

No. 768,671.

PATENTED AUG. 30, 1904.

C. W. MEVES.
MACHINE FOR MAKING MATTRESSES.

APPLICATION FILED OCT. 12, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

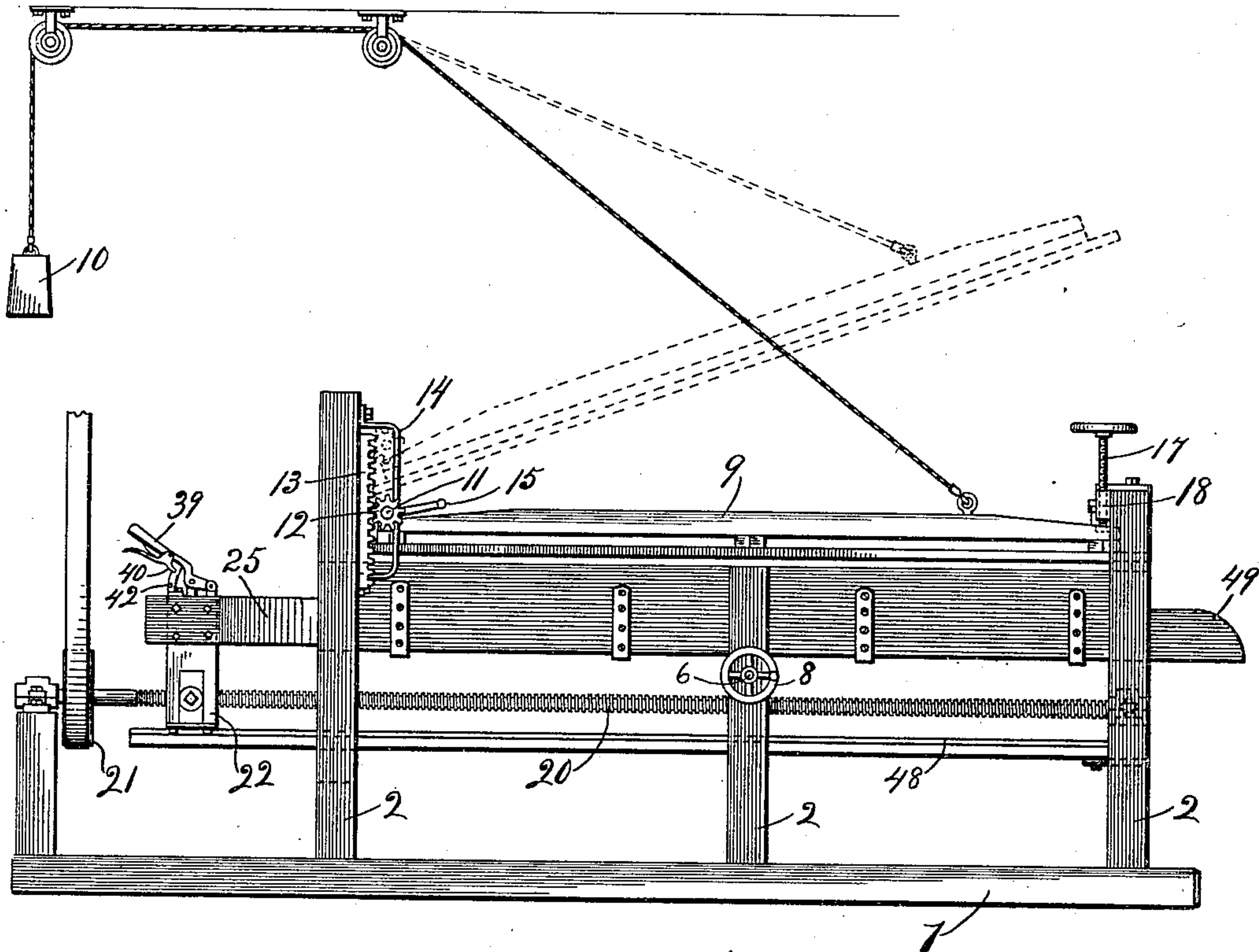


Fig. 1.

