

No. 771,073.

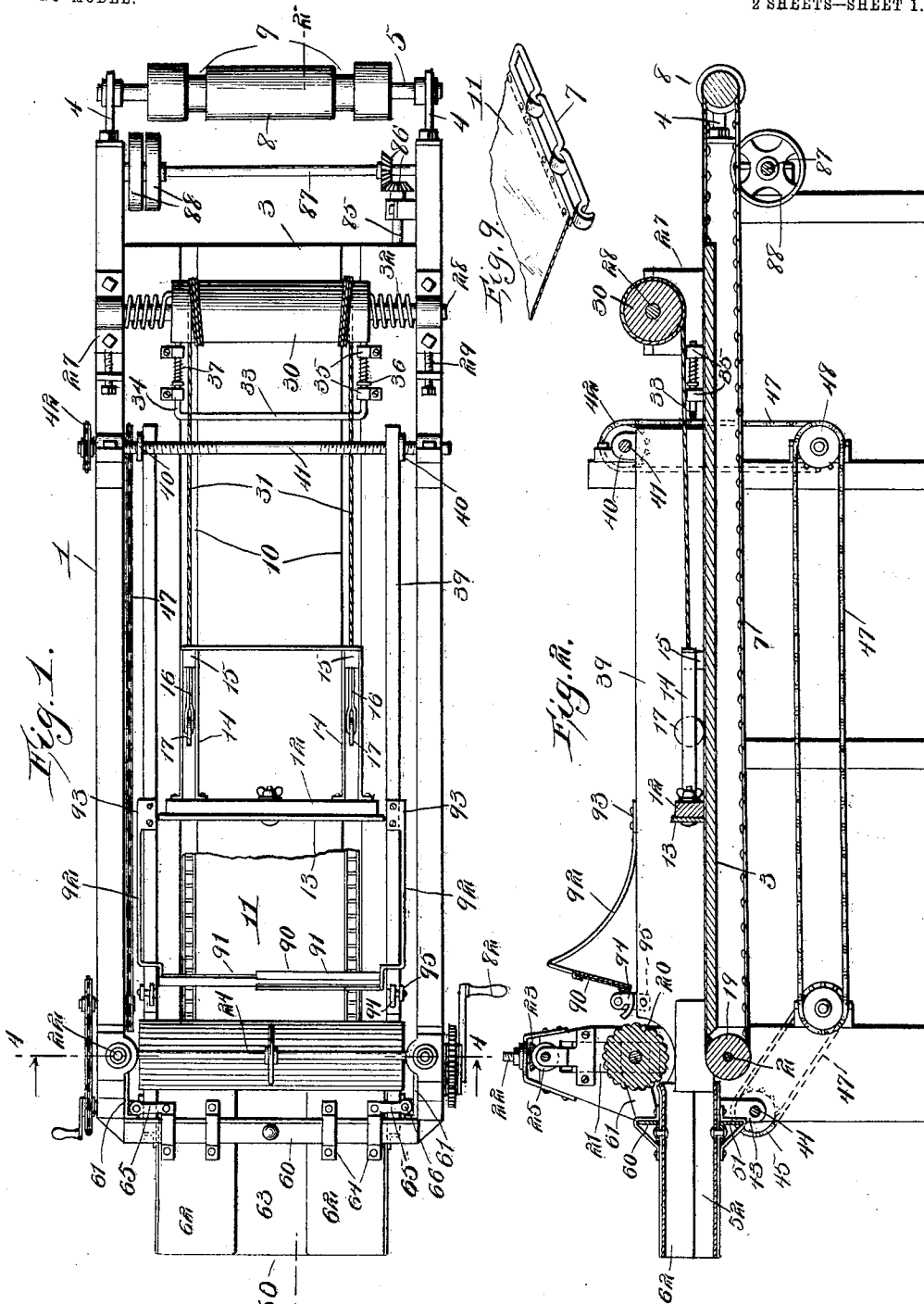
PATENTED SEPT. 27, 1904.

