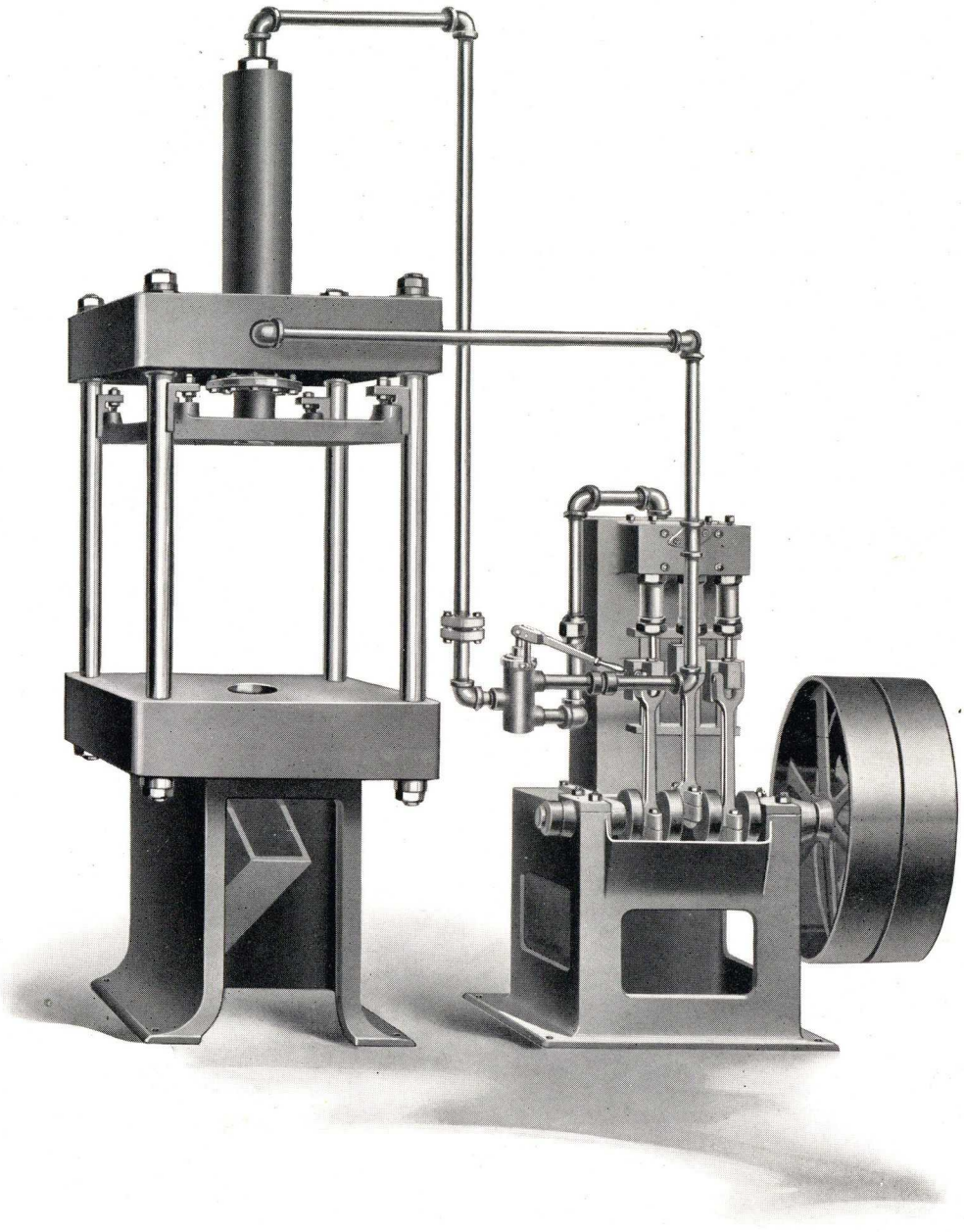
50 Church St. New York

W-S HYDRAULIC TRADE MARK

Hydraulic Broaching Presses

With Three Plunger Pump

For Positive, Rapid, Accurate Broaching This Press Has No Equal.



Capacity Tons	Size of Platens Inches	Stroke of Ram Inches	Opening Inches	Full Strokes per Min.	Size of Pulley Inches	R. P. M. of Pulley	Max. H. P. Required	Floor Space Inches	Height Inches	Weight Pounds	Code
20	24x24	20	30	2	36x6	100	7½	41x85	107	3600	Lakepour
20	24x24	20	30	4	48x8	100	15	48x96	110	4200	Lakepoura

The Watson-Stillman Co.
50 Church St. New York

W-S HYDRAULIC TRADE MARK

BULLETIN B-18

Small Hydraulic Press

This press, designed for making compression tests on rectangular or cylindrical specimen blocks of concrete and other building material, has also been found useful for other laboratory work and for press fitting of small parts, bending, straightening, etc. It will withstand severe service and is ideal for small work requiring high pressures.

