

Sept. 20, 1960

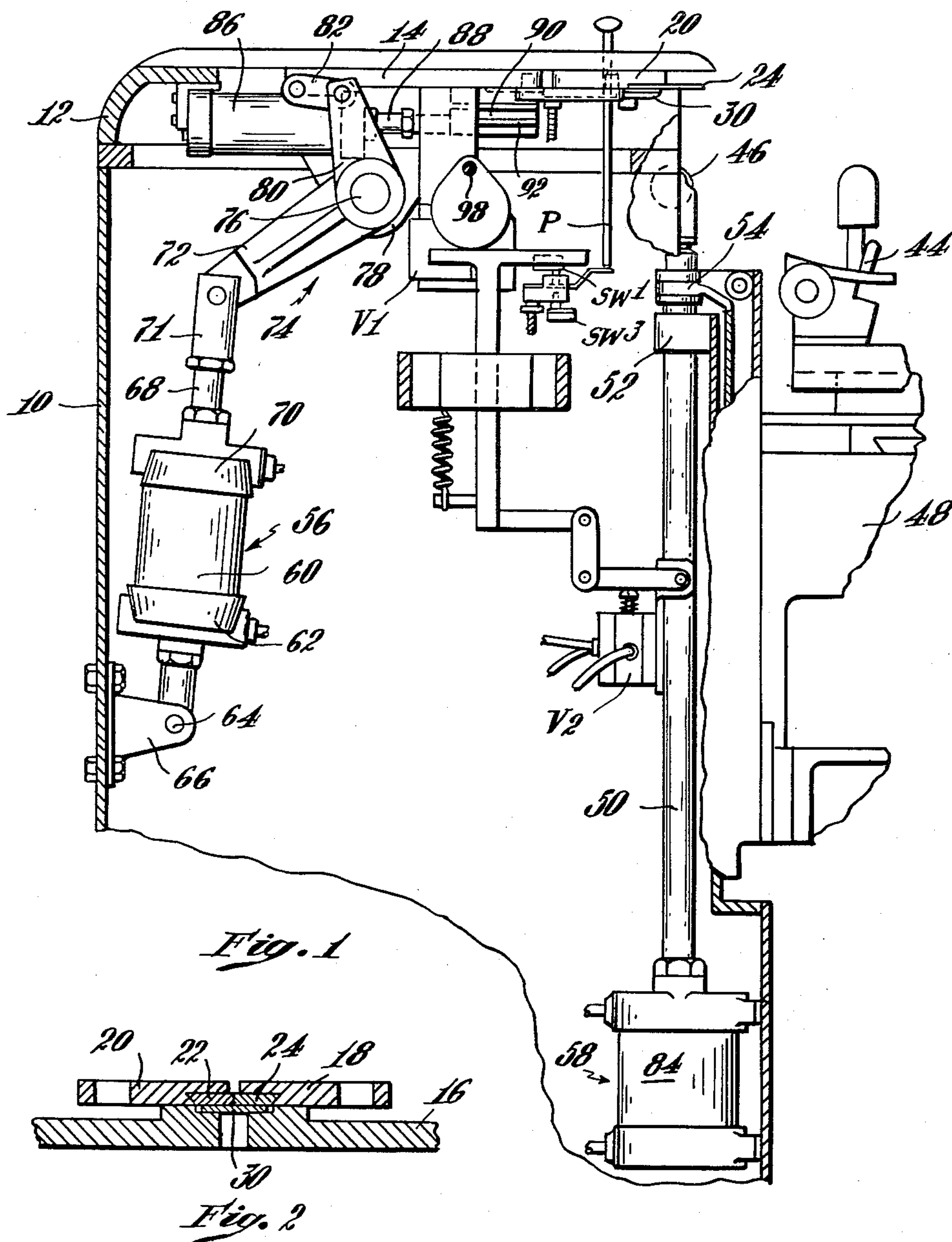
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2,952,858

