

June 16, 1925.

1,542,341

O. R. DECKERT

PRESSING MACHINE

Filed April 3, 1920

3 Sheets-Sheet 1

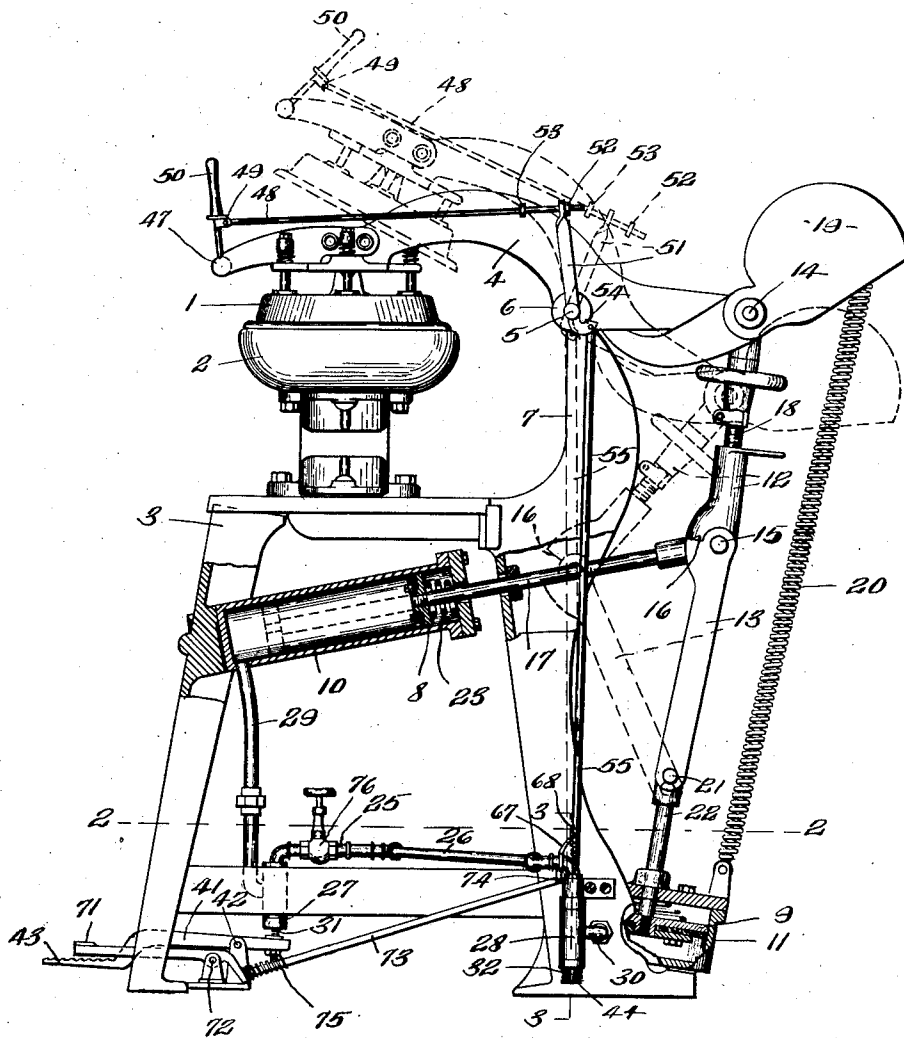


Fig. 1-

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3 Sheets-Sheet 2

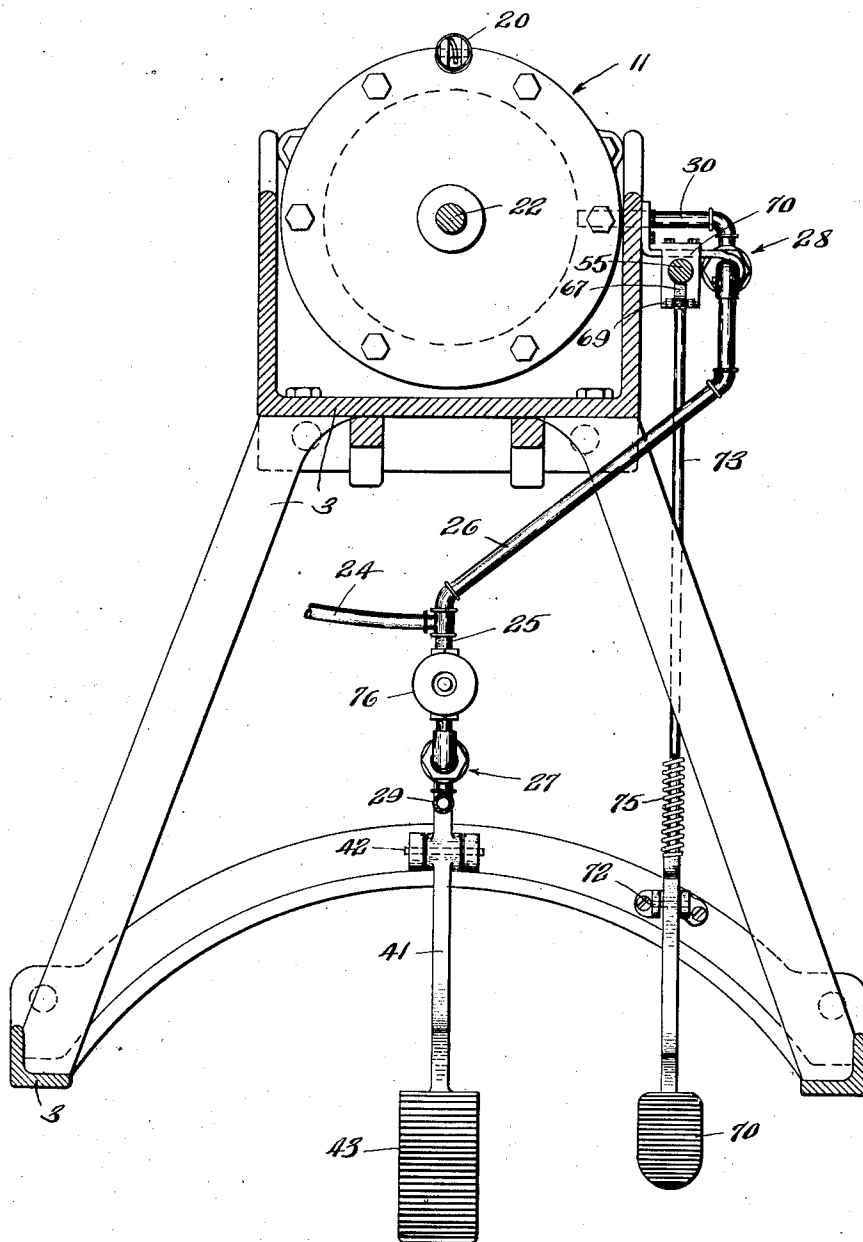


Fig. 2-

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3 Sheets-Sheet 3

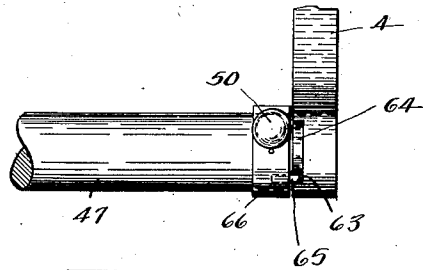


Fig. 3 -

Fig. 5 -

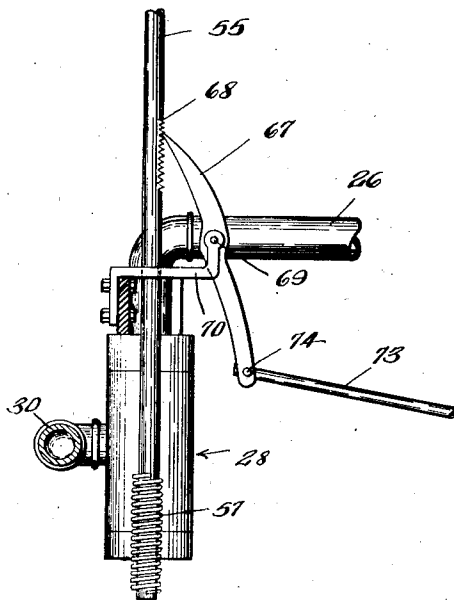
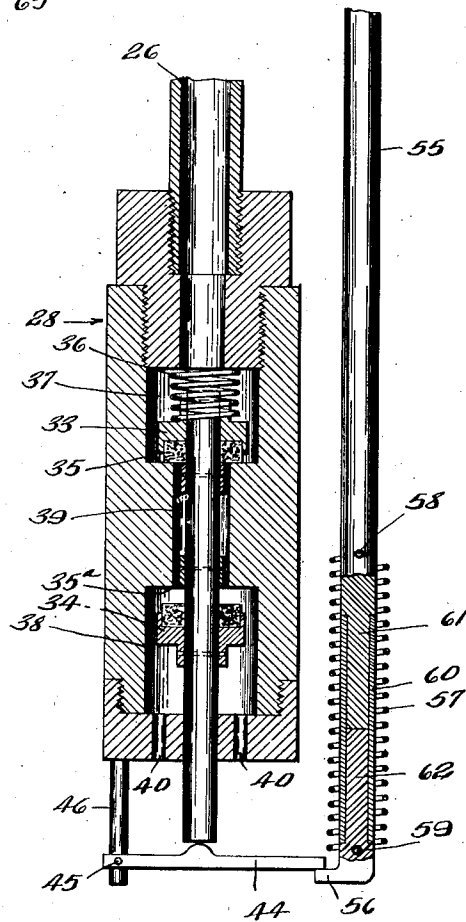


Fig. 4 -



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UNITED STATES PATENT OFFICE.

OSCAR ROBERT DECKERT, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LIBERTY NATIONAL BANK, TRUSTEE.

PRESSING MACHINE.

Application filed April 3, 1920. Serial No. 370,960.

To all whom it may concern:

Be it known that I, OSCAR ROBERT DECKERT, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Pressing Machine, of which the following is a specification.

This invention relates to garment pressing machines and has for its object a particularly simple, efficient, economical and durable power mechanism and control for operating the presser head of such machines, and the invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevation, partly in section of a pressing machine embodying my invention.

