Feb. 22, 1938. O. W. FROMM 2,108,850

MARKING MACHINE

Filed Dec. 19, 1934 3 Sheets-Sheet 1

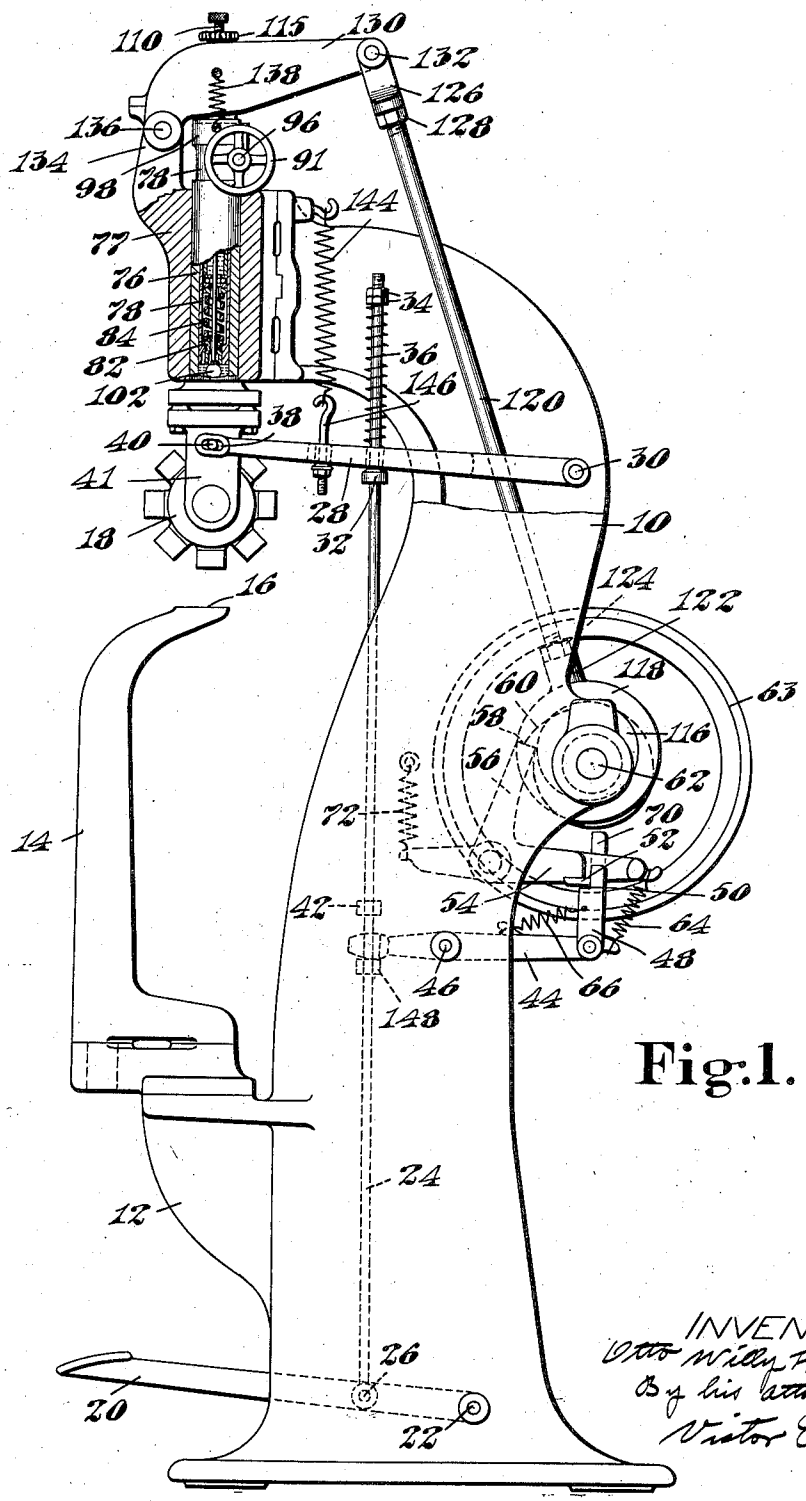


Fig.1.