POWER OPERATED TRIMMER FOR TOE LASTING MACHINE

Filed Dec. 24, 1956

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

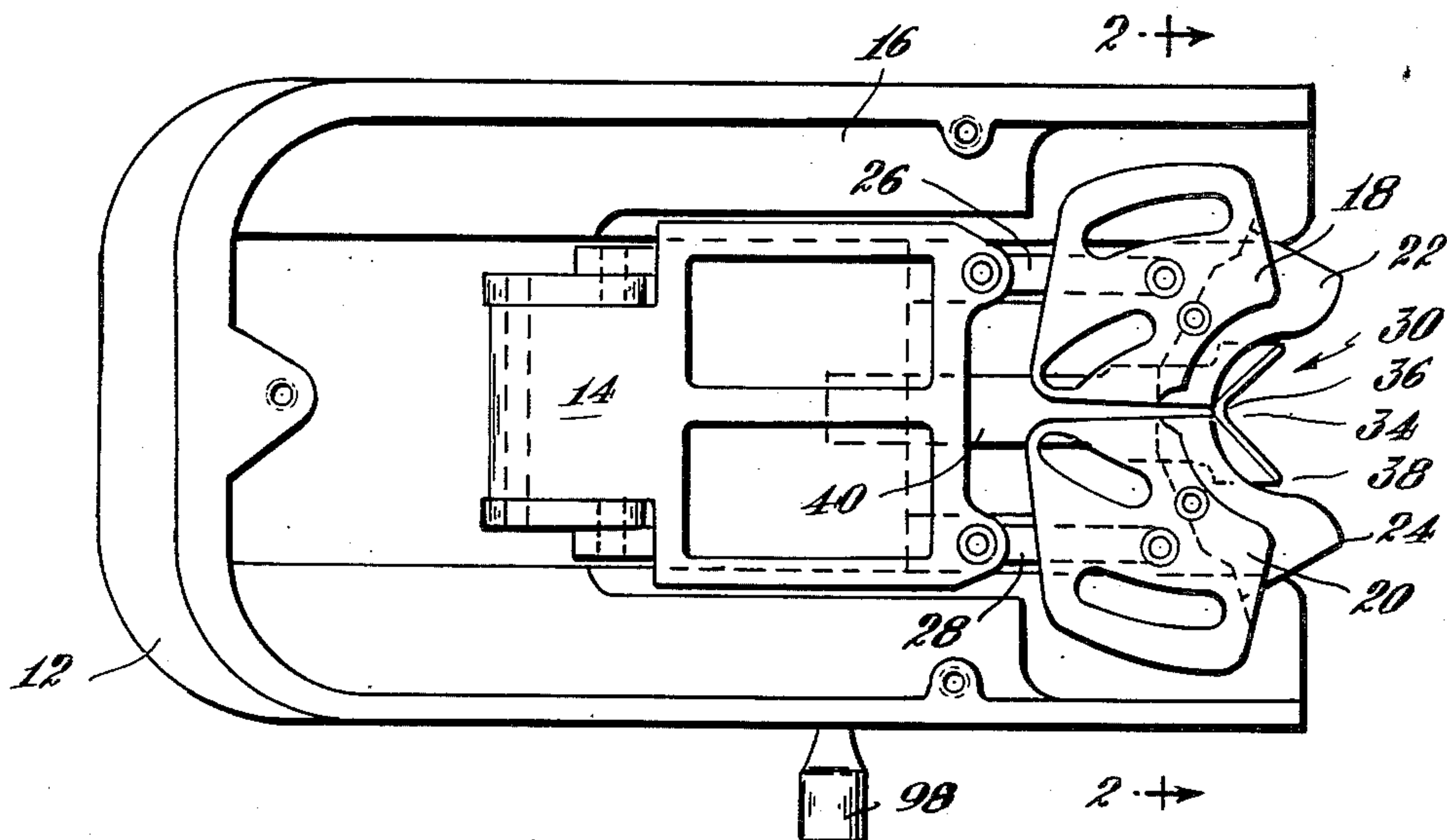


Fig. 3

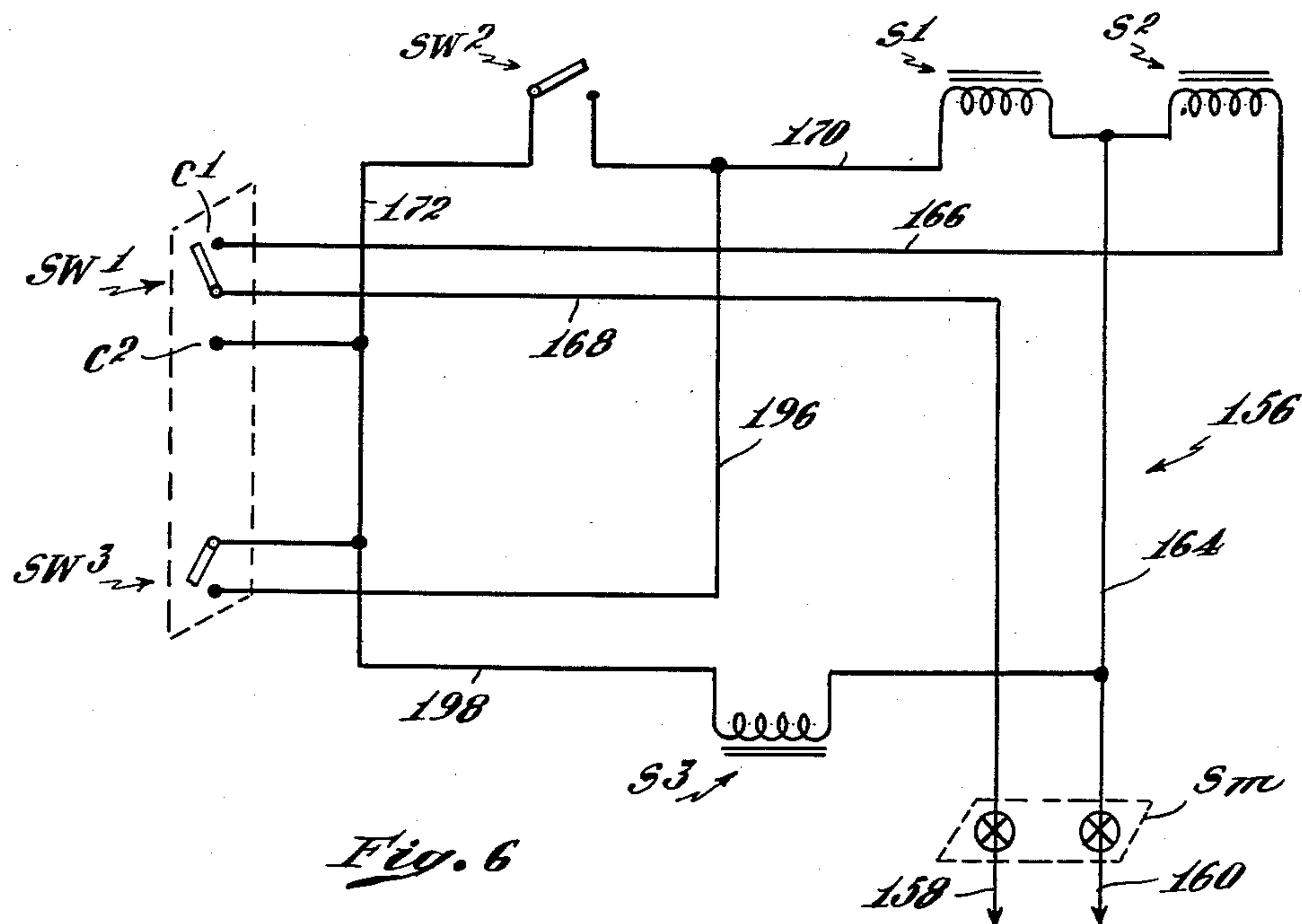


Fig. 6

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4 Sheets-Sheet 3

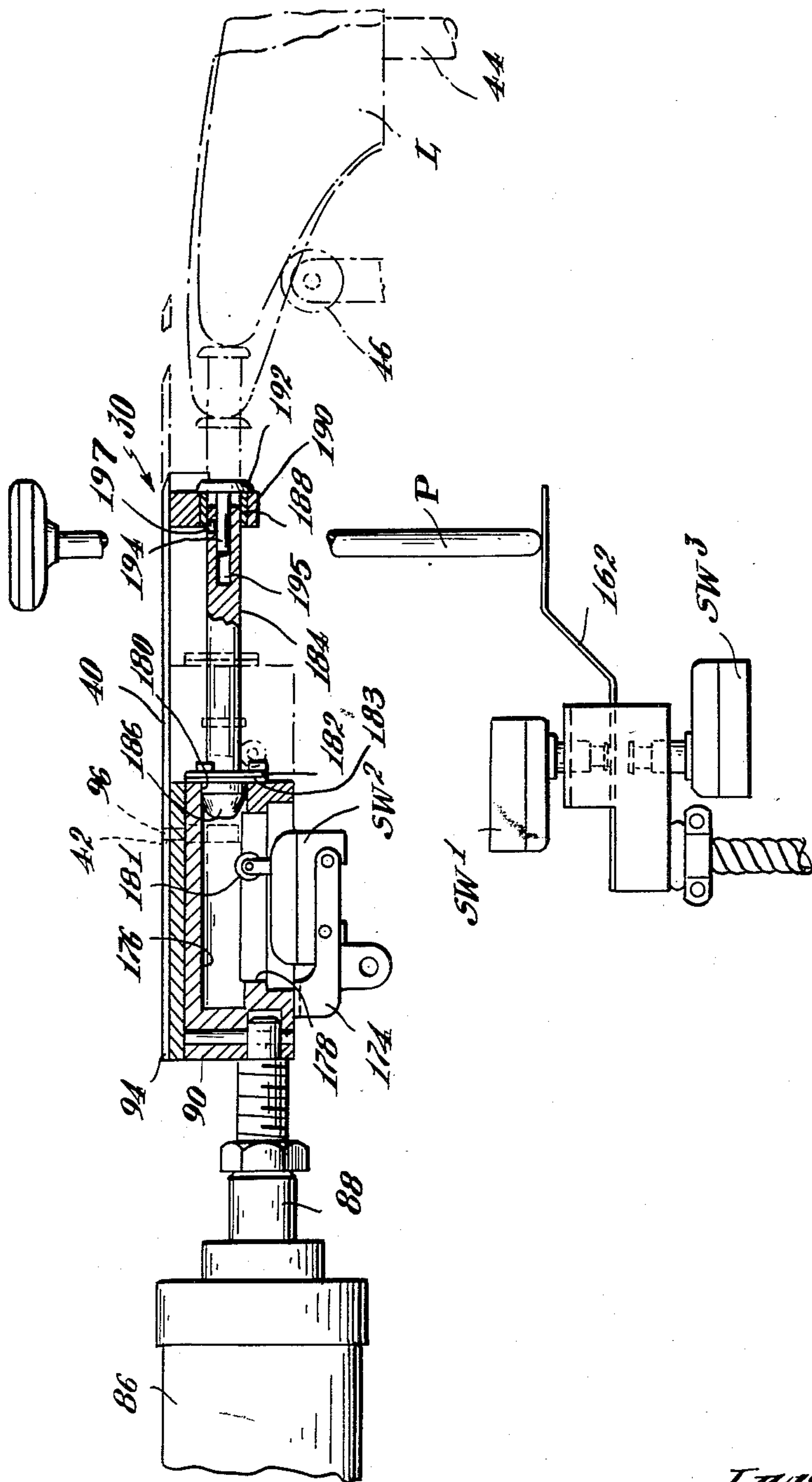


Fig. 4

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4 Sheets-Sheet 4

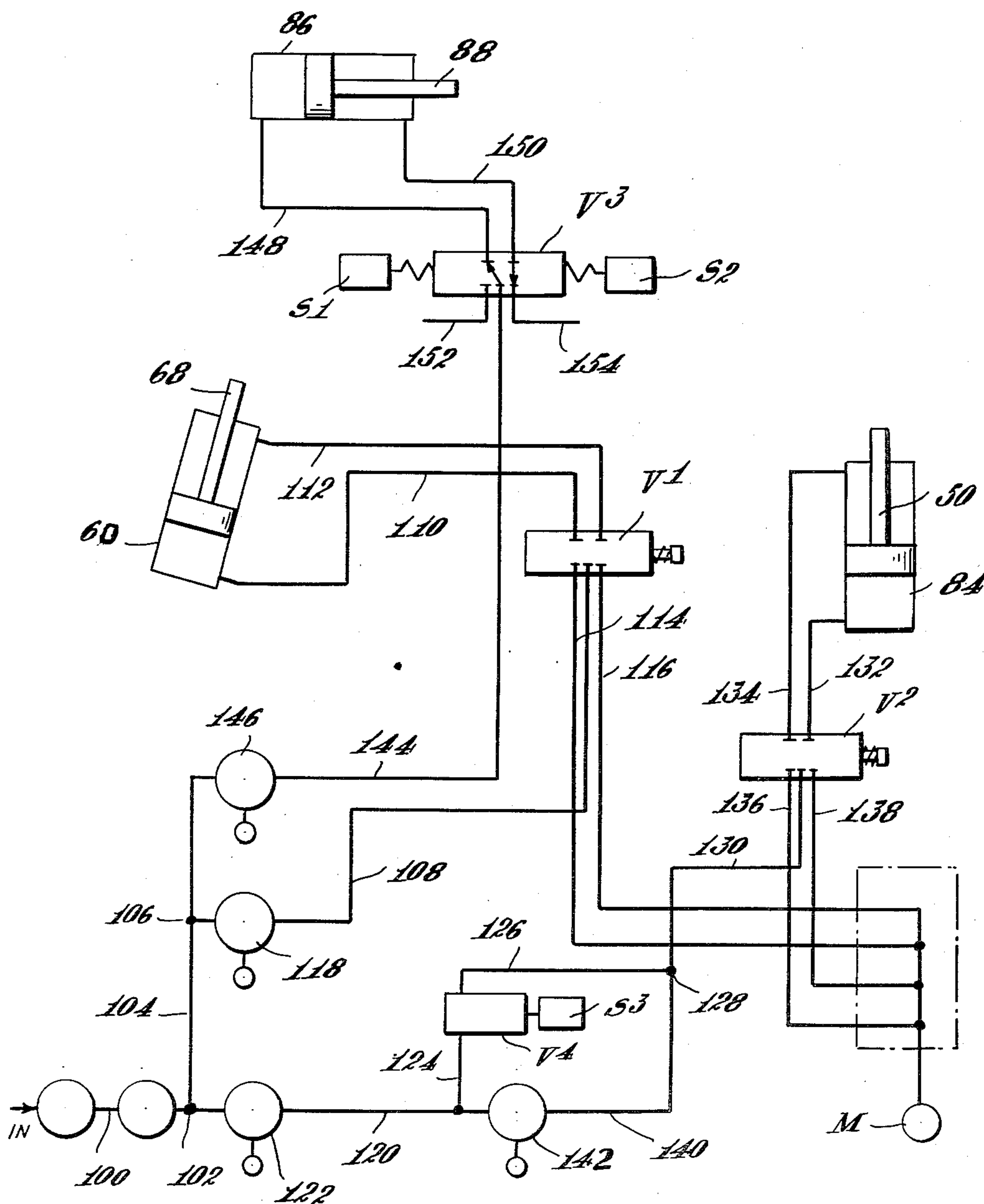


Fig. 5

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2,952,858

POWER OPERATED TRIMMER FOR TOE LASTING MACHINE

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15 Claims. (Cl. 12—7.1)

This invention relates to shoe machines and especially to toe lasting machines, although it is to be understood that the principle of operation related herein has application to other machines and hence that the appendant description which describes its application with reference to toe lasting machines is for the purpose of illustration only and not a limitation.

