

Sept. 15, 1936.

B. J. PIERSON

2,054,443

LEATHER WORKING MACHINE

Filed May 23, 1935

5 Sheets-Sheet 1

Fig. 1.

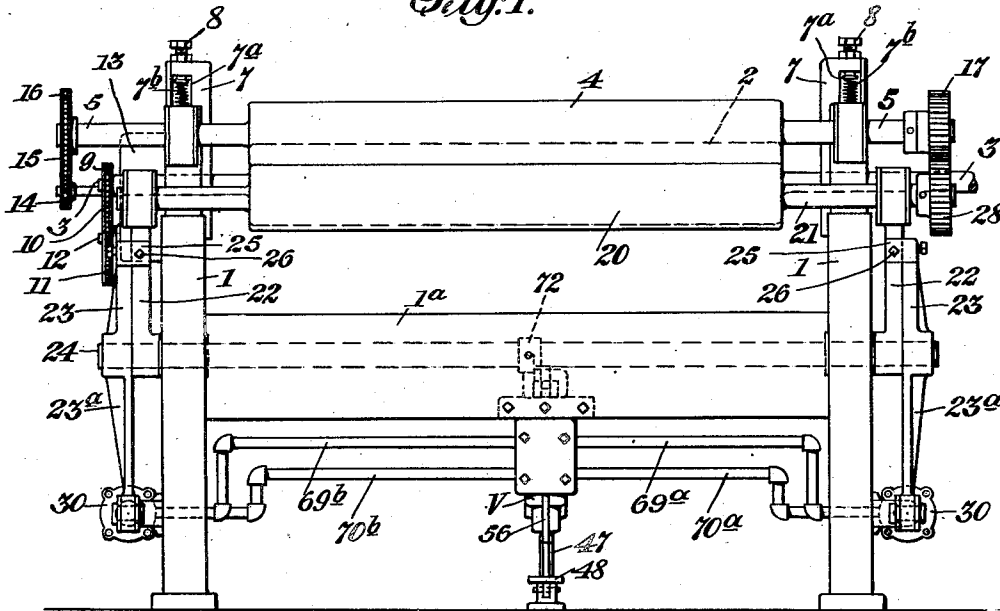
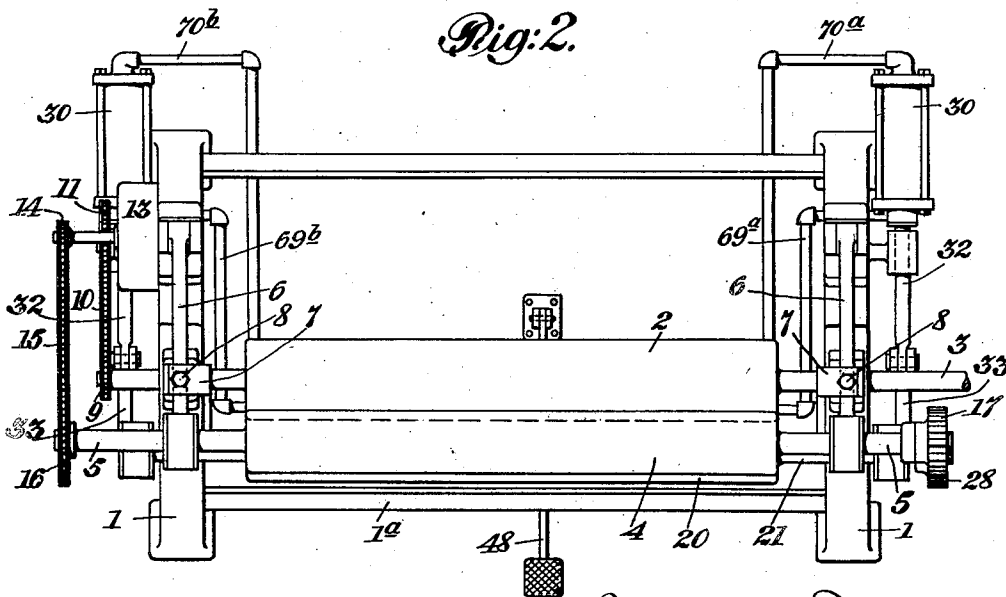


Fig. 2.



INVENTOR
Benjamin J. Pierson
Louis Pressel White
ATTORNEY

Sept. 15, 1936.

B. J. PIERSON

2,054,443

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5 Sheets-Sheet 2

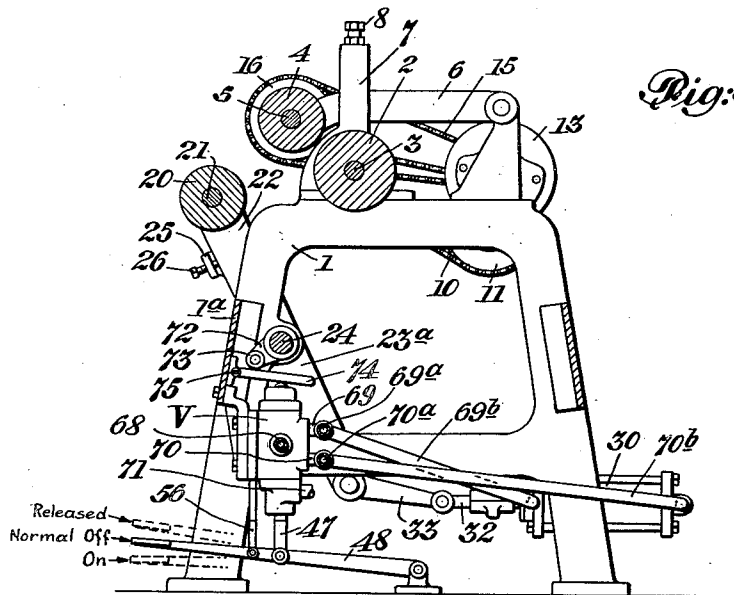


Fig. 3.