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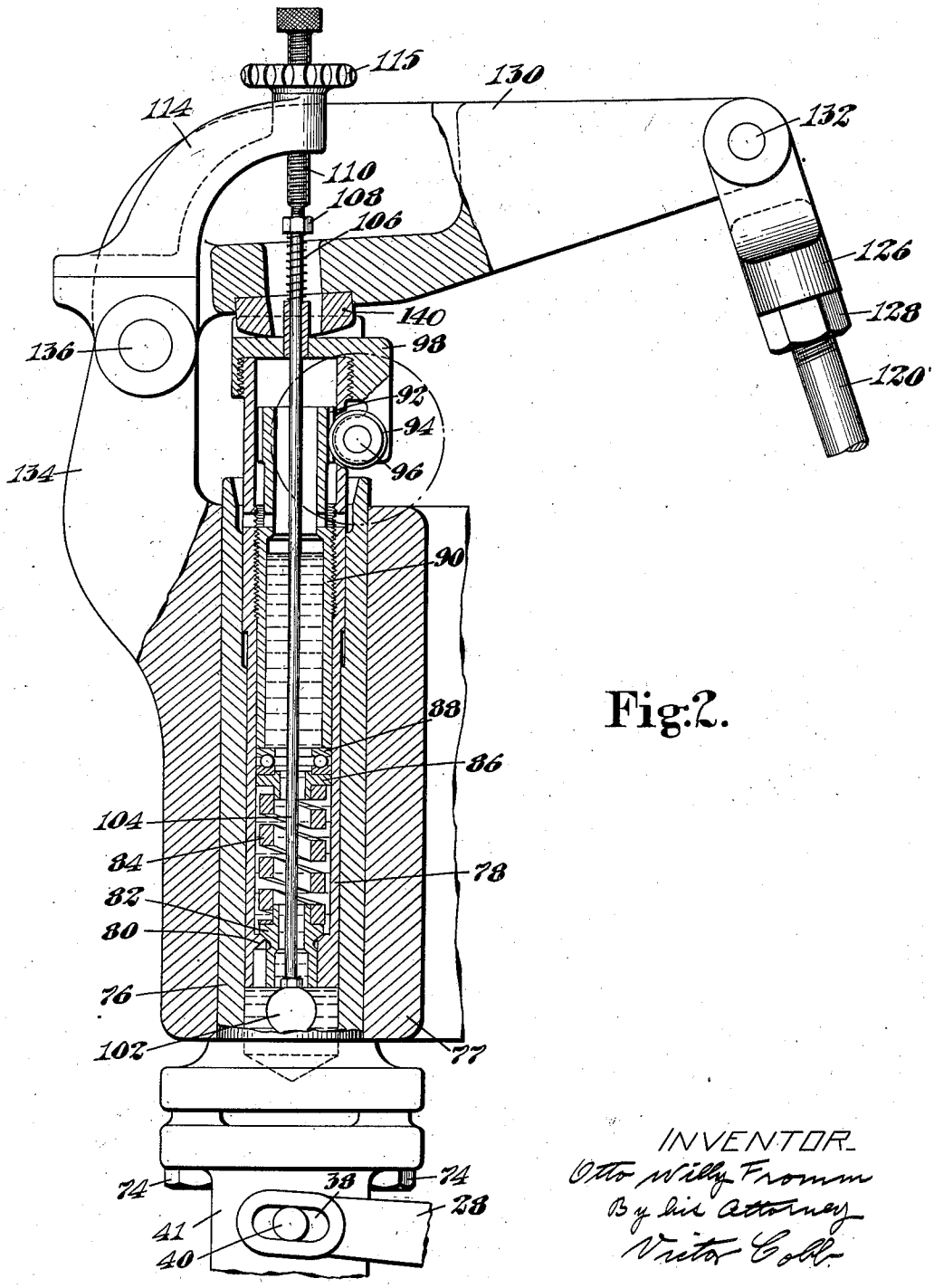


Fig. 2.

