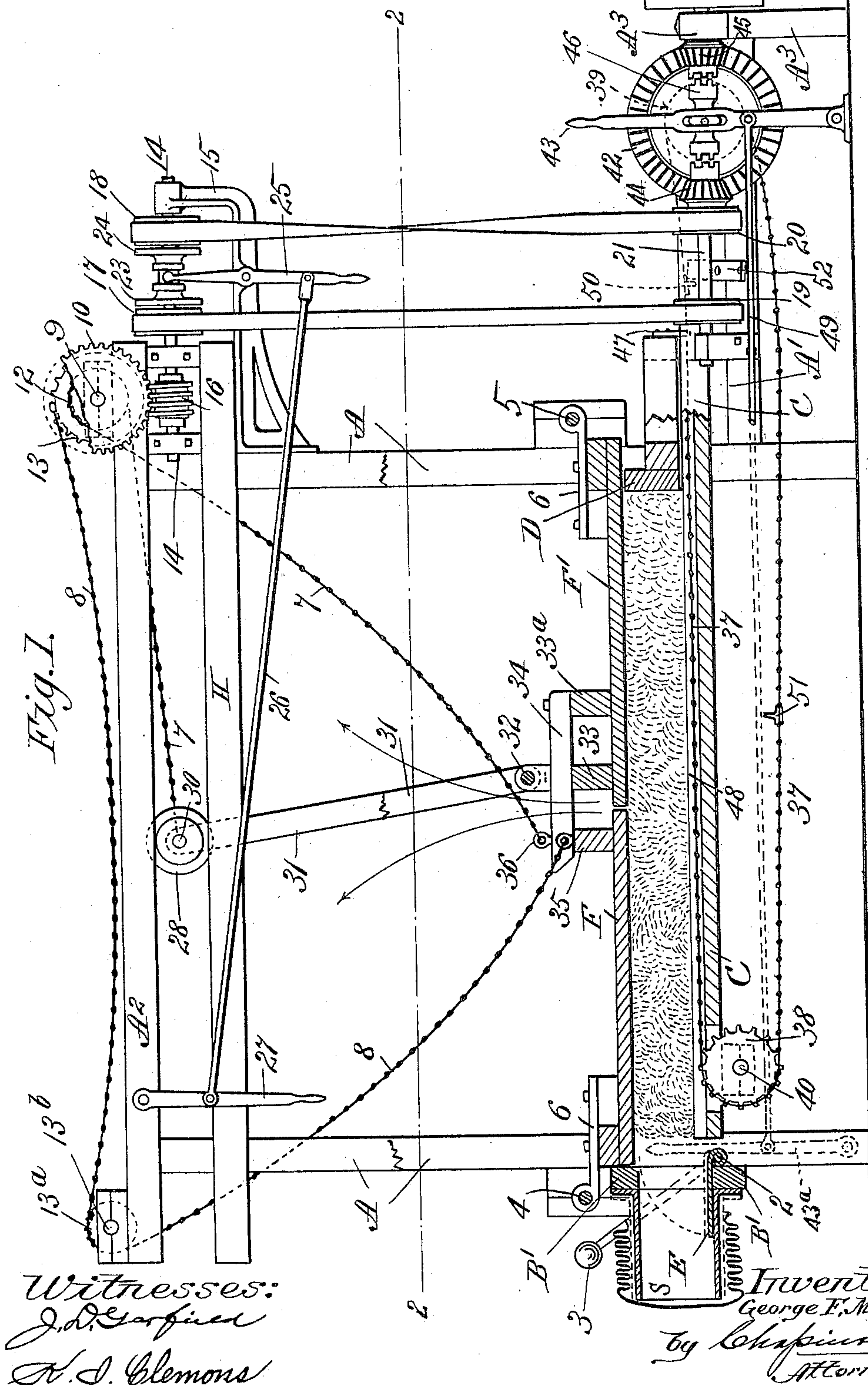


2 Sheets—Sheet 1.

No. 599,299.

Patented Feb. 15, 1898.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

G. F. MARTIN
MATTRESS FILLING MACHINE.

No. 599,299.

Patented Feb. 15, 1898.