C. W. JOHANSEN.
MATTRESS STUFFING MACHINE.

APPLICATION FILED SEPT. 1, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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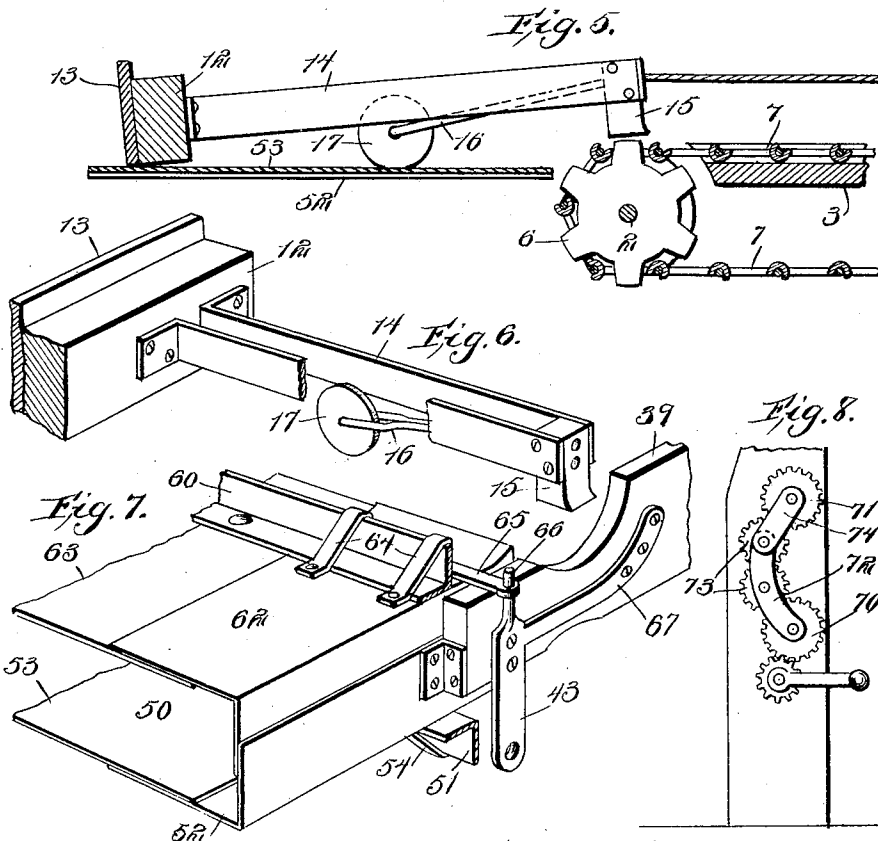
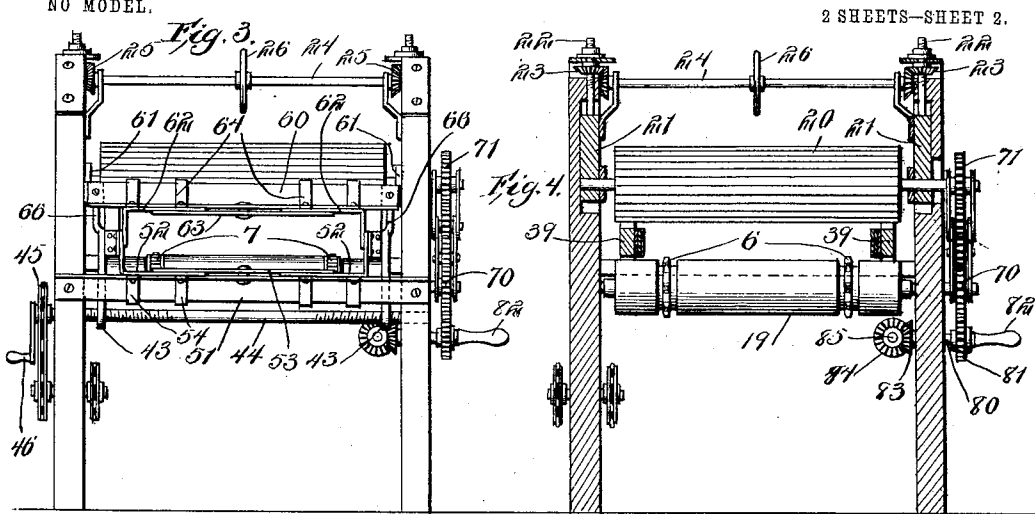
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UNITED STATES PATENT OFFICE.