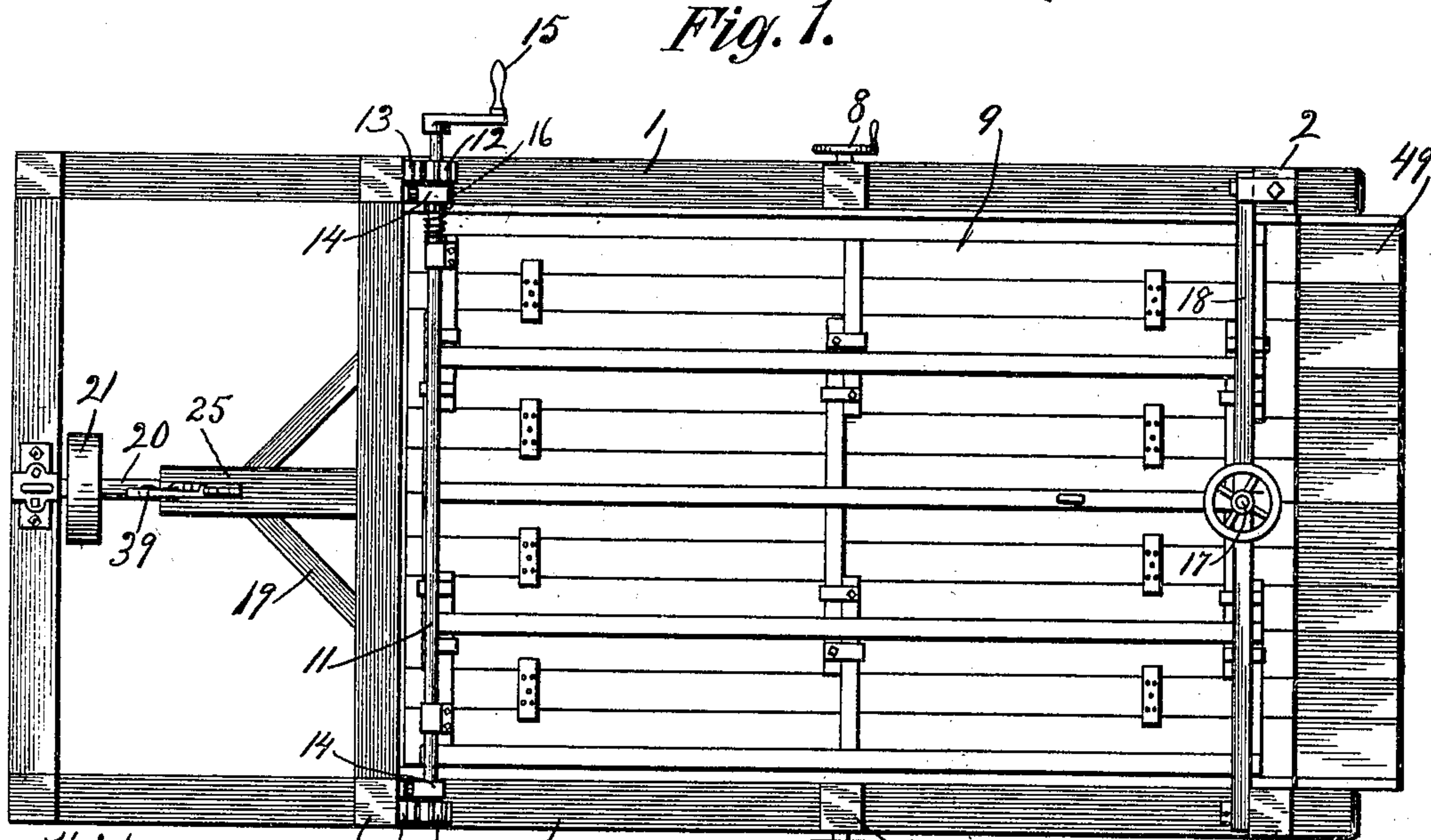


Fig. 2.

Witnesses: 2/12
Mr. H. Cotton 13
E. M. Klatches

Inventor: Charles W. Meves,
By Geo. E. Waldo, Atty.

