

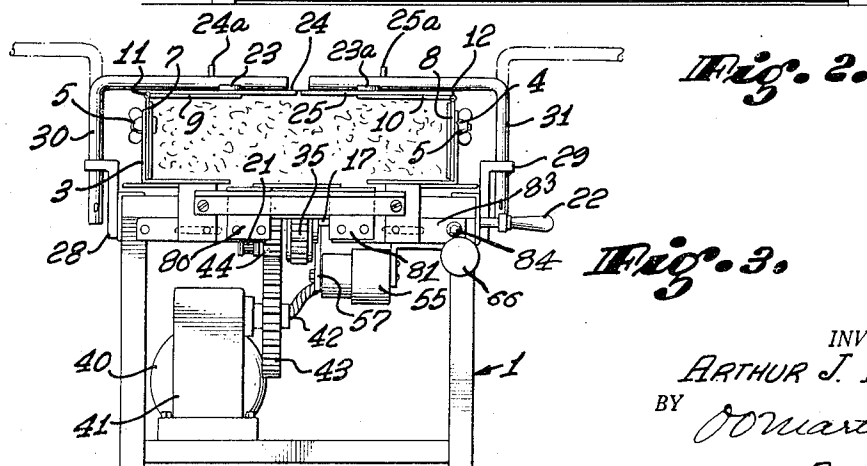
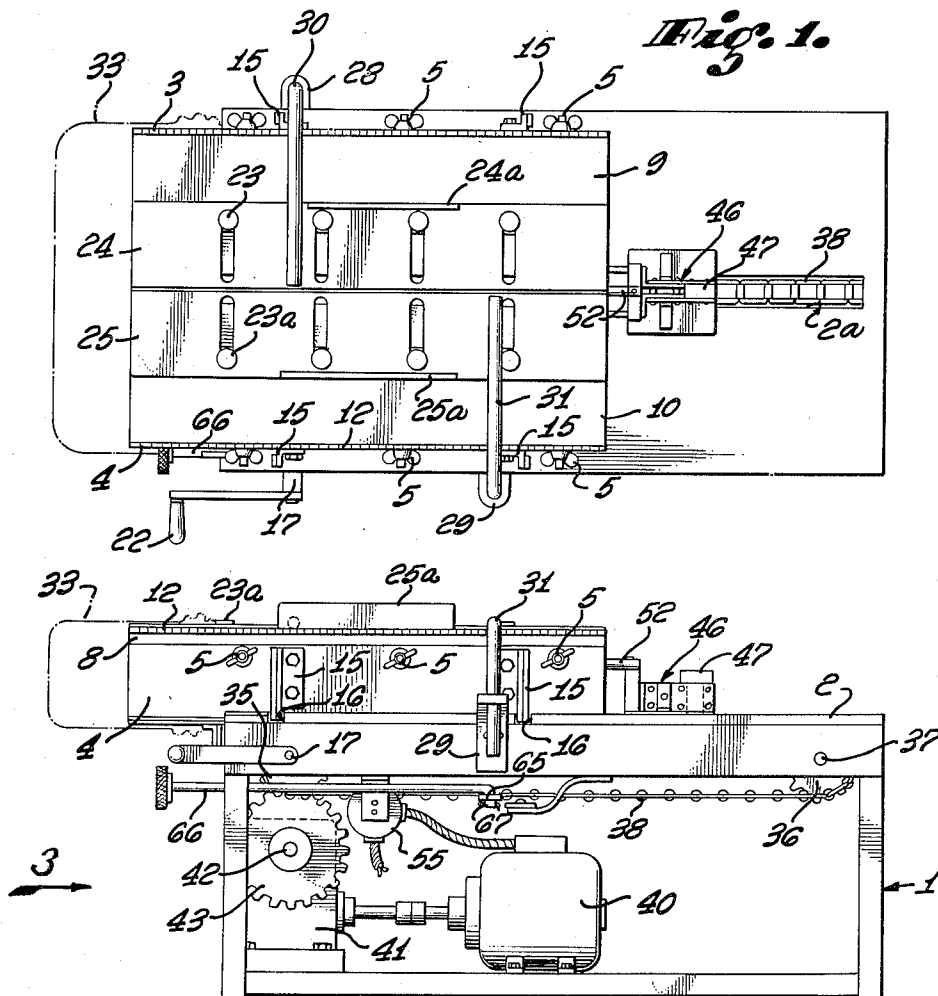
March 25, 1952

