

No. 894,307.

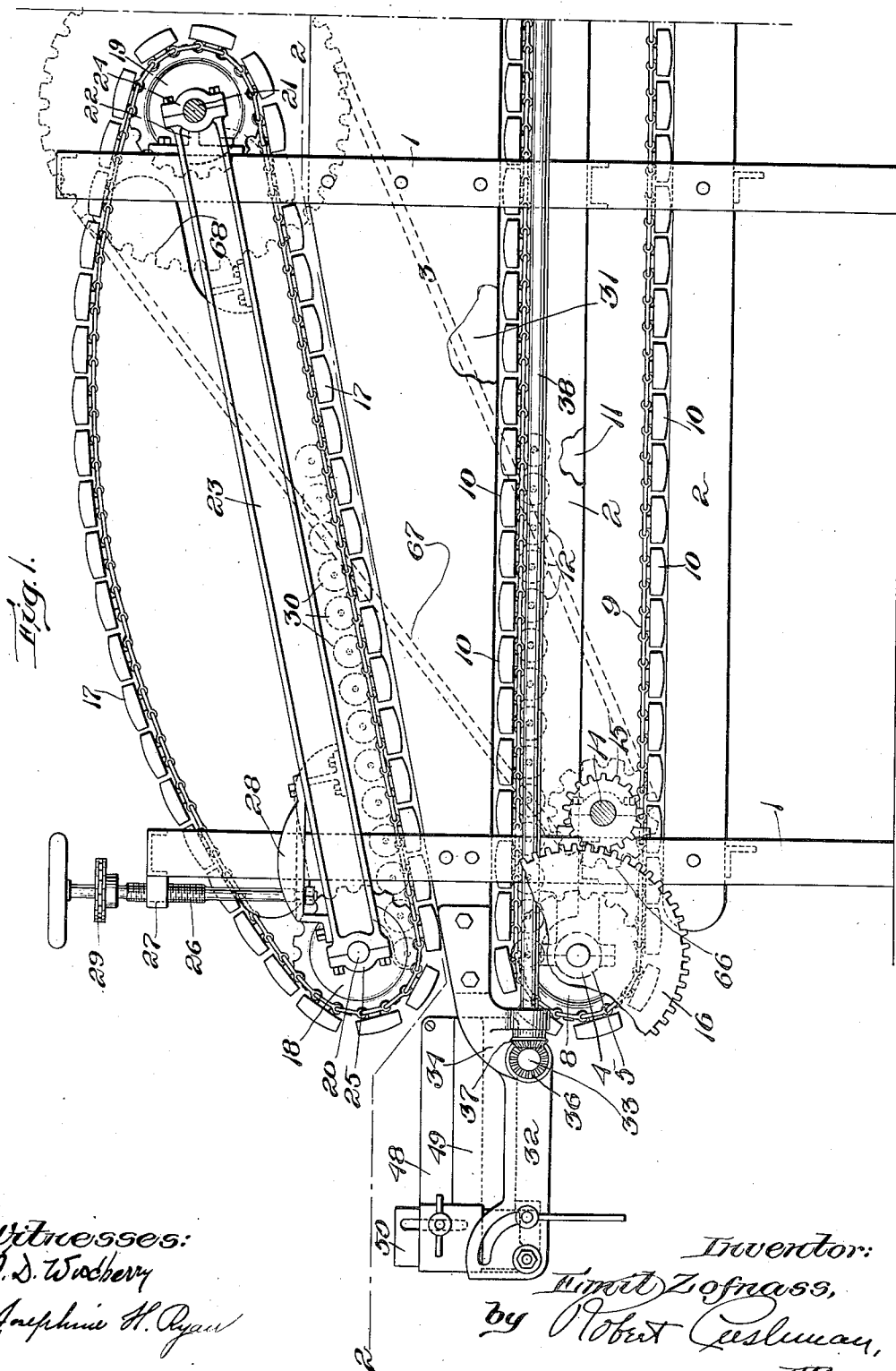
PATENTED JULY 28, 1908.

E. ZOFNASS.

MATTRESS FILLING MACHINE.

APPLICATION FILED DEC. 4, 1907.