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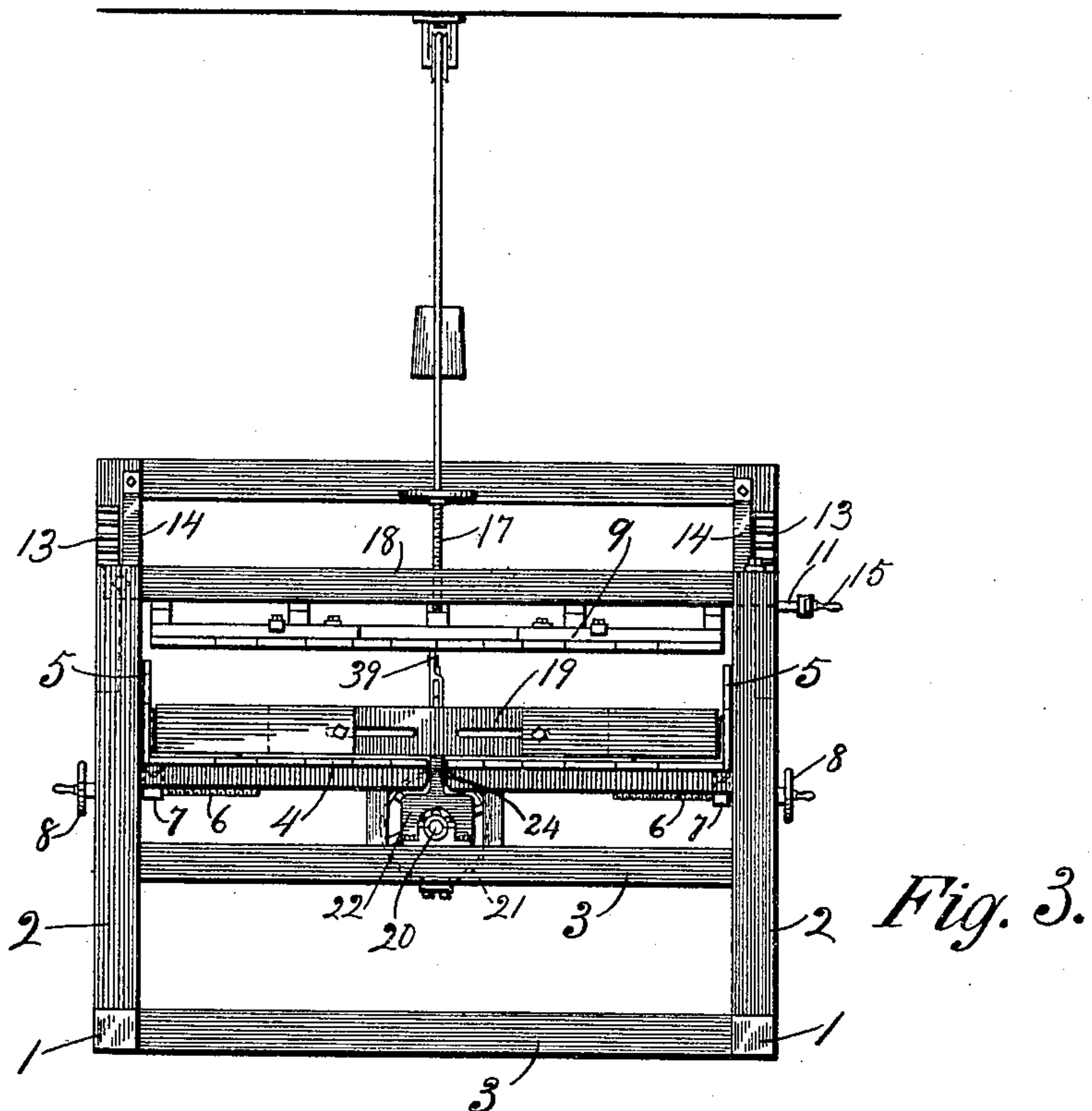


Fig. 3.