A. J. KAY
CUSHION AND MATTRESS FILLING MACHINE
HAVING CONTINUOUSLY RECIPROCATING
DISCHARGING MEANS

2,590,327

Filed Dec. 8, 1947

4 Sheets-Sheet 1



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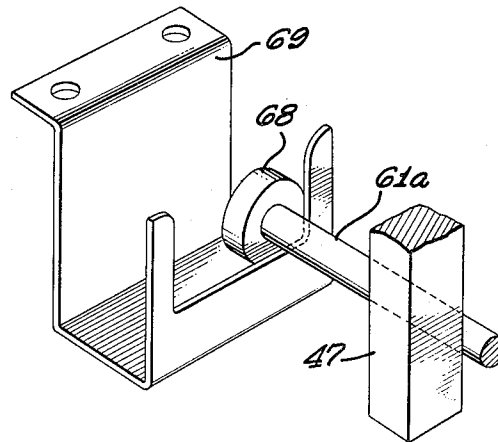
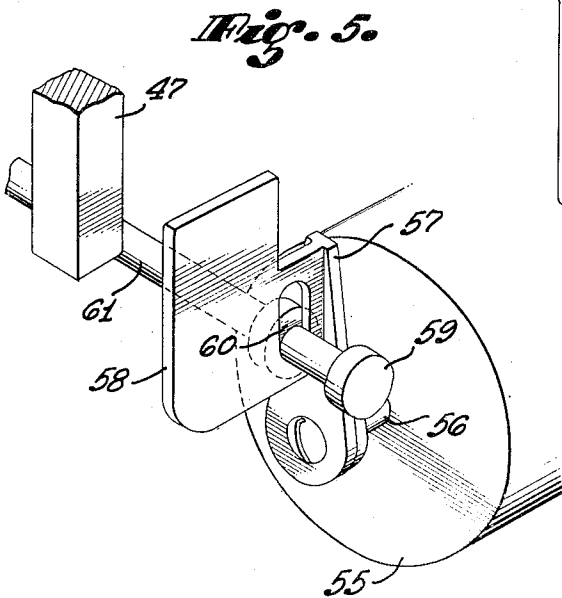
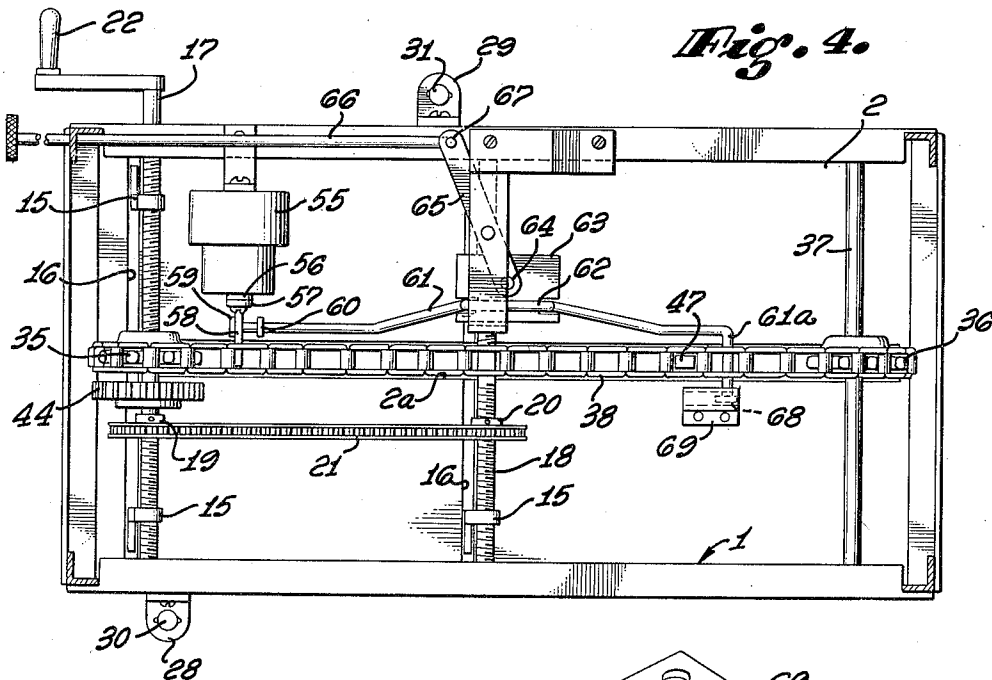
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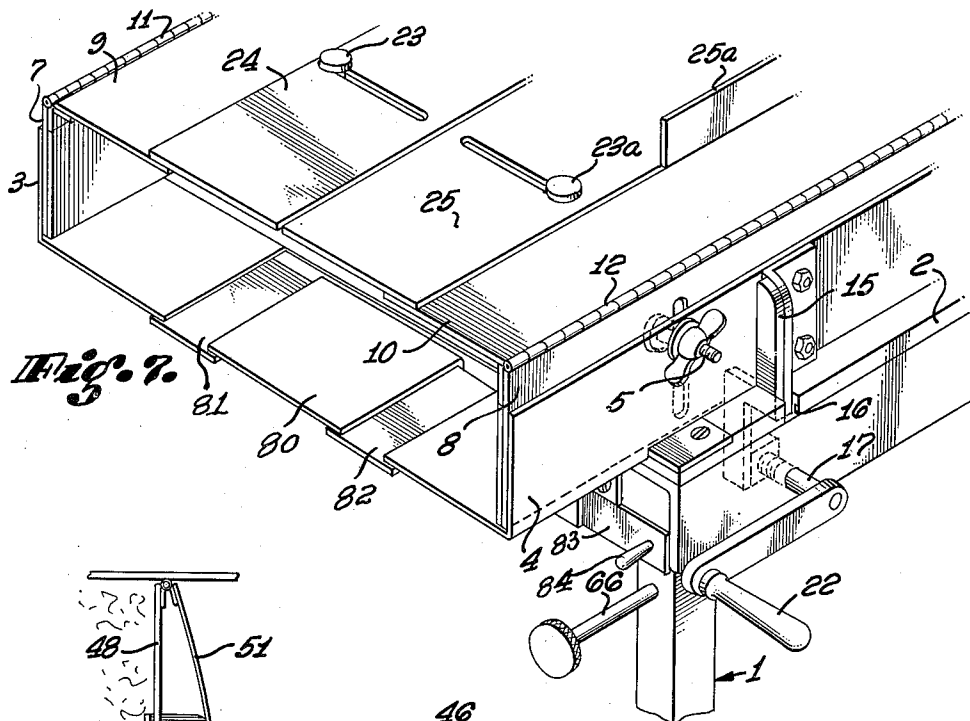


Fig. 7.

