

Aug. 10, 1954

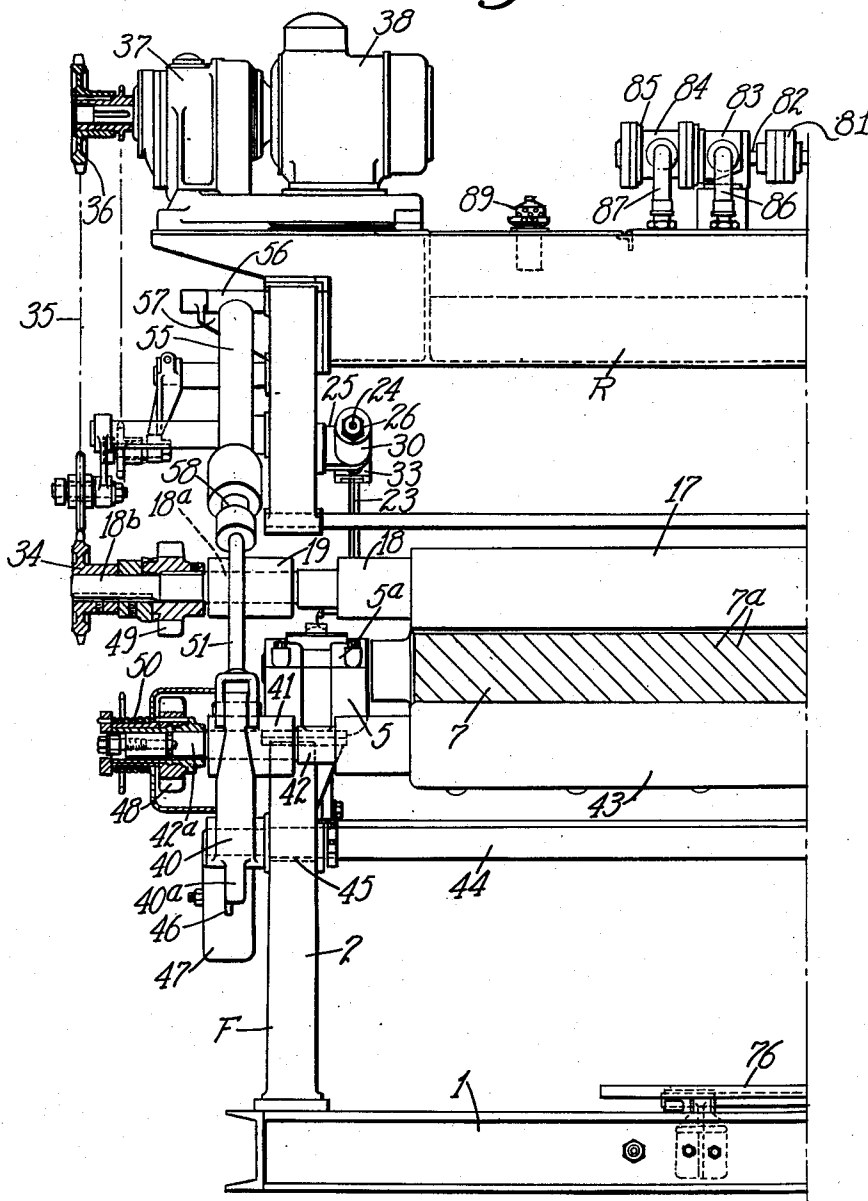
C. HALL
MACHINE FOR TREATING HIDES AND
SKINS EMPLOYING ROTARY ROLLS

2,685,791

Filed March 4, 1952

8 Sheets-Sheet 1

Fig. 1



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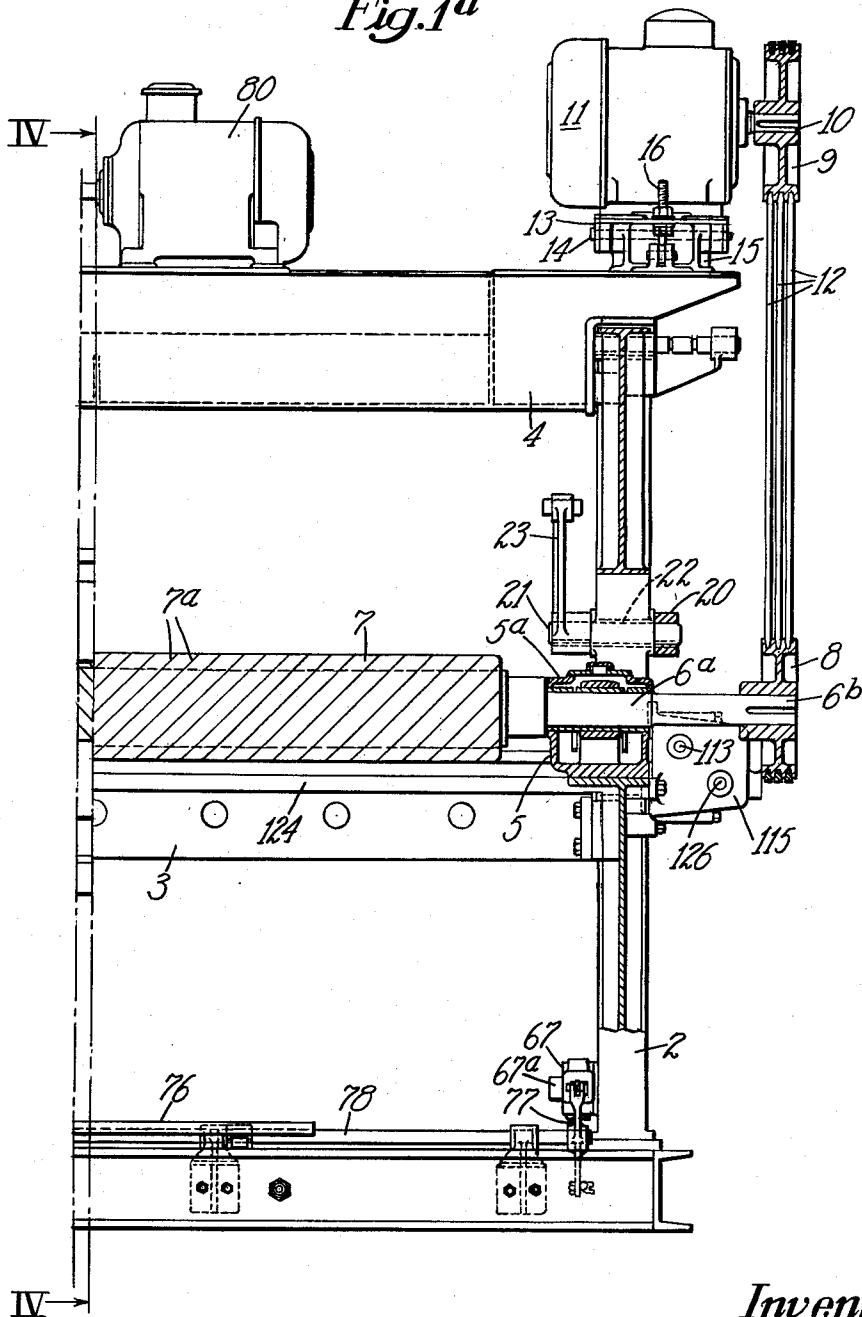
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Fig. 1^a