In toe lasting machines of the kind disclosed in Patent No. 2,668,967, Jacob S. Kamborian and Frank Kaszynski, issued February 16, 1954, there are wipers for stressing the lasting margin at the toe upwardly and inwardly over the bottom. This wiping action produces a series of folds at the toe because of the reduction in length of the margin as it is gathered in about the toe, and a trimming knife is provided for trimming off the folds and excess margins so as to provide as flat a surface as possible to which to attach the outsole. Customarily the shoe is completely lasted prior to trimming and in accordance with the disclosure in Patent No. 2,888,693, issued June 2, 1959, in the name of Thomas A. Weisz, the wipers and shoe support are arranged for relative movement and their movement is effected by fluid operated motors. In the aforesaid Patent 2,668,967 a trimming knife is mounted below the wipers, which knife is manually advanced by pulling on a lever after the shoe has been lasted, to trim off the excess marginal material. An object of the present invention is to provide a trimmer which is power operated as distinguished from manual operation. Another object is to provide a power operated trimmer which is controlled as to the place at which the trimming operation commences by the shoe operated upon, so that for each shoe, regardless of size, the trimming will commence at a predetermined optimum place. Another object is to provide a trimmer which may be power operated in conjunction with the shoe support but at a lower pressure than that employed for the lasting operation to prevent the trimmer from digging too deeply into the lasting margin.

As herein illustrated the trimmer is mounted to move forwardly beneath the wipers toward the shoe support which has been lowered to bring the bottom of the shoe beneath the path of the trimmer. The trimmer is for this purpose connected to a fluid motor mounted on the machine frame. The fluid motor may be supplied with pressure fluid at either end, admission being controlled by shiftable valves so that the trimmer may be caused to approach the shoe on the support and to stop as it reaches a predetermined position with respect to the tip of the toe regardless of the nearness or remoteness of the tip of the shoe, by reason of its great length or short length, from the point at which the trimmer starts. Following the initial positioning of the trimmer with respect to the shoe the support is raised from its lower position to bring the shoe into engagement with the edge of the trimmer whereupon fluid pressure is again supplied to the motor to continue the forward movement of the trimmer to perform the trimming operation. The motor is started by means including a push rod which initiates

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the operation and the trimming knife is stopped in the optimum gauged position prior to trimming by sensing means in the form of a gauge button or feeler moving therewith which engages the tip of the shoe and which in turn shifts the valve mechanism to cut off the fluid pressure and hence to stop the trimmer at a predetermined point beyond the point at which the feeler strikes the shoe. The feeler is adjustable to vary the movement of the trimmer beyond the point of contact of the feeler with the shoe. Operation of the push rod to start the trimmer simultaneously effects shifting of other valve means in the pressure system so as to reduce the pressure available for raising the shoe support and hence the shoe into a position to be operated upon by the trimmer. After the shoe has been raised into engagement with the prepositioned trimmer further operation of the push rod effects through electrical means shifting of the valve mechanism to again deliver pressure to the fluid motor in a direction to resume forward movement of the trimmer so as to effect trimming.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

Fig. 1 is a vertical section of a toe lasting machine showing the work support, wipers, trimmer and power operated means for effecting relative movement of the instrumentalities;

Fig. 2 is a transverse vertical section taken on the line 2—2 of Fig. 3;

Fig. 3 is a plan view looking down at the top of the machine with the cover plate removed;

Fig. 4 is an enlarged elevation partly in section of the trimmer and power operated means, showing the feeler or positioning button;

Fig. 5 is a diagrammatic layout of the fluid pressure operating system for motivating the several instrumentalities; and

Fig. 6 is a diagrammatic layout of the electric circuit for controlling the valve means illustrated in Fig. 5.

The power operated trimmer and the control mechanism therefor is shown herein applied to the toe lasting machine which forms the subject matter of Patent No. 2,668,967, redesigned as shown in Patent No. 2,888,693 referred to above for fluid power operation of the wipers.

In the patented machine a supporting frame (Fig. 1) consisting of a hollow base 10 and cap 12 provides support for a horizontally arranged slide 14. The forward end of the slide 14 rests upon a wiper support 16 (Fig. 2) and which may, for example, be a web integral with the cap 12, and which extends across the cap from one side to the other. This wiper support is provided with a smoothly finished upper surface, forming a guide for a pair of wiper actuators 18 and 20, whose under-surfaces are shaped to provide guideways for a pair of wipers 22 and 24. The forward end of the slide 14 has pivotally connected to it the rear ends of links 26 and 28, which extend forwardly beneath the wiper actuators and are pivotally connected thereto at their forward ends. The wiper actuators are provided with slots of proper shape to impart the desired wiping movement to the wipers and movement of the actuators is effected through the aforesaid links by reciprocation of the slide 14.

The wiper support 16 is shaped to provide a guide way (Fig. 2) for a trimming blade or cutter 30 which is disposed immediately beneath the wipers 22 and 24, and which is guided for movement from front to rear. The cutter 30 is made of sheet metal of appropriate thickness and has a forwardly facing cutting edge 34 which diverges at an angle of about 90°. The crotch at the intersection of the edges 34 is filleted as shown at 36, to eliminate high stress at this point, and preferably the edges 34 are rounded off at 38.

The cutting edges are formed at the forward end of the plate and the latter has an integral rearwardly extending shank 40 which is pierced to provide a hole 42 (Fig. 4) to receive a driving pin for connection to power operated means, as will appear hereinafter.

Preliminary to trimming, the assembled upper is drawn on a last L and is held in a position to be operated upon by the wiper blades 22 and 24, to stress the lasting margin upwardly about the toe and lay it down against the bottom, by shoe supporting means including a heel rest 44 and a toe rest in the form of a roll 46 (Fig. 1). The heel rest is mounted on the carriage 48, only a fragmentary portion of which is shown in Fig. 1, which is vertically slidable on the wall of the frame. The toe rest 46 is mounted on the upper end of a rod or post 50 situated at the inside of the frame and slidable vertically in a guide 52. Movement of the carriage in unison with the toe support is attained by a connecting collar 54 extending from the carriage and encircling the post 50.