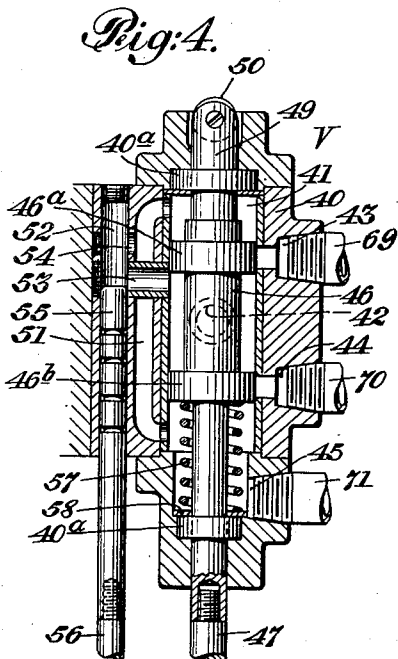


Fig. 4.

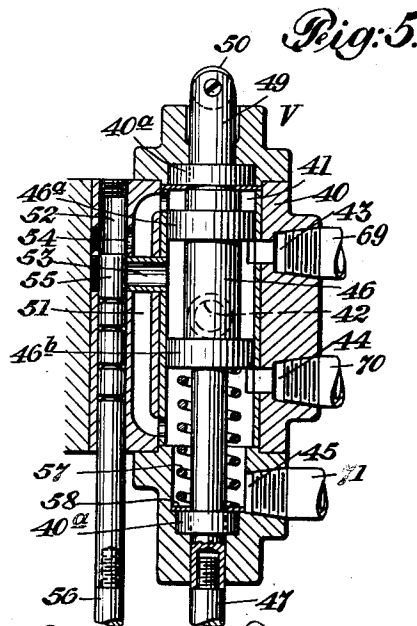


Fig. 5.

Benjamin J. Pierson INVENTOR
BY Louis Newell Whitaker ATTORNEY

Sept. 15, 1936.

B. J. PIERSON

2,054,443

LEATHER WORKING MACHINE

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5 Sheets-Sheet 3

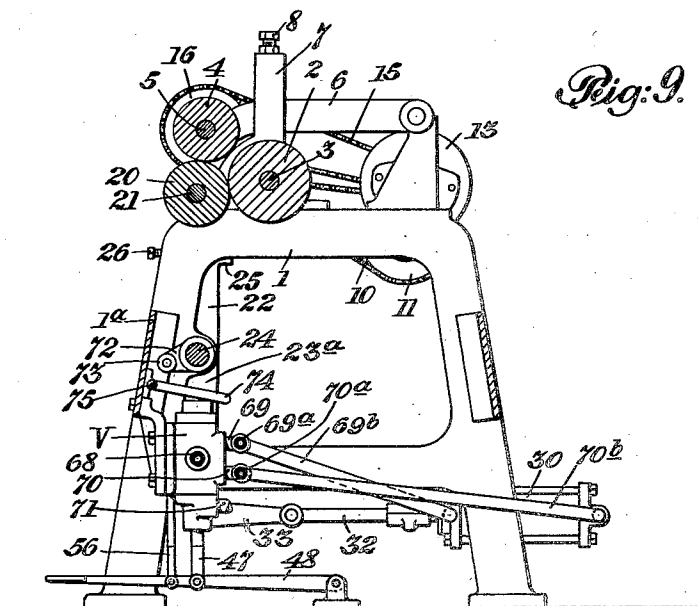


Fig. 9.

Fig. 6.

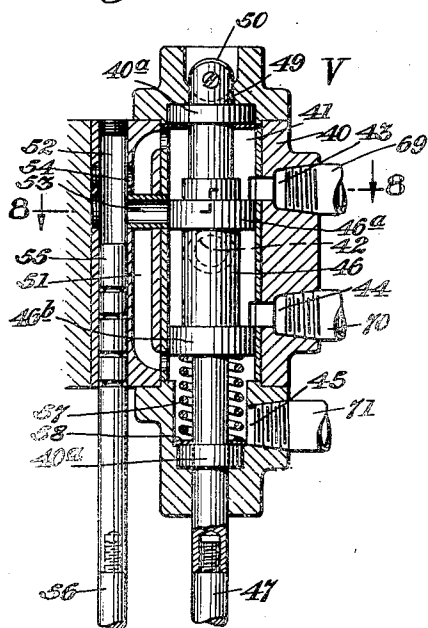


Fig. 7.

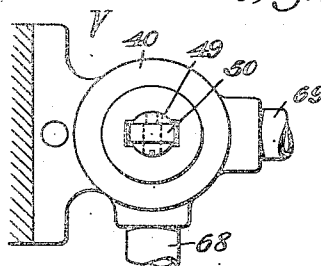
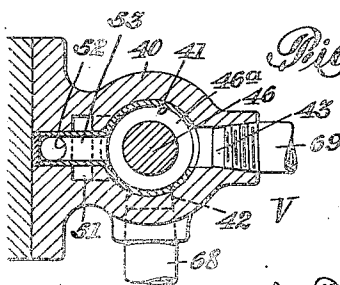


Fig. 8.



INVENTOR
Benjamin J. Pierson
BY
Louis P. Schuster
ATTORNEY

Sept. 15, 1936.