Figure 2 is an enlarged sectional view of the frame taken on line 2—2, Fig. 1.

Figure 3 is a large sectional view taken on line 3—3, Fig. 1.

Figure 4 is an elevation looking to the left in Fig. 3, the same being on a reduced scale.

Figure 5 is a fragmentary plan view of the handle of the presser element or head, and contiguous parts for controlling the flow of motive fluid as air to the lower cylinder.

Pressing machines of the type having an upper press head carried by a frame or lever pivoted between its ends and operated by a pair of toggle links pivoted together and at their ends respectively to such lever and to the main frame have heretofore been operated by foot pedals, this type of machine being used generally and substantially universally in laundries, clothing factories, tailor shops, etc., and although the work actually performed should not require arduous effort, nevertheless on account of the mechanism of the machine, the operation requires a heavy or strong operator.

My invention makes the operation of a pressing machine easy and in harmony with the work it performs so that the machine can be operated by girls and does not require the service of a strong man.

This machine comprises generally, a movable presser element movable toward, but

short of, pressing position and then into pressing position, an actuator preferably a power actuator for moving said element or applying great pressure thereto when it is in pressing position, and control means.

Preferably, actuating mechanism is employed to move the presser element toward pressing position in preference to moving it by hand and this movement is also preferably effected by a power actuator. Therefore in the illustrated embodiment of my invention, the actuating mechanism comprises means for moving the presser element toward its pressing position at a relatively fast rate and little force and finally into pressing position with great pressure, and such mechanism comprises a plurality of actuators arranged to be brought into action successively to move the presser element in one direction.