Movements of the slide 14, of the toe support 46 and carriage 48, are produced by motors 56 and 58 (Fig. 1) which are preferably pneumatically operated piston and cylinder assemblies. The motor 56 comprises a cylinder 60 having a head 62 at one end pivotally connected to the frame of the machine by a pin 64 and bracket 66. The cylinder contains a piston to which is fixed a piston rod 68 which protrudes from the opposite head 70. The protruding end of the piston rod 68 has fastened to it a block 71 which is bifurcated pivotally to receive one arm 72 of a bell crank lever 74. The lever is pivoted on a pin 76 carried by bosses 78 integral with the frame. The other arm 80 of the bell crank lever 74 is pivotally connected by links 82 to the rear end of the slide 14. Movement of the piston rod 68, will therefore, effect the reciprocation of the slide 14 by rocking the bell lever.

The motor 58 comprises a cylinder 84 bolted to the inside of the frame near the base and contains a piston and rod protruding from the upper end which may be an integral part of the post 50 or may be fastened thereto at some point between the top of the cylinder and the toe support 46. Movement of the piston in the cylinder 84 will, therefore, effect the vertical movement of the post 50 and hence elevation of the toe support roll 46 and of the heel carriage 48 which moves vertically with it. Movement of the carriage with the post 50 is effected as previously explained by engagement of the collar 54 with the post.

The trimmer 30 is power operated by a motor constituted by a double-acting cylinder 86 fastened to the underside of the cover and containing a piston and rod 88 protruding from one end, the latter carrying a block 90 which has along its opposite sides guides 92 for supporting it for sliding movement in ways provided in the frame. The top of the block has in it a shallow recess 94 into which the shank 40 of the trimmer fits and is held by a pin 96 which engages within the hole 42 in the shank. The motor 86 is connected, as will appear hereinafter, to a source of fluid pressure with which there is associated a double solenoid actuated valve, operation of which exhausts fluid from one end of the cylinder and admits it to the other to cause forward movement of the trimmer and vice versa to retract the trimmer. The valve is spring balanced so as to take up a neutral position when not acted upon by the solenoids.

Control of the wipers, work supporting means and trimmer is effected semi-automatically so as to permit the wiping action to be carried out at a relatively high pressure suitable for stressing the lasting margin over the bottom and pressing it down to cause it to adhere thereto, and to permit the trimming operation to be carried out at a relatively lower pressure so that the trimming may be accomplished without cutting too deeply into the margin as would likely occur if trimming was attempted at the higher lasting pressure.

According to the mode of operation, the upper and insole assembled on the last are first lasted, for instance, by manipulating the shoe supporting means and wipers in such fashion as to bring the wipers in close to the end of the toe and then to draw the shoe support downwardly with respect to the wipers, while simultaneously advancing them more firmly against the end of the toe, thus to apply an updrafting stress and an inwiping stress substantially simultaneously. While a too high pressure is not wanted, sufficient pressure should be employed to insure the right amount of smoothness where the margin passes around the shoulder of the last and the right amount of pressure to cause the margin to lie flat against the bottom. The lasting margin may be precoated with adhesive and activated by heat during the wiping operation or hot quick setting adhesive may be applied during the lasting operation. Following the lasting operation, it is usual to lower the shoe support slightly and to bring the trimmer inwardly into engagement with the lasting margin. Optimum results are secured by jockeying the shoe support and trimmer so that the trimming operation commences at about a quarter of an inch inwardly of the shoulder of the last so as not to remove so much of the margin as to weaken the bond. On the other hand, it is desirable to start the trim soon enough so that an excessive amount of the lasting margin is not left which would protrude and interfere with attaching the outsole. The purpose of this invention is to provide means for controlling the stroke of the trimmer according to the size of the shoe on the support, so that it will always commence its cutting or trimming operation from a predetermined point about one-quarter inch inwardly from the end of the toe, although it is to be understood that this distance from the end of the toe at which trimming commences may be varied one way or the other because of such other circumstances as the weight of the upper material, its strength and/or the style of the shoe.

The control for the several motors, which in turn effect operation of the wipers, shoe support and trimming knife, are effected through several valves V1, V2 and V3, the positions of which control flow of pressure fluid to the motors 56, 58 and 86. As in the aforementioned application, the positions of the valves V1 and V2 are controlled by a single handle 98 (Fig. 3) which is operable by pushing and pulling movement to effect a corresponding rearward and forward movement of the wipers and by rotation of which, in clockwise and counterclockwise directions, the shoe support is depressed and elevated. The kinematics involved in operatively connecting the handle 98 to these valves V1 and V2 for moving them is described in the aforesaid Patent 2,888,693 and shown herein, and hence, need not be redescribed.

The valve V3 (Fig. 5) is employed to control the flow of fluid pressure to the motor 86 and the valve in turn is actuated by a pair of solenoids S1 and S2, a single pole double throw switch SW1 (Fig. 6), and a plunger-type spindle P (Figs. 1 and 4) arranged to throw the switch SW1 between positions C1, C2 to energize the solenoid S1 and to de-energize the solenoid S2 and vice versa.

Referring to Fig. 5, in the diagrammatic layout of the fluid pressure systems, it will be seen that the valves V1, V2 and V3 are connected to a common source of fluid pressure which is represented herein by a line 100 which may be part of a pressure system maintained in the plant or be connected to a motor driven compressor or pump incorporated in the base of the machine. From the source 100, pressure is carried by a T 102, line 104, T 106 and line 108 to the valve V1. From the valve V1, lines 110 and 112 extend to opposite ends of the cylinder 60. Exhaust lines 114 and 116 extend from the valve V1 to an exhaust muffler M. A regulator 118 may be included in the line 108 to permit varying the pressure delivered by the valve V1 to the cylinder 62.

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The delivery of the pressure to the wipers is thus controlled by the position of the valve V1.

Pressure is supplied to the valve V2 and hence to the cylinder 84 which elevates the shoe support directly from the line 100 by way of a line 120 in which there is a regulator 122, a line 124, a normally open valve V4, a line 126, T 128 and line 130. Lines 132 and 134 extend from the valve V2 to the cylinder 84 to supply fluid to either end thereof as controlled by the valve V2. Exhaust lines 136 and 138 extend from the valve V2 to the exhaust muffler M. The delivery of pressure to the work support is thus controlled by the position of the valve V2. A line 140 by-passes the valve V4, however, fluid is normally blocked through this line by a pressure regulator 142 therein.