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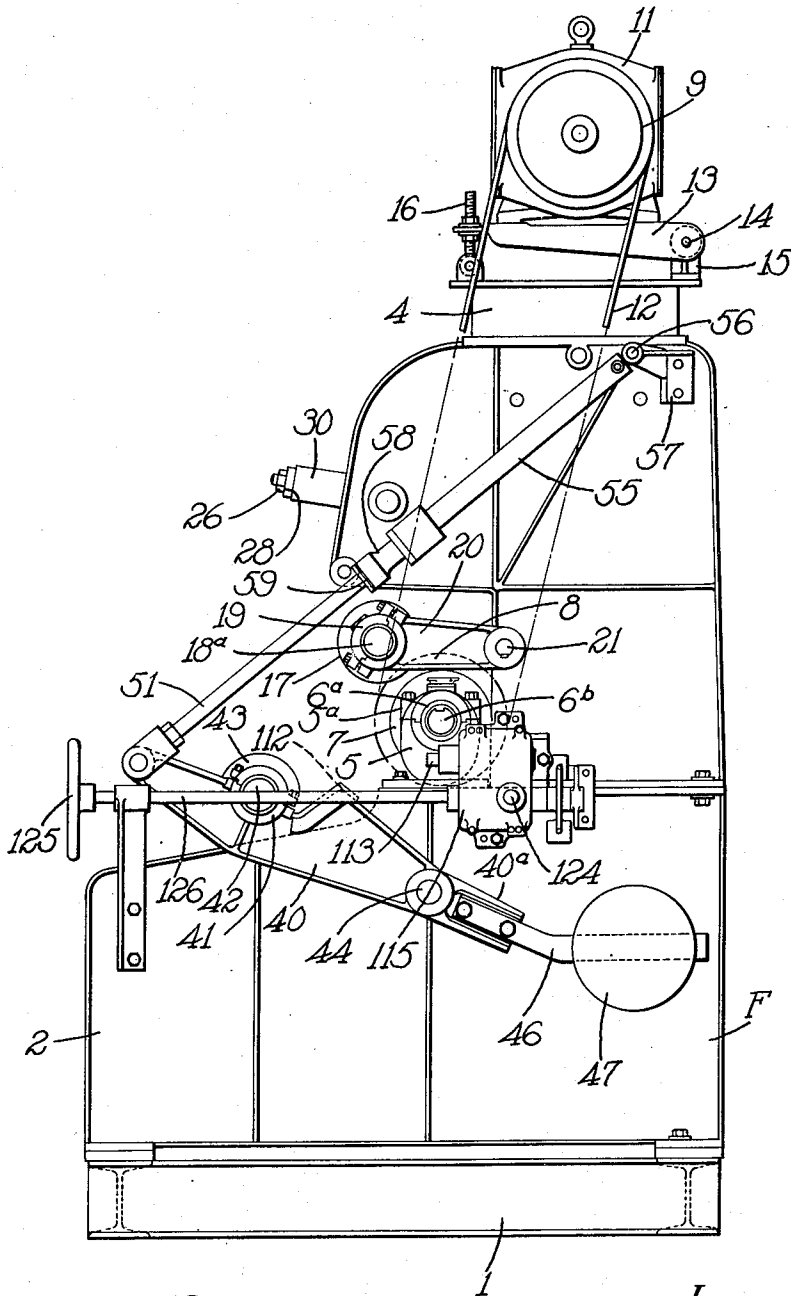


Fig. 2

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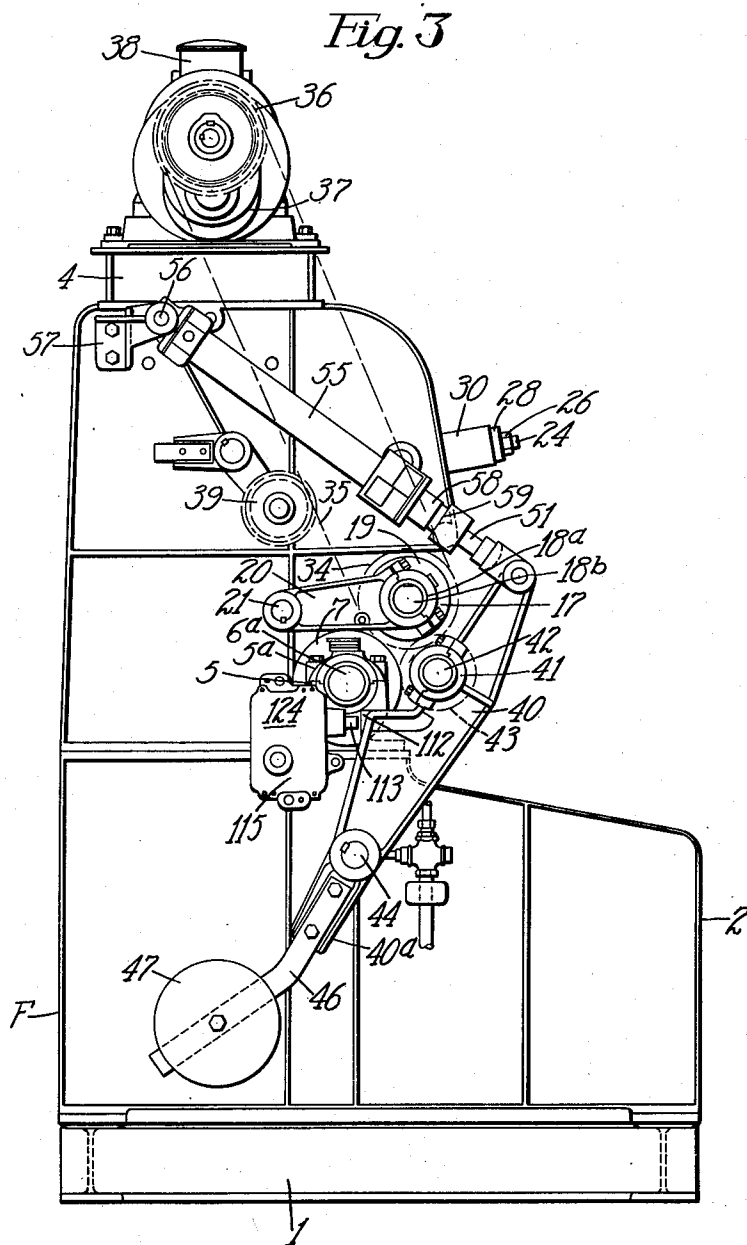
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8 Sheets-Sheet 4