I have illustrated my invention as embodied in a garment pressing machine having a pressing head and a lower buck but it will be understood that the invention is not limited to this type of machine, but may be applied to laundry machines, seam pressers, etc.

1 designates the presser element or head which is movable toward and from a lower buck 2 mounted upon a frame 3 of any suitable form, size and construction. The presser element may be of any suitable form, size and construction.

The presser element 1 is carried in any suitable or well known manner by a rocking carrier or support which is here shown as a lever 4 in the form of a yoke pivoted between its ends on a shaft 5 mounted in bearings 6 provided on an upright 7 rising from the frame, the presser head being carried at the front end of this yoke or lever 4.

The actuating mechanism in addition to the two actuators includes power transmitting parts having movement relatively to each other and connected to the support for the presser head, these actuators being connected to the presser element or the support therefor to first move the presser element quickly toward pressing position and then into pressing position with relatively great force. The motion of the first actuator is transmitted indirectly to the support for the presser element through power transmitting parts which are movable relatively to each other while the movement of the second ac-

tuator is applied directly, that is, unmodified by movable power translating devices to the support 4 for the presser element. These power actuators are here shown as pistons movable in cylinders to which a motive fluid is supplied.

8 designates the first actuator, that is, the actuator which moves the presser head from its raised position indicated in dotted lines in Fig. 1 toward pressing position, and 9 designates the second actuator which applies the pressing force to the presser element.

The actuator or piston 8 is movable in a cylinder 10 suitably supported by the frame, the cylinder being comparatively long, and of small diameter with respect to the cylinder 11 for the piston 9, so that the piston 8 has a long quick throw, while the piston 9 has a short powerful throw.

The power transmitting mechanism between the piston 8 and the support 4 for the presser element comprises relatively movable parts which modify the force of the piston 8, these parts being here shown as toggle links 12, 13, the link 12 being pivotally connected at 14 to the rear arm of the support 4 for the presser element 1 and the links being pivoted together at 15 and formed with a stop joint 16 arranged to come into action when the toggle links are in or slightly beyond a straight line. The links are connected to the piston 8 by the piston rod 17 which is here illustrated as pivoted at its outer end on the pivot 15 of the toggle joint.

The link 12 is composed of end pieces, an intermediate piece 18 which is adjusted endwisely, and means for holding this intermediate piece in its adjusted position. However, the construction of this link 12 forms no part of this invention and therefore further description is thought to be unnecessary.

The motive fluid as compressed air or steam when supplied to the front end of the cylinder 10 will force the piston 8 rearwardly and move the toggle from the position indicated in dotted lines in Fig. 1 into and beyond a straight line as indicated in full lines, and such movement will move the presser head in its support from the position shown in dotted lines toward that shown in full lines, that is, from open or elevated position to but short of pressing position.

If the motive fluid were now cut off the toggle would unfold automatically due to the counterweight 19 and returning spring 20.

The motion or power of the piston 9 is transmitted directly or unmodified to the support 4 through the straightened toggle links 12 and 13, the toggle link 13 being pivoted at its outer or lower end at 21 to the piston rod 22 of the piston 9. After the toggle links have been moved into or beyond

a straight line as indicated in full lines in Fig. 1, by the piston 8, motive fluid is then permitted to enter the cylinder 11 and actuate the piston 9 and while the force of the piston 9 is being applied endwisely to the toggle links they cannot unfold. The piston 8 is started toward its starting position to start the folding of the toggle link by means of a spring 23 when the pressure on the piston 9 is released.

The motive fluid under pressure as compressed air or steam is supplied to the cylinders 10, 11 from any suitable source through suitable piping as a feed pipe 24 having branches 25 and 26 leading respectively to valve casings 27 and 28 which communicate through pipes 29 and 30 with the cylinders 10 and 11.