Pressure is supplied to the cylinder 86 which controls movement of the trimmer from the line 100 by way of the line 104 and a line 144 which has in it a regulator 146. Lines 148 and 150 extend from the valve V3 to provide for delivery of pressure fluid to either end of the cylinder 86 and exhaust lines 152 and 154 extend from the valve V3 to the muffler M. The delivery of pressure to the trimmer is thus controlled by the position of the valve V3.

The valves V1 and V2 are mechanically shifted through linkage operable by the handle 98 referred to above. The valve V3, however, is shifted by combination of mechanical and electrical means, the mechanical means being shown in Fig. 1 and the electrical means being shown in Fig. 6. The electrical means (Fig. 6) comprises a circuit 156 supplied with 110 volts alternating current through conductors 158 and 160 by way of a master switch Sm. In the circuit 156 there are the two solenoids S1 and S2 referred to above which as shown in Fig. 5, are mechanically connected to the opposite ends of the valve V3 (Fig. 5) so that energization of the solenoid S1 pulls the valve to the left and energization of the solenoid S2 pulls it to the right. In the circuit there is a single pole double throw switch SW1 having contacts C1 and C2 and a normally closed switch SW2. The blade of the switch SW1 is supported in engagement with the contact C1 by a spring element 162 (Fig. 4) which has contact with the lower end of the spindle P and may be depressed thereby to disengage the blade of the switch SW1 from the contact C1 and to engage it with the contact C2. In its normal position in engagement with the contact C1, the solenoid S2 is energized by a passage of current through the line 160 and line 164 to one end of the solenoid S2 and from the other end of the solenoid through a line 166, the contact C1, the switch blade and the line 168 back to the line 158. When the solenoid S2 is energized, the valve V3 is held in a position so that pressure in the line 144 is delivered through the valve V3 and line 150, thus supplying pressure to the right-hand end of the cylinder and holding the piston displaced to the left end, in which position, the trimmer is in its retracted inoperative position. Depression of the spindle P so as to shift the switch blade from the contact C1 to the contact C2 breaks the circuit through the solenoid S2 and establishes a circuit through a solenoid S1 by the way of the lines 160 and 164 and from it by lines 170, the normally closed switch SW2, the line 172, the contact C2 and the line 168 to the line 158. Energizing the solenoid S1 shifts the valve V3 so as to permit flow of fluid from the line 144 through the valve V3 and the line 148 to the left-hand end of the cylinder 86. Simultaneously, a solenoid S3 is energized for a purpose which will appear hereinafter. The switch SW2 is carried by the block to which the trimmer is attached and is opened when the trimmer reaches a predetermined position with reference to the shoe on the shoe support so as to break the circuit through the solenoid S1 and hence cause the trimmer to stop as will now appear.

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the switch SW2 is mounted on a bracket 174 bolted to the underside of the block 90, the latter being hollowed out to provide a longitudinally extending chamber 176 with an opening 178 at its lower side and at one end at 180. The switch SW2 has on it, a trip 181 which projects upwardly into the chamber 176. Fastened to the block, is a bearing plate 182, through which there is a hole concentric with the chamber 176 in which there is slidably mounted a rod 184 having at its inner end a conical portion 186. The opposite end of the rod 184 is slidable through a bearing sleeve 188 supported in a bar 190 extending across the frame of the machine. A rubber washer 183 is placed behind the plate 182 so as to frictionally engage the rod and assist in restoring it to its retracted position as the trimmer is drawn back. As thus constructed, as the block 90 is advanced by the cylinder 86, the switch SW2 and rod 184 advance therewith. At the end of the rod 184 there is a sensing device in the form of a button 192 fastened to a stem 194 extending into an axial hole 195 and adjustably held therein by set screw 197. Engagement of the button with the end of the shoe (Fig. 4) prevents further movement of the rod 184, but since the opposite end of the rod is slidable in the bearing plate 182, the block, together with the trimmer 30, continues to advance until the conical end 186 of the rod engages the trip 181. As soon as the trip 181 is depressed, the switch SW2 is opened and opening of the switch SW2 as heretofore related, de-energizes the solenoid S1 with the result that the valve V3 centers itself, blocking the flow of fluid into or out of either end of the cylinder 86 so that the trimmer stops. The position of the button 192 with reference to the edge of the trimmer 30 is selected so that the trimmer will continue to advance after the button has come in contact with the end of the shoe about one quarter inch, this distance being represented by the space between the back side of the button and the forward end of the rod 184. By adjusting the longitudinal position of the stem 194 in the rod 184, the distance may be increased or decreased. Thus, it is possible to bring the trimmer 30 to a stop in its forward movement which is controlled by the size of the shoe regardless of the initial spacing of the trimmer and shoe and with the edge of the trimmer in an optimum position for commencement of the trimming operation. Resumption of the forward movement of the trimmer for trimming is effected after the initial positioning by further depressing the spindle P so as to bring the blade into engagement with the switch SW3 which closes the normally open switch SW3, thereby to re-establish the flow of current through the solenoid S1 by way of lines 160 and 164 and out by way of the lines 170, 196, and the switch S3 and 198 to the line 158.

As previously stated, the trimming desirably should be carried out at a lower pressure than the lasting so that the pressure between the shoe, produced by upward movement of the support and the underside of the trimmer backed by the wipers above it, is not so great as to cut too deeply into the lasting margin. There is accordingly, incorporated in the circuit 156 and fluid pressure system a valve V4, heretofore referred to, and the solenoid S3 for effecting movement thereof. The valve V4, as previously related, is connected to the line 120 by a line 124 and is normally in an open position so as to permit fluid to flow from the line 120 through the line 126 and line 120 to the valve V2 at line pressure. The solenoid S3 is included in the line 198, as shown in the circuit diagram, and when the switch SW1 is shifted from C1 to C2 for the purpose of energizing the solenoid S1 to advance the trimmer for trimming, the solenoid S3 is simultaneously energized to shift the valve V4. Shifting of the valve V4 to the left closes it so that pressure from the line 120 is forced to pass through a regulator 142 at a reduced pressure to the valve V2 and hence so that the cylinder 84 is supplied with fluid

Referring to Fig. 4, for operation of the switch SW2, 75

at a reduced pressure. Thus when the shoe support is raised to bring its bottom into operative position it cannot be pressed so hard against the trimmer as to damage the shoe.