The convenient size permits this press to be mounted on a light truck and hauled from place to place. The handle shown will operate the pump easily where only light pressures are required, and by applying an extension lever the press will develop a pressure of 30 tons. The ram is moved up and down through the idle portion of the stroke by the hand levers shown at either side of press. This increases the rapidity of operation by reducing the use of the pump to a minimum. The base is 12 by 16 inches, and the height of the press over all is 27 inches.

Capacity Tons	Size of Platens Inches	Stroke of Ram Inches	Diam. of Ram Inches	Max. Opening Inches	Approx. Weight Pounds	Code Word
30	8x8	4	3½	8	425	Faillint

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC STRAIGHTENING PRESSES

For Straightening Crank Shafts, Cam Shafts,
Automobile Front Axles, Etc.

BULLETIN B-19

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.

Sales Offices
50 Church St. New York
McCormick Bldg. Chicago, Ill.

Hydraulic Straightening Presses

The press shown herewith was designed to be used primarily for straightening cam shafts, crank shafts and automobile front axles.

It is a self contained unit requiring no auxiliary water or power supply, but is driven by a motor like any lathe or machine tool. It is quick acting and under absolute control of the operator both as to speed and pressure, by means of a hand or foot operated valve. The pump is so arranged that the movement of the press ram through the low pressure portion of its stroke is very rapid and the change to high pressure for the actual straightening operation is effected automatically. A feature of unusual importance is that the whole table can be removed, thus leaving an open jaw forcing press of almost universal use for such operations as mandrel forcing, broaching, force fitting and assembling.

The whole unit is built in a substantial manner, with all working parts under easily removable dirt proof guards. The frame is a steel casting with the cylinder copper lined and the ram is made of high carbon steel. The base is cast iron and serves as a reservoir for the pump. The pump body is bronze and the plungers are hardened tool steel packed with hemp under bronze glands, which are easily accessible. The pump valves are made of Monel Metal and of the metallic seated type.

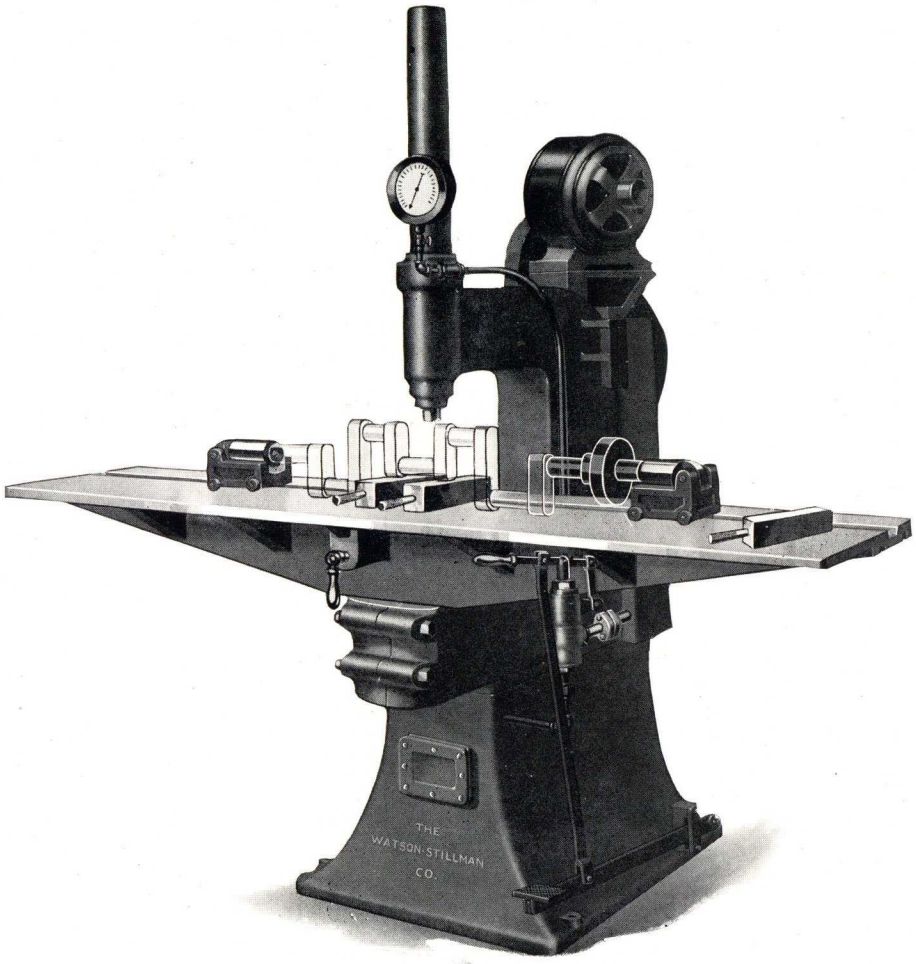
Two centers are supplied which are adjustable for different lengths of work and can be locked in any position on the table by the lever shown on the front. These centers are of the spring type making it unnecessary to remove the work from them during the straightening operation.

Hydraulic pressure is used only for the pressure or downward motion of the ram, the return is accomplished by a spring.