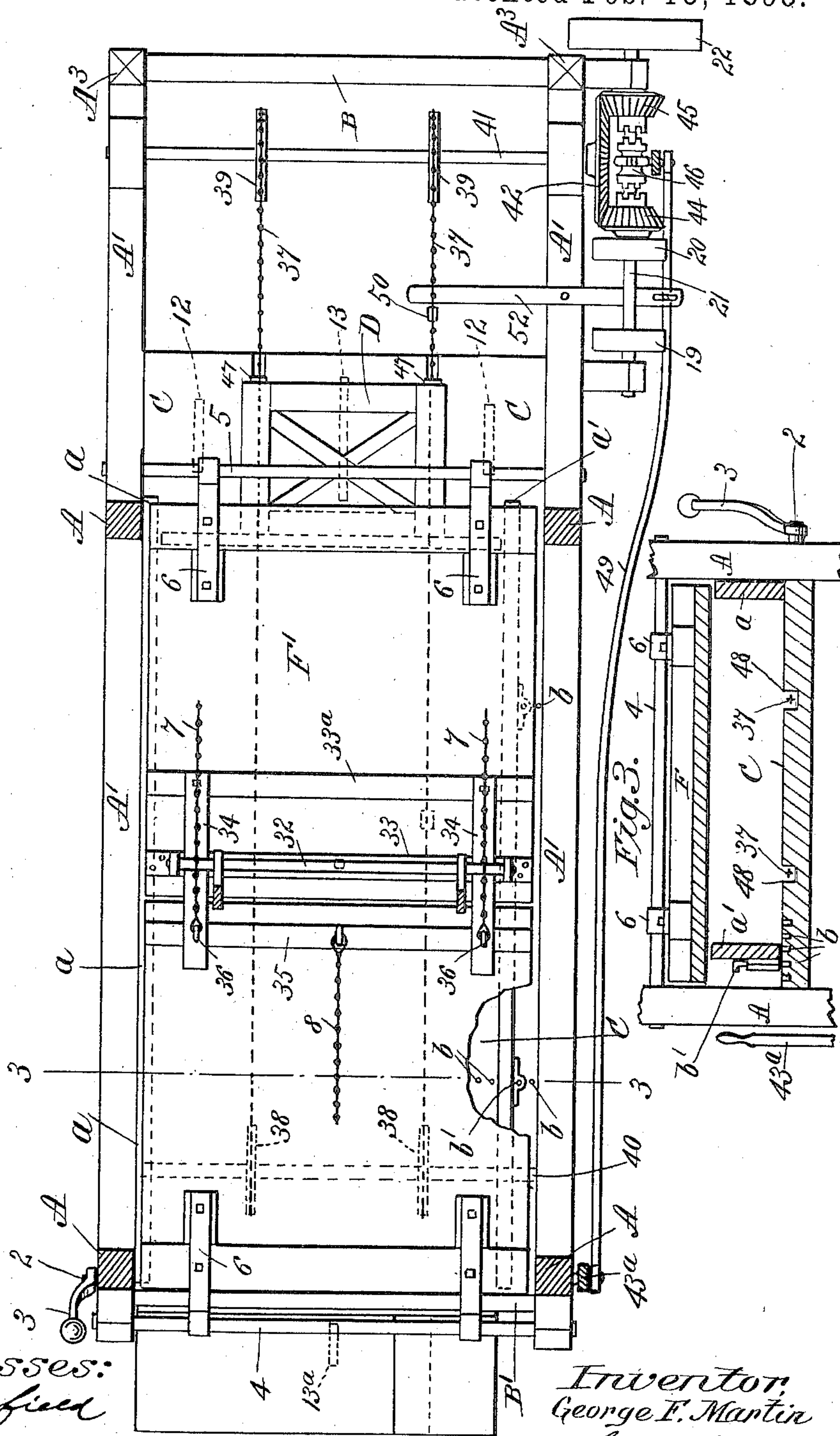


Fig. 2.

Witnesses:
J. R. Garfield
H. J. Clemons

Inventor,
George F. Martin

by Chapman
Attorneys,

UNITED STATES PATENT OFFICE.

GEORGE F. MARTIN, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO AMENZO GRIFFITH, OF SAME PLACE.

MATTRESS-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 599,299, dated February 15, 1898.

Application filed January 15, 1897. Serial No. 619,379. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. MARTIN, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Mattress-Filling Machines, of which the following is a specification.

This invention relates to mattress-filling machines, and has for its object the production of a machine of the above class which shall be efficient and powerful in operation, of inexpensive construction, and under easy control of the operator; and the invention consists of the construction and arrangement of the machine as set forth in the following specification and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation, partly in section, of a machine constructed according to my invention. Fig. 2 is a sectional plan view on line 2 2, Fig. 1. Fig. 3 is a cross-sectional view of the lower part of the machine on line 3 3, Fig. 2.