4 SHEETS—SHEET 1.



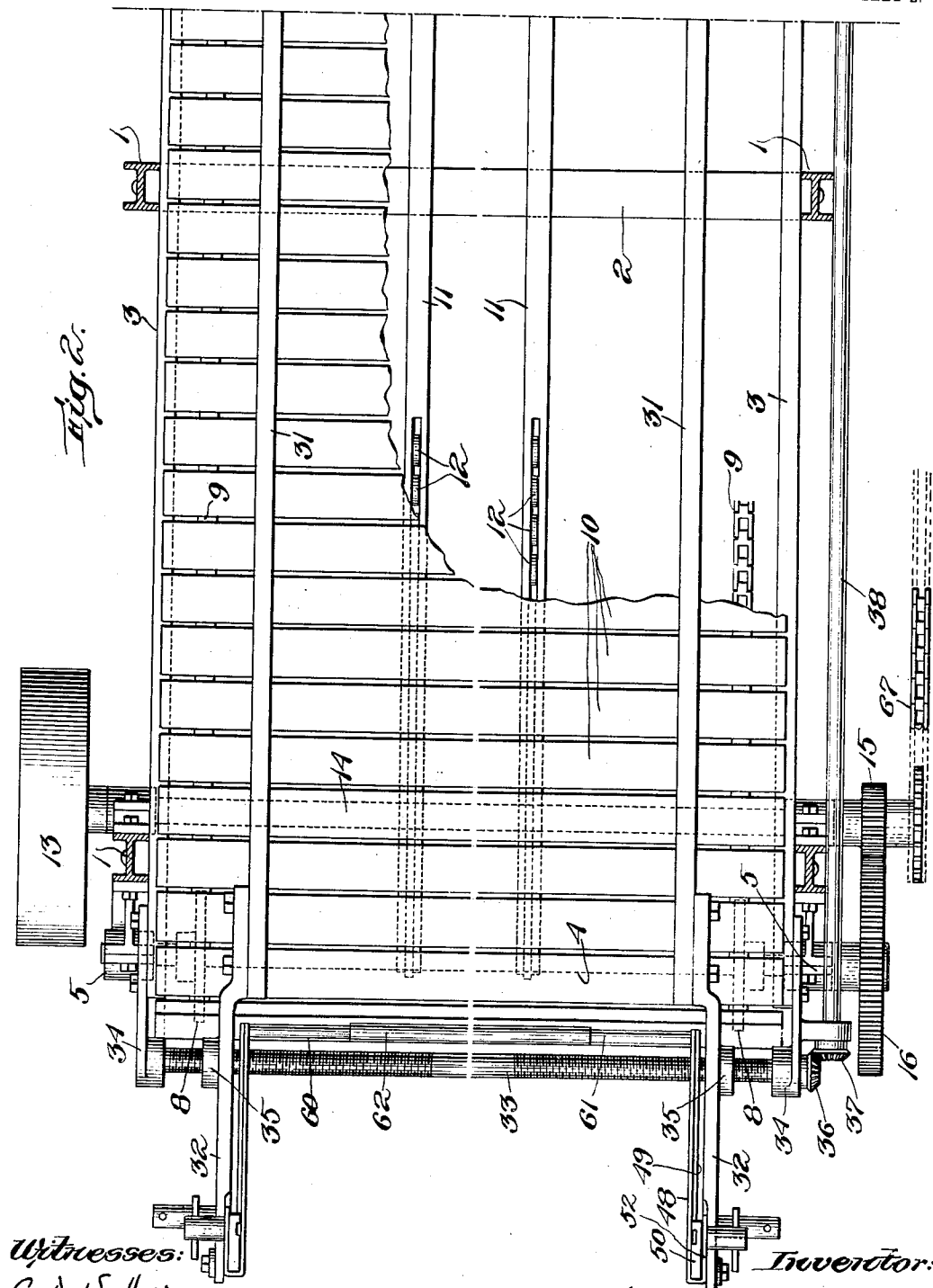
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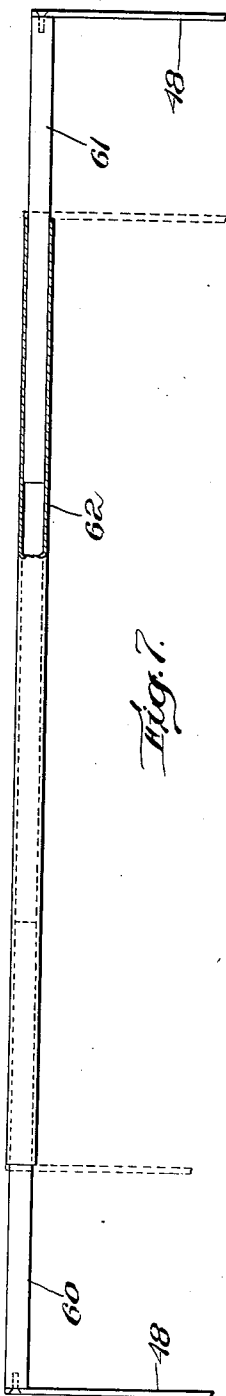


