Sept. 2, 1924. 1,507,247

G. NELSON

CONTROL DETENT

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Fig. 1.

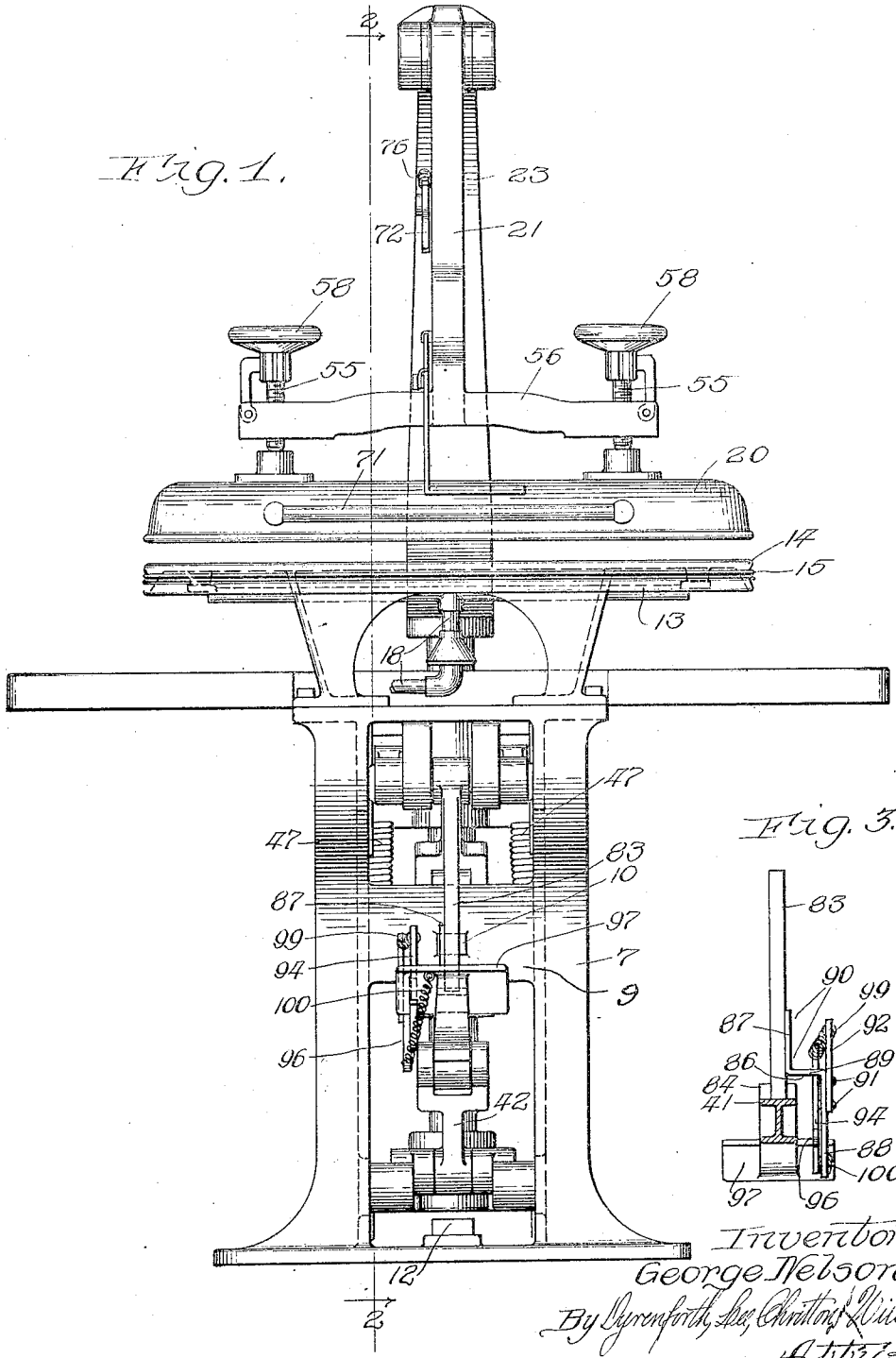


Fig. 3.