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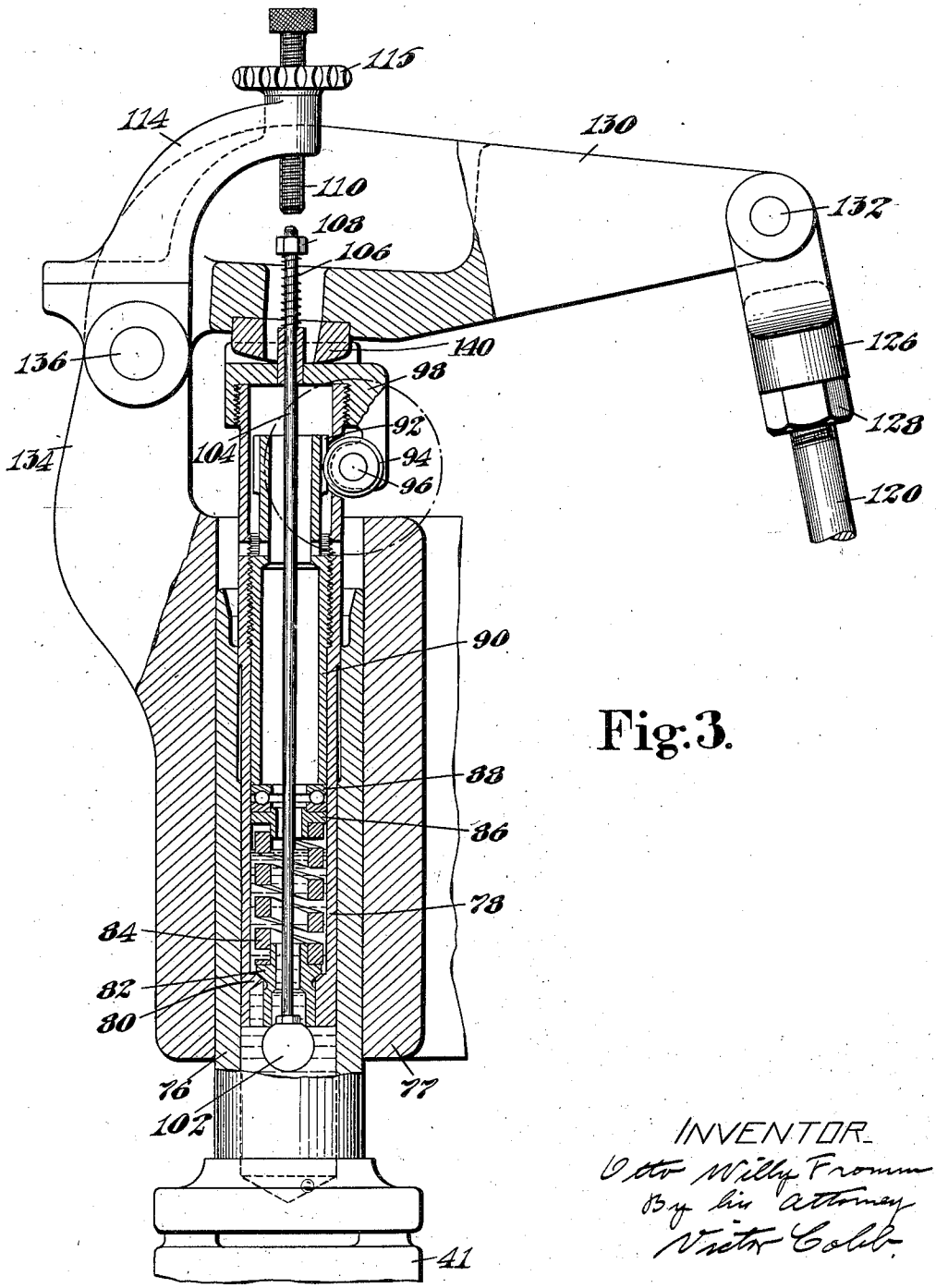


Fig. 3.

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Patented Feb. 22, 1938 2,108,850

UNITED STATES PATENT OFFICE

2,108,850

MARKING MACHINE

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Application December 19, 1934, Serial No. 758,160

28 Claims. (Cl. 101—42)

This invention relates to pressing machines and is illustrated herein as embodied in a machine particularly adapted for use in impressing characters or other marks on the soles of boots and shoes.

Machines of the type disclosed in United States Letters Patent No. 1,028,567, granted June 4, 1912 on an application filed in the names of William Gordon and Laurence E. Topham, are being extensively used to make impressions on the soles of boots and shoes. Machines of this type include, in connection with a marking die adapted to be moved in a stroke of predetermined length regardless of the thickness of the work to be operated upon, a work support which is arranged to yield in response to a predetermined limited pressure of the work against it. Although provision has thus been made for insuring uniformity in the pressure to be applied in marking work-pieces of different thicknesses, the time during which the marking head is in engagement with the work may vary, depending upon the thickness of the work. However, the depth of the impression of the die, which it is desired to maintain uniform, is affected not only by the pressure of the die but also by the length of time during which the pressure is applied, and hence it is necessary when operating upon soles varying substantially in thickness to adjust the work support manually to compensate for varying thicknesses of work in order that the dwell of the marking die on the work as well as the amount of pressure may be uniform. This operation of adjusting the work support is time-consuming and its success depends to a large extent upon the skill and experience of the operator.

It is an object of the present invention to provide an improved machine which will overcome the above-mentioned difficulties. To this end the machine is provided with an operating head arranged to be moved manually toward a work piece on a fixed work support to measure the thickness of the work and then to be moved by power means which is inhibited when a predetermined limited pressure of the head against the work has been set up. The operating head, illustrated herein as a marking head, is moved at the beginning of a marking operation against the work-piece by a lever mounted and arranged to be actuated by the operator. After this measuring movement of the marking head has been completed, it is caused to apply a predetermined limited pressure to the work by power means, the operation of which is inhibited, as stated above, by connections constituting an important feature of the invention and which are arranged to yield in response to any pressure in excess of the predetermined limited pressure referred to above. Thus, in the operation of the illustrated machine, the marking head is caused to apply a predetermined pressure to each work-piece from substantially the beginning to the end of the unvarying stroke of the power means regardless of the thickness of the work-piece. Although the present invention is illustrated as embodied in a marking machine, it is evident that the invention is not limited in its utility to use in such machines but may be used in other types of machines where it is necessary or desirable to apply pressure to a work piece.