In summary, the lasting and trimming is effected as follows: Having mounted the assembled upper on the last, the operator grasps the handle 98 (Fig. 3) and by a combination of push and pull movements and rotary movement, brings the shoe support 44—46 upwardly to a level somewhat above the wipers and concomitantly brings the wipers forwardly so that they come to bear on the upper just below the shoulder of the last. By further manipulation of the handle 98 to lower the shoe support while the wipers are held firmly against the upper, an updrafting stress, that is, heightwise stress is applied to the lasting margin which pulls the upper tautly about the last and draws it inwardly about the shoulder, folding it inwardly about the marginal edges of the bottom. This wiping may be effected by a series of manipulations in which the wipers and support are alternately moved toward and from each other to tension the upper smoothly about the toe without wrinkling. After the lasting has been completed to the satisfaction of the operator, the shoe support is lowered so as to bring the bottom of the shoe just below the level of the plane of operation of the trimmer, whereupon the spindle P (Fig. 1) is pushed downward just far enough to actuate the switch SW1 by shifting its switch blade from the contact C1 to the contact C2. This advances the trimmer 30 toward the shoe and simultaneously reduces the pressure delivered to the shoe support cylinder 84. Since the button 192 is located below the plane of the trimmer, contact of the button with the toe of the shoe will take place without engagement of the trimmer with the lasting margin. Following contact of the button with the shoe the trimmer knife advances approximately one quarter of an inch, whereupon the normally closed switch SW2 is opened by relative movement of the rod 184 and the trimmer carrier block 90 so as to cut off delivery of pressure fluid to the left end of the trimmer cylinder 86 and bring the trimmer to a stop. Having brought the trimmer to the proper initial position with reference to the particular shoe being trimmed, the shoe is raised by manipulation of the handle 98 from its lowered position into a position to press the bottom of the shoe against the underside of the trimmer to cause the edge of the trimmer to bite into the margin. Resumption of movement of the trimmer is now effected by pushing the spindle 100 further down so as to close the normally open switch SW3, which through the solenoid S1 and the solenoid S3 again delivers pressure fluid to the left side of the cylinder 86.

Upward deflection of the trimmer is resisted by the overlying wipers which back the trimmer. Release of the spindle opens the switch SW3 and restores the switch SW1 to the position in which its blade is in engagement with the contact C1, thereby restoring normal pressure to the work support and supplying pressure to the right-hand end of the trimmer cylinder so as to restore the trimmer to its retracted inoperative position.

The gauge button 192 which variably controls the stroke of the cutter so as to position it for operation according to the character of the work-piece, obviously has application to other operations than shoe lasting and trimming operations and while it has been described with specific reference to a toe lasting machine, it is not intended that this should be limiting in any respect.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. Apparatus for operating on shoes comprising means mounting a support for a shoe and a tool in spaced relation so that when a shoe is mounted on the support

there will be a space between the tool and the proximate end of the shoe, said support for the shoe and the tool being variably movable on the mounting means relative to each other to bring the initially spaced tool and supported shoe into a predetermined position relative to each other preparatory to operating on the shoe, motor means operable to effect relative movement of the support for the shoe and tool, and means spaced from the leading end of the tool and movable therewith to intercept the supported shoe, said last named means being automatically operable by interception to terminate operation of the motor means and including means for effecting a time lag between its interception with the shoe and its operation.

2. Apparatus according to claim 1, wherein the included means is adjustable to vary the duration of the lag.

3. Apparatus for operating on shoes comprising means mounting a support for a shoe and a trimmer in spaced relation so that when a shoe is mounted on the support the trimmer will not have contact with the proximate end of the shoe, said support for the shoe and trimmer being variably movable relative to each other to bring the initially spaced trimmer and supported shoe into a predetermined position with respect to each other with the trimmer overlapping the end of the shoe by a predetermined amount, motor means operable to effect relative movement of the support for the shoe and trimmer and a feeler movable with the trimmer, said feeler being automatically operable by contact with the tip of the shoe to terminate operation of said motor means thereby bringing the tool to rest at said predetermined position independently of the initial spacing between the trimmer and the shoe.

4. In a trimming machine, means mounting a shoe support and a trimmer in spaced relation for movement relative to each other, power actuable means operable for moving the trimmer from a retracted position toward the supported shoe, and a yieldably mounted positioning button mounted on and movable with the trimmer automatically operable by yieldable contact with the tip of the shoe to terminate operation of the power actuable means, thereby to terminate said movement of the trimmer toward the shoe with its cutting edge overlapping the tip of the toe by the amount that the button yields.

5. In a machine for operating on shoes, means mounting a support for a shoe and a tool for operation of the tool on an end of a shoe mounted on the support, power actuable means for moving the tool to bring it into an optimum position preparatory to operating on the shoe and of means movable with the tool automatically operable by contact with the leading end of the shoe to stop movement of the tool at said optimum position, in which position it overlaps the leading end of the shoe by a predetermined amount, power actuable means operable to move the support in a direction to thrust the bottom of the shoe against the tool at said position of overlap, and means for thereafter initiating resumption of the movement of the tool while engaged with the shoe bottom.

6. In a machine for operating on shoes, means mounting a support for a shoe and a tool for operation of the tool on an end of a shoe mounted on the support, power actuable means for moving the tool in a direction parallel to the plane of the bottom of the shoe, said operation being controlled by a sensing device to stop its travel at a position overlapping the leading end of the shoe a predetermined amount regardless of the initial distance between the tool and shoe, other power actuable means operable for moving the supported shoe in a direction perpendicular to its bottom to press the bottom of the shoe and tool into engagement at said overlapping position, and means for effecting resumption of movement of the tool parallel to the shoe bottom beyond said position of overlap to cause the tool to operate on the shoe bottom while engaged therewith.

7. In a machine for operating on shoes, the combination with a support and tool for operating on an end of the shoe mounted on the support, of power actuatable means operable for effecting an initial relative movement of the tool and support in a direction parallel to the shoe bottom, sensing means movable with the tool automatically operable by contact with the leading end of the shoe to stop said relative movement with the tool and bottom of the shoe on the support in spaced parallel relation and with the tool overlapping the leading end of the shoe a predetermined amount regardless of the initial distance between the tool and shoe, other power operated means operable for effecting relative movement of the support and shoe in a direction perpendicular to the shoe bottom to bring the tool and shoe bottom into engagement at said overlapping position, and means for effecting resumption of said initial relative movement of the tool and support to cause the tool to commence operating on the shoe bottom at said predetermined position of overlap.