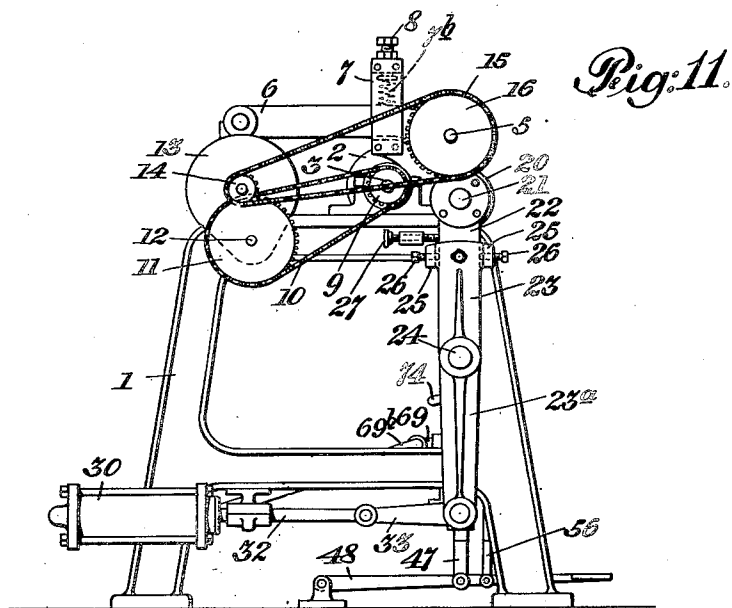
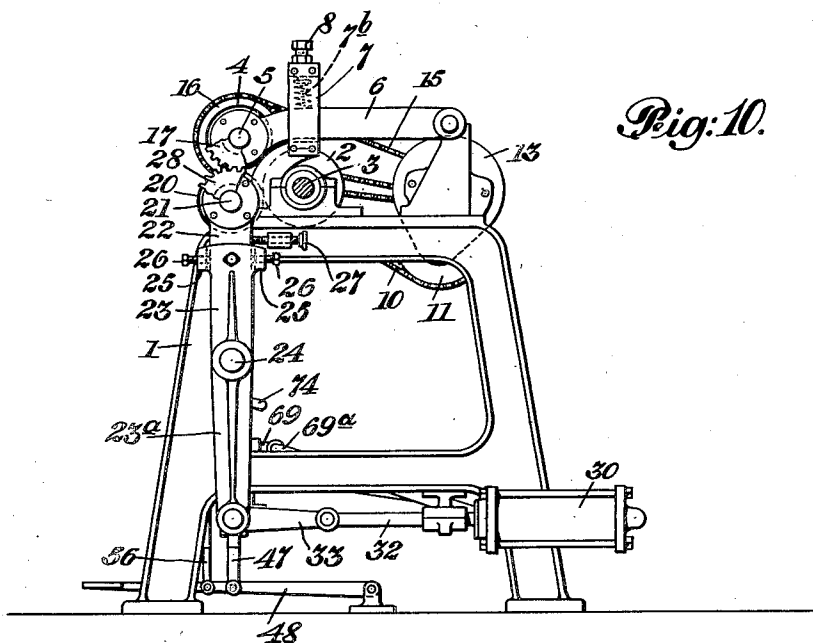
B. J. PIERSON

2,054,443

LEATHER WORKING MACHINE

Filed May 23, 1935

5 Sheets-Sheet 4



INVENTOR
Benjamin J. Hesson
BY
Louis Hesson Rutake
ATTORNEY

Sept. 15, 1936.