The means for controlling the flow of motive fluid to the cylinders 10 and 11 also includes mechanism by which such fluid is prevented from passing to the cylinder 11 unless the pressing head is down, or unless the piston 10 has been actuated to straighten the toggle, that is, to move the pressing head from its "up" position into nearly pressing position.

The flow of motive fluid to the cylinder 10 is controlled by valve mechanism located within the casing 27 and to the cylinder 11 through a valve mechanism located in a casing 28. These valve mechanisms are practically the same in construction and are of the construction shown in Fig. 3 but may be of any suitable form, size and construction.

The valve mechanism includes endwisely movable rods 31 or 32, the rod for the casing 27 being designated 31, the rod extending lengthwise of the casing 27 or 28 and having valve heads 33 and 34 thereon movable alternately into engagement with seats 35 and 35^a within the casing, thus one valve head is seated while the other is unseated. The movement of the rod is against the action of a returning spring 36 which tends to hold the valve mechanism with the valve head 33 on its seat 35. These valve heads are movable respectively in chambers 37 and 38 in the valve casing which chambers are connected by a passage 39 which communicates with the pipe leading to the corresponding piston chamber, that is, the outlet for the casing 27 communicates with the pipe 29 and the outlet for the casing 28 communicates with the pipe 30.

When the rod 31 or 32 is elevated as will be hereinafter described, the valve head 33 is unseated and the valve head 34 seated permitting the air to flow from the feed pipe, branch 25, casing 27 or from the branch 26 to the casing 28 and hence part way through the passage 39 through the pipe 29 or 30 to the cylinder 10 or 11.

When the operating force applied to move

the rod upwardly is discontinued, the spring 36 causes the valve to return to its normal position, permitting the air in the cylinder 10 or 11 to exhaust back through the pipe 29 or 30 downwardly through the passage 39 into the lower chamber 38 thence out through the outlets 40, Fig. 3.

The means for operating the valve 31 of the valve casing 27 as here shown includes a lever 41 pivoted between its ends at 42, one arm thereof pressing upwardly on the lower end of the rod 31 and the other arm being provided with a suitable foot engaging part or pedal 43.

The valve within the casing 28 is operated by a lever 44 pivoted at one end at 45 to a bracket or other support 46 and is connected at its other end with means for lifting it. Controlling means is provided for normally preventing the operation of the valve within the casing 28 while the presser element 1 is in its elevated or starting position, that is, the position indicated in dotted lines in Fig. 1, and permitting the opening of this valve only until the presser element has been moved to nearly pressing position, either by hand or by the operation of the piston 8, it being understood that the pressing head may be pulled downwardly into nearly pressing position by means of the usual handle 47 provided thereon or the front end of the yoke or support 4 therefor.

This controlling means comprises generally, a plurality of parts, one of which is provided with a handle, a stop for normally preventing movement of the parts sufficiently to operate the valve, the stop being arranged to be moved out of operative position when the presser head reaches nearly pressing position, that is, its position assumed when the toggle links 13, 14 straighten. In the illustrated embodiment of my invention, one of these parts is carried by the upper pressing element or the support 4 therefor but eccentric to the axis or pivot 5 of the support, and hence partakes of the same movements as the presser element 1 and is connected to the other of said parts by a lost motion connection which is taken up by the movement of the presser element toward pressing position. The stop is also shown in this embodiment of my invention as carried by the support 4 and when the presser element is up limits the movement of the part movable with the presser element so that it cannot be moved far enough to take up the lost motion. However, it permits sufficient movement of this part to operate the valve when the lost motion has been taken up by reason of the presser element 1 having been moved into nearly pressing position.

48 designates the part of the control mechanism movable with the presser element 1, this part being illustrated as a rod

pivoted at one end at 49 to a hand lever 50 mounted to rock about the axis of the handle 47, the rod being connected at its other end to another of such parts of the control mechanism as a lever 51 by a lost motion connection.