The illustration shows the press with a high speed motor with compound gearing to pump shaft, which runs at 150 R. P. M. A slow speed motor can be used geared with single reduction to the crank shaft.

Hydraulic Straightening Press

For Positive, Quick Acting, and Easy Operation
This Press Has No Equal.



Pressure Tons	RAM Dia. Inches	RAM Stroke Inches	Gap Inches	SPEED OF RAM Inches per Min. Low Press.	SPEED OF RAM Inches per Min. High Press.	TABLE From Floor Inches	TABLE Length Inches	End of Ram to Table Inches	Motor H. P.	Weight Pounds Without Motor	Code
30	4½	6	10	120	28	42	72	10	5	3100	Lampdare

The Watson-Stillman Co.

50 Church St. New York

W-S HYDRAULIC TRADE MARK

HYDRAULIC PUMPS

HORIZONTAL TYPE

BELT OR MOTOR DRIVE

FOR

HIGH PRESSURE PURPOSES

BULLETIN B-20

The
WATSON-STILLMAN CO.
MAIN OFFICE AND WORKS
ALDENE, UNION COUNTY N. J.
Sales Offices
50 Church St. New York McCormick Bldg. Chicago, Ill.

High Pressure Hydraulic Pumps

The pump is the source of power for all hydraulic tools and is therefore of first importance to the satisfactory operation of such machinery. It is just as uneconomical to operate a press with a cheaply built or poorly designed pump as to run a steam engine with a leaky or defective boiler.

We have been building hydraulic pumps for all pressures up to 12,000 lbs. per sq. in. since 1848. This long experience has taught us the theory and practice of the best construction. Every piece of material put into our pumps is of the highest grade procurable, the parts are heavy, the bearing surfaces are large, the oiling system is ample and practical, the valves and packings are in accessible positions, so that repairs and upkeep of these vital parts can be made at the least possible expense and delay. A judicious use of cast iron, cast steel, tool steel, steel forgings, brass and bronze is made in the construction of these pump parts.

The general design is such that these pumps can be made in several different styles to suit operating conditions. The characteristic of style is obtained by special arrangement of the piping, valves or plungers.

TWO PLUNGER PUMPS

Style 1. To operate one press with one pressure without an accumulator. (All plungers same diameter. One discharge line.)

Style 2. To operate one press with variable pressure without an accumulator. (Plungers of different diameters. Automatic cutout on low pressure plunger. One discharge line.)

Style 3. To operate two presses with the same or different pressures, without an accumulator. (Plungers of the same or different diameters. Discharge line for each cylinder.)

Style 4. To operate one or more presses with one pressure and one accumulator. (All plungers of the same diameter. One discharge line. Automatic by-pass.)

FOUR PLUNGER PUMPS

Style 1. To operate one press with one pressure without an accumulator. (All plungers same diameter. One discharge line.)

Style 2. To operate one press with variable pressure without an accumulator. (Plungers in pairs of different diameters; automatic cutout on low pressure plungers. One discharge line.)

Style 3. To operate two presses with the same or different pressures without an accumulator. (Plungers in pairs of same or different diameters; two discharge lines.)

Style 4. To operate one or more presses with one pressure and one accumulator. (All plungers same diameter; one discharge line; automatic by-pass.)

Style 5. To operate one or more presses with two different pressures and two accumulators. (Plungers in pairs of different diameters; separate discharge lines and automatic by-pass for each pair.)

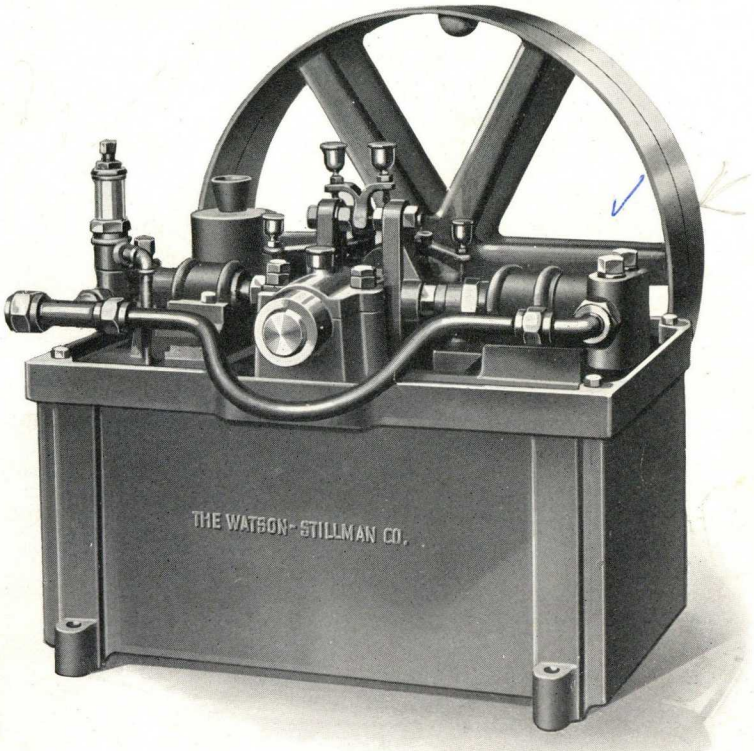
Style 6. To operate one press with two different pressures and one accumulator (Plungers in pairs of different diameters. Automatic cutout on low pressure pair and automatic by-pass on high pressure pair. One discharge line.)