B. J. PIERSON

2,054,443

LEATHER WORKING MACHINE

Filed May 23, 1935

5 Sheets--Sheet 5

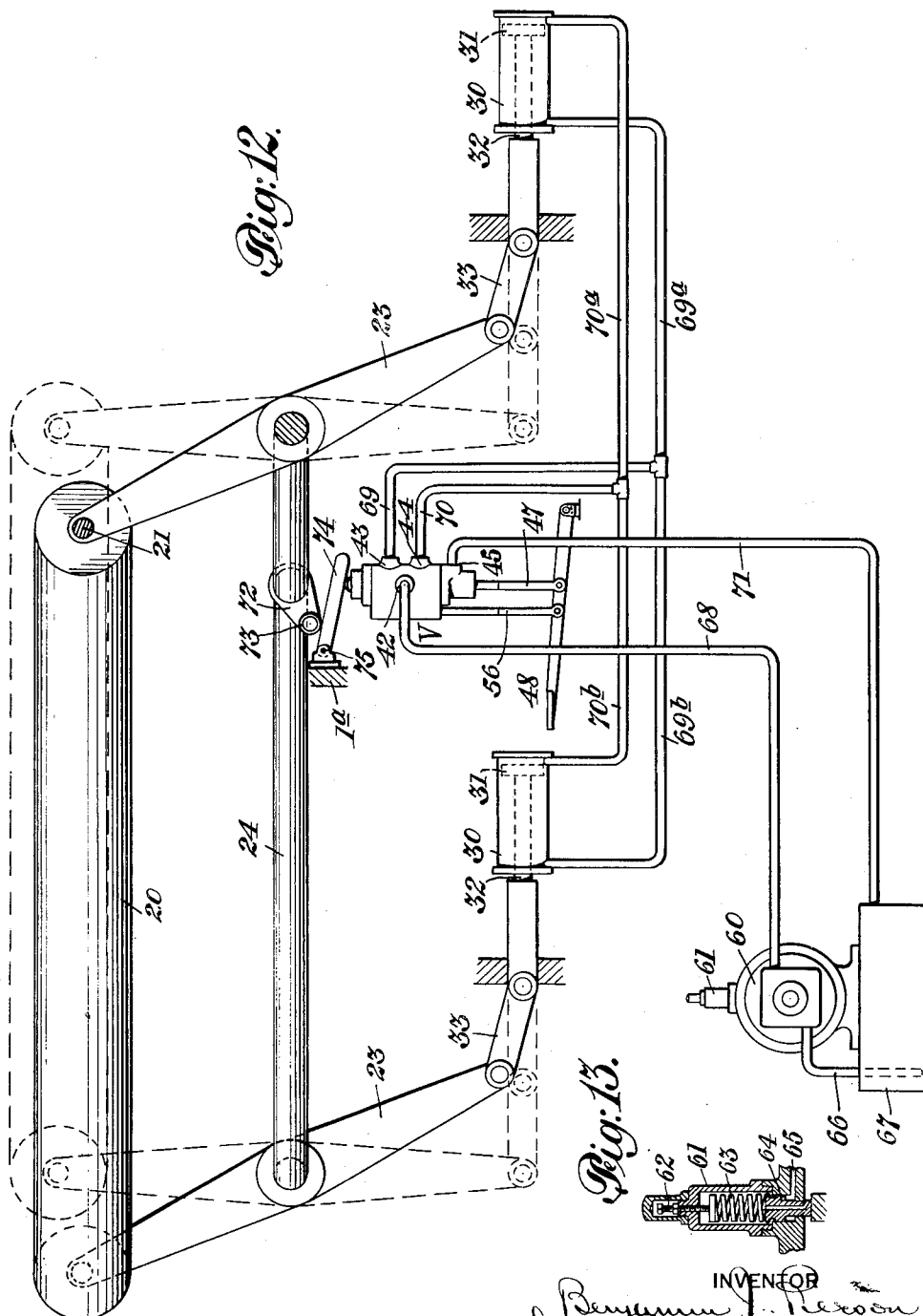


Fig. 13.

INVENTOR
Benjamin J. Person
BY
Louis H. Westbrook
ATTORNEY

UNITED STATES PATENT OFFICE

2,054,443

LEATHER WORKING MACHINE

Benjamin John Pierson, Johnstown, N. Y., assignor to D. H. P. Manufacturing Co., Inc., Johnstown, N. Y., a corporation of New York

Application May 23, 1935, Serial No. 22,937

12 Claims. (Cl. 149—8)

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, selected by me for purposes of illustration, and the said invention is fully disclosed in the following description and claims.

My invention consists in novel hydraulic mechanism for moving the pressure roll of a leather working machine into operative position with a work roll for operating upon the leather, holding it in operative position to exert a variable predetermined pressure, and automatically returning it to open or initial position.

In machines of this character the pressure roll is usually moved into operative position by mechanical means, which when brought into action must perform a definite cycle and force the roll into closed position before it can be again released. This often results in injury to the skins operated upon, as where they are not fed evenly to the work roll, and is a frequent cause of accidents in case an operator gets his fingers between the rolls.

A leading feature of my invention is that in the operation of my improved device the closing of the roll is effected by the accumulation in hydraulic cylinders of fluid pressure under the control of a suitable valve operated manually by the operator, preferably by the depression of a pedal, acted on by a retracting spring or weight, the hydraulic cylinder being provided with hydraulic pistons which are double acting and operatively connected to the pressure roll. It follows, therefore, that the closing movement of the roll is at all times under the control of the operator, who can instantly stop the advance of the pressure roll, and can instantly secure the automatic release of the pressure roll, and its positive return to open position, by merely releasing the manual control means, as, for example, by simply removing his foot from the pedal. This is an important safety factor, and also results in preventing injury to the material operated on.

Another feature of my invention is the accumulation of hydraulic pressure by means of a variable volume pump, provided with adjustable means for varying the maximum pressure on the pressure roll when in closed position, and thus maintaining any desired predetermined pressure upon the material treated.

Another feature of my invention is the provision of means for automatically shifting the controlling valve into such position when the pressure roll is in open position that little or no pressure will exist in the hydraulic system, and the

pump is thereby relieved from wear, economy of power is secured, and the noise and vibration which would otherwise result, are all avoided.

My invention also comprises certain novel features of construction and combination of parts hereinafter fully described and particularly pointed out in the claims.

Referring to the accompanying drawings,

Fig. 1 is a front elevation of a leather working machine embodying my invention.

Fig. 2 is a top plan view of the same.

Fig. 3 is a central vertical section, partly in elevation, of the machine showing the pressure roll in the open position.

Fig. 4 is an enlarged section of the controlling valve in the position which it occupies when the machine is in the position shown in Fig. 3.

Fig. 5 is a view similar to Fig. 4, showing the fully released position of the valve.

Fig. 6 is a similar view showing the valve in the position which it occupies when manually operated, to effect the closing of the pressure roll.

Fig. 7 is a top plan view of the valve.

Fig. 8 is a cross section of the valve on line 8—8 of Fig. 6.

Fig. 9 is a view similar to Fig. 3, showing the pressure roll in closed position.

Fig. 10 is an end elevation of the machine.

Fig. 11 is a similar view showing the opposite end.

Fig. 12 is a diagrammatic view of portions of the machine, illustrating the piping of the hydraulic system.

Fig. 13 is a detail illustrating the adjusting device for regulating the maximum pressure developed by the pump.

In the accompanying drawings, 1, 1, represent the side frames of the machine suitably connected and supporting the various parts of the apparatus. 2 represents the work roll or cylinder which may be of any desired character, and is carried by shaft, 3, which may be driven in any usual or preferred manner, from a suitable source of power. 4 is the top feed roll which coacts with the pressure roll, in the usual manner when the latter is in closed position, and is provided with a shaft, 5, carried by bearings in a pair of arms, 6, 6, provided with depressing springs, 7b, 7b, adjustable by screws, 8, 8, and holding the arms 6, 6, against suitable stops in a well known way. The feed roll, 4, is driven at the desired speed in any desired way. In this instance I have shown the shaft, 3, of the work roll or cylinder provided with a sprocket,

9, connected by sprocket chain, 10, to a pulley, 11, on a shaft, 12, which is connected by reducing gears (not shown) in a gear box, 13, with a sprocket, 14, connected by sprocket chains, 15, with a sprocket wheel, 16, on the shaft, 5, as shown in Fig. 11, but any other suitable reducing gearing, or other means for driving the feed roll at the desired speed, may be employed. The other end of shaft, 5, is provided with a gear wheel, 17, for transmitting rotary motion to the pressure roll, as hereinafter described.