CLEMENT W. JOHANSEN, OF PITTSBURG, PENNSYLVANIA.

MATTRESS-STUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 771,073, dated September 27, 1904.

Application filed September 1, 1903. Serial No. 171,511. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT W. JOHANSEN, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Mattress-Stuffing Machine, of which the following is a specification.

This invention relates to certain improvements in mattress-stuffing machines, and has for its principal object to simplify and improve mechanisms of that class employed for compressing and introducing fibrous and similar material into mattress-ticks and the like.

A further object of the invention is to provide a machine of the reciprocating-plunger type in which means are employed for effecting the automatic return of the plunger to its initial position after the completion of each stuffing operation.

A still further object of the invention is to provide a novel form of apron or carrier for supporting the filling material and traversing the same between the compression-rollers.

A still further object of the invention is to provide a novel form of delivery-spout in which provision is made for automatically adjusting both the height and width of the spout in accordance with the adjustments of the other portions of the machine.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of a mattress-stuffing machine constructed in accordance with the invention. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a front elevation of the machine, illustrating the construction of the discharge-spout. Fig. 4 is a transverse sectional elevation of the machine on the line 4 4 of Fig. 1. Fig. 5 is an enlarged sectional detail illustrating the mechanism for releasing the plunger from its actuating mechanism. Fig. 6 is a detail perspective view of a portion of the plunger and one of the locking-pawls for engagement with the actuating mechanism. Fig. 7 is a similar view of a portion of the discharge-spout. Fig. 8 is an elevation of a portion of one side of the machine, illustrating the gearing connection between the two compression-rollers. Fig. 9 is a fragmentary view of a portion of the apron and the link belts for operating the same.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In the drawings, 1 designates a suitable frame provided with bearings for the support of the various operating parts of the mechanism. Near the delivery end of the machine the frame is provided with suitable bearings for the reception of a transversely-disposed shaft 2, arranged in a plane slightly below the upper surface of the bed 3, and at the rear end of the frame are adjustable brackets 4, carrying a small shaft 5, the brackets 4 being movable from and toward the end of the frame in order to adjust the relative distance between the two shafts. The shaft 2 is provided with a pair of sprocket-wheels 6, from which pass link belts 7, and the shaft 5 carries a drum or cylinder grooved at 9 in order to properly guide said belts, and motion may be imparted in any desired manner, either by hand or by power, to the shaft in order to drive both of the chains at uniform speed. The bed-plate 3 is provided with a pair of grooves 10, in which are arranged the upper runs of the link belts, the grooves being preferably of sufficient depth to prevent any portion of the belts extending above the general plane of the upper surface of the bed or table. Extending between the two belts and secured thereto is an endless apron or belt 11, formed of canvas or other strong flexible material that serves as a support for the stuffing material prior to its introduction to the ticking.

The ejecting-plunger 12 is formed of a transversely-disposed bar, to the front of which is bolted or otherwise secured a plate 13 of approximately the width of the mat-

tress to be made, and the arrangement is such
 that different-sized plates may be readily in-
 terchanged in order to permit the manufac-
 ture of mattresses of different width, or in
 5 some cases the plates may be formed in two
 or more sections, so as to permit adjustment
 of the width of the plate, as is well known to
 persons skilled in the art. Extending rear-
 10 each end thereof are brackets 14, each
 bracket carrying at its rear end a pawl 15,
 adapted to engage in the link belt in order
 that the movement of the belt may be im-
 15 parted to the plunger. Extending inward
 from each belt is an arm 16, carrying a small
 roller 17, that is free to run on the link belts
 during the returning movement of the plun-
 ger to its initial position.