With the above and other objects and features of the invention in view, the invention will now be described in connection with the accompanying drawings and pointed out in the appended claims.

In the drawings,

Fig. 1 is a view in side elevation, partly in section, of a machine embodying the present invention;

Fig. 2 is a view on an enlarged scale, partly in section, of the head of the machine showing the position of the parts when the machine is at rest; and

Fig. 3 is a view similar to Fig. 2 but showing the position of the parts during movement of the head toward the work.

The illustrated machine is provided with a frame 10 having a forwardly extending bracket 12 to which is rigidly secured a work supporting horn 14 as shown in Fig. 1. The horn 14 is secured to the bracket 12 in such a position that the work engaging surface 16 of the horn 14 is directly underneath an operating head 18 slidably mounted in the upper portion of the frame 10 and which, as herein illustrated, is provided with a plurality of marking dies. A treadle 20 is fulcrumed at 22 to the lower portion of the machine frame 10 and an upwardly extending rod 24 is pivotally secured to the treadle 20 by a pin 26. A lever 28 pivoted at its right-hand end (Fig. 1) to the machine frame 10 by the stud 30 is provided with a slot through which the upper end of the rod 24 passes. The rod 24 is provided with a fixed collar 32 which engages the lower edge of the lever 28. The upper end of the treadle rod 24 is provided with a pair of adjusting nuts 34 between which and the lever 28 is interposed a coiled spring 36. When the nuts 34 are properly adjusted the spring 36 holds the collar 32 against the lower edge of the

lever 28 and the spring 36 thus forms a yieldable connection between the treadle rod 24 and the lever 28. The lever 28 is provided at its left-hand end with an elongated slot 38 through which passes a pin 40 driven into a hole formed in a bracket 41 on which the head 18 is rotatably mounted so as to permit any of the marking dies to cooperate with the horn 14 to make an impression on a work-piece disposed therebetween. When the treadle 20 is depressed the spring 36, bearing against the upper edge of the lever 28, will cause the lever 28 to move in a counterclockwise direction carrying the marking head 18 downwardly against a work piece on the support 14. After the marking head 18 has engaged the work, continued downward movement of the treadle 20 will further compress the spring 36 and will cause a collar 42 secured to the treadle rod 24 to engage a clutch tripping mechanism which will now be described.

The collar 42 just above referred to is adjustably secured to the treadle rod 24 and is so arranged that after the marking head 18 engages the work it strikes one end of a lever 44 fulcrumed at 46 to the machine frame 10. The other end of the lever 44 has pivotally secured thereto a link 48 which is provided at its upper end with a notch 50 engaging an abutment plate 52 secured to one arm of a bell crank lever 54. When the lever 44 is swung in a counterclockwise direction by engagement with the collar 42 on the downwardly moving treadle rod 24, the end of the arm 56 of the bell crank lever 54 is moved out of engagement with a shoulder 58 formed on the sleeve or cage 60 of a Horton clutch mounted on a drive shaft 62. This turning of the bell crank lever 54 releases the clutch so that rotation of the shaft 62 begins. The machine is provided with a pulley 63 which may be driven from any suitable source of power. The clutch tripping mechanism above described is so arranged that the machine performs only one cycle of operation, even though the operator fails to release the treadle after the clutch has been tripped. To this end the lever 54 is normally urged in a clockwise direction by a spring 64 which is secured at one end to the lever 44 and at its other end to the bell crank lever 54. The link 48 is normally held against the abutment 52 by a spring 66. When the machine has been put into operation the radially extending wall of the shoulder 58 strikes an arm 70 formed as a part of a link 48, which is moved out of engagement with the abutment 52 on the bell crank lever 54. At the same time, the bell crank lever 54 is rotated in a clockwise direction by a spring 72, thus moving the abutment 52 to a position where it cannot engage the notch 50 in the link 48 until after the treadle 20 has been released by the operator. The end of the arm 56 of the bell crank lever 54 is then free to follow the contour of the cam 60, and when the shoulder 58 again engages the end of the arm 56 the machine comes to rest and cannot perform another cycle of operation until the treadle 20 has been released by the operator and again depressed.