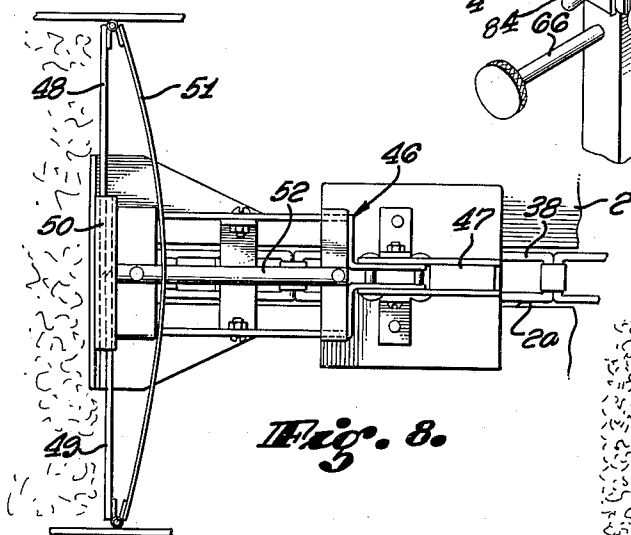


Fig. 8.

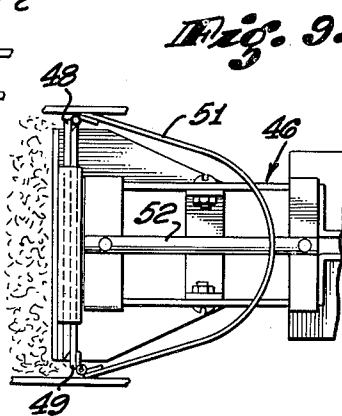


Fig. 9.

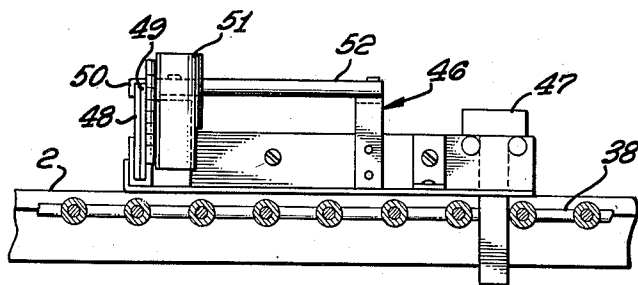


Fig. 10.

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Fig. 12.

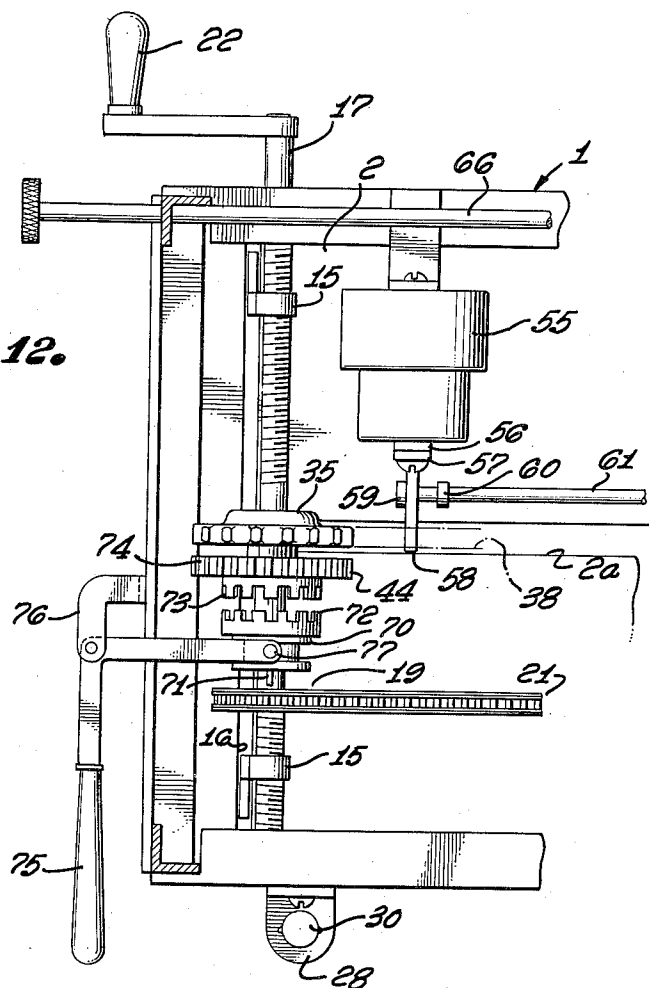
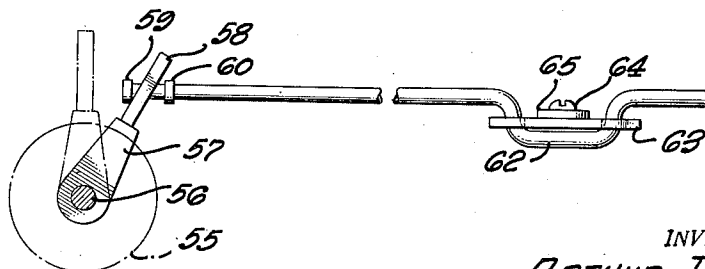