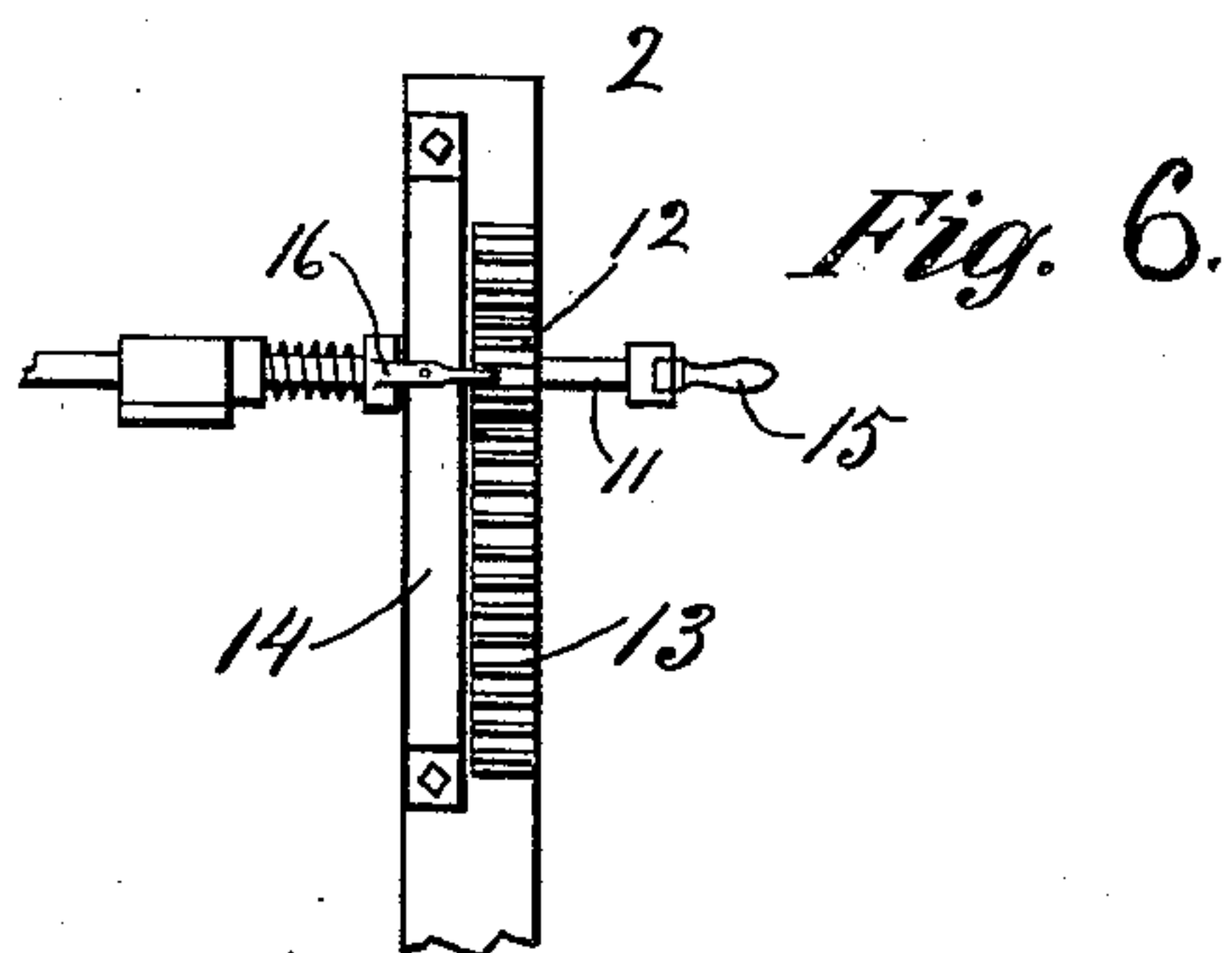


Fig. 6.

Witnesses:

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E. M. Klatchers

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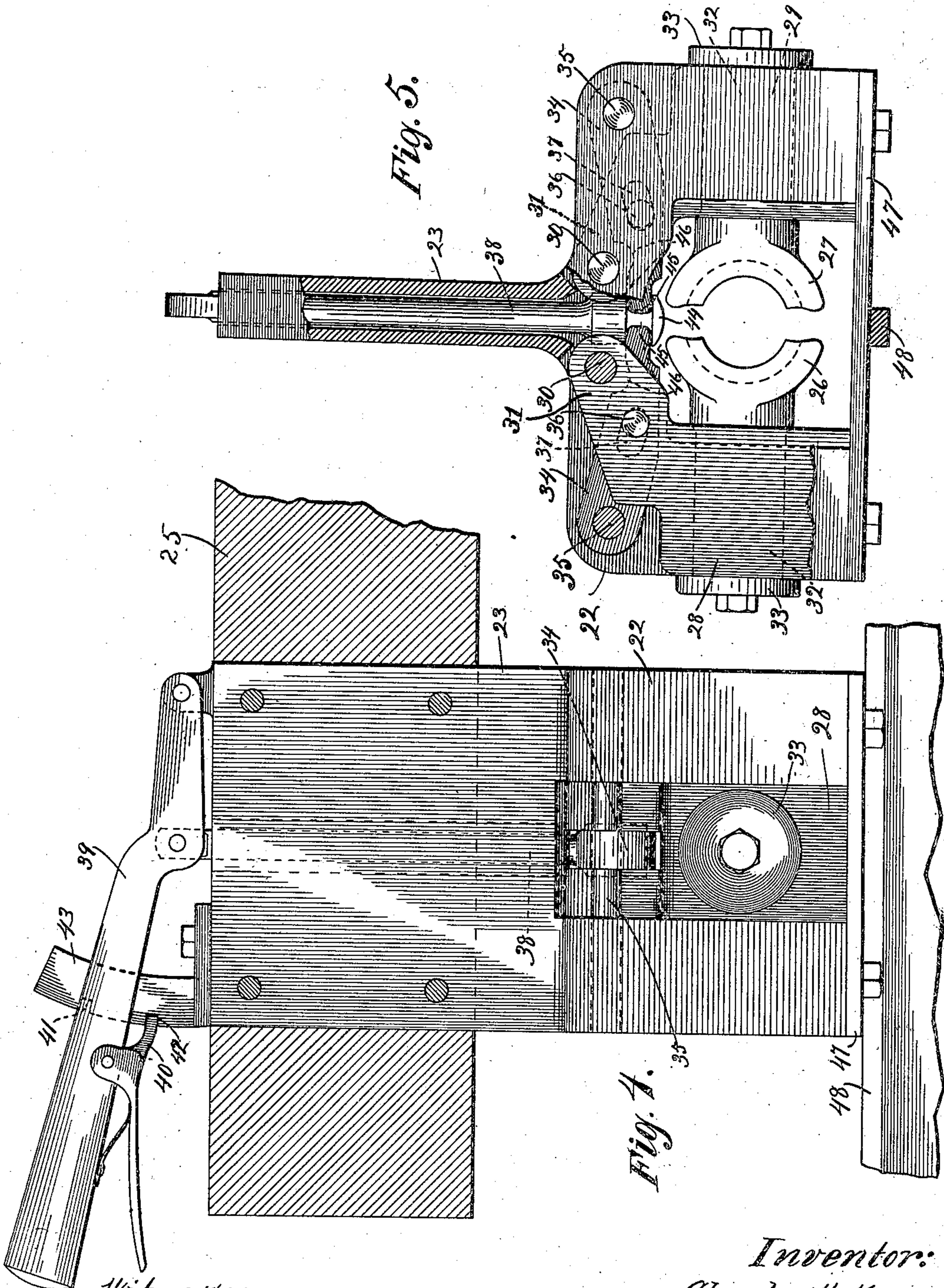
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3 SHEETS—SHEET 3.



Witnesses:
W. H. Cotton.
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By

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Inventor:

Charles W. Meves.

Att'y.

UNITED STATES PATENT OFFICE.

CHARLES W. MEVES, OF MANITOWOC, WISCONSIN, ASSIGNOR TO MANITOWOC MATTRESS COMPANY, OF MANITOWOC, WISCONSIN, A CORPORATION OF WISCONSIN.

MACHINE FOR MAKING MATTRESSES.

SPECIFICATION forming part of Letters Patent No. 768,671, dated August 30, 1904.

Application filed October 12, 1903. Serial No. 176,608. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. MEVES, a citizen of the United States, and a resident of Manitowoc, Manitowoc county, Wisconsin, have invented certain new and useful Improvements in Machines for Making Mattresses, of which the following is a complete specification.

This invention relates to mattress-machines, and refers particularly to mattress-machines of the type comprising a press-box and a compress-lid pivotally supported at its rear end, a plunger for discharging the filling material from the press-box, and a feed-screw for actuating said plunger.

A primary object of the invention is to provide means whereby the pivoted end of the compress-lid may be quickly and conveniently raised and lowered when desired, thus providing for raising the pivoted end thereof to allow free access to the interior of the press-box in filling the same.

A further object of the invention is to provide means to disengage the plunger from the feed-screw in order that said plunger may be quickly and conveniently retracted to its initial position by hand or by suitable mechanism provided for the purpose independently of the feed-screw. In this manner a very considerable saving in time is effected in operating the machine.

The invention consists in the various features, combinations of features, and details of construction hereinafter described and claimed.

In the accompanying drawings a mattress-machine of my invention is fully illustrated.

Figure 1 is a side elevation of a mattress-machine of my invention, the compression-lid being shown in raised position in dotted lines. Fig. 2 is a top plan view thereof. Fig. 3 is an end view thereof. Figs. 4 and 5 are enlarged views of the feed-nut, and Fig. 6 is a detail view of the means for securing the compression-lid in desired vertical adjustment.

As regards its general features a machine embodying my invention may be of any desired or approved construction.