The power required to drive an hydraulic pump is approximately 3/5 horsepower per gal. per 1,000 lbs. per sq. in. or 2½ horsepower per 1,000 cu. in. per 1,000 lbs. per sq. in. with no allowance for friction.

Inquiries should clearly state the pressures, deliveries and functions required of the pump and the manner in which it will be driven.

Horizontal Two Plunger Pump

Three Horse Power — Belt Drive



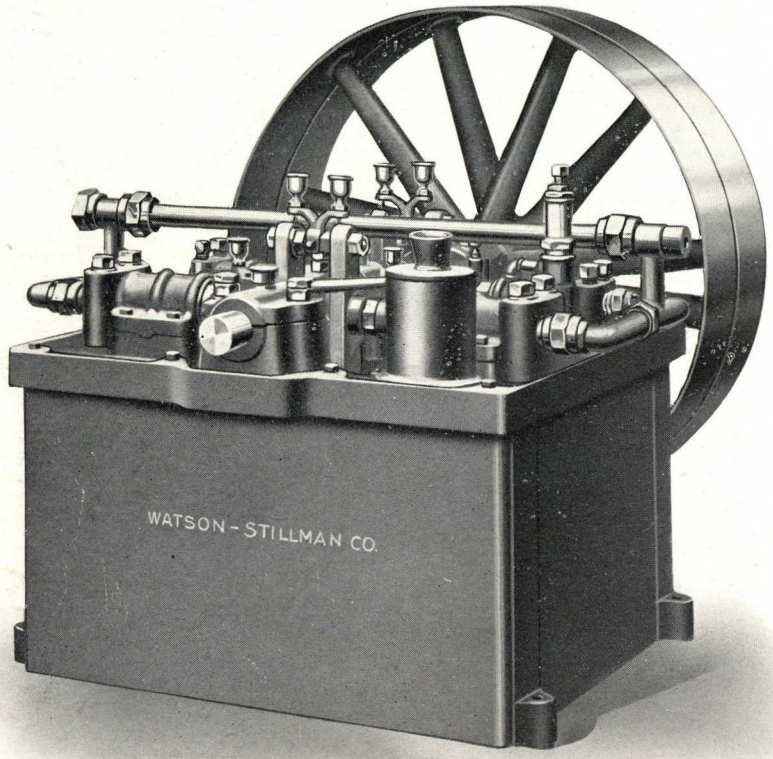
This is a horizontal pump with single throw crank shaft and two opposed cylinders. Compactness is obtained by use of a yoke in the place of connecting rods. All valves, bonnets, oil cups and bearings are easily accessible. The bearings are babbitted and the wearing surfaces are adjustable. The crank is a steel forging, the glands are brass, the chambers are hydraulic metal, and the plungers are bronze or hardened tool steel, depending upon the conditions under which the pump must operate. The plungers are packed with fibre. The base is a reservoir of sufficient capacity for service ordinarily required of the pump. Safety valves are furnished where necessary and strainers are placed on all pumps of this type.

All sizes and styles can be arranged for belt or direct motor drive. Size of pulleys, 30x4 in.; r. p. m. of pulleys, 100; size of reservoir, 30x18x15 in.; floor space, 32x34 in.

Pressure, Lbs. Per Sq. In.	Delivery Cu. In. Per Min.	Plungers Diameter Inches	Plungers Stroke Inches	Discharge Pipe, In.	Weight Lbs.	CODE
6000	170	¾	2	¾	1100	Auntmereaa
4400	230	⅞	2	¾	1105	Auntmereab
3360	295	1	2	¾	1110	Auntmereac
2650	375	1⅛	2	¾	1120	Auntmeread
2150	465	1¼	2	¾	1130	Auntmereae
1780	565	1⅜	2	¾	1140	Auntmereaf
1500	670	1½	2	¾	1150	Auntmereag
1250	785	1⅝	2	1	1160	Auntmereah
1100	915	1¾	2	1	1170	Auntmereai
840	1190	2	2	1	1180	Auntmereaj
660	1510	2¼	2	1¼	1190	Auntmereak
540	1865	2½	2	1¼	1200	Auntmereal
440	2265	2¾	2	1¼	1210	Auntmeream
350	2685	3	2	1¼	1220	Auntmerean