20 is the pressure roll, usually provided with a rubber face, said roll being carried by a shaft, 21, mounted in bearings in adjustable arms, 22 (see Figs. 10 and 11), pivotally mounted on a rock shaft, 24, mounted in the frames, 1, 1. Each of the adjustable arms, 22, is adjustably secured to an oscillating arm, 23, keyed or otherwise rigidly secured to the rock shaft. The arms 23, are each shown as provided at the upper end with lateral flanges, 25, carrying oppositely disposed set screws, 26, engaging opposite edges of the adjacent arm, 22, thus providing for adjusting the arms, 22 and 23, with respect to each other by backing off one set screw and screwing up the other, but this adjustment may be obtained in other ways, and is for the purpose of compensating for wear in the surfaces of the pressure roll or work roll, or both. Adjacent to each of the arms, 22, the frame, 1, is provided with an adjustable stop, in this instance a screw, 27, to limit the closing movement of the pressure roll, 20.

Each of the oscillating arms, 23, is provided with a downwardly extending portion, 23a, to which one of the hydraulic pistons is connected. The shaft, 21, of the pressure roll is also provided with a gear wheel, 28, adapted to engage the gear, 17, on the shaft, 5, of the feed roll, 4, when the pressure roll is in closed position, so as to drive the pressure roll, and the gears are provided with suitable compensating means, such as over-running clutches, for example (not shown) for enabling them to engage without shock.

30, 30, represent two double acting hydraulic cylinders secured to the frame, each containing a piston, 31. The piston rod, 32, of each piston is connected by a link, 33, with the depending portion, 23a, of one of the rocker arms, 23, carrying the pressure roll. V represents the controlling valve mechanism as a whole, for the hydraulic system now to be explained, and said valve mechanism is shown in this instance secured to a crossbar, 1a, of the main frame, below the rock shaft, 24. The valve mechanism is illustrated in detail in Figs. 4, 5, 6, 7 and 8, and comprises a casing, 40, having a cylindrical chamber, 41, provided with an inlet port, 42, cylinder ports, 43 and 44 and a return port, 45, at the bottom, connected with the sump, or liquid supply tank. A piston valve, 46, is arranged to reciprocate in the chamber, 41, by means of valve stems, one of which, 47, extends through an aperture at the bottom of the casing and is connected to the operating pedal, 48, while the other valve stem, 49, projects through an aperture in the top of the casing, and is preferably provided with an anti-friction roller, 50. The apertures surrounding the valve stems are provided with the usual or preferred sealing means to keep them from leaking, as indicated at 40a. The valve, 46, is provided with two pistons, 46a, 46b, as shown, separated to such an extent that in the position of the valve shown in Fig. 4, the pistons close both of the cylinder ports, 43, 44.

The inlet port, 42, is located about midway between the cylinder ports, as shown, and in this position of the valve is thus shut off from both cylinder ports.

The valve casing is provided with a longitudinal or vertical by-pass indicated at 51, connecting its top and bottom portions around the valve pistons, and the casing is also provided with a second chamber, 52, connected with the chamber, 41, by a lateral passage, 53, between the valve pistons, and connected by a lateral passage, 54, with the vertical by-pass, 51. A small piston, 55, in chamber, 52, connected also with the pedal, 48, through a connecting rod, 56, serves to close the passage, 53, and disconnect the by-pass, 51, from the portion of the main chamber, 41, between the valve pistons. Any suitable means may be provided for returning the valve pistons and pedal, and for this purpose I have shown a retracting spring, 57, located in the lower part of the valve chamber, 41, between the valve piston 46b, and a plate, 58, at the lower end of said chamber above the sealing washer, 40a.

Referring to Figs. 4, 5 and 6, showing the valve in detail, and Fig. 12, showing the piping of the hydraulic system, 60 represents a hydraulic pump of known construction, the details of which have no bearing on my invention and which are therefore not specifically shown or described. This pump is controlled by a hydraulic governor, 61, which varies the delivery in accordance with the pressure built up in the system, and maintains any constant pressure desired without by-passing the oil or other liquid employed. The details of this governor form no part of my present invention, but I have illustrated a portion of the governor in Fig. 13, for purposes of reference. The governor is provided with a regulating means by which the maximum pressure produced by the pump in the hydraulic system may be regulated. In Fig. 13 this adjusting means comprises an adjustable screw, 62, for varying the tension of a governor spring, 63, acting through a plunger, 64, which is subjected on the face opposite that engaged by the spring to the oil pressure through passage, 65, so that the tightening of the spring increases the maximum pressure, and vice versa.

The pump is provided with an inlet pipe, 66, extending into a reservoir, 67, for oil, or other liquid, and the pump is provided with a discharge pipe, 68, which is connected to the inlet port, 42, of the valve casing, as shown in Fig. 12. The upper cylinder port, 43, of the valve casing is connected by a pipe 69, and branch pipes, 69a and 69b, with the same end, in this case, the forward end of each of the hydraulic cylinders, 30. The lower cylinder port, 44, of the valve casing is connected by a pipe, 70, and branch pipes, 70a, 70b, with the opposite end of each cylinder, 30, as clearly shown in Fig. 12.

It will be obvious that by properly operating the valve 46, to connect one or other of the pipes 69 or 70 with the inlet port, 42, pressure fluid will be admitted to one or other end of each hydraulic cylinder, 30, in the one case pushing the pistons in a direction to move the pressure roll into closed position, and in the other case, to move the piston in a direction to restore the pressure roll to the open position. 71 represents a pipe which connects the outlet port, 45, at the bottom of the valve casing to the reservoir, 67.