As shown, the frame of the machine consists of lower longitudinal members 1, upright members 2, supported thereon, and transverse members 3, connecting said upright members 2.

The press-box consists of a bottom 4 and side pieces 5. The bottom 4 of the press-box preferably comprises removable sections, and the sides 5 are adapted to be adjusted toward and from each other to vary the width of the press-box to adapt the machine for making mattresses of different widths. As shown, the sides 5 are adapted to be adjusted toward and from each other by means of screws 6, secured against longitudinal movement in the frame of the machine and which are threaded to nuts 7, secured to the sides 5 of said press-box. For convenience in operating the screws 6 they are provided at their outer ends with hand-wheels 8. The compress-lid (indicated as a whole by 9) also comprises removable sections to provide for varying the width thereof to correspond with the width of the press-box.

The rear end of the compress-lid is pivoted to two of the upright frame members 2, and applied to its free end is a counterweight 10. In the preferable construction shown the compress-lid 9 is pivoted upon a shaft 11, to which are secured pinions 12, which engage rack-bars 13, rigidly secured to upward extensions of the said frame members 2. Guide-bars 14, which embrace the shaft 11, operate to maintain the pinions 12 in engagement with rack-bars 13. With this construction it is obvious that rotation of the shaft 11 will operate to raise and lower the pivoted end of the compress-lid 9, thus providing for quickly raising and lowering the pivoted end of said compress-lid when desired. As shown, a crank 15, applied to said shaft 11, affords convenient means for rotating the same.

The pivoted end of the compress-lid is adapted to be secured in any desired vertical adjustment by suitable means. This can easily be effected by locking the shaft 11 against rotation. As shown, said shaft may be locked against rotation by means of a spring-actuated bolt 16, slidably mounted on

the shaft 11, adapted to engage the teeth of one of the pinions 12, preferably the pinion on the same side of the machine as the crank 15.

After the press-box has been filled and the
5 pivoted end of the compress-lid is lowered into desired position the free end of said compress-lid is adapted to be forced down to compress the filling material by means of a thrust-screw 17, threaded to a nut secured to
10 a bar 18, rigidly secured to upward extensions of the front vertical frame members 2. The bar 18 is preferably pivoted at one end and is detachably supported at its opposite end, thus providing for quickly and conveniently turning
15 said bar 18 out of the path of the compress-lid 9 in raising and lowering the same.

The plunger (indicated as a whole by 19) is actuated by means of a nut thereon which engages the feed-screw 20, to which rotation
20 is imparted by means of a belt driven from any suitable source of power (not shown) applied to a pulley 21 thereon.

Heretofore where the plungers of mattress-machines have been operated by means of
25 feed-screws the practice has been to retract said plungers by reversing the feed-screw. This is objectionable, however, on account of the length of time required to retract said plunger, and to overcome this objectionable
30 feature I have provided a nut which may be quickly and conveniently engaged with and disengaged from said feed-screw, thus making provision for retracting said plunger by hand or by suitable mechanism independently of
35 said feed-screw. In this manner much time can be saved in the operation of the machine.

Any desired or convenient form of nut may be employed. As shown in the drawings, the nut consists of a body portion 22, rigidly
40 secured to the plunger by means of a plate 23, preferably formed integral with said nut-body 22, said plate 23 extending upwardly through a longitudinal slot 24 formed in the bottom of the press-box of the machine and being rigidly
45 secured to the stem 25 of the plunger.

The nut proper consists of opposed sections 26 and 27, mounted in the nut-body 22 in such manner as to be movable toward and from the feed-screw 20. In the preferable construction
50 shown the nut-sections 26 and 27 are connected to heads 28 and 29, respectively, which are fitted to and freely movable toward and from the feed-screw 20 in suitable guide-slots formed in the nut-body, said heads, as shown,
55 being pivotally supported upon said nut-body by means of pivot-pins 30, secured in said nut-body and which engage suitable bearings in lever-arms 31 on said heads 28 and 29. In the preferable construction shown also the nut-
60 sections 26 and 27 are secured in said heads 28 and 29, so that they will be free to rotate about an axis at right angles to the axis of the feed-screw 20. As shown, said nut-sections are provided with shanks 32, which are fitted
65 to suitable bearings in said heads 28 and 29

and are secured therein by means of caps 33, secured to the outer ends of the shanks 32.