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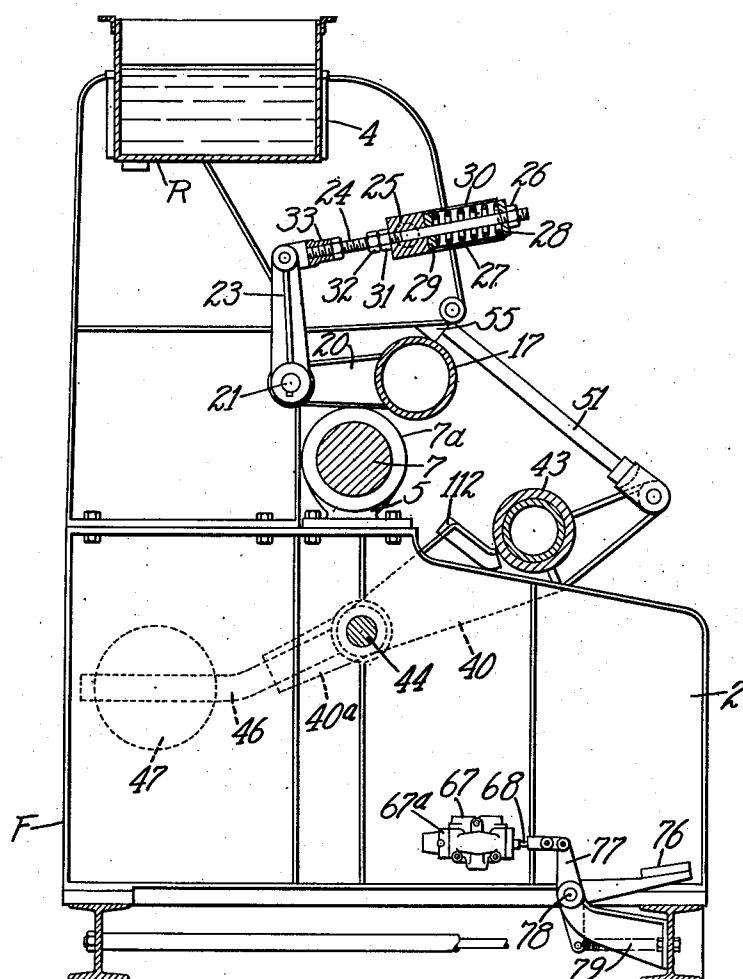
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Fig. 4