This lost motion connection may be provided in any suitable manner and as illustrated the rod 48 slides through an eye provided in the upper part of another part as a lever 51 and by a shoulder 52 provided on the rod and spaced apart from the lever 51 a suitable distance and movable into engagement with the lever when the head approaches its pressing position so as to actuate such lever. A similar shoulder 53 is also provided on the rod on the opposite side of the lever to that on which the shoulder 52 is provided for restoring the part 52, and valve operating mechanism to be described, operated thereby.

The lever 51 is mounted upon the shaft 5 and is provided with an arm 54 below the shaft which is connected to the upper end of a rod 55 having a shoulder or lifter 56 at its lower end extending under the lever 44 to move the lever 44 and hence lift the valve rod 32 when the handle 50 is operated.

A yielding connection is provided between the rod 55 and the lifter 56 in order to provide for movement of the rod after the valve has been lifted and the head 34 has been pressed against its seat 35. This yielding connection consists of a tension spring 57 encircling the lower end of the rod 55 and connected at 58 thereto and at 59 to the lifter. As shown, the rod 55 is connected to the lifter 56 by means of a sleeve 60 encircling the reduced shank portions 61 and 62 of the rod and shoulder or lifter respectively.

The stop device which normally limits the movement of the rod 48 so that the lost motion cannot be taken up when the presser element is in lifted position, is a fixed shoulder having the same movement as the presser element 1 and provided on the yoke 4, it being shown as the end surface 63 see Fig. 5 of a cutout 64 provided in one of the arms of the yoke 4, this shoulder being arranged in the path of a pin 65 extending laterally from the hub 66 of the lever 50. Obviously when the presser element 1 is in the dotted line position shown in Fig. 1 the lever 50 cannot be thrown far enough to take up the lost motion between the shoulder 52 and the lever 41 and hence not far enough to operate the lever 51, but when the presser element is moved toward its down position the shoulder 52 moves toward the rear side of the lever 51, taking up the lost motion so that if the lever 50 is now operated it can move to the full extent of its movement moving the rod 48 end-

wisely, the lever 51 forwardly, the rod 55 upwardly, causing it to lift the valve rod 32 and permit the motive fluid to pass through the valve casing 28 to the cylinder 11.

5 The valve within the casing 28 is held open to permit the pressure from the piston 9 to be applied for any desired length of time by a suitable ratchet device here shown as comprising a pawl 67 coacting
10 with teeth 68 on the rod 55, this pawl being pivoted at 69 between its ends to a bracket 70 suitably mounted on the valve casing 28, the pawl being operated to disengage the rack by means of a suitable operating lever
15 as a pedal 71, Figs. 1 and 2, pivoted at 72 between its ends and arranged with the rear arm thereof against the end of a push rod 73 pivoted at 74 to the tail of the pawl 67. The movement of the lever 71 is transmitted
20 to the rod through a spring 75 suitably located and shown in Fig. 1 as encircling the rod 73 and pressing against the rear arm of the foot lever 71, the spring permitting the rack to ratchet upwardly past the pawl
25 when the lever 50 is being operated.

During upward movement of the rod 55 by the handle 50 the rack ratchets past the pawl 68 and when the rod discontinues its upward movement the pawl holds it in elevated position.

30 When it is desired to discontinue the pressure on the presser element 1, the pedal 71 is pushed downwardly, thus moving the pawl out of engagement with the rack so
35 that when the lever 50 is pushed rearwardly the shoulder 53 on the rod 48 pushes the lever 51 rearwardly and this lever moves the rod 55 downwardly to close the valve in the casing 28 and open the valve head 34
40 so that the air can exhaust from the cylinder 11.

As soon as the pressure is released in the cylinder 11 the spring 23 acting on the piston 8 will throw the piston 8 forwardly far
45 enough to start the toggle links 12 and 13 on their folding movement and the folding movement will be continued by the counterweight 19 and spring 20.

50 A valve 76 is provided in the branch 25 to regulate the amount of pressure passing to the cylinder 10 thereby controlling the speed at which the presser element moves from its starting position into nearly pressing position.