Due to the fact that the feed-screw is located a considerable distance below the plunger the resistance to the movement of the plunger in
70 discharging the filling material from the machine exerts a strain on the feed-screw which tends to bend or buckle the same out of alignment, and it is found in practice that where the feed-nut is rigid such bending or buckling
75 of the feed-screw will cause the feed-nut to bind upon said feed-screw, thus causing the same to work very hard. I have discovered that this objectionable feature can be overcome and much power saved by supporting
80 the feed-nut so that it will be free to turn in the manner above described, so as to adjust itself to different alignments of the feed-screw.

Pivotal movement about the pins 30 is imparted to the heads 28 and 29, and thus to the
85 nut-sections 26 and 27, toward and from the feed-screw 20 by means of levers 34, pivoted to the nut-body by pins 35, said levers being connected to the lever-arms 31 on the heads
90 28 and 29 by means of pins 36, secured in said lever-arms, which engage slots 37 formed in said levers 34. The free ends of the levers 34 are pivotally connected to a rod 38, which, as
95 shown, extends upwardly through an opening formed in the plate 23 and is connected at its upper end with a lever 39, pivoted at one end to the plate 23. With this construction it is
100 obvious that pivotal movement of the lever 39 will raise and lower the rod 38, and thus impart pivotal movement to the levers 34, which in turn will impart desired pivotal movement to the heads 28 and 29, and thus to the screw-
105 sections 26 and 27, to effect engagement and disengagement of said screw-sections with the feed-screw 20 in the desired manner. A spring-actuated bolt 40 on the lever 39 is adapted to engage notches 41 and 42, formed
110 in a segment 43 on the plate 23, to secure said lever in its positions corresponding to full engagement and disengagement of the nut-sections 26 and 27 with the feed-screw 20. As shown, the nut-sections 26 and 27 are in their positions of nearest approach to or full engagement with the feed-screw 20.

In the preferable construction shown the
115 levers 34 are connected to the rod 38 in the following manner: Formed on the lower end of said rod 38 is a head 44, in which are formed slots or grooves 45, to which the free ends of the levers 34 are fitted, said grooves and the
120 ends of said levers being rounded to provide for free movement of said levers in said grooves. As shown also, the levers 34 are cut away, as shown at 46, to provide for desired movement of said levers relatively to the pin
125 30 in operating said machine. Secured to the bottom of the nut-body 22 is a plate 47, which sustains the strain due to the operation of the nut. The nut-body 22 and the parts carried thereby are preferably supported in proper
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vertical position upon a track 48, supported upon the machine-frame beneath and parallel with the feed-screw 20. The track 48 prevents the nut-body from settling when the feed-nut is disengaged from the feed-screw and effectually prevents engagement of said feed-nut with said feed-screw except by means of the lever 39 in the designed manner. The said track 48 also takes the weight of the various parts and renders it much easier to retract the plunger.

The method of operating my improved machine is as follows: The compress-lid 9 is moved pivotally to raise the free end thereof a desired distance, in which position it is supported by the counterweight 10, and the pivoted end of said compress-lid is raised by means of the shaft 11 in the manner described, in which position it is secured by means of the spring-bolt 16. In this position of the compress-lid the interior of the press-box is readily accessible throughout its length for the introduction into the same of the filling material. Before the filling material is inserted into the press-box the lever 39 is moved pivotally to disengage the feed-nut from the feed-screw 20 and the plunger 19 retracted either by hand or by other means independent of the feed-screw. The filling material is then introduced into the press-box in the usual manner. The pivoted end of the compress-lid is forced down, so as to subject the filling material to the desired pressure, and is secured in such position by the spring-bolt 16. The free end of the compress-lid is then drawn down, the bar 18 is turned into position so that the thrust-screw 17 will bear upon the free end of said compress-lid, the movable end of said bar secured, and the screw 17 set down until the contents of the compress-box are sufficiently compressed. A mattress-tick (not shown) is then drawn over the discharging-spout of the machine, (shown at 49.) The lever 39 is then moved pivotally to effect engagement of the feed-nut with the feed-screw. The feed-screw is then started, which will operate in a familiar manner to force the plunger 19 through the press-box, which in turn will force the contents of the press-box into the mattress-tick adjusted to the discharging-spout 49, all in a familiar manner. The feed-screw 17 is then released and the bar 18 turned so that it will be out of the path of travel of the free end of the compress-lid 9, which may then be raised in the manner hereinbefore described preparatory to refilling the press-box.