The marking head 18, as previously stated, is rotatably mounted in the bracket 41. If it is necessary or desirable to apply heat to facilitate the marking operation, the head 18 may be heated by any suitable means. The bracket 41 is secured by studs 74 to the lower end of a cylinder 76 (Figs. 2 and 3) which is slidably mounted in a long bearing formed in a forwardly extending bracket 77 secured to the machine frame 10. The lower end of the cylinder 76 is closed and a hollow plunger 78 is arranged to be reciprocated in the cylinder which forms an extensible connection between the marking head 18 and the power means for operating the head. The hollow plunger 78 and the cylinder cooperate to form a liquid-containing chamber which is filled with oil or other suitable fluid constituting one element of a hydraulic connection between the plunger and cylinder. The plunger 78 fits closely in the cylinder 76 to prevent the oil contained in the cylinder from escaping between the walls of the cylinder 76 and the plunger 78. The lower portion of the plunger 78 is provided with an inwardly extending annular ring 80 which forms a seat for a relief valve 82. A coiled spring 84 holds the valve against the seat, tension being placed on the spring by adjusting means now to be described. The upper end of the coiled spring 84 bears against a washer 86 which in turn engages the lower race of a ball bearing 88 the upper race of which is engaged by the lower end of a threaded sleeve 90 which is threaded in the inside upper portion of the plunger 78. The upper portion of the sleeve 90 is provided with a plurality of gear teeth 92 meshing with a worm 94 mounted on a shaft 96. The shaft 96 is journaled in bearings formed in a cap 98 which is screwed to the top of the plunger 78. The shaft 96 may be provided with a crank or hand wheel 91 (Fig. 1) to facilitate turning the shaft 96. By turning the shaft 96 tension on the spring 84 may be increased or decreased. It is apparent that if the tension on the spring 84 is increased a greater pressure will be required to open the relief valve 82 and, conversely, if less tension is placed on the spring 84 less pressure will be necessary to open the valve 82.

As shown in Figs. 2 and 3, the valve 82 is provided with an opening into which fits a ball-shaped valve 102 which is provided with a rod 104 extending upwardly through the top of the plunger 78. A spring 106 interposed between the cap 98 and an adjusting nut 108 tends to move the valve 102 upwardly to close the opening in the valve 82. The upper end of the rod 104 is arranged to engage the lower end of a screw abutment 110 whereby the valve 102 is held away from the valve 82 when the plunger 78 is in its initial position, thus permitting relative movement between the plunger and the cylinder which occurs when the marking head is moved into engagement with the work-piece and after the marking operation has been completed. The screw abutment 110 is threaded into a bracket 114 secured to the upper portion of the bracket 77. The screw 110 is maintained in adjusted position by a lock nut 115. The screw 110 is so adjusted that the end of the rod 104 will strike the screw just before the plunger 78 returns to its initial position at the end of a cycle of operations.

The connections between the drive shaft 62 and the plunger 78 will now be described. An eccentric 116 (Fig. 1) is secured to the shaft 62 and is surrounded by an eccentric strap 118. A rod 120 is threaded into a boss 122 formed as a part of the strap 118 and is locked to the boss 122 by a lock nut 124. The upper end of the rod 120 is threaded into a yoke 126 and held in position by a lock nut 128. The yoke 126 is connected to a lever 130 by a pin 132. The lever 130 is forked at its forward end to receive an upwardly extending portion 134 of the bracket 77 which is provided with a hole to receive a heavy pin 136 form-

ing a fulcrum for the lever 130. A heavy spring 138 (Fig. 1) secured at one end to the lever 130 and at its other end to the cap 98 forms a connection between the lever 130 and the reciprocating plunger 78. As shown in Figs. 2 and 3, the lever 130 is cut away at its lower edge to receive a bearing block 140, the lower surface of which is curved to provide for rolling contact between it and the top of the cap 98. Marking pressure is transmitted to the head 18 from the power mechanism through the connections described just above.

Although the parts of the machine have been described in detail it will be well at this point, for a better understanding of the invention, to describe briefly the operation of the machine. After the desired marking character on the head 18 has been brought into marking position a shoe or other work piece is placed on the work support 14 by the operator. The treadle 20 is then depressed and the marking head brought into engagement with the work. The spring 36 surrounding the treadle rod 24 then yields and downward movement of the rod 24 continues. During this preliminary or measuring movement of the head 18 the hollow plunger 78 remains in the position shown in Figs. 1 and 2. The valve 102 in the lower end of the plunger 78 is held open and oil or other fluid contained therein, which forms the hydraulic connection between the cylinder 76 and the plunger 78, is free to flow into the cylinder 76 with the result that when the measuring movement of the head is completed the chamber in the portions of the cylinder 76 and plunger 78 below the valve 82 is filled with fluid.