55 In operation, the operator arranges the garment on the lower buck 2, presses the pedal 43 to permit the flow of air or motive fluid to the cylinder 10, but instead of doing this the operator may pull the presser element down into nearly pressing position
60 by hand if he so desires. If during the movement of the presser element by the piston 8 the operator happens to have her hands on the lower buck, they will not be
65 injured, as the presser element stops far

enough short of pressing position to avoid such injury.

The operator then pulls the lever 50 forwardly permitting the motive fluid to pass into the cylinder 11 and the power thereof
70 is transmitted unmodified to the yoke or support 4 exerting a powerful pressing effect on the presser element 1.

The piston 9 may be continued under pressure as long as desired or necessary, and
75 released by pressure upon the lever 71.

What I claim is:

1. In a pressing machine, a movable presser element, actuating mechanism therefor comprising a plurality of pistons, cylinders in which they are movable, motion
80 transmitting connections between the pistons and said element to transmit the motion of the pistons with different leverages to said element, and means for controlling
85 the successive operations of the pistons, substantially as and for the purpose described.

2. In a pressing machine, a movable presser element, actuating mechanism therefor comprising a plurality of pistons, cylinders in which they are movable, one piston
90 having a long throw and the other a short throw, and means for controlling the flow of a motive fluid to the cylinders, substantially as and for the purpose set forth.

3. In a pressing machine, a movable presser element and actuating mechanism therefor comprising a pair of toggle links, and means for applying pressure to the toggle
100 links including a piston, a cylinder in which the piston is movable, the piston being connected to the outer end of one of the toggle links, substantially as and for the purpose described.

4. In a pressing machine, a movable
105 presser element, and actuating mechanism therefor comprising a pair of toggle links, and means for applying pressure to the toggle links including a piston, a cylinder in which the piston is movable, the piston
110 being connected to the outer end of one of the toggle links, and means for actuating the toggle links toward and from a straight line, substantially as and for the purpose specified.

5. In a pressing machine, a movable
115 presser element, a support for said element, actuating mechanism comprising toggle links, one being connected at its outer end to the support, means for moving the toggle
120 links comprising a piston, a cylinder in which the piston is movable, and a connection between the piston and the toggle links, a second piston, a cylinder in which it is
125 movable, and a connection between the second mentioned piston and the outer end of the other toggle link, and means for controlling the flow of a motive fluid to the cylinders successively, substantially as and
130 for the purpose set forth,

6. In a pressing machine, a movable presser element mounted to have movements toward pressing position and into pressing position, an actuator for effecting the movement into pressing position, and mechanism for controlling the operation of said actuator and preventing the operation thereof until the pressing element is first moved toward pressing position, said mechanism including two movable parts connected together by a lost motion connection, one of said parts being arranged to take up the lost motion during the movement of the presser element toward pressing position, and a stop device located to normally prevent operative movement of said part to take up the lost motion when the presser element is up, substantially as and for the purpose set forth.

7. In a pressing machine, a movable presser element mounted to have movements toward pressing position and into pressing position, an actuator for effecting the movement into pressing position, and mechanism for controlling the operation of said actuator and preventing the operation thereof until the pressing element is first moved toward pressing position, said mechanism including movable parts connected together by a lost motion connection, one of said parts being movable with the presser element and having a handle associated therewith and arranged to take up the lost motion as the presser element moves toward pressing position and a stop arranged to prevent movement of said part to take up the lost motion when said element is out of pressing position, substantially as and for the purpose described.

8. In a pressing machine, a movable presser element mounted to have movements toward pressing position and into pressing position, a rocking support for said element, an actuator for rocking the support after the support has been initially rocked to carry the presser element toward pressing position, and mechanism for controlling the operation of said actuator and preventing the operation thereof until the presser element is first moved toward pressing position including parts connected together by a lost motion connection, one of which is carried by the support to move about the axis thereof in an arc of different radius than the radius of the arc in which another part moves to take up and restore the lost motion, and a stop device arranged to prevent movement of said part to take up the lost motion when the presser element is out of pressing position, substantially as and for the purpose specified.