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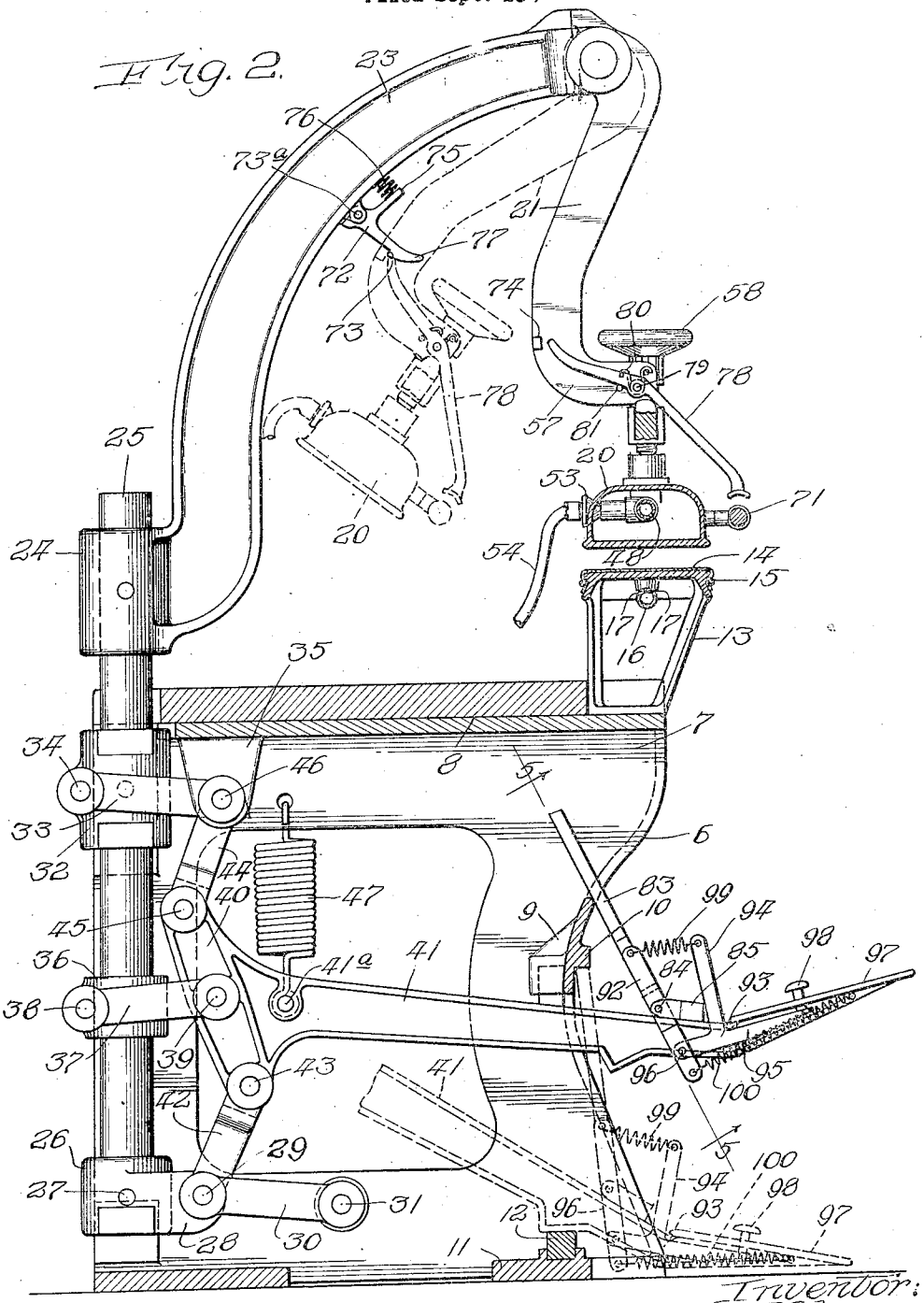
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Fig. 2.



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UNITED STATES PATENT OFFICE.

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CONTROL DETENT.

Application filed September 25, 1922. Serial No. 590,354.

To all whom it may concern:

Be it known that I, GEORGE NELSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Control Detents, of which the following is a specification.