Referring now to the drawings, A A A A are four vertical posts forming the corners of a frame for the machine. A' represents two longitudinal timbers united to said posts A at a suitable distance from their lower ends. A² represents the longitudinal timbers uniting the upper ends of said posts A. One end of said timbers A' projects for a certain distance beyond said posts A, as shown, for the support of the driving-shaft and clutch mechanism by which the machine is operated, and said projecting ends of the timbers A' are supported by short posts A³. Suitable timbers B, between the posts A³, and B', between the posts A, unite the two sides of the frame near the lower ends of the said posts, and similar pieces (not clearly shown) unite the upper extremities of the said posts, the whole constituting a rigid rectangular frame for the machine. A rigid floor C is laid between posts A in the said frame and constitutes the bottom of the box-like structure in which the material is compressed with which the mattress is to be filled. One end of said box is closed by the movable plunger D and the opposite end by the "damper" E, so called. Said damper, which is hinged at 2 on the frame of

the machine, is provided with a weighted handle 3, by which it is kept in a vertical or closed position during the operation of compressing the mattress-filling and which is maintained by the same means in a horizontal position, as shown in Fig. 1, when the plunger D is operated to force the compressed filling into a mattress-tick. The sides of said box are formed of one fixed side *a* and one movable side *a'*. The latter is adjustable transversely on the floor C, whereby the machine is adapted to the compression of masses of filling for mattresses of various widths. The means for effecting said adjustment are shown in Figs. 2 and 3, and consist of a series of holes *b*, bored through the floor C, and a casting screwed onto the side of *a'*, having a hole therein through which a pin *b'* is passed, which engages one of the said holes *b*. Said adjusting devices may be applied in two or more places, as required, along the side of *a'*. Fig. 3 illustrates this adjustment of the side *a'*.

The compressing mechanism is constructed as follows: On shafts 4 and 5, suitably supported on the frame of the machine, are hinged the two compressing-platens F F' by hinges 6. Said platens F and F' have a reciprocating movement vertically through the arc of a circle of which said shafts 4 and 5 are the centers. Said platens are raised by means of the chains 7 for platen F' and the chain 8 for platen F. A shaft 9, extending transversely across the top of the frame of the machine, has on one end thereof a gear 10, and is provided with the sprocket-wheels 12 for chains 7 and 13 for chain 8, which sprockets are fixed on said shaft in any convenient manner. Said sprockets are shown in plan view in Fig. 2 in dotted lines. A shaft 14 is supported in a bracket 15 at right angles to shaft 9 and has fixed thereon a worm-gear 16, which engages with the teeth of the gear 10. On said shaft 14 are two loose pulleys 17 and 18, driven in opposite directions by straight and cross belts from pulleys 19 and 20 on driving-shaft 21, supported parallel with said shaft 9 in suitable bearings on the extended ends of the timbers A', as described. Said shaft 21 is provided with a driving-pulley 22 and a clutch mechanism, whereby said shaft is made to rotate in either direction, which

clutch mechanism is described farther on. Between the pulleys 17 and 18 on the shaft 14 are two friction-disks 23 and 24, having a common hub, all made in one piece and having a spline-and-groove connection with said shaft, whereby said disks revolve with said shaft, but are movable longitudinally thereon. A lever 25 for imparting said movement thereto is pivoted on the bracket 15, and by a connecting-rod 26 between said lever, and a second lever 27, pivoted on the opposite end of the frame, permits said friction-disks to be operated from either end of the machine to raise or lower the compressing-platens F and F'. Said platens are raised, as described, by the chains 7 and 8. When the lever 25 is moved to the right by the rotation of shaft 9, which results from the contact of friction-disks 23 with the side of the pulley 17, the worm 16 rotates gear 10 on said shaft and the sprockets 12 and 13 thereon to take up said chains and raise the platens.

When the mattress-filling has been spread on the floor C of the machine to be compressed and forced into a mattress-tick, the platens are moved down against said filling material, first by gravity and finally by pressure exerted by the chains 7, as follows: Under and parallel with the timbers A², constituting the top of the sides of the frame of the machine, are two timbers H, the adjoining surfaces of said timbers constituting a guide-slot in which two flanged wheels 28 run, only one of which is shown. Said wheels are fixed on opposite ends of a shaft 30, supported in the upper ends of two swinging arms 31, whose lower ends are supported on a shaft 32, having suitable bearings on a timber 33, secured transversely across the platen F', which serves to strengthen the latter and to support the bars 34, bolted to said transverse timber 33 and a second timber 33^a parallel therewith. Said bars 34 are of such length as to project beyond the meeting edges of the two platens when they approach a horizontal position, whereby the said bars on F' may reach over and bear upon a transversely-located timber 35 on platen F. The forcible depression of the platens F F' is accomplished by carrying the chains 7 from eyebolts 36 in the bars 34 up and partly around the sprocket-wheels 12, and from thence to the shaft 30, to which said chains are secured. It will be seen by referring to Fig. 1 that the end of the chains 7 attached to eyebolts 36 slacks up and the end of said chains attached to shaft 30 is drawing when the shaft 9 is rotated in one direction and that the reverse takes place when the said shaft 9 is rotated in the opposite direction; and as arms 31 are never brought into a position at right angles to the horizontal position of the platens when the maximum compression of the filling has been attained, it follows that a draft on the chains 7, secured to said platens, forces said arms 31 back toward the hand-lever 27 by reason of rolling contact of said arms and the timber A²