Horizontal Four Plunger Pump

6 Horse Power — Belt Drive



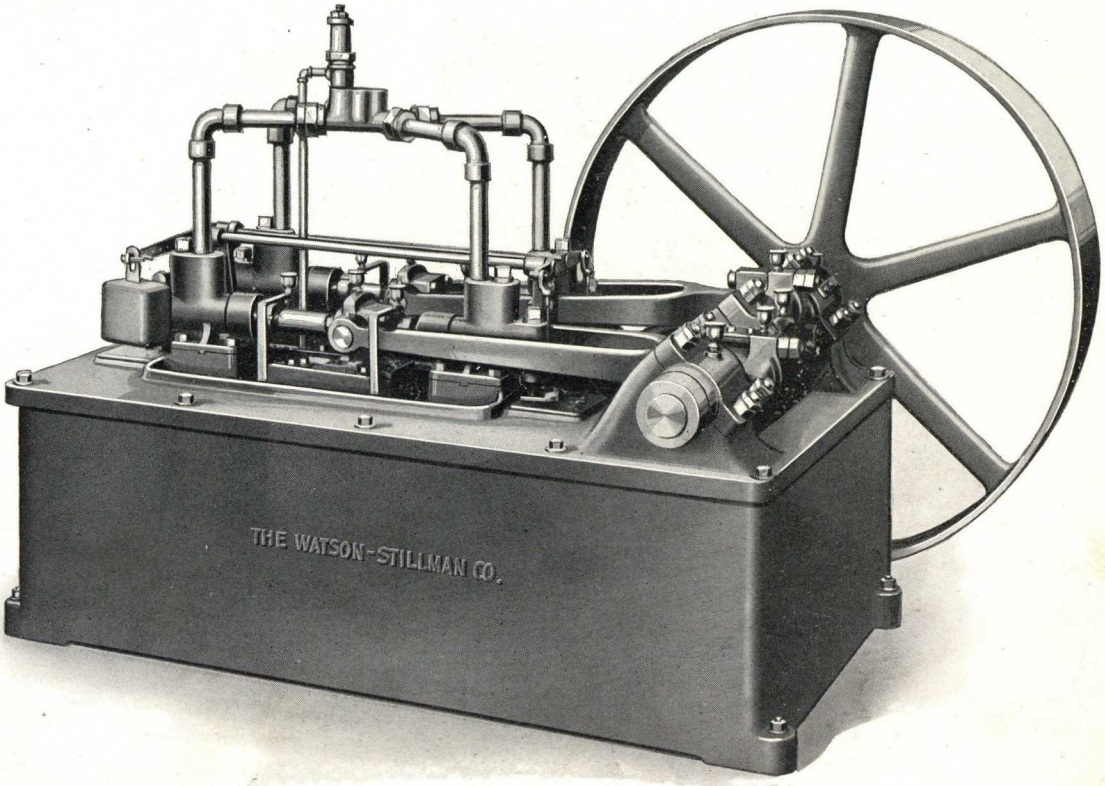
This is a horizontal pump with double throw crank shaft and four opposed cylinders. Compactness is obtained by the use of yokes in place of connecting rods. All valve bonnets, oil cups, and bearings are visible and easily accessible. The bearings are babbitted and the wearing surfaces are adjustable. The crank shaft is a steel forging, the glands are brass, the chambers are hydraulic metal, and the plungers are bronze or hardened tool steel, depending upon the conditions under which the pump must operate. The plungers are packed with fibre. The base forms a reservoir containing sufficient liquid for any service ordinarily required of the pump. Safety valves are furnished where necessary and strainers are placed on all pumps of this type.

All sizes and styles can be arranged for either belt or direct motor drive. Size of pulleys, 36x6 in.; r. p. m. of pulleys, 100; size of reservoir, 31x28x17 in.; stroke of plungers, 2 in.; floor space, 36x42 in.

Pressure, Lbs. Per Sq. In.	Delivery Cu. In. Per Min.	Plungers Inches Diameter	Pipe Conn. Inches	Weight Lbs.	CODE
6000	335	¾	¾	1320	Abeddullaa
4400	455	⅞	¾	1320	Abeddullab
3360	595	1	1	1325	Abeddullac
2650	755	1⅛	1	1330	Abeddullad
2150	930	1¼	1	1335	Abeddullae
1780	1130	1⅜	1¼	1340	Abeddullaf
1500	1340	1½	1¼	1345	Abeddullag
1250	1575	1⅝	1¼	1350	Abeddullah
1000	1825	1¾	1¼	1355	Abeddulai
840	2385	2	1¼	1360	Abeddullaj
660	3020	2¼	1¼	1365	Abeddullak
540	3730	2½	1¼	1380	Abeddulal
440	4530	2¾	1¼	1375	Abeddullam
350	5370	3	1¼	1370	Abeddullan