I claim—

1. In a mattress-making machine, the combination with the press-box and the compress-lid, of a shaft to which said compress-lid is pivoted, pinions on said shaft, racks with which said pinions engage, and means to maintain said pinions in engagement with said racks, substantially as described.

2. In a mattress-making machine, the combination with the press-box and the compress-lid, of a shaft to which said compress-lid is pivoted, pinions on said shaft, racks with which said pinions engage, means to maintain said pinions in engagement with said racks, and means to secure said compress-lid in vertical adjustment, substantially as described.

3. In a mattress-making machine, the combination with the press-box and the compress-lid, of a shaft to which said compress-lid is pivoted, pinions on said shaft, racks with which said pinions engage, means to maintain said pinions in engagement with said racks, and means to secure said pinions against rotation in both directions, substantially as described.

4. In a mattress-making machine, the combination with the press-box and the compress-lid, of a shaft to which said compress-lid is pivoted, pinions secured to said shaft, racks with which said pinions engage, guides in which the ends of said shaft are confined, and a bolt on said compress-lid for engagement with a rigid part of one of said pinions, substantially as described.

5. In a mattress-making machine, the combination with the plunger and a feed-screw, of a nut secured to said plunger which engages said feed-screw, said nut being pivotally movable about a transverse axis at right angles to the axis of said feed-screw, substantially as described.

6. In a mattress-making machine, the combination with the press-box, plunger and a feed-screw, of an opening nut secured to said plunger for engaging said feed-screw, and means located above the bottom of the press-box for effecting engagement and disengagement of said nut with said feed-screw, substantially as described.

7. In a mattress-making machine, the combination with the plunger, and a feed-screw, of an opening nut on said plunger for engaging said feed-screw, means for effecting engagement and disengagement of said nut with said feed-screw, and a track on which said nut is supported, substantially as described.

8. In a mattress-making machine, the combination with the plunger and a feed-screw, of an opening nut secured to said plunger, designed to engage said feed-screw, said nut comprising a body portion provided with guides or ways, heads fitted to said guides or ways and movable therein toward and from the feed-screw, nut-sections on said heads, means to impart movement to said heads toward and from said feed-screw, and means to secure said heads in positions in which said nut-sections are in engagement with and are disengaged from said feed-screw, substantially as described.

9. In a mattress-making machine, the combination with the plunger and a feed-screw, of an opening nut secured to said plunger, designed to engage said feed-screw, said nut com-

prising a body portion, jaws or heads pivotally supported thereon, nut-sections on said jaws or heads, means to impart pivotal movement to said jaws or heads to effect engagement and
5 disengagement of said nut-sections with said feed-screw, and means to secure said heads in positions in which said nut-sections are in engagement with and are disengaged from said feed-screw, substantially as described.

10 10. In a mattress-making machine, the combination with the plunger and a feed-screw, of an opening nut secured to said plunger, designed to engage said feed-screw, said nut comprising a body portion provided with guides
15 or ways, jaws or heads which are fitted to said guides or ways and are pivotally supported in said nut-body, nut-sections on said jaws or heads, means to impart pivotal movement to said jaws or heads to effect engagement and
20 disengagement of said nut-sections with said feed-screw, and means to secure said jaws or heads in positions in which said nut-sections are in engagement with and are disengaged from said feed-screw, substantially as described.
25

11. In a mattress-making machine, the combination with the plunger and a feed-screw, of an opening nut secured to said plunger, designed to engage said feed-screw, said nut comprising a body portion, jaws or heads supported
30 therein so as to be movable toward and from

said feed-screw, nut-sections pivotally mounted on said heads, means to impart movement to said heads toward and from said feed-screw, and means to secure said heads in positions in
35 which said nut-sections are in engagement with and are disengaged from said feed-screw, substantially as described.

12. In a mattress-making machine, the combination with the plunger and a feed-screw, of
40 an opening nut secured to said plunger, designed to engage said feed-screw, said nut comprising a body portion, jaws or heads pivotally supported thereon, nut-sections on said jaws or heads, levers on said heads, connection between
45 said levers and said heads whereby pivotal movement of said levers will impart pivotal movement to said jaws or heads, an operating-lever on the plunger, connection between
50 said operating-lever and the levers connected to said jaws or heads, and means to secure said operating-lever in different pivotal positions, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature, in presence
55 of two subscribing witnesses, this 19th day of September, A. D. 1903.

CHAS. W. MEVES.

Witnesses:

GUSTAV H. TORRISON,
E. G. NASH.