Fig. 11.



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UNITED STATES PATENT OFFICE

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CUSHION AND MATTRESS FILLING MACHINE
HAVING CONTINUOUSLY RECIPROCATING
DISCHARGING MEANS

Arthur J. Kay, Los Angeles, Calif.

Application December 8, 1947, Serial No. 790,357

8 Claims. (Cl. 226—46)

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This invention relates to a mattress or cushion filling device and has for its object to provide a simple and efficient machine which is convenient to operate and adjustable to receive the filler material for transfer of such material to the mattress or cushion cover provided for this purpose. A further object of the invention is to provide convenient means for adjusting the machine to accommodate small cushion covers as well as the larger size mattress covers ordinarily used.

The objects of the invention and the many advantageous features thereof will be better understood from the following detailed description and by referring to the accompanying drawings, of which:

Fig. 1 is a plan view of a mattress filling machine embodying the invention;

Fig. 2 is a substantially corresponding side elevational view of the device;

Fig. 3 is an end view of the machine taken in the direction of the arrow 3 of Fig. 2;

Fig. 4 is an inverted plan view of the machine;

Figs. 5 and 6 are fragmentary perspective views of elements of the machine, the importance of which will be hereinafter fully described;

Fig. 7 is a fragmentary view on a larger scale of the left end of device shown in Fig. 1;

Figs. 8 and 9 illustrate an important adjusting mechanism of the machine showing this mechanism in the two extreme positions of adjustment thereof;

Fig. 10 is a substantially corresponding side elevational view of this mechanism;

Fig. 11 illustrates certain switch control elements of the machine; and

Fig. 12 shows a modified form of mechanism by means of which transverse adjustment of the machine may be expedited.

The device illustrated in the drawings comprises a table which is mounted on a base 1 and it includes a top plate 2, through the longitudinal center of which is cut a slot 2^a to form a means of communication between the mechanism above the table top and the driving mechanism which is placed on the base 1 of the device. A casing is mounted on the upper surface of the top plate and it includes side members 3, 4 which, as best indicated in Fig. 7, are rectangular in cross-section. These members are perforated to receive bolts 5 which latter extend through vertically directed slots of side plates 7, 8 to maintain the latter locked in vertically adjusted position on the members 3, 4. It is noticed that plates 9, 10 are hingedly secured to the top edge of the side plates 7, 8 and that they extend inward substantially parallel with the base plates of the members 3, 4. These side members and plates combine to form the casing within which material is placed to form the filler for a mattress or

cushion in the manner which will be described presently.

As above stated, the side members 7, 8 are vertically adjustable within the members 3, 4 for the purpose of determining the thickness of the filler, in addition to which the members in this way combined are arranged for relative transverse adjustment on the top plate by means of brackets 15, which extend through transverse slots 16 of the top plate. The brackets 15 are, at the lower end thereof, provided with threaded perforations of a size to receive therein threaded rods 17, 18, see also Fig. 4. To these rods are secured sprocket wheels 19, 20 on which is hung a chain 21 and a crank 22 is fastened to the end of the rod 17. This crank is manually operated to rotate the two rods and thereby to move the side frames of the casing relative to each other. It is to be understood, of course, that the direction of the screw threads at one end of the rods is reversed relative to the direction of the screw threads at the other end thereof and that, when so related, rotations of the rods in one direction or the other will impart to the side members of the frame uniform movement in opposite directions.