through the flanged wheels 28; yet said arms 31 hold said platens rigidly against the expansion of any material which may have been compressed by them because of the worm-and-gear connection for driving the shaft 9, whereby said shaft is held stationary in whatever position it may be stopped. Chain 8, attached by one end to an eyebolt in the timber 35 on the platen F and passing around a sprocket 13^a on a shaft 13^b, over one end of the frame, and from thence carried to and secured to the sprocket 13, serves to raise the platen F' simultaneously with the raising of F' by chains 7. Said chain 8 is given a little more slack than chain 7 in order that when shaft 9 is operated to raise the platens the platen F' may start a little ahead of platen F, whereby the latter will not come in contact with the bars 34 on the former.

Means for moving the plunger D for forcing the filling in a compressed form into a mattress-tick consist of sprocket-chains 37, running over sprocket-wheels 38 and 39, the former on a shaft 40, hung in suitable bearings under the floor C of the machine near one end, and the latter, 39, on a shaft 41, supported in bearings on the extended portion of the timbers A', the last-named shaft having secured on one end thereof the bevel-gear 42. Movement is imparted to the said shaft 41 in opposite directions by the clutch mechanism on shaft 21. This mechanism in itself is not new and any of the various forms of reversing-clutches may be used in its stead, if desired. The clutch-lever 43 when it stands in the position shown in Fig. 1 holds out of engagement with either of the bevel-gears 44 or 45, the clutch-hub 46, which has a spline-and-groove engagement with the shaft 21 and is movable by said lever 43, which can be thrown to the right or left to engage either one of the bevel-gears 21^a to operate the shaft 41 to move the plunger D forward or to retract it after it has been so moved. Said forward-and-backward movement is imparted to the plunger D by the permanent engagement of stops secured in any convenient way to the frame of said plunger in proximity to said chains 37. In the drawings said stops are shown as consisting of two studs 47, bolted to the frame of the plunger and projecting downward through the links of the chains. The said chains 37 run in grooves 48, cut in the surface of the floor C, to the end that they may be moved freely to operate the plunger D after the filling has been compressed by the platens, as described.

The clutch-operating lever 43 is provided with a connecting-rod 49, extending lengthwise of the machine and pivotally connected to a second operating-lever 43^a, secured to the frame of the machine at the opposite end from said clutch mechanism, whereby the latter may be operated from either end of the machine.

A spout S is secured to the cross-timbers B' of the frame in any desirable way and is pref-

erably of metal, and the tick T is drawn over the end of said spout in folds, as shown in Fig. 1, and retained there by any of the well-known means employed for that purpose.

5 The cross-sectional area of said spout S equals the similar area of the compressed mass of filling. The spout S is made adjustable transversely, whereby a uniform width of spout and box in which the filling is compressed
10 may be maintained. Said adjustment consists in making the spout in two parts, one telescoping over the other, and when the movable end S' has been adjusted relative to the fixed part S to the proper width, screws passing through the flange of the part S' into the
15 timbers B' hold them in their proper relations the one to the other.

Automatic means for stopping the plunger D when it arrives at its limit of movement
20 forward or backward consist in securing stops 50 and 51 to the chain 37 nearest the shaft 21 and pivoting a lever 52 to the frame at 53, one end of said lever lying in the path of the said chain. In Fig. 1 the stop 50 (shown in
25 dotted lines) is shown in the position it would be in after having operated said lever 52 to stop the plunger D in the position in which it is shown in said figure. When said chain is again set in motion by the operation of lever 43 or 43^a to expel the filling from the machine, the stops 51 travel in the direction of
30 said clutch mechanism and reach and operate lever 52 by the time the plunger arrives at the end of its forward motion, whereby its said movement is arrested, and the manipulation of lever 43^a or 43 again starts said
35 plunger back toward the clutch mechanism, when its movement is again arrested, as described, by the contact of stop 50 with said shipping-lever 52.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mattress-filling machine, a frame, a
45 box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, and means for forcibly moving said platens from an inclined position to a position parallel with the bottom of said box, a spout on said box, and
50 means for forcing said filling material, while compressed, through said box and spout, substantially as described.