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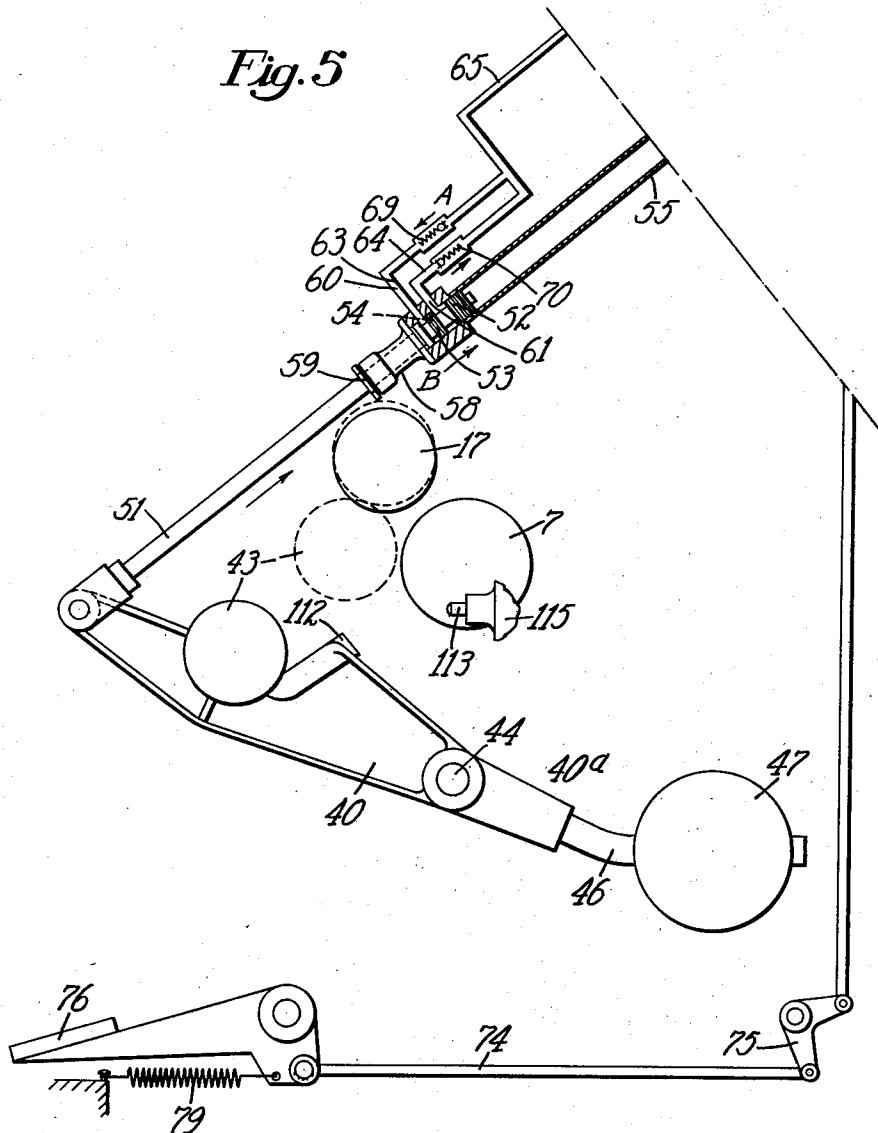
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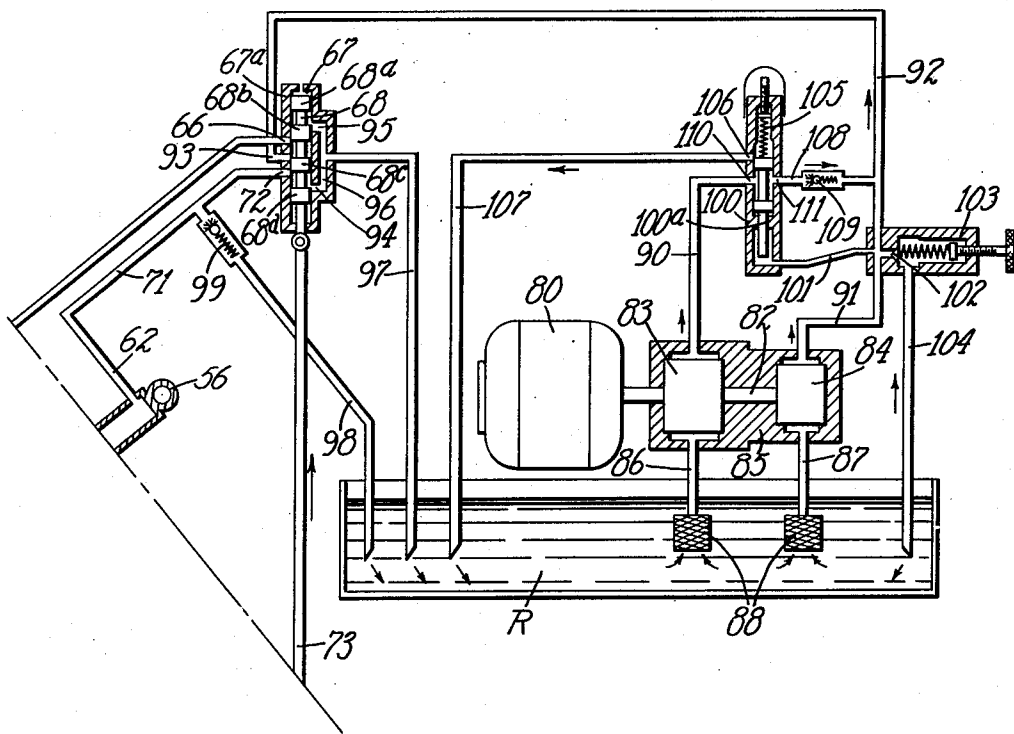
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**MACHINE FOR TREATING HIDES AND
SKINS EMPLOYING ROTARY ROLLS**

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Fig. 5a



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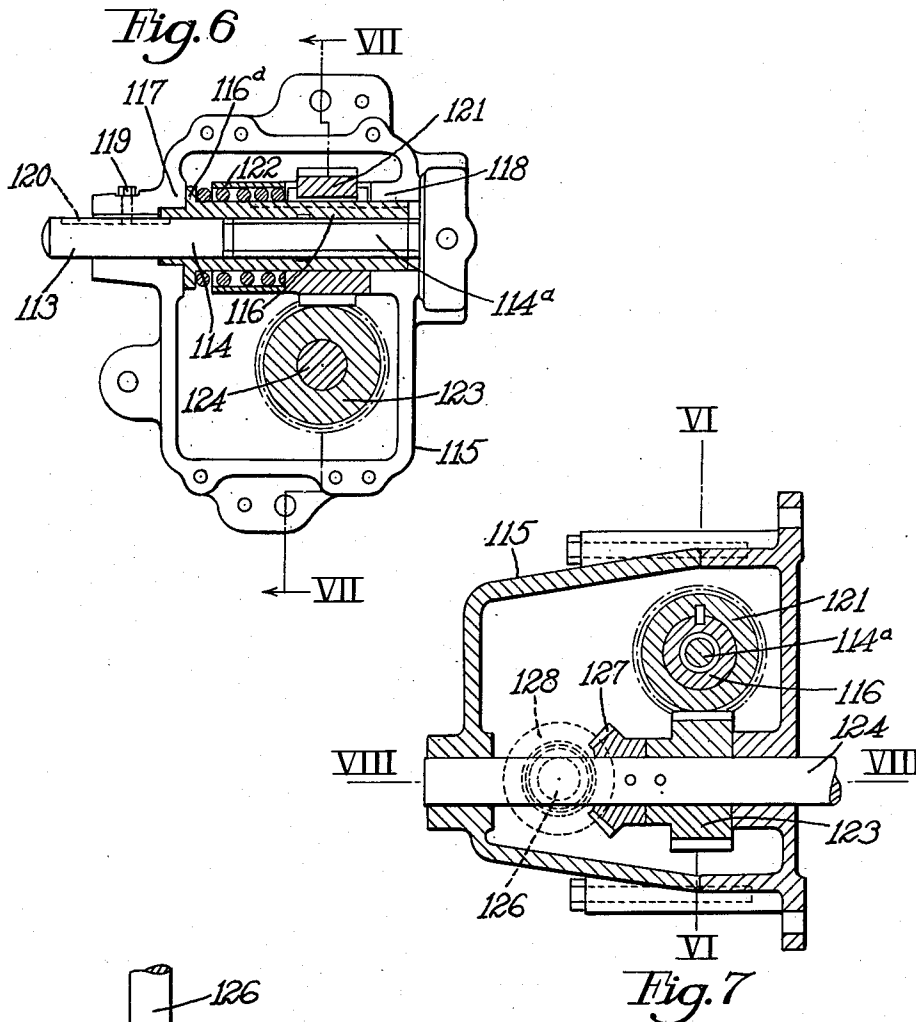

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8 Sheets-Sheet 8



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UNITED STATES PATENT OFFICE

2,685,791

MACHINE FOR TREATING HIDES AND SKINS
EMPLOYING ROTARY ROLLSClifford Hall, Leeds, England, assignor to Turner
Tanning Machinery Company Limited, Leeds,
England, a corporation of Great Britain

Application March 4, 1952, Serial No. 274,786

Claims priority, application Great Britain
March 13, 1951

5 Claims. (Cl. 69—42)

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This invention relates to machines for operating upon sheet material, and more particularly to machines employing rotary work treating rolls for performing such operations as scudding, fleshing, unhairing and so forth on hides and skins.