Studs 23 and 23^a rise from the top surfaces of the members 9, 10 and they ride in transverse perforations of plates 24, 25, which are extendable to maintain the top of the framing closed when the side members thereof are moved apart upon rotation of the rods 17, 18, as aforesaid. For convenient manipulation, the plates 24, 25 are shown made with upwardly extending flanges 24^a, 25^a.

After the frame has been adjusted vertically and transversely to suit the size of filler to be made, it is merely required to swing the combined upper plates of the side frames on the hinges 11, 12 upwardly and outwardly into open position whereupon the filler material may be placed therein and the top plates thereof subsequently closed. As best shown in Figs. 1 to 3, brackets 28, 29 are secured to the sides of the table top and the top flanges of these brackets are perforated to receive rods 30, 31, the upper portions of which are bent inwardly at right angles relative to the body portions thereof. These rods are, as indicated in dotted outline in Fig. 3, shown swung outward to clear the upper members of the filler framing when the latter are swung into open position but they are, as indicated in full outline, when the filler framing is closed, swung inward and depressed to maintain the filler framing closed. The bag or cover for the mattress or cushion is thereupon slipped over the projecting end of the filler framing substantially as indicated at 33 in Figs. 1 and 2.

The center portion of the rod 17 forms a bearing for a sprocket wheel 35. A second sprocket

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wheel 36 is mounted on a transverse shaft 37 at the opposite end of the table and a chain 38 is hung on these two wheels. An electric motor 40 is secured to the base 1 and the shaft of this motor extends to and is operatively connected with the shaft of a gear reduction mechanism 41, from which extends a drive shaft 42. A gear wheel 43 is secured to the end of this drive shaft and it is in permanent mesh with a gear wheel 44 which latter is mounted for rotation on rod 17 and is rigidly combined with the sprocket wheel 35. In view of this, it is seen that rotation of the motor in one direction or the other imparts slow movement to the chain 38.

Mechanism is provided for transferring the filler within the filler casing to the cover 33 which, as above stated, has been slipped on the end of the filler casing. This mechanism includes a frame 46 which is seatable on the table top and connected for movement lengthwise thereof by means of a detent 47, which latter is fitted to slide vertically in the rear end of the frame 46 and shaped, when in its lowermost position, to extend through any one of the links of the chain 38.

In view of this description it is seen that the frame 46 is caused to move lengthwise of the table with the chain 38 for the purpose of advancing the filler within the filler casing into the mattress cover 33. The frame is, at the front end thereof, made with a cross-bar consisting of two members 48, 49 which are mounted to slide transversely in a guide 50 at the front end of the frame. A resilient member 51 is hingedly secured to the outer ends of the members 48, 49 and the tension of this member urges the two members of the cross-bar apart. When so arranged, it is seen that the outer ends of the cross-bar remain in contact with the inner surfaces of the filler frame side plates in any position of transverse adjustment thereof. The extreme positions of the members 48, 49 are indicated in Figs. 8 and 9. In order to guide the resilient member 51 and so as to maintain the members of this cross-bar combination always evenly and uniformly spaced, a guide rod 52 is shown extending through a perforation through the center portion of the resilient member 51.