My invention relates to pressing machines employed by tailors for pressing garments, and as to one phase thereof relates to the pressing head of the machine, it being my object in this connection to provide a new and improved construction of head and support therefor primarily to the end that the pressing operation may be expedited. As to another phase of my invention, it relates to a pressing machine, for the general purpose above stated, of the type employing a depressible presser-head which is movable, by force supplied thereto, as through the medium of the operator pressing down on a treadle, to force the head against the work, the presser-head being automatically returnable to normal, raised, position, as by any suitable means, as for example, a spring, and the force of which is required to be overcome to accomplish the lowering of the presser-head; and in this connection it is another of my objects to provide for the automatic locking of the presser-head in the depressed condition to which it is operated by the operator and in which condition it forcibly engages the work, and to provide for the release of the presser-head to permit it to return to normal, raised, condition under control of the operator and without danger of injury to the operator, the purpose of such an arrangement being to render unnecessary the exertion of continuing force by the operator to maintain the presser-head in depressed condition for pressing the work.

It may be stated that it is also an object in addition to those above stated, to provide a machine of the general character above-referred-to, which, while of simple and comparativley economical construction, will be better adapted for performing the functions for which these machines are provided.

Referring to the accompanying drawings, Figure 1 is a front view of a pressing machine constructed in accordance with my invention. Fig. 2 is a view in side elevation of the machine showing, by dotted lines, the position occupied by the presser-head and a portion of the supporting structure for the same, when moved into a position out of use, and the position occupied by a portion of the treadle mechanism when the presser-head is moved to a position in which it bears down on the work; and Fig. 3 a section taken at the line 5—5 on Fig. 2 and viewed in the direction of the arrows.

The frame of the machine at which it rests upon the floor, and which carries the various operative parts, is represented at 6, this frame comprising side frame members 7, a top plate-like member 8, and a cross frame member 9 connecting the side frame members at the front of the machine, the cross member 9 being provided with a forwardly extending lug 10 for a purpose hereinafter described, and the lower cross frame member 11 of the frame provided with a buffer 12, which may be a block of rubber. The frame 6 is provided at its forward end with a buck represented at 13, and upon which the garment to be pressed is laid, in accordance with common practice, this buck, which is shown as provided on its upper surface with a padding strip 14 secured thereto by the endless member 15, being of hollow construction and containing in its interior a burner 16, shown as a tube extending lengthwise of the buck and containing a series of burner openings 17, for heating the buck, this tube 18 being supplied with gas from any suitable source through a pipe 18 containing an air and gas mixer 19.

Co-operating with the buck 13 is a presser-head 20, the details of which are hereinafter described, this head being connected, as hereinafter described, with an arm 21 pivotally connected as indicated at 22, to the upper, forward, extremity of an arm 23 which latter is connected at a tubular rearward extension 24 thereof, with the upper end of a vertically movable bar 25.

The bar 25 constitutes a part of mechanism provided for the purpose of effecting the movement of the presser-head 20 toward and away from the buck 13, this mechanism being so constructed and arranged that the presser-head 20 is normally raised, as shown in Fig. 2, and by operating the mechanism this head is forced down against the work applied to the upper surface of the buck 13, with sufficient force to properly press the work, the particular construction of mechanism just referred to, and in connection with which my improved locking mech-