In the following specification and claims the word "hide" is used to include both hides and skins in order to avoid excess verbiage. It is also to be understood that the nature or type of work treating and contacting rolls may be varied without departing from the spirit of the invention.

The machine, illustrated herein and in which the invention is embodied, shows a rotary working tool, e. g. a spirally bladed cylinder journaled on the machine frame, an upper rotary feed roll arranged adjacent to the said bladed cylinder, a relatively movable lower feed or bed roll, a pair of spaced swing arms in which the bed roll is mounted for rotation, and mechanism adapted to be actuated by the operator for effecting upward and downward strokes of the swing arms for the purpose of closing and opening the machine by movement of the bed roll into and out of cooperative relationship both with the upper feed roll and the bladed cylinder.

In a machine of this kind the bed roll is adapted to be driven from the upper feed roll, whenever the machine is closed, so that a skin previously placed in position on the bed roll will be positively fed outwardly toward the operator by the grip of the two rolls while it is being operated upon by the rotary tool. Upon the machine being opened, however, the drive to the bed roll is interrupted and the latter stops rotating.

Now heretofore the mechanism for effecting the closing and opening movements of a machine of the kind concerned has usually incorporated a cumbersome half-cycle clutch motion and associated gearing mounted on the base of the machine so that the said mechanism is practically wholly located beneath the axis about which the swing arms turn. As a consequence, this mechanism, being at least for the most part below the working tool and the feed rolls, is subjected to the corrosive or other deleterious action of the water or other liquor with which the skins to be dealt with are treated. Moreover, the considerable slush and dirt produced by the wet fleshings or/and hairs are difficult to remove from the clutch mechanism and gearing.

Fluid pressure means have heretofore been employed in opening and closing the rolls of tannery machines but difficulties have been en-

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countered such as marking of the work upon the rolls closing abruptly. Various expedients have been tried to control the rate of and to cushion the opening and closing movements but these gave rise to other objections such as lack of provision for adequate adjustment to compensate for wear of the rolls.

One object of the present invention is to provide an improved arrangement of a cooperating work treating roll, a feed roll, and a bed roll in which the operating parts, actuated by fluid pressure, are mounted a considerable distance above the machine base and therefore away from the dirt and foreign matter which adversely may affect such parts.

Another object is to provide a machine in which the closing and opening movements of the rolls are rapid for the major portion thereof and relatively slow and with more power and control in other portions as required.

To these ends and in accordance with an important feature of the invention, a work treating roll is fixedly mounted on a frame with an upper feed roll mounted above and adjacent thereto and a bed roll is mounted on upwardly extending pivoted arms for movement into cooperative relation with the other two rolls. Another feature resides in a fluid pressure system for opening and closing the rolls, this system including means for supplying the fluid at two different rates. Still another feature pertains to fluid pressure means having bleed ports therein for cushioning the final portion of the opening movement of the bed roll.

In order that the invention may be more clearly understood and readily carried into practical effect, a specific constructional example of a hydraulic fleshing machine incorporating the foregoing and other features of the invention will now be described with reference to the accompanying drawings, wherein,

Fig. 1 is a view, in elevation, of the front and left portion of a machine embodying the present invention, part of the machine being shown in section;

Fig. 1a is a view, similar to Fig. 1, but showing the right-hand portion of the machine;

Fig. 2 is a right-hand end view of the said machine in its open condition;

Fig. 3 is a left-hand end view of the machine in its closed condition;

Fig. 4 is a cross sectional view of the fleshing machine taken on the line IV—IV of Fig. 1a;

Fig. 5 is a theoretical diagram illustrating a portion of the hydraulic circuit;

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Fig. 5a is a further showing of the hydraulic circuit partly shown in Fig. 5;

Fig. 6 is a vertical sectional view, taken on the line VI—VI of Fig. 7, of one of the stop gear boxes incorporating an adjustable stop for determining the full extent of the upward movement of one of the swing arms;

Fig. 7 is a further sectional view of the said stop gear box taken on the line VII—VII of Fig. 6;

Fig. 8 is a sectional plan view of the box taken on the line VIII—VIII of Fig. 7; and

Figs. 6, 7 and 8 are drawn to a larger scale than the remaining figures, and like parts are designated by similar reference characters throughout the drawings.

In the illustrated example, the main framework F of the machine comprises a rectangular base frame 1 fabricated of H girders and channel irons, and two vertical end frames or members 2 which are mounted upon the said base frame and are connected by one or more suitably disposed horizontal cross frame members such as that indicated at 3 and also by a suitably fabricated cross frame structure 4 (see Fig. 1a). Upon the end frames 2 are permanently fixed two aligned bearings 5 having removable caps 5a and in which are rotatably mounted the ends 5a of (or trunnions on) a shaft 6 of a spirally-bladed fleshing cylinder or work treating roll 7. This cylinder is of conventional form, being furnished with sharpened helical blades 7a (see Fig. 1) arranged edge outermost and extending left and right hand at respectively opposite sides of a central vertical plane dividing the cylinder into two halves. At the right-hand end of the machine the shaft 6 of the fleshing cylinder 7 is extended at 5b through the permanently fixed bearing 5 at that end and is furnished with a V-pulley 8 around which and a pulley 9 secured on the shaft 10 of an independent electric motor 11 are passed a plurality of V-section belts 12. This motor is mounted upon a support 13 which is hinged at 14 to a bracket 15 in turn secured upon the flat top of the cross frame structure 4 serving to connect and brace together the upper ends of the end frames 2. The angular disposition of the hinged motor support 13 is variable by screw means 16 (Figs. 1 and 2) to adjust the tension of the belts 12 transmitting the drive to the fleshing cylinder 7. Immediately above but slightly in front of the fleshing cylinder is provided a top feed roll 17 which is of metal spirally grooved in such a way as to present sharp edges, for engagement with a skin being fed to the said cylinder. The end portions 18a of the shaft 18 of the top feed roll 17 are mounted in bearings 19 formed in the outer ends of substantially horizontal arms 20 which at their inner ends are keyed upon short shafts 21 mounted to turn in bearings 22 (Fig. 1a) in the end frames 2. The horizontal arms 20 are located at the outer sides of the end frames 2. As shown in Fig. 4, the inner ends of the short shafts 21 project right through the end frames 2 and have keyed thereon upwardly directed arms 23 disposed at right angles to the substantially horizontal arms 20. As will therefore be appreciated the ends 18a of the shaft 18 of the top feed roll 17 are mounted in what are, in effect, bell crank levers. The upper ends of the upright arms 23 are pivotally connected with forwardly extending rods 24 which are slidable axially through blocks 25 which, as shown more clearly in Fig. 4, are mounted to turn on the