After the measuring movement of the head 18 has been completed the clutch of the machine is tripped by the engagement of the collar 42 on the downwardly moving treadle rod 24 with the clutch tripping lever 44. The plunger 78 is then moved downwardly by power. At the beginning of the downward movement of the plunger 78 the valve 102 is closed and further flow of fluid through it from the plunger 78 into the cylinder 76 is prevented. After the valve 102 is closed the plunger 78 and the cylinder 76 move downwardly as a unit for a short distance. The extent of this movement depends largely upon the character and thickness of the work. For example, if the work piece is relatively thick and soft the movement of the plunger 78 and the cylinder 76 as a unit will be longer than when the work is thin and hard. In other words, the downward movement of the plunger 78 and the cylinder 76 as a unit continues until a predetermined pressure has been applied to the work. When the pressure applied to the work becomes greater than that for which the spring 84 has been set, the spring 84 will yield and the valve 82 will open, thereby permitting the flow of fluid from the cylinder 76 into the hollow plunger 78. Thus, while the plunger 78 completes its downward movement throughout the stroke imparted to it by the eccentric 116, the valve maintains the fluid pressure for which it was set, and the cylinder 76, to which the head 18 is secured, remains stationary. During this period, the plunger 78 and cylinder 76 yield relatively to each other, thereby preventing the head 18 from exerting pressure against the work piece in excess of the amount for which the setting of the spring 84 has been made. After the plunger 78 has completed its downward movement it is returned to its initial position. At the beginning of this return movement the valve 82 closes and the plunger 78 and the cylinder 76 are moved upwardly as a unit until the end of the rod 104 engages the abutment screw 110 and opens the valve 102. A spring 144, secured at one end to the machine frame 10 and at its other end to a hook 146 on the lever 28, then moves the cylinder 76 and the head 18 attached thereto to their initial position, as shown in Figs. 1 and 2. The treadle 20 of the machine is ordinarily released shortly after the plunger 78 begins its movement but even if the treadle 20 is not released until after the cycle of operation of the machine has been completed, the clutch will not be tripped again until after the treadle has been returned to its original position. When the treadle is returned to its original position a collar 148 on the treadle rod 24 engages the lever 44 and returns it to the position shown in Fig. 1. The parts of the machine are now in position to begin another cycle of operations.

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

1. In a machine for operating upon shoes, a work support, an operating head mounted for movement toward and away from said support, manually operated means for moving the head into engagement with a work piece on said support to measure the thickness of the work, and power-operated means for causing the head to press against the work, said means including members constructed and arranged to yield relatively to each other when a predetermined pressure of the head against the work has been set up.

2. In a machine for operating upon shoes, a work support, an operating head mounted for movement toward and away from said support, operator-controlled means for moving the head into engagement with a work piece on said support, and power-operated means for pressing the head against the work, said means including one member driven through a definite stroke and another member operatively associated with and arranged to be displaced relatively to said first-mentioned member in response to pressure in excess of a predetermined amount.

3. In a marking machine, a work support, a marking head movable toward said support to press a work piece thereon, operating means for said head, means connecting said head and operating means comprising relatively displaceable members cooperating to form a fluid chamber, and means mounted on one of said members operable in response to a predetermined pressure of said head against the work piece to open said chamber.

4. In a marking machine, a work support, a marking head mounted for movement toward said support, operating means for said head for causing the latter to press against a work piece on said support, and means for controlling the pressure applied to said head comprising connections between said head and operating means constructed and arranged to yield when a predetermined pressure of said head against the work piece has been set up.

5. In a marking machine, a work support, a marking head, members mounted for movement toward and away from said support, one of said members carrying said head, means associated with the other of said members for locking said members against movement relatively to each other in one direction, and power-operated means constructed and arranged to cause said marking head to apply pressure to a work piece on said support, said locking means being con-

structed and arranged to permit relative movement between said members when a predetermined pressure of said head against the work piece has been set up.

6. In a marking machine, a work support, interconnected members mounted to move relatively to each other toward and away from said support, a marking head mounted on one of said members, manually operated means connected to the last-mentioned member for moving said head against a work piece on said support, power operated means connected to the other of said members and constructed and arranged to apply pressure to said other member after the manually operated movement of the marking head has been completed, and means for preventing said power-operated means from applying pressure to said other member in excess of a predetermined amount.

7. In a marking machine, a work support, a movable marking head, power operated means for moving the marking head toward and against a work piece on said support, a manually extensible connection between the marking head and the power operated means, means for locking said connection prior to the operation of the power means, and means constructed and arranged to permit said connection to yield after a predetermined pressure has been applied to a work piece.

8. In a marking machine, a work support, a movable marking head, power operated means for moving the marking head against a work piece on said support to apply a mark to the work, an extensible connection between the marking head and the power operated means, manual means for extending said connection to move the marking head into engagement with the work, means for locking said connection after the manual movement of the head has been completed, and means constructed and arranged to permit said connection to yield after a predetermined marking pressure has been applied to the work by the power operated means.