anism is shown, being substantially that disclosed in U. S. Patent No. 1,004,697, granted to O. Schrom, October 3, 1913, and therefore, a general description of this mechanism will suffice. The lower end of the bar 25 is provided with a collar 26 pinned thereto as represented at 27, this collar being provided with forward projecting ears 28 to which are pivotally attached, at 29, the rearward ends of a pair of links 30 pivotally connected at their forward ends, as indicated at 31, to the frame 7. Secured to the bar 25 adjacent the top 8 of the casing, is a collar 32, to which links 33 are pivotally connected as indicated at 34, the forward ends of these links being pivotally connected with ears 35 depending from the portion 8 of the frame. The bar 25 has rigidly secured thereto between the collars 26 and 32, a third collar 36. Extending at opposite sides of the collar 36 are links 37 pivotally connected at their rear ends to the collar 36 as indicated at 38 and at their forward ends pivotally connected as indicated at 39, to the head 40 of a treadle 41, the connection of the links 37 with this head being between the ends of the latter. A link 42 is pivotally connected at its lower end with the collar 26 through the medium of the pivot 29, and at its upper end is pivotally connected with the lower end of the head 40 as indicated at 43. A link 44 is pivotally connected at its lower end with the upper end of the head 40 as indicated at 45 and at its upper end to the ears 35 through the medium of the pivot pin 46. The treadle 41 extends forward into position convenient to be actuated by the operator, and is normally maintained in a raised position as shown by full lines in Fig. 2 by means of coiled springs 47 connected at their upper ends with the casing, and at their lower ends with cross-bar 41^a secured between its ends in the lever 41, these springs serving to hold the mechanism just described, and the parts supported from the bar 25, in the normal, raised, position shown in Fig. 2. It may be stated in this connection that with the parts in the position represented in Fig. 2, the operator by pressing down on the forward end of the treadle 41 forces the presser-head 20 downwardly against the work which would be supported on the buck 13, to exert the desired pressure thereon, this force being exerted against the resistance of the springs 47, and when the treadle 41 is free to rise, assuming the locking mechanism above referred to and hereinafter described, to be released, the treadle and the various parts controlled thereby will return to the normal position shown in Fig. 2.

In accordance with one feature of my invention I provide the presser-head as a relatively long, narrow structure, having the contour as shown in the drawings, more particularly Figs. 3 and 4, and of a shape and size closely corresponding with the buck as usually provided in pressing machines, the under side of the presser-head being preferably flat as shown. The presser-head is shown as of hollow construction by which it is readily adapted to be heated to the desired degree by heating means located within the head, means for this purpose being shown and comprising a pipe 48 located within the presser-head and extending lengthwise thereof, this pipe containing downwardly-directed outlets 49 and being held in the desired position in the head, by means of bracket devices 50 overlapping inwardly extending lugs 51 on the head 20 and secured thereto as by means of the screws 52, this pipe being connected with an air and gas mixer 53 from which leads a pipe 54 for connection with any suitable source of gas supply. The head 20 is supported through the medium of threaded rods 55 which has threaded engagement with threaded openings (not shown) in the opposite ends of a head 56 forming the lower extremity of a forward extension 57 provided on the lower end of the arm 21, these rods being provided at their upper ends with hand wheels 58 by means of which they may be rotated in the member 56 for vertical adjustment therein. The lower ends of the rods 55 are of general spherical form and are represented at 64, these portions of the rods being located within socket portions 65 provided on the upper surface of the presser-head 20. The socket portions 65 are formed of inner members 66 containing semi-spherical sockets 67 in their upper surfaces, and outer members 68 secured to the upper surface of the presser-head 20, as by the screws 69, and surrounding the sections 66, the portions of the sections 68 above the sections 66 presenting bearing surfaces 70 of general spherical form to form with the sections 66 the sockets hereinbefore referred to, adapting the presser-head to be forced downwardly against the work and be held in suspended position in the different positions of the machine. It may be here stated that the purpose of providing the attachment between the presser-head and the arm 21, at the threaded rods 55 is to permit the operator to raise or lower the head 20 on the arm 21, to compensate for different thicknesses of work, and still permit of the exertion of the presser-head against the work, with substantially uniform force along its length. The presser-head 20 is provided with a bar 71 secured thereto to extend across the front portion of the head, and in position adapting it to be grasped by the operator, and by means of which the head and arm 21 may be swung rearwardly on