Horizontal Four Plunger Pump

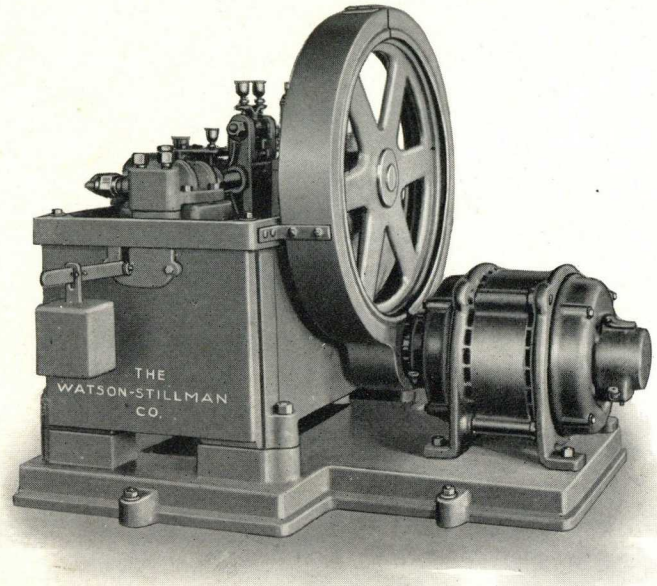
15 Horse Power — Belt Drive



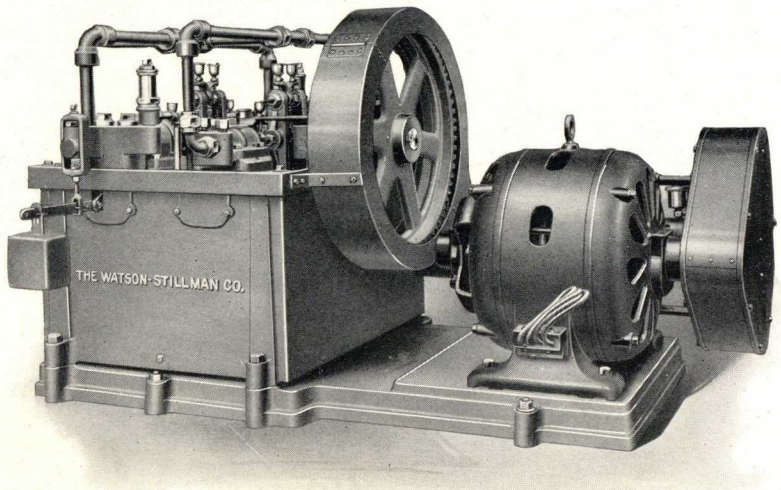
This is a horizontal four plunger pump of the connecting rod type. The chambers are opposed in pairs, with the plungers secured to the crossheads moving between the chambers; the crossheads are pinned to the forks of the connecting rod which straddle the inner chambers. Steel forgings, bronze or steel castings are used for the chambers and bronze or hardened tool steel for the plungers, depending upon the conditions of operation. The plungers are packed with fibre. The base forms a reservoir containing sufficient liquid for any service ordinarily required of the pump. Safety valves are supplied when necessary. All the bearings are adjustable and have individual oil cups. The crank shaft is a steel forging with two throws and 3 in. diameter pins.

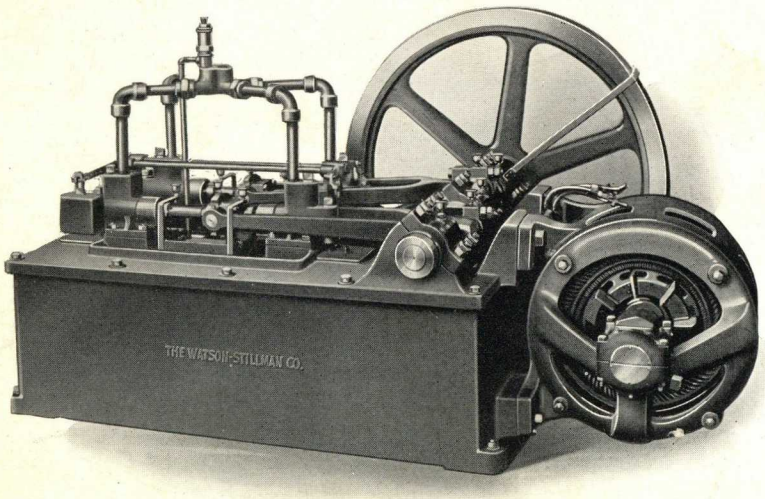
Size of pulley, 48x8 in.; r. p. m. of pulley, 100; size of reservoir, 64x36x20 in.; stroke of plunger, 4 in.; floor space, 4′-6″x7′-0″.

Pressure, Lbs. Per Sq. In.	Delivery Per Min. Cu. In.	Plungers Dia. In.	Pipe Conn. In.	Weight Lbs.	CODE
12000	375	9/16	½	3300	Golfhint
9750	465	5/8	½	3350	Golfhinta
8000	565	11/16	½	3400	Golfhintb
6750	670	¾	½	3450	Golfhintc
5000	915	⅞	½	3500	Golfhintd
3800	1195	1	¾	3550	Golfhinte
3000	1510	1⅛	¾	3600	Golfhintf
2430	1860	1¼	¾	3650	Golfhintg
2000	2255	1⅜	¾	3700	Golfhinth
1700	2685	1½	1	3750	Golfhinti
1440	3150	1⅝	1	3800	Golfhintj
1240	3655	1¾	1	3850	Golfhintk
1180	4195	1⅞	1	3900	Golfhintl
950	4775	2	1	3950	Golfhintm
750	6045	2¼	1	4000	Golfhintn
600	7460	2½	1¼	4050	Golfhinto
500	9025	2¾	1¼	4100	Golfhintp



These cuts represent the manner in which all types of our horizontal pumps can be arranged for motor drive. If the customer supplies his own motor, we can furnish the sub-base, gear, pinion and guards, if we are provided with motor prints and specifications. High speed motors can be used with back gearing, but for direct connection the speed should not be over 720 r. p. m.