The shaft 2 carries a compression-roller 19,
 20 adapted to act on the lower surface of the
 stuffing material, and said roller is formed of
 a number of sections in order to permit the
 mounting of the sprocket-wheel 6 on the
 shaft, it being found that the action of the
 25 chains and sprocket-wheels on the stuffing
 material will not in any way injure the lat-
 ter. Above the lower roller 19 is mounted a
 ribbed and grooved compression-roller 20,
 having end spindles extending out through
 30 suitable openings in the frame. These open-
 ings are in the form of vertical slots forming
 guides for boxes 21, in which the roller-spin-
 dle is journaled, and the upper ends of the
 boxes are provided with threaded pins 22, on
 35 which are mounted nuts 23 in the form of be-
 veled pinions, the pinions on each side being
 connected by a shaft 24 and pinions 25. The
 shaft 24 carries a hand-wheel 26, by which it
 may be turned in order to simultaneously turn
 40 both of the nuts and raise or depress the com-
 pression-roller in accordance with the thick-
 ness of the mattress to be made.

Near the rear end of the machine are ar-
 ranged suitable bearings in the form of blocks
 45 27 for the support of the transversely-disposed
 shaft 28, and said blocks may be adjusted lon-
 gitudinally of the machine by means of screws
 29. The shaft 28 carries a drum 30, around
 50 which are wound flexible cords or chains 31,
 and between the ends of the drum and the ad-
 jacent side frames of the machine are helical
 torsion-springs 32, connected at one end to the
 drum and at the opposite end to the fixed
 55 frame in such manner as to resist turning
 movement of the drum in clockwise direc-
 tion. The ends of the cords or chains 31
 are connected to the pawls 15 and serve when
 the pawls are released from engagement with
 60 the link belts to return the pawls and the plun-
 ger to initial position after the completion of
 each stuffing operation. When the plunger
 is returned, it engages a transversely-disposed
 bar 33, having rearwardly-bent end pawls 34,
 that extend through suitable guiding-brack-
 65 ets 35 on the fixed bed of the machine and

carry collars 36. Between the collars and the
 rear brackets are compression or buffer
 springs 37, that serve to take up the impact
 on the return movement of the plunger.

In order to adjust the machine for the manu- 70
 facture of mattresses of different width, I em-
 ploy side plates 39, resting on the upper sur-
 face of the fixed bed or table and provided
 near their rear ends with vertically-extended
 brackets 40, threaded for the reception of a 75
 transverse rod 41, having right and left hand
 screw-threads, as indicated in Fig. 1. This
 rod is mounted in suitable bearings in the fixed
 side frame and at one end carries a sprocket-
 wheel 42, to which motion is imparted when it 80
 is desired to adjust the distance between the
 side plates 39. At the front ends of the side
 plates are arranged depending brackets 43,
 threaded for the reception of right and left
 hand screw-threads on a transversely-disposed 85
 bar 44, that also extends through bearings in
 the fixed frame and carries a sprocket-wheel 45
 and an operating-crank 46. The two sprocket-
 wheels 42 and 45 are connected together by
 link belts 47 and intervening sprocket-wheels 90
 48 or may be connected direct in order to pro-
 vide for simultaneous movement of both ends
 of the side plates. This permits of the adjust-
 ment of the machine for the manufacture of
 mattresses of any width less than that of the 95
 main bed or table.

The discharge-spout 50, through which the
 material is forced into the ticking, is adjust-
 able both as to width and height. To the
 front end of the frame is secured an angle-bar 100
 51, extending across from side to side of the
 frame and forming a support for the lower
 members 52 of the spout, and said members
 may be moved toward and from each other,
 the space between them being concealed by a 105
 threaded plate 53, that may form an extension
 of the fixed bed. Each of the plates 53 is pro-
 vided with straps 54, encircling the transverse
 bar 51 and free to slide longitudinally thereof.
 Each strip 52 is provided with a vertically- 110
 extended flange connected in any suitable man-
 ner to one of the brackets 43, carried by the
 side bars, and when said brackets and side bars
 are moved either outward or inward the plates
 53 are adjusted to a corresponding extent. 115
 The upper portion of the discharge-spout is
 supported by a transversely-disposed angle-
 bar 60, carried by a pair of brackets 61, that
 in turn are supported by the vertically-adjust-
 able box 21. These upper members are in 120
 the form of plates 62, which may be adjusted
 laterally, the space between them being con-
 cealed by an auxiliary set of plates 63, carried
 by the cross-bar 60, and said plates are pro-
 vided with straps 64, encircling said cross-bar. 125
 Each of the plates 62 is provided with a lat-
 erally-extended arm 65, having an opening
 through which extends a pin 66, carried by the
 bracket 43, the pin being so arranged and
 disposed as to permit independent movement 130