9. In a pressing machine, a movable presser element mounted to have movements toward pressing position and into pressing position, a rocking support for said element,

an actuator for rocking the support after the support has been initially rocked to carry the presser element toward pressing position, and mechanism for controlling the operation of said actuator and preventing the operation thereof until the presser element is first moved toward pressing position including parts connected together by a lost motion connection, one of which is carried by the support to move about the axis thereof in an arc of different radius than the radius of the arc in which another part moves to take and restore the lost motion, and a stop device arranged to prevent movement of said part to take up the lost motion when the presser element is out of pressing position, said stop device being carried by the support eccentric to the axis thereof, substantially as and for the purpose set forth.

10. In a pressing machine a lower presser element, an upper presser element movable toward and from the lower presser element, actuating mechanism for the movable element, comprising a plurality of actuators arranged to be brought into action successively to bring the movable element toward and into pressing position, means for controlling the operation of the secondly operated actuator, including mechanism having a handle carried by the movable presser element, for controlling the operation of the secondly operated actuator, and connections to said handle arranged out of effective position when the press is open, and movable into effective position to be operated by the handle only after the press head is moved initially toward closed position.

11. In a pressing machine a movable presser element, actuating mechanism therefor comprising a plurality of actuators arranged to be brought into action successively to move the presser element toward and into pressing position, and means for controlling the operation of the actuators including two movable parts connected together by a lost motion connection, one of said parts being arranged to take up the lost motion during the operation of the first actuator and a stop device for normally preventing operative movement of said part to take up the lost motion when the presser element is up, substantially as and for the purpose specified.

12. In a pressing machine, a movable presser element, actuating mechanism therefor comprising a plurality of actuators arranged to be brought into action successively to move the presser element toward and into pressing position, and means for controlling the operation of the actuators including two parts connected together by a lost motion, one of said parts being movable with the presser element and having a handle as-

sociated therewith and arranged to take up the lost motion as the presser element is moved toward pressing position by the first actuator, and a stop arranged to prevent movement of said part to take up said lost motion when the presser element is up, substantially as and for the purpose set forth.

13. In a pressing machine, a movable presser element, a rocking support for said element, and actuating mechanism comprising a plurality of actuators arranged to be brought into action successively to move the presser element toward and into pressing position, and means for controlling the operation of the actuators including parts, one being endwisely movable and carried by the presser element and its support, the parts being connected by a lost motion arranged to be taken up by the rocking movement of the support, and a stop arranged to prevent endwise movement of said part while the presser element is up and movable out of operative position, during movement of the presser element toward pressing position, substantially as and for the purpose described.

14. In a pressing machine, a movable presser element, two coacting control parts connected together by a lost motion connection, a stop device arranged to normally prevent taking up of the lost motion when the presser element is up, the lost motion connection being arranged to take up the lost motion during movement of the presser head and to move said stop device out of operative position during the movement of the

pressing head toward pressing position, substantially as and for the purpose specified.

15. In a pressing machine a movable presser element, a rocking support therefor, a control mechanism including two parts, one an endwisely movable rod movable with the presser element and its support and having a handle associated therewith, said parts being connected together by a lost motion and the presser element, its support and the endwisely movable part being movable relatively to the other of said control parts to take up the lost motion during the movement of the presser element into pressing position, and a stop device arranged to normally prevent endwise movement of said part and movable out of operative position as the presser element moves toward pressing position, substantially as and for the purpose specified.

16. In a pressing machine, a movable presser element, means for applying pressure to said element when in its pressing position, mechanism for controlling the operation of said means including a valve for controlling a motive fluid under pressure, and means for holding the valve open and for releasing the valve at will, the holding means including a ratchet device and a device for operating the ratchet device, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 13th day of March, 1920.

OSCAR ROBERT DECKERT