A reversible switch 55 is secured to the underside of the table top and a stem 56 projects from the inner end thereof to support an arm 57. The outer end of this arm is bent at right angles to form a plate 58 which rides between fixed collars 59, 60 of a rod 61. The latter is offset intermediate its ends to form a loop 62, see Fig. 11, which rides in a plate 63 and the latter is at 64 shown pivotally secured to a lever 65. A push rod 66 is pivotally connected to the outer end of this lever, as indicated at 67, and this push rod is manually operable to reciprocate the lever and to oscillate the arm 58, thereby to throw the switch as required in order to rotate the motor in one direction or the other. As best shown in Figs. 5 and 6, it is noticed that the bent portion 58 of the arm 57 extends inwardly into the path of travel of the detent 47 and it is also important to note that the rear end of the rod 61 is bent at right angles to form a transverse extension 61^a which also is positioned in the path of travel of the detent 47. In view of this description it is seen that, as the detent 47 is moved by the chain 38 in forward direction, it will reach the plate 58 of the switch arm and move this plate to swing the arm in posi-

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tion to reverse the switch. It is also noted that, when subsequently the detent moves in the opposite direction, it will reach the transverse extension of the rod 61 and will retract the rod sufficiently to swing the switch arm to return the switch to its initial position. The end of the rod extension is fitted with a head 68 which rides in a guide 69 of the table top 2.

While the operation of adjusting the filler frame transversely by rotation of the crank 22 is entirely satisfactory, it is possible considerably to speed up this operation and to render it more convenient. The simple mechanism which is required for such improved operation is, in Fig. 12, shown mounted on the threaded rod 17 in the form of a clutch mechanism including a sleeve 70 which rides on a feather 71 of the rod 17. Teeth 72 project from the inner face of this sleeve for engagement with teeth 73 of a gear wheel 74, which latter is identical with and takes the place of the gear wheel 44 above referred to. A hand lever 75 is mounted to swing on a lug 76 of the top plate 2 and the inner bifurcated end of this lever is fitted with studs 77 which engage a circular groove of the sleeve 70. In order to adjust the filler frame transversely, it is merely required manually to operate this lever to move the projections of the sleeve into engagement with the projections of the gear wheel 74. The clutch is thereby closed to move the members of the filler casing in expansive or contractive direction according to the direction in which the gear wheel 74 is rotated by the motor 40.

In Fig. 7, the filler frame is shown spread apart to accommodate a wide mattress and the plates 24, 25 are pushed together to form a closed cover for the frame. Similar arrangement must be provided to close the bottom of the overhanging frame portion. A bracket 80 is, for this purpose, secured to the top plate in horizontal alignment with the horizontal base plates of the members 3, 4 and plates 81, 82 are placed beneath these parts. The plates are secured to a slide 83 which is fitted with a projecting stud 84. The latter forms a handle by means of which the slide 83 may be moved to position the plates 81, 82 below the gaps in the bottom of the expanded frame.

While I have hereinbefore described simple and convenient mechanisms for adjusting a filler frame to suit covers of various sizes and for advancing the fillers into such covers, I do not thereby mean to be limited to the exact combinations, arrangements and proportions of parts thereof but reserve the right to embody therein modifications within the scope of the claims hereto appended.

I claim:

1. A mattress cover filling machine comprising, a table, a rectangular filler frame mounted on said table, one end of said frame extending beyond the end of the table to form a support for the cover to be filled, means for adjusting said frame vertically and horizontally to fit the size of cover to be filled, transfer mechanism below the table, said mechanism including a sprocket chain the upper reach of which rides in a slot lengthwise extending through the table, means advanceable through the frame for expelling filler therefrom, an element extendable from said means through said chain reach, a reversible motor connected to move said chain thereby to advance the expelling means and the filler through the casing, a reversible switch control-

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ling said reversible motor, and means positioned in the line of travel of said element for movement thereby to reverse the switch.

2. A mattress cover filling machine comprising, a table, a filler frame mounted on said table, one end of said frame overhanging the end of the table to form a support for the mattress cover to be filled, power driven transfer mechanism below the table, said mechanism including a reversible motor, a reversible switch and a sprocket chain riding in a slot longitudinally extending through the table, means within said frame for discharging filler therefrom, an element extendable from said discharging means through said chain of the said transfer mechanism for transmitting movement of the latter to advance said discharging means and the filler through the casing, and means operable by said element to reverse said switch at the end of the advance movement of said discharging means.