of the upper section when the latter is raised or lowered in following the movement of the upper compression-roller. The depending bracket 43 is braced by an additional rearwardly-extending arm 67, connected at its rear end to the side plate and serving to positively hold the parts in place while permitting adjustment of the spout to correspond with the adjustment of the other portions of the machine.

In order to properly connect the two compression-rollers for mutual movement, the shaft 2 of the lower roller is provided with a gear-wheel 70, and the shaft of the upper or main roller 20 is provided with a gear 71. Pivoted on the outer end of the shaft 2 is a pair of links 72, that form bearings or supports for a pair of intervening pinions 73, and said link is connected by a link 74 to the projecting spindle of the upper roller, so that the parts will be positively driven without regard to the position to which they may be adjusted.

In operating the machine any suitable form of power may be employed, and in the present instance there is shown a shaft 80, having a pinion 81 and a crank 82 to permit operation of the mechanism by hand, or the shaft 80 may be provided with a beveled pinion 83, intermeshing with a smaller pinion 84 on a longitudinally-disposed shaft 85, that is connected at its rear end by a double gearing 86 to a power-shaft 87, having fast and loose pulleys 88, operated in the usual manner.

In order to form a stop or guide and support for the filling or stuffing material during the placing of the same in position, I employ a guard 90 in the form of a pair of slidable plates 91, so arranged as to permit adjustment in accordance with the width of the mattress to be made. The sections of this plate are carried by springs 92, the rear ends of which are secured to the adjustable side plates by means of clips 93. These springs have an inherent tendency to elevate the plate 91 until its lower edge is above the top of the side plates. When it is desired to use the plate, said plate is depressed and is held in adjusted position by means of small locking-bolts 94, hung on pins that are carried by brackets 95 on the side plates, and when the filling has all been placed in position these bolts may be withdrawn and the springs permitted to raise the plate out of the way.

In the operation of the machine, the plunger being in its rearmost position and the plate 91 depressed, the filling or stuffing material is placed on the apron or belt in the usual manner, after which the pawls 15 are allowed to drop into engagement with the link belts. The mechanism is then set into operation, and the belt and plunger travel in the direction of the compression-roller, forcing the stuffing material between the rollers and thence on out through the discharge-spout to the tick. The plunger travels to a point at

or near the end of the spout, and at the completion of the stuffing operation one or other of the teeth of the sprocket-wheels will engage and raise the pawls from the links of the belt, and as soon as said pawls are released the spring-arms 16 will elevate the rear ends of the pawls, the small rollers 17 acting as fulcrum-points. During the stuffing operation the cords or chains 31 have been gradually unwound against the resistance afforded by the torsional springs 32, and when the pawls have once been disengaged from the link belts the retractile force of the springs serves to immediately return the pawls and the plunger to initial position, the plunger being engaged by the buffer-rod and its movement stopped without shock or jar.

Having thus described the invention, what is claimed is—

1. In a mattress-stuffing machine, a movable apron, a reciprocating plunger traveling in one direction with the apron to force the stuffing material into the tick, a plunger-releasing means, and an independent means for returning the plunger to initial position.

2. In a mattress-stuffing machine, an apron movable intermittently in one direction, a reciprocating plunger traveling in one direction with the apron to force the stuffing material into the tick, a plunger-releasing means, and an independent means for returning the plunger to initial position between intervals of movement of the apron.