8. Apparatus for operating on shoes comprising means mounting a shoe support, a wiper and a trimmer, said wiper and trimmer being movable in a horizontal plane, and said support being movable in a plane perpendicular to the plane of movement of the wiper and trimmer, fluid pressure responsive means for effecting movement of the several instrumentalities, means for supplying fluid pressure to the pressure responsive means for the wiper and trimmer at a predetermined pressure, shiftable means for supplying fluid pressure to the pressure responsive means for said support at different pressures, said shiftable means normally occupying a position in which fluid at the higher pressure is supplied to the pressure responsive means for the support away from the wiper, a second manually operable to admit fluid to the fluid pressure responsive means for the wiper and to the fluid pressure responsive means for the support at said higher pressure to effect movement thereof in directions parallel and perpendicular to the bottom of the last to gather the upper about the toe, and while the upper is in its operative position to back the support away from the wiper, a second manually operable means operable a first time to admit fluid pressure to the pressure responsive means for the trimmer to advance the trimmer from a retracted position forwardly toward the toe of the shoe, sensing means carried by the trimmer operable by contact with the shoe to render the second manually operable means inoperative to cut off the supply of fluid pressure to said pressure responsive means for the trimmer and simultaneously to shift said shiftable means to supply fluid pressure to the pressure responsive means for the support at the lower pressure so that movement of the first initially operable means will admit pressure fluid to said pressure responsive means for the support at said lower pressure, said second manually operable means being operable a second time to resupply fluid pressure to said pressure responsive means for the trimmer to effect operation of the trimmer on the shoe bottom.

9. In a shoe machine, a shoe support and tool, power actuatable means for effecting relative movement between the support and tool, manual means for controlling the operation of said power actuatable means, said manual means being operable a first time to effect movement of the tool toward the work, and sensing means operable by said relative movement to terminate operation of said power operated means when the tool reaches the shoe regardless of the initial position of the tool with respect to the shoe, said manually operable means being operable a second time to resume operation of said actuatable means to cause the tool to operate on the shoe.

10. In a machine for operating on shoes, the combination with a support and a tool for operating on an end of a shoe mounted on the support, a fluid motor operable to effect an initial relative movement between the tool and support, a valve shiftable from a neutral position to a position to deliver fluid pressure to the motor in a direc-

tion to advance the tool, electrically operable means connected to the valve for effecting shifting thereof, a switch movable with the tool, a trip spaced forwardly of the switch and movable therewith operable by engagement with the tip of the shoe to be displaced rearwardly into engagement with the switch to effect operation of the switch and hence effect movement of the valve to its neutral position, said spacing between the switch and trip operating to permit the tool to advance a predetermined distance beyond the tip of the shoe before it is brought to a stop.

11. In a machine for operating on shoes, the combination with a support for the shoe and a trimmer for operating on an end of the supported shoe, of a double-acting fluid motor connected to the trimmer, a neutrally balanced valve shiftable in one direction to admit fluid to the motor in a direction to retract the trimmer and in another direction to admit fluid to the motor in a direction to advance the trimmer, electrical means conditionable to shift the valve in either direction from its neutral position, means normally conditioning the electrical means to hold the valve shifted in said one direction, manually operable means for conditioning the electrical means to shift the valve in said other direction and means movable with the trimmer operable by contact with the toe of the shoe to condition the electrical means to shift the valve to its neutral position.

12. In a machine for operating on shoes, the combination with a support for the shoe and a trimmer for operating on an end of the supported shoe, of a double-acting fluid motor connected to the trimmer, a shiftable neutrally balanced valve through which fluid is supplied to the motor in one direction to retract the trimmer and in the other direction to advance it, a pair of solenoids connected to the valve, one of said solenoids being normally excited so as to hold the valve in a position to supply pressure to the motor in a direction to hold the trimmer retracted, means including a manually movable element for de-energizing the one solenoid and energizing the other solenoid to shift the valve into a position to supply pressure to the motor in a direction to advance the trimmer from its retracted position toward the shoe, and means movable with the trimmer operable by contact with the tip of the shoe to de-energize said other solenoid, whereupon the valve returns to its neutral position.

13. In a machine according to claim 12, means for re-energizing said other solenoid following de-energization thereof by further movement of said manually movable element.

14. In a machine for operating on shoes, the combination with a support for the shoe and a trimmer for operating on an end of the supported shoe, of a fluid motor connected to the trimmer, a fluid motor connected to the support, means for supplying fluid to the respective motors at a predetermined pressure, valves for controlling the flow of fluid to the respective motors, means for shifting the valve associated with the shoe support to elevate it or lower it with respect to the plane of travel of the trimmer, a pair of solenoids connected to the valve associated with the trimmer motor to advance and retract it, a closed double throw switch normally closed in a position to supply current to one solenoid to hold the valve in a position to supply fluid to the trimmer motor in a direction to hold the trimmer retracted, a manually operable element having two positions of operation, said manually operable element being operable in one position to shift the double throw switch to its opposite position to de-energize said one solenoid and to energize the other solenoid, thereby to shift the valve to a position to admit fluid to the motor to advance the trimmer and concomitantly operable to reduce the pressure supplied to the valve associated with the shoe support motor, a switch movable with the trimmer operable by contact with the end of the shoe to de-energize said other solenoid, whereupon the valve moves to its neutral position and the trimmer is stopped, and a

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switch operable by movement of the manually operable elements to its second position to re-energize said other solenoid which supplies fluid to the trimmer motor in a direction to resume the advance movement thereof.

15. In a machine for operating on shoes, in combination with a shoe support, wipers and a trimmer of pressure fluid operative means connected to the shoe support and wipers and means for controlling said fluid operated means to effect relative movement between the wipers and the supported shoe for stressing the lasting margin over the bottom of the shoe, said control means being operable following lasting to lower the shoe away from the wipers, of a fluid operated means connected to the trimmer for advancing the trimmer from the retracted position beneath the wipers toward the shoe to a predetermined position above the lasted shoe, of manually operable means having a first position to which movement

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thereof initiates movement of said fluid operable means for the trimmer and simultaneously to reduce the fluid pressure of the fluid operable means for the shoe support so that a predetermined lesser pressure exists between the shoe bottom and trimmer during the trimming operation, said manually operable means at a second position of operation operating to recommence movement of the fluid operated means which controls movement of the trimmer to advance the trimmer while engaged with the shoe bottom.

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