the pivot 22 when it is desired to shift the presser-head out of a position directly above the buck 13, locking means for releasably holding these parts in the position just stated, and shown by dotted lines in Fig. 2, being provided, these locking means comprising a latch represented at 72 and of general bell-crank form pivoted at its angle on the arm 23, as represented at 73^a, one arm of the bell-crank 72 being provided with a shoulder 73 adapted to engage, and interlock with a lug 74 on the arm 21 when the latter is in the dotted position shown in Fig. 2, and the other arm thereof, represented at 75, cooperating with a coil spring 76 interposed between this arm and the arm 23 and tending to rock the lever 72 in clockwise direction in Fig. 2, the under side of the portion of the lever 72 adjacent the shoulder 73 being inclined, as represented at 77, and this latch device, when in normal position, extending at its surface 77 in the path of movement of the lug 74, whereby upon rearwardly swinging the arm 21 it will become automatically interlocked with the latch 72 and be releasably held in this position. Co-operating with the latch 72 is a trip lever 78 pivotally supported, at 79, on the forward extremity of the arm 21, this lever co-operating with a spring 80 engaging the arm 21 and the lever 78 and tending to rotate the latter in counter clockwise direction in Fig. 2, a stop 81 serving to limit such movement of the lever. The rear end of the lever 78 is so positioned that when the arm 21 is swung to the dotted position shown in Fig. 2 it will extend beneath the inclined portion 77 of the latch 72 and when the lever 78 is rocked in clockwise direction on the pivot 79 it will lift the latch 72 against the action of the spring 76, out of the path of movement of the lug 74, thereby releasing the arm 21 to permit the latter to swing forwardly to the full line position shown in Fig. 2. The forward arm of the lever 78 is provided with a lateral extension 82 which extends parallel with, and a slight distance above the handle-bar 71, adapting the operator to grasp both of these parts in one hand to effect the release of the latch 72 as stated.

In the particular illustrated embodiment of my invention, the mechanism for releasably maintaining the presser-head 20 in lowered position, and hereinbefore referred to, comprises an arm, represented at 83 which is pivoted at its lower end, as indicated at 84, to a block 85 secured to the upper side of the treadle 41, this arm being provided with a lateral extension 86 shown as formed of a separate section of general Z-shape, affording the portions 87 and 88 spaced apart as shown in Fig. 5 and connected by the cross portion 89, the extension 86 being connected with the arm 83, at the portion 87, as by means of rivets (not shown). The extension 86 has secured thereto, as by means of the rivets 91, an upwardly extending bar 92. The mechanism now being described also comprises a lever 93, shown as of general T-form, providing the angularly disposed portions 94 and 95, the portion 95 being pivotally connected at its rear end with the portion 88 of the extension 86, below the pivot 84, as indicated at 96, and at its opposite end extending beneath the foot-plate 97 provided on the forward end of the treadle 41 and having a stud 98 which projects upwardly through an opening in the foot-plate 97. The upper end of the portion 94 of the lever 93 is connected with the front end of a coil-spring 99, connected at its rear end with the upper end of the bar 92, the lower end of the portion 88 of the extension 86 being connected with the rear end of a coiled spring 100 extending beneath the lever 95 and connected at its forward end with the foot-plate 97. The springs 99 and 100 are so tensioned, and the various parts are so proportioned and related as shown; that the structure formed of the parts 83, 86 and 92, which in effect is a unitary structure, bears yieldingly at its upper end against the upper edge of the cross-piece 9, as shown by full lines in Fig. 2, or in other words, the structure just referred to tends to rock in counter clockwise direction on the pivot 84, from the position shown in this figure. Thus, as the treadle 41 depresses, by the operator bearing down on the foot-plate 97, which lowers the presser-head 20, the upper end of the arm 83 moves along the outer surface of the cross bar portion 9 and upon the treadle reaching a depressed position in which the desired pressure is exerted by the head 20 against the work, the arm 83 snaps under the lug 10, assuming the position shown in dotted lines in Fig. 2. In this position of the mechanism, the presser-head 20 is maintained in the depressed position stated, until the arm 83 is rotated, in clockwise direction, on the pivot 84, to a position in which it is withdrawn forwardly from engagement with the under side of the lug 10, whereupon the springs 47 operate to return the presser-head-operating mechanism, together with the presser-head, to the normal position shown by full lines in Fig. 2.

It will be noted that by providing the arrangement as shown, the rocking of the lever 93 on the pivot 96, by the operator pressing down on the stud 98 serves to extend the coil-spring 99, and when this spring has reached a certain tension, it will overcome the tension of the spring 100 and rotate the structure of which the arm 83 is a part, in clockwise direction in Fig. 2.