3. In a mattress-stuffing machine, the combination with a movable apron, of link belts movable with said apron, a plunger having belt-engaging means, means for releasing the plunger from the belts, and an independent means for restoring the plunger to its initial position.

4. In a mattress-stuffing machine, the combination with compression means, of an endless apron or belt, a pair of link belts secured to the opposite edges thereof, a plunger, pawls carried by the plunger and adapted to engage in the links of the belt, means for removing the pawls from engagement with the links, and an independent means for returning the plunger to initial position.

5. In a mattress-stuffing machine, the combination with compression means, of an endless apron receiving intermittent movement in one direction, a reciprocating plunger movable in one direction with the belt and in the opposite direction independent of said belt, and a mechanism for operating the plunger.

6. In a mattress-stuffing machine, the combination with compression means, of an endless apron, a plunger, means for engaging the plunger with the apron, means for moving the plunger and apron in one direction, and means for automatically returning the plunger to its initial position independently of the apron.

7. In a mattress-stuffing machine, the combination with compression means, an endless

- apron, link belts secured to the apron, sprocket-wheels for transmitting movement to the belts, a plunger, rearwardly-extending brackets carried by the plunger, pawls carried by the brackets and adapted to engage the belts, said pawls being disengaged by contact of the sprocket-wheels therewith, and means for maintaining the pawls above the plane of the belts when released therefrom.
8. In a mattress-stuffing machine, the combination with compression means, of an endless apron, link belts secured to the apron, sprocket-wheels for transmitting movement to the belts, a plunger, rearwardly-extending brackets carried by the plunger, pawls secured to the brackets and adapted to engage the links of the belts, said pawls being disengaged by contact of the sprocket-wheels therewith, spring-held rollers carried by the pawls and serving to maintain the pawls in elevated position when released from the belts, and means for restoring the plunger to initial position.
9. In a mattress-stuffing machine, the combination with compression means, of an endless apron receiving intermittent movement in one direction only, a plunger, means for moving the apron and plunger in one direction, a spring-drum, and a flexible connecting means between the spring-drum and the plunger whereby at the completion of the forward movement of the plunger and its release said plunger will be returned to initial position by the spring-drum.
10. In a mattress-stuffing machine, the combination with compression means, of an endless apron receiving intermittent movement in one direction only, a reciprocatory plunger movable with the apron during the stuffing operation, means for releasing the plunger from the apron, a drum, torsion-springs connecting the drum to fixed points, and a flexible connecting means extending between the plunger and the drum, the springs being wound or placed under tension during the forward

movement of the plunger and serving to return said plunger to initial position by their retractile force.

11. In a mattress-stuffing machine, the combination with a pair of compression-rollers of which one is sectional, of sprocket-wheels arranged between the sections of said roll, a stationary bed or table, an endless apron, a grooved roller arranged near the rear end of the machine, link belts secured to the apron and extending around the sprocket-wheels and the grooved roller, and a plunger movable with the apron during the stuffing operation.

12. In a mattress-stuffing machine, a frame, a delivery-spout, a compression means including a roller, vertically-adjustable bearing-boxes for the roller, a cross-bar carried by the frame, a pair of flanged plates forming the lower portion of the spout, straps secured to said plates and encircling the cross-bar, side plates adjustable toward and from each other, brackets carried by the side plates and connected to the said lower flanged plates, said brackets having vertically-extended pins, a cross-bar carried by the vertically-adjustable bearing-boxes, upper flanged plates forming a part of the discharge-spout and having straps encircling the upper bar, and perforated lugs or ears secured to said upper plates and into which the vertical pins extend.

13. In a mattress-stuffing machine, the combination with compression means and a movable apron, of a reciprocatory plunger, a transversely-disposed buffer-bar for the plunger, said bar having rearwardly-extended end portions, and springs mounted on said end portions and serving to take up the impact of the plunger.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CLEMENT W. JOHANSEN.

Witnesses:

J. ROSS COLHOUN,
J. H. JOCHUM, Jr.