In machines of this type, the pressure roller

remains in the open position for a considerable period, while the operator is preparing to introduce a skin or hide, or other material to be operated upon. As the pump, 60, maintains a predetermined (although adjustable) maximum pressure, it would continue to pump at maximum pressure after the valve had been shifted to effect the return movement of the pistons, at which time, as illustrated in Fig. 5, the passage, 53, connecting the valve chamber, 41, with the by-pass, 51, in the valve is closed by the plunger, 55. This would not only impose an unnecessary amount of labor on the pump, but would result in noise and vibration, as the pressure roll tends to remain in open position by gravity and its outward movement to open position is limited by the movement of the hydraulic pistons.

It is on this account that I have provided the by-pass, 51, in the valve, and I further provide automatic means operated by the return movement of the pressure roll to open position, to depress the valve, 46, and plunger, 55, into the position shown in Fig. 4, so as to close both the cylinder ports, 43 and 44, and by opening the passage, 53, connecting the inlet port, 42, directly with the by-pass, 51, through the aperture, 54, thus permitting the liquid to circulate freely with a minimum of pressure on the pump through the valve mechanism, and back to the reservoir, relieving the pump of work and avoiding noise and vibration. In the present instance I have shown the rock shaft, 24, provided with an arm, 72, preferably provided with a friction roll, 73, for engaging a lever, 74, pivoted at 75, to the frame, and adapted to engage the friction roll, 50, on the upper end of the valve stem, 49, and depress the valve, 46, from the position shown in Fig. 5, to the position shown in Fig. 4, as the pressure roll, 20, comes to rest in the open position with the hydraulic pistons at the outer ends of the cylinders (see Fig. 3). The depression of the valve, 46, will move the foot lever, 48, from the released position, shown in dotted lines in Fig. 3, to the normal off position, shown in full lines in that figure, and as the small valve plunger or piston, 55, is connected with the foot lever, it will also be simultaneously drawn down to the position indicated in Fig. 4.

In the operation of the machine, and assuming that the parts are in the normal off position, as indicated in Fig. 3, the operator will spread a skin or hide, or other material to be acted on, smoothly over the pressure roll, 20, and with his foot depress the pedal, 48, to the on position, indicated in dotted lines in Fig. 3. This will draw down the piston valves, 46 and 55, into the positions shown in Fig. 6, removing the valve pistons, 46a and 46b, from the cylinder ports, and bringing the valve piston, 46a, into position to close the by-pass, 53, as clearly shown in Fig. 6. This connects the inlet port, 42, directly with the cylinder port, 44, and pipe, 70, connected with the outer ends of the hydraulic cylinders, 30, causing the minimum oil pressure to immediately act on the pistons, 31, moving them in a direction to swing the pressure roll into operative position, indicated in Fig. 9. It will be noted from Fig. 6, as indicated by an arrow therein that the cylinder port, 43, being open above the valve piston, 46a, is placed in communication with the longitudinal by-pass, 51, in the valve casing, which permits the oil on the forward side of the hydraulic pistons 31, to be expelled from the respective hydraulic cylinders and return to the reservoir, 67, without offering ma-

terial resistance to the forward movement of the pistons. The movement of the pressure roll to closed position, as shown in Fig. 9, disengages the friction roll, 73, from the lever, so as to free the outer end of the valve stem and permit the full return movement of the valve pistons under the action of their retracting spring, 57, as soon as the operator removes his foot from the pedal.

It will be seen that the pressure roll, 20, is moved into operative position by the hydraulic pistons acting under pressure considerably less than the maximum, so that if the operator's fingers should be caught, the operator can instantly remove his foot from the pedal, when the spring, 57, will elevate the valve pistons to the positions indicated in Fig. 5, which reverses the position of the valve and connects the inlet port, 42, with the cylinder port 43, and instantly reverses the movement of the piston, and moves the pressure roll to the open position. This is an important safety factor, as will be readily understood, and will ordinarily prevent any serious injury to the operator. It will also enable the operator to very frequently avoid injury to the skins or hides, as where a portion thereof forms a wrinkle on the pressure roll and would otherwise be torn or a hole produced therein if subjected to the action of the work roll under pressure. In such case, also, the operator, by simply taking his foot off the pedal, can relieve the skin or material from all pressure against the work roll, and open the roll to enable him to smooth away the wrinkle or an overlapped portion, and prevent the loss of a portion of the skin, which might otherwise result.

Assuming that the pressure roll has been moved to the closed position shown in Fig. 9, as previously described, it will be understood that the pressure produced by the pump, the valve being in the position shown in Fig. 6, will rapidly accumulate in the hydraulic cylinders, 30, until the maximum pressure for which the pump governor is set, is obtained. At the same time the pressure roll is brought into proper feeding relation with the upper feed roll, 4, and the gears, 17 and 28, are brought into mesh, as previously described, so that the material is fed under the maximum pressure in the hydraulic system between the pressure roll and the work roll, in the usual manner, to effect the desired operation on the skin, hide, or other material. At any time during the operation under the maximum pressure, the operator can instantly release the pressure and restore the pressure roll to its open position, by simply taking his foot off of the pedal, so that the operation for which the machine is designed may be performed under the most favourable conditions and with the least possibility of injury to the material operated on.