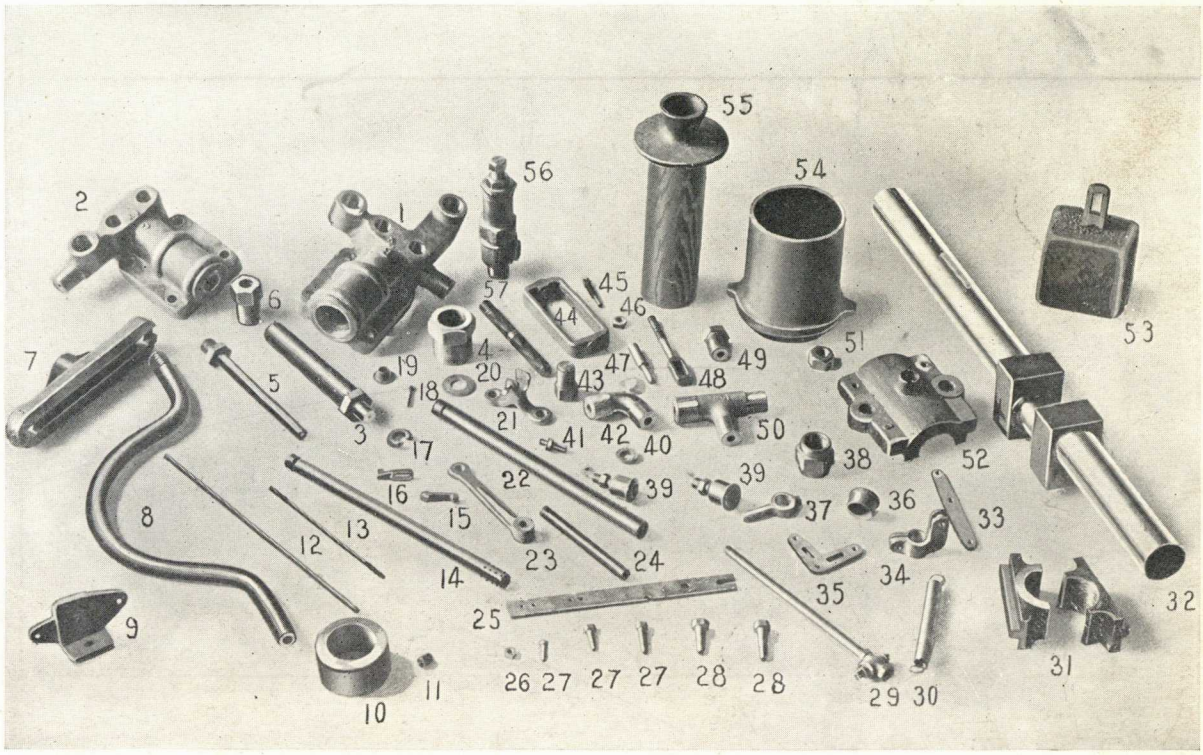




Parts of Two Plunger Belt Pump

Crosshead Type

(Illustrated on page three)