According to the preferred embodiment of my invention the mechanism just de-

scribed for holding the presser-head 20 in depressed condition, is so proportioned and arranged, and the springs are so tensioned, that downward pressure applied against the stud 98, without applying any pressure to the foot-plate 97, is insufficient to disengage the arm 83 from the stud 10 when the treadle 41 is in the dotted line position shown in Fig. 2, due to the pressure applied upwardly by the arm 83 against the under side of the lug 10, under the action of the springs 47, it being necessary in order to effect the release of the arm 83 from the stud 10, that the treadle 41 be first depressed sufficiently to relieve the arm 83 of at least a part of the pressure exerted by the springs 47. The feature of the construction is of great value in the practical operation of the machine, because the treadle 41, under the action of the springs 47, if the treadle is not restrained by the operator, would be raised with great force by the springs 47, and thus should the operator accidentally release the catch mechanism it might result in damage to the operator. By the arrangement shown, however, it is impossible for the operator to release the catch mechanism until his foot is in such position, by reason of the necessity that he press down on the treadle before the catch will disengage, that he has perfect control of the treadle and can control its return to normal, raised, position without danger of injury to himself. It will be noted that by locating the stud 98 in the foot-plate, the control of the latch and lever, as stated, may be very effectually accomplished.

The supporting of the presser-head as described, at the plurality of the spherical head 64, is of advantage as the head is thereby adapted to rotate backwardly and forwardly in its support adapting the head to accommodate itself to the work and exerting a uniform pressure thereon.

While I have illustrated and decsribed a particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto, as the same may be variously modified and altered without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent, is:

1. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, said last-named means being formed of a member adapted when in one position to engage a relatively stationary part of the machine and hold said element against return by said first-named means, and when moved to another position disengage therefrom to permit said element to return under the action of said first-named means, and a member having yielding operative engagement with said first-referred-to member for actuating the latter.

2. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, said last-named means being formed of a locking member movable on said mechanism, and means having yieldable engagement with said locking member for actuating the latter out of locking position.

3. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, and inoperative to release said mechanism to permit said element to be moved by said first-named means, until the force exerted by said first-named means on said last-named means is reduced, said mechanism having a treadle portion by means of which it is operated to move said element against the resistance of said first-named means and said last-named means comprising a locking member movable on said mechanism, a controlling element for said locking member having a member adapted to be engaged by the foot of the operator while engaging said treadle portion, and spring means engaging said locking member and controlling element and through the medium of which said locking member is actuated by said controlling element, said spring means being so tensioned that said locking member may not be moved out of locking position by said controlling element until pressure has been applied to said treadle portion to reduce the pressure of said first-named means on said second-named means.

4. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, said mechanism having a treadle portion by means of which it is operated to actuate said element, and said last-named means comprising a member adapted when in one position to engage a relatively stationary part of the machine and hold said

element against return by said first-named means and when moved into another position to disengage therefrom, and a member having yielding operative engagement with said first-referred-to member for actuating the latter, said last-named member being positioned to be operated by the foot of the operator applied to said treadle.

5. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, and inoperative to release said mechanism to permit said element to be moved by first-named means, until the force exerted by said first-named means on said last-named means is reduced, said mechanism having a treadle portion by means of which it is operated to move said element against the resistance of said first-named means and said last-named means comprising a locking member adapted when in one position to engage a relatively stationary part of the machine and hold said element against return by said first-named means and when moved to another position to disengage therefrom, and also a portion through the medium of which said locking member is disengaged from said relatively stationary part of the machine, said portion being positioned to be engaged by the foot of the operator when engaging said treadle portion, and inoperative to release said locking member until pressure has been applied to said treadle portion to reduce the pressure of said first-named means on said second-named means.

6. In a machine comprising a movable element, the combination of mechanism engaging said element and operating, when actuated, to move the latter in one direction, means presenting yielding resistance to the movement of said element by said mechanism, and means releasably holding said element against return by said first-named means, said last named means being formed of a member pivoted on said mechanism and adapted when in one position to engage a relatively stationary part of the machine and hold said element against return by said first-named means and when moved to another position disengage therefrom to permit said element to return under the action of said first-named means, a bell-crank lever fulcrumed on said member and having one arm thereof extending upwardly, a spring connecting the upper arm of said lever with said member above the pivot of the latter, and a spring connecting said member below its pivot with a part of the machine relative to which said member is movable, said springs tending to rock said member in opposite directions, and said lever being operable by force applied to the other of the arms thereof.

GEORGE NELSON.