9. In a marking machine, a work support, a movable marking head, power operated means for moving the marking head against a work piece on said support to apply a mark thereto, an extensible connection between the marking head and the power operated means, manually operated means for extending said connection to move the marking head into engagement with the work, means for locking said connection after the manual movement of the head has been completed, and pressure relief mechanism constructed and arranged to permit said connection to yield after a predetermined marking pressure has been applied to the work by the power operated means.

10. In a machine for operating upon shoe parts, a work support, an operating head, power means for operating said head toward and away from said work support, an extensible connection between said head and power means, one member of said connection being operated through a definite stroke by said power means, another member of said connection being mounted for movement relatively to the first-mentioned member to permit a preliminary measuring movement of said head, and means connecting said members for maintaining a constant pressure therebetween throughout the stroke of the power means after a predetermined pressure of the head against the work-piece on said support has been set up.

11. In a pressing machine, a work support, an operating head, power means for operating said head toward and away from said support, extensible connections between said head and power means cooperating with each other to form a liquid-containing chamber, and means for controlling the flow of liquid into and out of said chamber comprising a valve constructed and arranged normally to close said chamber but operable in response to a predetermined pressure of the head against the work-piece to permit the flow of liquid out of the chamber.

12. In a marking machine, a work support, a marking head movable toward said support, manually operated means yieldably connected to said head for moving said head toward said support, power operated means connected to said head for applying pressure to a work piece on said support, and hydraulic connections between said head and said power operated means constructed and arranged to yield when a predetermined pressure has been applied to said work piece.

13. In a marking machine, a rigidly mounted work support, manually operated means yieldingly connected to said head for moving said head toward the work support, power operated means for applying pressure to a work piece on said support, means secured to said manually operated means for rendering the power operated means effective to move the head after the head has been brought into engagement with the work, and hydraulic connections between said head and said power operated means constructed and arranged to yield when a predetermined pressure has been applied to said work piece.

14. In a marking machine a work support, a marking head, a lever connected to the marking head for actuation by the operator, a cylinder secured to the marking head, a hollow plunger operating in the cylinder, power mechanism, connections to the power mechanism for moving the plunger, and a valve for controlling the flow of liquid between the cylinder and plunger constructed and arranged to open when a predetermined pressure has been set up between the marking head and the support.

15. In a marking machine, a work support, a marking head, a lever connected to the marking head constructed and arranged to be actuated by the operator to move the marking head toward the support for measuring the thickness of the work, a cylinder secured to the marking head, a hollow plunger operating in said cylinder, power mechanism, connections between the plunger and the power mechanism for moving the plunger, and means arranged to permit the flow of liquid between said cylinder and said plunger when a predetermined pressure has been set up between the marking head and the support.

16. In a marking machine, a work support, a marking head, a lever connected to the marking head constructed and arranged to be actuated by the operator to move the marking head toward the work to measure the thickness of the work, a cylinder secured to the marking head, a hollow plunger operating in said cylinder, power mechanism, connections between the plunger and the power mechanism for moving the plunger, and a valve constructed and arranged to prevent relative movement of said cylinder and plunger until a predetermined pressure has been set up between the head and the support while the

plunger is being operated by the power mechanism.

17. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve in said plunger arranged to permit flow of fluid between the plunger and cylinder during measuring movement of the head and arranged to be closed during reciprocating movement of the plunger, and a second valve arranged to prevent flow of fluid between the cylinder and the plunger during reciprocating movement of the plunger until a predetermined pressure has been applied to the work.

18. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve arranged to prevent flow of fluid between the cylinder and the plunger during reciprocating movement of the plunger until a predetermined pressure has been applied to the work, and a valve seated in said first-mentioned valve and constructed and arranged to permit flow of fluid between the plunger and the cylinder during measuring movement of the head and arranged to be closed during reciprocating movement of the plunger.

19. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve arranged to prevent flow of fluid between the cylinder and the plunger during reciprocating movement of the plunger until a predetermined pressure has been applied to the work, and a second valve arranged to be open to permit flow of fluid between the plunger and the cylinder while the plunger is at rest and arranged to close during reciprocating movement of the plunger.

20. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve arranged to prevent flow of fluid between the cylinder and the plunger during reciprocating movement of the plunger until a predetermined pressure has been applied to the work, a second valve arranged to be open to permit flow of fluid between the plunger and the cylinder while the plunger is at rest and arranged to close during reciprocating movement of the plunger, and means arranged to open said second valve when the plunger returns to its initial position.