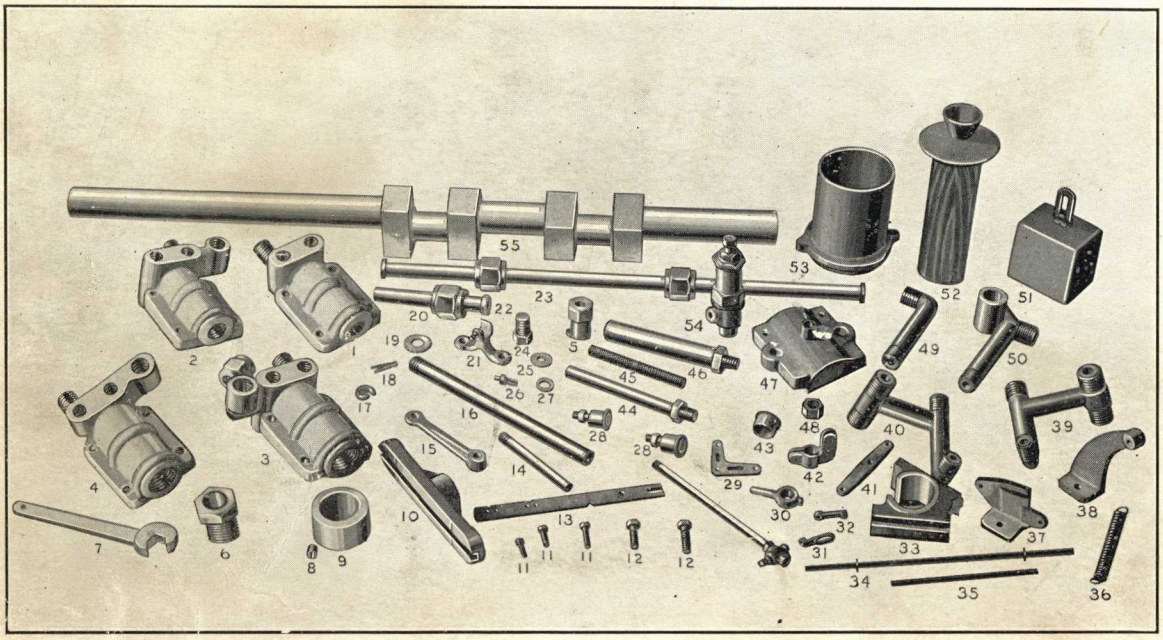


1. Low Pressure Pump Chamber
2. High Pressure Pump Chamber
3. Low Pressure Piston
   (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
5. High Pressure Piston
   (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
4. Low Pressure Gland
   (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
6. High Pressure Gland
   (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
7. Crosshead Slide
8. Across Connecting Pipe
9. Automatic Cut-out Trip Bracket
10. Shaft Collar
11. Shaft Collar Set Screw
12. Automatic Trip—Long Wire
13. Automatic Trip—Short Wire
14. High Pressure Suction Pipe
15. Trip Wire—Lower Head
16. Short-trip Wire—Slotted Head
17. Hemp Packing
18. Split Pin for No. 25
19. Flange Packing
20. Crosshead Washer
21. Crosshead Oiler Bracket
22. Low Pressure Suction Pipe
23. Piston Oiler Bracket
24. Safety Valve Overflow Long Nipple
25. Automatic Release Counterweight Lever
26. Nut
27. Tap Bolts for Nos. 1 and 2
28. Tap Bolts for Tank
29. Drip Pipe (not shown in cut of pump)
30. Automatic Trip Spring
31. Crank Brasses
32. Crank Shaft
33. Lower Trip Lever
34. Trip Clamp Bracket
35. Trip Bell Crank
36. Crank Cap Oil Cup Cover
37. Trip Spring Bracket
38. Brass Coupling for Connecting Nipple Screws on No. 50
39. Oil Cup
40. Leather Washer
41. Valve
42. Brass Elbows for Across Pipe
43. Valve Bonnet
44. Automatic Trip Yoke
45. Automatic Trip Piston Adjusting Screw
46. Nut for No. 45
47. Automatic Trip Piston
48. Automatic Trip Link
49. Gland for Trip Piston
50. Bronze Tee for Across Pipe
51. Nut for No. 57
52. Crank Shaft Bearing Cap
53. Counterweight for No. 25
54. Strainer Case
55. Strainer
56. Safety Valve
57. Crosshead Bolts or Separators

Parts of Four Plunger Belt Pump

Crosshead Type

(Illustrated on page four)



1. High Pressure Pump Chamber
2. High Pressure Pump Chamber (With safety valve connection)
3. Low Pressure Pump Chamber
4. Low Pressure Pump Chamber (With safety valve connection)
5. High Pressure Piston Gland
6. Low Pressure Piston Gland
7. Bonnet Wrench
8. Crank Shaft Collar Set Screw
9. Crank Shaft Collar
10. Crosshead Slide
11. Tap Bolts for Nos. 1 to 4
12. Tap Bolts for Tank Cover
13. Automatic Trip Counterweight Lever
14. Safety Valve Overflow Nipple
15. Piston Oiler Bracket
16. Low Pressure Suction Pipe
17. Hemp Packing
18. Split Pin
19. Washer for Crosshead Bolt
20. Coupling for Connecting Pipe
21. Crosshead Oiler Bracket
22. Collar Nipple or Coupling Pipe
23. Across Connecting Pipe and Coupling
24. Valve Bonnet
25. Piston Packing Washer
26. Valve
27. Washer
28. Oil Cup
29. Trip Bell Crank Lever
30. Trip Spring Bracket
31. Trip Spring Upper Head
32. Trip Spring Lower Head
33. Crank Brasses
34. Across Trip Wire
35. Trip Wire
36. Trip Spring
37. Trip Bracket
38. Long Trip Bracket
39. Connection Arms
40. Connection Arms
41. Automatic Lower Trip Lever
42. Automatic Trip Clamp Bracket
43. Crank Bearing Oil Cup Cover
44. High Pressure Piston (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
45. Crosshead Bolt or Separator
46. Low Pressure Piston (Sizes ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3 in.)
47. Crank Shaft Bearing Cap
48. Nut for No. 45
49. Connecting Elbow
50. Automatic Trip Connecting Elbow
51. Weight for Automatic Trip
52. Strainer
53. Strainer Case
54. Safety Valve
55. Crank Shaft