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end frames 2, and are screw-threaded at their leading ends to receive nuts 26. Also, as depicted in Fig. 4, a comparatively strong compression spring 27 arranged to surround each of the rods 24 is interposed between a washer 28 at the back of the corresponding nut 26 and a further washer 29 bearing on the front face of the relevant turnable block 25. The springs 27 are housed in cylindrical casings 30 associated with the blocks 25, and the inner ends of the rods 24 are screw-threaded to receive adjustable nuts 31 and lock nuts 32 adapted to function as abutments for contact with the rear faces of the said turnable blocks 25. The rear ends of the rods 24 are made adjustable in forked connecting members 33 whereby the rods are articulated to the upper ends of the upright arms 23. The construction and arrangement are such that the top feed roll 17 is yieldable in that it can be moved up in an arcuate path against an adjustable spring load. As illustrated in Figs. 1 and 3, the left-hand end of the shaft 18 of the top feed roll 17 is extended at 18b and fitted with a chain sprocket 34 adapted to be driven, through the medium of a chain 35, from a further sprocket 36 in turn arranged to be driven, through reduction gearing at 37, from another independent electric motor 38 fixed upon the cross frame structure 4 at the top of the framework. An adjustable jockey or idler sprocket 39 may, as shown in Figs. 1 and 3, be provided on the adjacent end frame 2 for varying the tension on the chain 35, according to requirements.

Beneath the fleshing cylinder or roll 17 is provided a pair of suitably fulcrumed swing arms 40 formed with bearings 41 in which are mounted the ends of the shaft 42 of a bottom feed roller or bed roll 43—preferably of rubber. The swing arms 40 are located at the outer sides of the two end frames 2 and are rigidly secured upon the opposite ends of a cross shaft 44 arranged for turning movement within bearings 45 in the said frames (see Fig. 1). The swing arms 40, moreover, are formed with rearwardly directed tails 40a to which are secured bars 46 carrying counterweights 47. The horizontal axis of the cross shaft 44 is disposed beneath and very slightly in advance of the axis of the fleshing cylinder 7. The swing arms 40, which are normally upwardly inclined somewhat, extend forwardly toward the front of the machine. As illustrated in Fig. 1, the shaft 42 of the bottom feed roll 43 is extended at 42a at the left-hand side of the machine and fitted with a coarse-toothed mangle gear 48 adapted, when the swing arms are swung upwardly to move the bottom feed roll 43 into cooperative relationship both with the top feed roll 17 and the fleshing cylinder 7, to mesh with a second mangle gear 49 secured upon the shaft 18 of the top feed roller. In this way, whenever the bottom feed roll 43 is swung up into its operative position it will be positively driven from, and in an opposite direction to, the top feed roll 17. The mangle gear 48 is mounted in such a way as to be capable of turning to a limited extent relatively to the extension 42a, against the action of a cushioning torsion spring 50 designed to take the shock of engagement of the two mangle gears.

The outer extremity of each swing arm 40 extends in front of the bottom feed roll 43 and is articulated to a rearwardly directed but upwardly inclined piston rod 51 the upper end of which, as shown in Fig. 5, is provided with a main piston 52 and, spaced a small distance down from the

latter, an auxiliary or "choke" piston 53 having formed therein a small axially extending bleed port 54. The two pistons 52 and 53 on each piston rod 51 are arranged to work in a cylinder 55 the upper end of which is mounted to turn about a pivot pin 56 carried by a bracket 57 bolted to the outer side of the corresponding end frame 2 near the top thereof. The lower end of each cylinder has secured thereto a coaxial tubular guide 58 for the relevant piston rod 51, this guide being fitted with a packing gland 59. In the lower end of each cylinder, moreover, there are formed, as depicted in Fig. 5, two ports 60 and 61 which are spaced apart axially a distance approximately equal to the space between the opposed lower and upper faces of the main and choke pistons 52 and 53 respectively. The upper end of each cylinder 55, on the other hand, has formed therein a single port 62. The two axially spaced bottom ports 60 and 61 in each cylinder communicate with a pair of branch pipes 63 and 64 which are connected to a common "in" pipe line 65 leading into a port 66 formed in the casing 67a of a four-way direction control valve 67 of the piston type. In the branch pipe 63 is incorporated a one-way in line check valve 69 adapted to be opened in the direction of flow of oil (indicated by the arrow A in Fig. 5) passed from the direction control valve 67 into the bottom of the cylinder 55 through the lowermost port 60 therein; a similar one-way check valve 70 adapted to be opened in the opposite direction (indicated by the arrow B) is incorporated in the branch pipe 64 for a purpose to be hereinafter described. The single port 62 in the top of each cylinder 55 is connected, by way of "reverse" line piping 71 with a second port 72 in the casing 67a of the four-way direction control valve 67. The piston 68 of the valve 67 is operable, e. g. through the medium of links such as 73 and 74 and a bell-crank 75 (Fig. 5), by means of a spring-influenced operating treadle 76 located at the front of the machine-centrally between the end frames 2 thereof. It is to be clearly understood, however, that while in Fig. 5, links and a bell-crank have been diagrammatically shown for connecting the valve 67 with the treadle 76, this valve may, in practice, be disposed near to, and more or less directly connected with the said treadle. This latter arrangement is, as a matter of fact, depicted in Figs. 1 and 4 wherein it will be seen that an arm 77 secured upon the treadle spindle 78 is connected with the piston valve 68. In the main the showing of the hydraulic system, in purely diagrammatic fashion, has been confined to Figs. 5 and 5a so as not unduly to complicate the remaining figures. In any event, upon depression of the treadle 76 against the action of the spring 79, the direction control piston 68, with its four axially spaced portions 68a, 68b, 68c and 68d, will be instantly shifted to or toward one end of the casing 67a of the direction control valve 67, whereas release of the treadle 76 will effect instantaneous axial movement of the said piston, under the spring action and in the reverse direction to or toward the opposite end of the valve casing.