21. In a marking machine, a machine frame, a work support rigidly secured to said frame, a marking head arranged for movement toward and away from said support, a lever connected to said head constructed and arranged to be actuated by the operator to move said head toward said support to measure the thickness of a work piece on said support, a cylinder secured to the marking head, a hollow plunger operating in said cylinder, power mechanism, connections between the power mechanism and the plunger for moving the plunger, a valve in said plunger arranged to open to permit relative movement between said plunger and said cylinder when a predetermined pressure has been applied to the work, and a second valve in said plunger arranged to open to permit relative movement between said plunger and said cylinder during movement of said head away from said support.

22. In a marking machine, a machine frame, a work support rigidly secured to said frame, a marking head arranged for movement toward and away from said work support, a lever connected to said head constructed and arranged to be actuated by the operator to move said head toward said support to measure the thickness of a work piece on said support, a cylinder secured to the marking head, a hollow plunger operating in the cylinder, power mechanism, connections between the power mechanism and the plunger for reciprocating the plunger, a valve in said plunger arranged to prevent the flow of fluid between the cylinder and the plunger during reciprocation of the plunger until a predetermined pressure has been applied to the work, and a second valve in said plunger arranged to be operated during the return movement of the plunger to permit relative movement between the plunger and the cylinder.

23. In a marking machine, a machine frame, a work support rigidly secured to said frame, a marking head arranged for movement toward and away from said work support, a lever connected to said head constructed and arranged to be actuated by the operator to move the head toward the support to measure the thickness of a work piece on the support, a cylinder secured to said head, a hollow plunger operating in said cylinder, power mechanism, connections between the plunger and the power mechanism for reciprocating the plunger, a valve in said plunger constructed and arranged to open to permit relative movement between the plunger and the cylinder during movement of the marking head to inoperative position, and a second valve in said plunger constructed and arranged to open to permit relative movement between the plunger and the cylinder when a predetermined pressure has been applied to the work.

24. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve arranged to prevent flow of fluid between the cylinder and the plunger during reciprocating movement of the plunger until a predetermined pressure has been applied to the work, a second valve having a portion extending through said plunger, and an abutment adjustably secured to the frame of said machine constructed and arranged to engage said second valve to open the valve when the plunger is returned to its initial position.

25. In a machine for operating upon shoes, a

work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve seated in the lower portion of said plunger, a sleeve threaded in said plunger, a spring interposed between said valve and said plunger to prevent opening of the valve until a predetermined pressure has been applied to the work, means for adjusting said sleeve to vary the tension of said spring, and a second valve arranged to be opened to permit flow of fluid between the plunger and cylinder while the plunger is at rest and arranged to be closed during reciprocating movement of the plunger.

26. In a machine for operating upon shoes, a work support, an operating head, manually operated means for moving the head toward the support to measure the thickness of a work piece on said support, a cylinder secured to the head, a hollow plunger operating in said cylinder, power mechanism, connections between said plunger and said mechanism for reciprocating the plunger, a valve seated in the lower portion of said plunger, a sleeve threaded in said plunger, a spring interposed between said valve and said plunger to prevent opening of the valve until a predetermined pressure has been applied to the work, means for adjusting said sleeve to vary the tension of said spring, a second valve having a portion extending through said plunger, and an abutment adjustably secured to the frame of the machine constructed and arranged to engage said second valve to open the valve when the plunger is returned to its initial position.

27. In a marking machine, a machine frame, a work support rigidly secured to said frame, a marking head arranged for movement toward and away from said support, a lever connected to said head constructed and arranged to be actuated by the operator to move the head toward said support to measure the thickness of a work piece on said support, means for returning the head to its initial position, a cylinder secured to the marking head, a hollow plunger operating in said cylinder, power mechanism arranged to be rendered effective to move the head after the work has been measured, connections between the power mechanism and the plunger for reciprocating the plunger, a valve in said plunger arranged to open to permit relative movement between said cylinder and said plunger when a predetermined pressure has been applied to the work, and a second valve constructed and arranged to open during return movement of the head to permit the cylinder and plunger to be returned to their initial positions.

28. In a marking machine, a machine frame, a work support rigidly secured to said frame, a marking head arranged for movement toward and away from said support, a lever connected to said head constructed and arranged to be actuated by the operator to move the head toward said support to measure the thickness of a work piece on said support, means for returning the head to its initial position, a cylinder secured to the marking head, a hollow plunger operating in said cylinder, power mechanism, connections between the power mechanism and the plunger for reciprocating the plunger, means for rendering the power mechanism effective to reciprocate the plunger after the work has been measured, a valve in said plunger arranged to open to permit relative movement between said cylinder and said plunger when a predetermined pressure has been applied to the work, and a second valve constructed and arranged to open during return movement of the head to permit the cylinder and plunger to be returned to their initial positions.

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