2. In a mattress-filling machine, a frame, a
55 box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, and means for forcibly moving said platens from an inclined position to a position parallel with the bottom of said box, a spout on said box, and
60 means for forcing said filling material while compressed through said box and spout, and means for raising said platens from a horizontal toward a vertical position, substantially
65 as described.

3. In a mattress-filling machine, a frame, a

box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, a part of one of said platens engaging the other, and means
70 applied to one of them for forcibly moving them from an inclined position to a position parallel with the bottom of said box, a spout on said box, and means for forcing said filling material through said box and spout, substantially as described.

4. In a mattress-filling machine, a frame, a box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, a part of one of
80 said platens engaging the other, and means applied to one of them for forcibly moving them from an inclined position to a position parallel with the bottom of said box, and means for raising them again to said inclined
85 position, a spout on said box, and means for forcing said filling material through said box and spout, substantially as described.

5. In a mattress-filling machine, a frame, a box-like structure for the filling material, a
90 spout thereon, means for adjusting said box and spout transversely, two compressing-platens hinged to the frame at opposite ends of said box, means for forcibly moving said platens from an inclined position to a position
95 parallel with the bottom of said box, and raising them again to said inclined position, and means for forcing said filling material while compressed through said box and spout, substantially as described.

6. In a mattress-filling machine, a frame, a box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, and means for forcibly moving said platens from an inclined
100 position to a position parallel with the bottom of said box and back again to said inclined position, consisting of the arms 31, wheels 28 on the extremities of said arms, a track for said wheels, the chains 7 and 8, the
105 shaft 9, having sprocket-wheels for said chains thereon, shaft 13^b for supporting one of said chains, and means for rotating the shaft 9, in either direction, a spout on said box, and means for forcing said filling through
110 said box and spout in a compressed form, substantially as described.

7. In a mattress-filling machine, a frame, a box-like structure for the filling material, two compressing-platens hinged to the frame at
120 opposite ends of said box, a part of one of said platens engaging the other, and means applied to one of them for forcibly moving them from an inclined position to a position parallel with the bottom of said box, a spout
125 on said box, and means for forcing said filling material through said box and spout consisting of two chains, shafts located transversely of the machine for supporting said chains in a plane substantially level with the
130 bottom of said box, the plunger D, means of engagement between said plunger and said

chains, and means for rotating one of said chain-supporting shafts in either direction, substantially as described.

8. In a mattress-filling machine, a frame, a box-like structure for the filling material, two compressing-platens hinged to the frame at opposite ends of said box, a part of one of said platens engaging the other, and means applied to one of them for forcibly moving them from an inclined position to a position parallel with the bottom of said box, a spout on said box, and means for forcing said filling material through said box and spout consisting of two chains, shafts located transversely of the machine for supporting said chains in a plane substantially level with the bottom of said box, the plunger D, means of engagement between said plunger and said chains, and means for rotating one of said chain-supporting shafts in either direction, and means for automatically arresting the rotation of said shaft, substantially as described.

9. In a mattress-filling machine, the combination with a stuffing-box having a hinged cover, of an arm or bar for operating said cover, supports on which said arm or bar is mounted to move, a flexible connection secured to the arm or bar and to the cover, and a wheel or guiding device around which said flexible connection passes.

10. In a mattress-filling machine, the combination with the stuffing-box and two hinged cover-sections, of a cover-operating arm or

bar for operating one of the sections of the cover, supports on which said bar is mounted to move, and a sprocket-and-chain connection for operating the arm or bar and the platen or cover-sections.

11. The combination with a stuffing-box having two hinged platens or cover-sections, of arms or bars provided at their upper ends with a shaft having supporting-wheels and connected at their lower ends to one platen, ways on which said wheels travel, an operating-shaft provided with sprocket-wheels, chains extending from said wheeled shaft around sprocket-wheels on the operating-shaft and thence to one of the platens and another chain extending around a sprocket-wheel on said operating-shaft, around a guiding-sprocket and down to the other platen-section, and means for rotating said operating sprocket-shaft in either direction.

12. The combination with the stuffing-box having a hinged platen or cover and an operating arm or bar pivoted at its lower end to said cover and having its upper end mounted to travel in suitable guides, of a plunger working in one end of the box, a spout at the opposite end of the box and a damper or gate separating the box from the spout.

GEORGE F. MARTIN.

Witnesses:

H. A. CHAPIN,
K. I. CLEMONS.