The hydraulic system of the fleshing machine includes an oil reservoir R in the form of a tank incorporated in the aforementioned cross frame structure 4 at the top of the machine. The tank acts as a stiffening member for the frame as well as a reservoir for fluid used in the operation of the machine. Upon the top of this structure is mounted a third independent electric motor 80

which is located between the other two motors 11 and 38 and is coupled, by way of a flexible coupling 81 (Fig. 1), to the common shaft 82 of a twin pump assembly comprising a high delivery low pressure pump 83 and, side by side therewith, a low delivery high pressure pump 84. As shown in Fig. 5, the twin pump casing 85 is fitted with two inlet pipes 86 and 87, one to each pump, projecting down into the oil contained in the tank R, the lower ends of these pipes being advantageously fitted with oil filters 88. The oil tank R is entirely enclosed, there being in the top thereof an air vent or breather 89 (see Fig. 1). For each of the two pumps 83 and 84 there is also provided at the opposite side of the twin pump casing 85 an outlet pipe, the two outlet pipes 90 and 91 leading, as depicted in Fig. 5, into a common pipe 92 arranged in communication with a third port 93 in the casing 67a of the direction control valve 67, which port is disposed centrally between and in line with the two other ports 66 and 72 in the same side of the said casing. In the opposite side of the direction control valve casing 67a are formed two still further ports (outlet ports) 94 and 95 which are comparatively widely spaced apart and connected by a common passage 96 leading into an oil drainage pipe 97 extending down into the oil in the tank R. Branching off from the reverse line piping 71 connecting the direction control valve 67 with the upper ends of the cylinders 55 is another drainage pipe 98 which extends into the oil tank R and incorporates a one-way relief valve 99 designed to open at a predetermined pressure e. g. of 60 lbs. per square inch. This relief valve 99 accordingly controls the oil pressure available to effect the opening stroke of the machine, and also the pressure of the oil when the machine is in the fully open position. In the outlet pipe 90 connecting the high delivery low pressure pump 83 with the pipe 92 leading to the direction control valve is incorporated a spring-controlled piston valve 100 arranged to be supplied with oil along a pilot line 101 branching off from the outlet pipe 91 of the low delivery high pressure pump 84. In the outlet pipe 91 is provided, in alignment with the pilot line 101, a manually adjustable relief valve 102 the housing 103 of which is fitted with a drainage pipe 104 extending down into the oil in the tank R. The piston 100a of the spring controlled piston valve 100 is actuated by the oil in the high pressure pump line circuit. The oil in this circuit on attaining a predetermined pressure as controlled by the setting of the spring 105, actuates the piston valve 100a, and connects a port 106 in the casing of this valve direct to tank R, via a pipe 107, thus causing the unloading of the high delivery pump 83, as and for the purpose hereinafter described. For this reason it will be convenient to refer to the valve 100 as the "low pressure pump unloading valve." A further connection 108 is provided between the latter valve and the high pressure pump circuit incorporating a one-way check valve 109 to isolate that portion of the valve common to the high delivery low pressure pump ports 110 and 111. It is to be clearly understood that the direction control valve 67, the twin pump assembly, the low pressure pump unloading valve 100 and the associated relief and check valves 103 and 109 respectively are common to both of the cylinder and piston arrangements for effecting and controlling the movements of the swing arms 40 and hence also of the bottom feed roll 43 toward and away from the top feed roll 17 and

the spirally-bladed fleshing cylinder 7, according to requirements, appropriate piping being provided to make this possible.

Referring again to the swing arms 40, each of these is formed with a shoulder 112, adapted, whenever the arm is swung upwards, to come into contact with a stop or abutment 113 the purpose of which is to determine the full extent of the upward movement. Since the bearings 5 of the fleshing cylinder shaft 6 are permanently fixed, the stops 113 are made adjustable to vary the extent of the upward movement of the swing arms for the purpose not only of compensating for wear on the blades of the fleshing cylinder but also for varying the pressure on the work. As shown in Fig. 6, each of the stops 113 proper is constituted by the leading end portion of a horizontally disposed rod-like member 114 mounted for movement longitudinally within a stop box 115 bolted to the outer side of the relevant end frame 2 of the machine (see Figs. 2 and 3). The rear end portion 114a of each stop member 114 is exteriorly screw-threaded for engagement with an interiorly screwed sleeve 116 mounted to turn in bearings 117 and 118 in the stop box 115. The stop member 114 is prevented from rotating by means of a screw 119 which is fixed in the box and extends into a longitudinal groove 120 formed in the said member. Referring to Fig. 6, it will be seen that the sleeve 116 has keyed thereto a spiral gear 121 between which and an opposed flange 116a formed on the sleeve near the leading end thereof is interposed a coaxial compression spring 122. The sleeve 116 and hence also the stop member 114 are capable of limited longitudinal sliding movement within the stop box 115 and relatively to the spiral gear 121. The said gear is arranged in mesh with a further spiral gear 123 which is secured upon a cross shaft 124 adapted to be rotated, for the purpose of adjusting the stop member 114, by a handwheel 125 (Fig. 2) at the front right-hand side of the machine, through the medium of a hand-wheel shaft 126 and intermeshing bevel gears 127 and 128. The cross shaft 124 serves to connect the gearing in both stop boxes 115 at opposite sides of the machine, so that manipulation of the common handwheel 125 will result in simultaneous adjustment of both stops 113. The construction is, therefore, such that the swing arm stops 113, besides being adjustable, are capable of yielding when contacted by the abutments 112 on the swing arms 40—until the compression springs 122 are fully compressed. The fully open position of the machine is determined by the pistons 53 contacting the lower ends of the cylinders 55.