Assuming that the operator desires to relieve the pressure of the feed roll and restore the pressure roll, 20, to open positions, he simply takes his foot off of the pedal, which will be immediately swung from the on position, shown in dotted lines in Fig. 3, to the released position shown in dotted lines in that figure, thereby shifting the valve instantly to its highest position, indicated in Fig. 5, since there is no pressure on the lever, 75, at that time, as is clearly apparent from the position of the parts in Fig. 9. As soon as the valve mechanism is shifted to the position shown in Fig. 5, the inlet port, 42, will be instantly connected with the cylinder port, 43, and cut off from the cylinder port, 44, thereby throwing the pump pressure directly to the forward sides of the pistons, 31, in

the hydraulic cylinders, 30, and instantly returning the pressure roll, 20, to its open position, shown in Fig. 3, the rock shaft, 24, arm, 72, and roll, 73, automatically acting upon the lever, 75, as the pressure roll comes to its open position, and depressing the valve 46, and plunger or piston, 50, into the positions indicated in Fig. 4, in which the inlet port, 42, is disconnected from both cylinder ports and the lateral by-pass port, 43, is opened, to effect a connection between the inlet port, 42, with the longitudinal by-pass, 51, which permits an immediate circulation with minimum pressure of the liquid from the pump, through the valve and by-pass and back to the reservoir.

It will be noted that as the rock arms, 23, are rigidly connected to opposite ends of the rock shaft, 24, said shaft acts as an equalizing shaft in insuring that both ends of the pressure roll, 20, travel equally and maintain the shaft, 21, in exact alignment at all times, regardless of any minute variations in the movements of the hydraulic pistons, which might occur but which are thus prevented from affecting the operation of the pressure roll.

It will also be noted that the arms, 6, 6, carrying the top feed roll, 4, each extend through vertical guiding apertures, 7a, in guides, 7, located closely adjacent to the feed roll, 4, thus preventing any possibility of endwise movement of the feed roll.

In connection with the operation of the reversing valve mechanism, and with special reference to Figs. 5 and 4, it is also to be noted that the downward movement of the valve, 46, effected by the arm, 72, on the rock shaft, when and as the pressure roll is returned to its open or inoperative position, effects the cushioning of the outward movement of the pressure roll. This will be readily apparent from a comparison of Figs. 5 and 4. As before stated, when the pedal is released and the valve is raised by its spring, 57, to the position shown in Fig. 5, the arrangement of the cylinder ports is reversed from that shown in Fig. 6, so that the port, 43, and pipe, 69, communicating with the inner ends of the hydraulic cylinders, is placed in communication with the pump, while the oil in the hydraulic cylinders on the opposite sides of the pistons is forced out by the movement of the pistons, through pipe, 70, and port, 44, and returned to the reservoir. The arrangement of the arm, 72, roll, 73, previously described, is so timed with respect to the rock shaft, 24, that the valve stem is depressed at a proper time before the hydraulic pistons reach their outermost positions, and it will be seen that as the valve piston, 46b, descends and cuts off the cylinder port, 44, it will have the effect of throttling the discharge of liquid from the hydraulic cylinders through the port, 44, thus slowing up the outward movement of the pressure roll and cushioning it. This of course leaves the pipe, 70, and its connections with the hydraulic cylinders completely filled with oil, so that on the next operation of the pressure roll when the valve is moved to the position shown in Fig. 6, and the port, 44, is connected with the pump, the hydraulic pistons will immediately respond.

It will also be seen that in this instance, in which the valve piston, 46a, is directly connected with the valve piston, 46b, the descent of the valve stem and valve pistons through the operation of the rock shaft arm, 72, will of course cause the piston, 46a, to throttle the stream of oil passing from the pump through the pipe, 69, and which is effecting the return movement of the pressure roll. This of course also contributes a

cushioning effect. As before stated, when the ports, 43 and 44, are thus cut off, as shown in Fig. 4, the small valve piston, 55, will have opened the passage, 53, so that oil from the pump is bypassed and sent back to the reservoir through the pipe, 71.

What I claim and desire to secure by Letters Patent is:—

1. In a leather working machine having a pressure roll movable into and out of operative position, the combination therewith of fluid pressure operated means for moving said roll into operative position and returning said roll to inoperative position, control means operable by the operator in one direction to effect the movement of said pressure roll toward and to operative position, and yielding resistance means acting continuously on said control means in opposition to the force exerted by the operator, to automatically and instantly reverse the movement of said roll and restore it to inoperative position upon release of said control means by the operator.

2. In a leather working machine having a pressure roll movable into and out of operative position, the combination therewith of double acting fluid pressure cylinders and pistons, operative connections from said pistons to said roll, a reversing valve for controlling the supply of fluid pressure to said cylinders, an operator operated part connected with said valve mechanism and movable by the operator in a direction to effect the movement of the said roll toward and to operative position, and yielding resistance means acting continuously on said operator operated part in opposition to the force exerted by the operator, to instantly and automatically reverse the movement of the roll at any point in its movement toward operative position, and restore it to inoperative position.

3. In a leather working machine having a pressure roll movable into and out of operative position, the combination therewith of double acting fluid pressure cylinders and pistons, operative connections from said pistons to said roll, a reversing valve for controlling the supply of fluid pressure to said cylinders, an operator operated part connected with said valve mechanism and movable by the operator in a direction to effect the movement of the said roll toward and to operative position, yielding resistance means acting continuously on said operator operated part in opposition to the force exerted by the operator, to instantly and automatically reverse the movement of the roll at any point in its movement toward operative position, and restore it to inoperative position, and means independent of said operator operated part, operated by the return movement of the pressure roll to inoperative position, for moving said valve into position to cushion the return movement of the roll.

4. In a leather working machine having a pressure roll movable into and out of operative position, the combination therewith of double acting fluid pressure cylinders and pistons, operative connections from said pistons to said roll, a reversing valve for controlling the supply of fluid pressure to said cylinders, an operator operated part connected with said valve mechanism and movable by the operator in a direction to effect the movement of the said roll toward and to operative position, yielding resistance means acting continuously on said operator operated part in opposition to the force exerted by the operator, to instantly and automatically reverse the

movement of the roll at any point in its movement toward operative position, and restore it to inoperative position, and means independent of said operator operated part, operated by the return movement of the pressure roll to inoperative position, for moving said valve into position to gradually throttle and close off the discharge of fluid from the cylinders forward of the pistons therein, to cushion the return movement of the roll.

5. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, bearing arms operatively connected with said rock shaft and supporting said roll, double acting fluid pressure operated devices operatively connected with said rock shaft for moving said roll into and out of operative position, controlling valve mechanism for said fluid pressure operated devices, having a movable part capable of being moved into position to close communication between the pressure operated devices and the supply of pressure fluid with a throttling action, and a part operatively connected with said rock shaft for moving said movable part to said closed position when said roll nears its inoperative position, to cushion the return movement of said roll.

6. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, bearing arms operatively connected with said rock shaft and supporting said roll, double acting fluid pressure operated devices operatively connected with said rock shaft for moving said roll into and out of operative position, controlling valve mechanism for said fluid pressure operated devices, having a movable part capable of being moved into throttling position, and a part operatively connected with said rock shaft for moving said movable part to throttling position when said roll nears its inoperative position, to cushion the return movement of said roll, an operator operated part connected with the movable part of said valve mechanism and movable by the operator to effect the movement of said roll toward and to operative position, and resistance means acting on said operator operated part continuously in a direction opposed to the force exerted by the operator, for instantly and automatically effecting the return movement of said roll, at any point in its travel upon release of the operator operated part by the operator.

7. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, bearing arms pivotally engaging said rock shaft and supporting said roll, rocker arms rigidly secured to said rock shaft and adjustably connected with said bearing arms, fluid pressure operated devices operatively connected with said rocker arms, for moving said roll into and out of operative position, controlling valve mechanism for said fluid pressure mechanism, an operator operated part movable by the operator in a direction to effect the movement of said roll toward and to operative position, and yielding resistance means acting continuously on said operator operated part and operative on the release of said part by the operator at any point in the path of movement of said roll, to automatically reverse said movement thereof and restore said roll to inoperative position.

8. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, bearing arms pivotally engaging said rock shaft and supporting said roll,

rocker arms rigidly secured to said rock shaft, each having parts disposed on opposite sides of the adjacent bearing arm, oppositely disposed threaded adjusting means interposed between said parts and the adjacent bearing arm, fluid pressure operated devices operatively connected with said rocker arms, for moving said roll into and out of operative position, controlling valve mechanism for said fluid pressure mechanism, an operator operated part movable by the operator in a direction to effect the movement of said roll toward and to operative position, and yielding resistance means acting continuously on said operator operated part and operative on the release of said part by the operator at any point in the path of movement of said roll, to automatically reverse said movement thereof and restore said roll to inoperative position.

9. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, bearing arms pivotally engaging said rock shaft and supporting said roll, rocker arms rigidly secured to said rock shaft, and adjustably connected with said bearing arms, stops for limiting the movement of said roll to operative position, fluid pressure operated devices operatively connected with said rocker arm, controlling valve mechanism therefor, a pedal connected therewith, and yielding retracting means for said valve and pedal.

10. In a leather working machine having a movable pressure roll, the combination therewith of a supporting rock shaft, rocker arms secured thereto and operatively connected with said roll, hydraulic cylinders and pistons, operative connections from said pistons to said rocker arms, a continuously operating variable volume pump for supplying fluid under pressure, and adapted to accumulate and maintain a predetermined maximum pressure, a controlling valve for said cylinders provided with by-pass means for maintaining a minimum hydraulic pressure from said pump, a part connected with said rock shaft engaging a part connected with said valve for holding said valve in position to maintain said minimum hydraulic pressure when the pressure roll is in its normal inoperative position, an operator controlled part for moving said valve into position to effect the movement of said pressure roll into operative position by said minimum hydraulic pressure and accumulate said predetermined maximum pressure to maintain it in operative position, and yielding retracting means for said operator controlled means and valve for automatically effecting the movement of said roll to inoperative position.

11. In a leather working machine having a movable pressure roll, the combination therewith of fluid pressure cylinders and pistons, operative connections from said pistons to said roll for moving it into, holding it in, and returning it from operative position, means for supplying fluid under pressure to said cylinders, a reversing valve for controlling the supply of pressure fluid to and from said cylinders, provided with separate ports communicating respectively with said cylinders on opposite sides of their pistons to relieve pressure in advance of the said pistons in either direction, an operator controlled device connected with a movable part of said valve mechanism for moving it into position to effect the closing of the pressure roll, a yielding retracting means for moving said movable part in opposite directions when released by said operator controlled part, and means operatively connected

with the pressure roll and brought into action as it approaches its open position, for moving the movable part of said valve, to gradually throttle and close communication between said pressure source and the portions of said cylinders forward of the moving pistons therein to cushion the return movement of said pressure roll.

12. In a leather working machine having a movable pressure roll, the combination therewith of fluid pressure cylinders and pistons, operative connections from said pistons to said roll for moving it into, holding it in, and returning it from operative position, means for supplying fluid under pressure to said cylinders, a reversing valve for controlling the supply of pressure fluid to and from said cylinders, provided with separate ports communicating respectively with said cylinders

on opposite sides of their pistons to relieve pressure in advance of said pistons in either direction, an operator controlled device connected with a movable part of said valve mechanism for moving it into position to effect the closing of the pressure roll, a yielding retracting means for moving said movable part in opposite directions when released by said operator controlled part, and means operatively connected with the pressure roll and brought into action as it approaches its open position, for moving the movable part of said valve, to gradually throttle and close communication between said valve mechanism and both ends of said cylinders, to cushion the return movement of said pressure roll.

BENJAMIN JOHN PIERSON.