3. A mattress cover filling machine comprising, a table, a rectangular filler frame mounted on said table, one end of said frame extending beyond the end of the table to form a support for the cover to be filled, means for adjusting said frame vertically and horizontally to fit the size of cover to be filled, transfer mechanism below the table, said mechanism including a sprocket chain the upper reach of which rides in a slot lengthwise extending through the table, means advanceable through the frame for expelling filler therefrom, said means including transversely extending plates and a resilient member joined to the side edges of said plates yieldingly to press the plates against the inner side wall of the frame, an element downwardly extendable from said means through said chain reach, and a prime mover connected to move said chain thereby to move said element to advance the expelling means and the filler through the casing.

4. A mattress cover filling machine comprising, a table, a rectangular filler frame mounted on said table, one end of said frame extending beyond the end of the table to form a support for the cover to be filled, means for adjusting said frame vertically and horizontally to fit the size of cover to be filled, transfer mechanism below the table, said mechanism including a sprocket chain the upper reach of which rides in a slot lengthwise extending through the table, an electric motor, connections from said motor to drive said chain, a reversible switch in the motor circuit, means advanceable through the frame for expelling filler therefrom, an element extendable from said means through said chain reach, and a member connected with said switch, said member being moved by the said element to reverse the switch at the end of the filler expelling movement.

5. A mattress cover filling machine comprising a table, an adjustable filler container mounted on said table for lengthwise movement thereon, one end of said container extending beyond the end of the table to form a support for the cover to be filled, transfer mechanism below the table, said mechanism including a sprocket chain, a frame mounted for lengthwise movement on the table, a guide at the front end of said frame, transversely extending plates seated in said guide, a resilient member joined to the outer side edges of said plates, said member having a central perforation, a rod extending from said guide through

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said perforation to the rear end of the frame, and an element seatable in said frame for projection through any link of said chain.

6. A mattress cover filling machine comprising, a table, an adjustable filler container mounted on said table for lengthwise movement thereon, one end of said container extending beyond the end of the table to form a support for the cover to be filled, transfer mechanism below the table, said mechanism including a sprocket chain the upper reach of which rides in a slot of the table top, a frame mounted for lengthwise movement on the table, said frame having a passage vertically through the rear end thereof, a guide at the front end of said frame, overlapping transversely extending plates seated in said guide, a resilient member pivotally joined to the outer side edges of said plates, said member having a central perforation, a rod extending from said guide through said perforation to the rear end of the frame, and an element seatable in the passage of the frame for downward projection through any link of the upper reach of said chain.

7. A mattress cover filling machine comprising, a table having a slot longitudinally through the center thereof, a filler frame mounted on said table, one end of said frame overhanging the end of the table to form a support for the mattress cover to be filled, means for adjusting said frame to suit the size of cover to be filled, a power driven transfer mechanism including a member mounted for reciprocatory movement within the slot of the table, means within said frame for discharging filler therefrom, said means extending rearwardly above said member, and an element seatable in the extended portion of the discharging means and projecting through the member to interlock these parts and so continuously to transmit reciprocating movement to the discharging means thereby to advance the filler through the casing and subsequently to retract the discharging means.

8. A mattress cover filling machine comprising a slotted table, a filler frame mounted on said table, one end of said frame overhanging the end of the table to form a support for the mattress cover to be filled, a chain mounted for reciprocating movement within the slotted portion of the table, means advanceable within said frame for discharging filler therefrom, said means extending rearwardly above said chain, and an element seatable in the rear end of said means and downwardly projecting through any link of the chain continuously to transmit reciprocating movement of the chain to the element thereby to advance the discharging means and the filler through the casing and positively to return the transfer means.

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