The operation of the machine is as follows:

Assume, first that all three electric motors 11, 38 and 80 are running and that the machine is open as depicted in Figs. 2, 4 and 5, that is to say with the bottom feed or bed roll 43, now stationary, in its lowest position (separated to the maximum extent from the top feed roller 17 and the fleshing cylinder 7) in readiness to receive a skin. In this position, the piston rods 51 are fully withdrawn from the cylinders 55, the undersides of the choke pistons 53 are closely adjacent to but just above the lowermost ports 60 in the said cylinders and the latter are filled with oil at the prescribed pressure determined by the one-way relief valve 99 in the drainage pipe 98 extending from the reverse line piping 71 (Fig. 5). In addition to this, oil is prevented by the portion 68b of the piston 68 of the direction control valve 67 from passing into the "in" line piping 75

65, although the latter is in communication with the oil tank R, through the relevant outlet port in the valve casing 67a and the associated drainage pipe 97. Moreover, oil pumped from the twin pumps 83 and 84 is being fed in to the reverse line piping 71 which at this stage is shut off from the oil tank. The operator now places the skin to be operated on upon the bed roll 43 and depresses and holds down the treadle 76 against spring action. As a consequence the piston 68 of the direction control valve 67 is instantaneously shifted so as to reverse the conditions, that is to say place the "in" line piping 65 in communication with the pumped oil and open the reverse line piping 71 to the oil tank R. With both the high delivery low pressure and the low delivery high pressure pumps 83 and 84 operative, the main and choke pistons 52 and 53 will be speedily forced up the fulcrumed cylinders 55, the oil in the cylinders above the main pistons 52 being simultaneously displaced and forced back into the tank, thereby causing the swing arms 40 to be swung upwards until the shoulders 112 thereon make contact with the preadjusted stops 113. As the stops commence to be pushed back against the action of the associated compression springs 122, the oil pressure increases, due to the increasing resistance to movement of the main and choke pistons 52 and 53 in the cylinders until the low pressure pump unloader valve 100 functions to cut out the high delivery low pressure pump 83. When this happens the final portion of the predetermined upward travel of the swing arms 40 and compression of the stop springs 122 is effected by oil delivered solely from the low delivery high pressure pump 84, whereupon the full working pressure is built up. As will be appreciated, immediately the machine is fully closed, i. e. the bed roll 43 is moved into cooperative relation both with the top feed roll 17 and the fleshing cylinder 7 as depicted in Fig. 3, the bed roll 43 will be rotated from the top feed roll 17 by reason of interengagement of the mangle gears 48 and 49, with the result that the skin will be positively fed through the machine and operated on by the blades 7a of the rotating fleshing cylinder 7. When the skin has been dealt with, the operating treadle 76 is released so as to restore the piston 68 of the direction control valve 67 to its originally described position. Hence, the flowing oil is cut off from the "in" line piping 65 and transferred to the reverse line piping 71 with the result that the main pistons 52 are forced down the cylinders 55 and the swing arms 40 are swung down to separate the bed roll 43 from the top feed roll 17 and so interrupt the drive to the bed roll and cause it to stop rotating. Meanwhile, oil beneath the choke pistons 53 is forced out of the cylinders 55 through the one-way "in" line check valves 70 and the corresponding branch pipes 64 into the "in" line piping 65 and from thence back into the oil tank R. When the choke pistons 53 have passed beneath the ports 61 through which oil is forced out of the lower ends of the cylinders 55 as just described, further oil can escape only via the small bleed ports 54 in the choke pistons 53. This naturally slows up the final stage of the downward movement of the swing arms 40 and provides a dash-pot or cushioning effect. In this way the swing arms 40 come to rest without shock and the opening of the machine is thereby smoothly effected.

The hydraulic system includes a pressure gauge (not shown) by means of which the pressure on

the work and the load on the rolls can be ascertained at a glance.

The framework F of the machine is so designed that the rolls 17 and 43 and the fleshing cylinder 7 can be readily removed, as occasion demands. In addition to the important advantages of the fleshing machine as earlier described, the operator is able instantly to arrest or reverse the movement of the swing arms 40 at any desired point of their stroke, by the simple manipulation of a treadle, practically the entire operating and controlling mechanism is located above the swing arms, the feed rolls and the fleshing cylinder so that it is protected from the corrosive or otherwise deleterious effects of water, fleshings, and so on.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A machine for treating sheet material such as hides comprising a frame, a work treating roll journaled in fixed bearings on said frame, an upper feed roll journaled in arms pivoted to said frame, pivoted spring means acting upon said arms for resisting upward movement of said upper feed roll, two upwardly extending and counter-balanced arms journaled in the lower portion of said frame, a bed roll supported by said upwardly extending arms to cooperate with said upper feed roll and said work treating roll, and fluid pressure means connected to the upper ends of each of said upwardly extending arms for moving said bed roll into and away from cooperative relation with the said feed roll and treating roll.

2. A machine for treating sheet material such as hides comprising a frame, a work treating roll journaled in stationary bearings fixed to said frame, a power driven feed roll mounted parallel with and adjacent to said work treating roll, two arms pivoted to said frame and supporting a bed roll for opening and closing relation with said feed roll and work treating roll, and a fluid pressure system for swinging said two arms including

means for supplying fluid at two different rates.

3. A machine for treating sheet material such as hides comprising a frame, rotary work treating and contacting rolls mounted on said frame for relative motion into and away from operative positions, and a fluid pressure system for moving said rolls including means for supplying fluid at two different rates.

4. A machine for treating sheet material such as hides comprising a frame, parallel work contacting rolls mounted on said frame, two pressure operated piston devices for moving one of said rolls into and away from operative relation to the other rolls, and a fluid pressure system for operating said piston devices including bleed ports associated with the said piston devices to cushion the final portion of the opening movement of the said one roll.

5. A machine for treating sheet material such as hides comprising a frame, a work treating roll journaled on said frame, a feed roll mounted above and in parallel relation to said work treating roll, two arms pivoted to said frame and supporting a bed roll for opening and closing movements relatively to said feed roll and said work treating roll, a fluid pressure system including a piston device associated with each of said two arms, and means for supplying fluid to each of said devices at two different rates.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
14,375	Steer	Mar. 4, 1856
1,215,866	Roche	Feb. 13, 1917
1,587,945	Gebrath	June 8, 1926
1,996,877	Niessen	Apr. 9, 1935
2,033,154	Schettler	Mar. 10, 1936
2,054,443	Pierson	Sept. 15, 1936
2,418,913	Stout et al.	Apr. 15, 1947
2,586,879	Stehling	Feb. 26, 1952