Fig. 1.

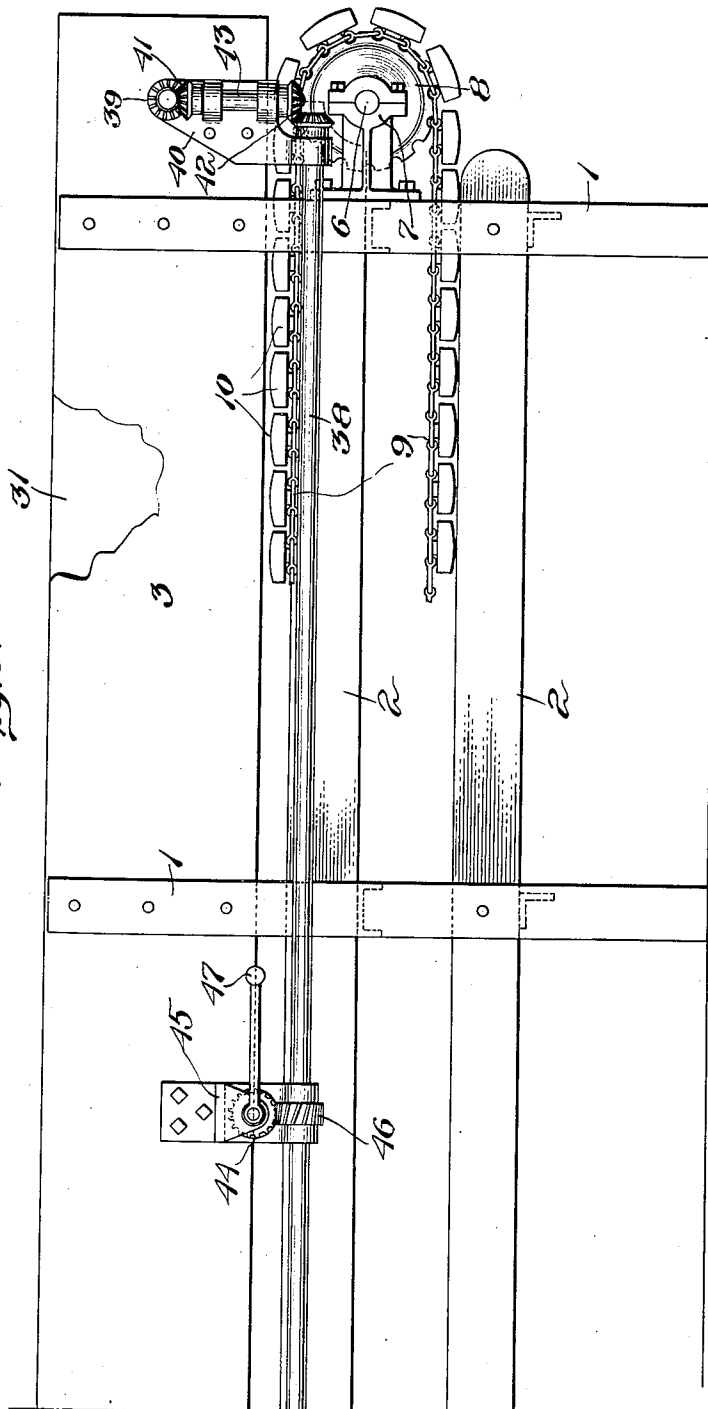


Fig. 3.

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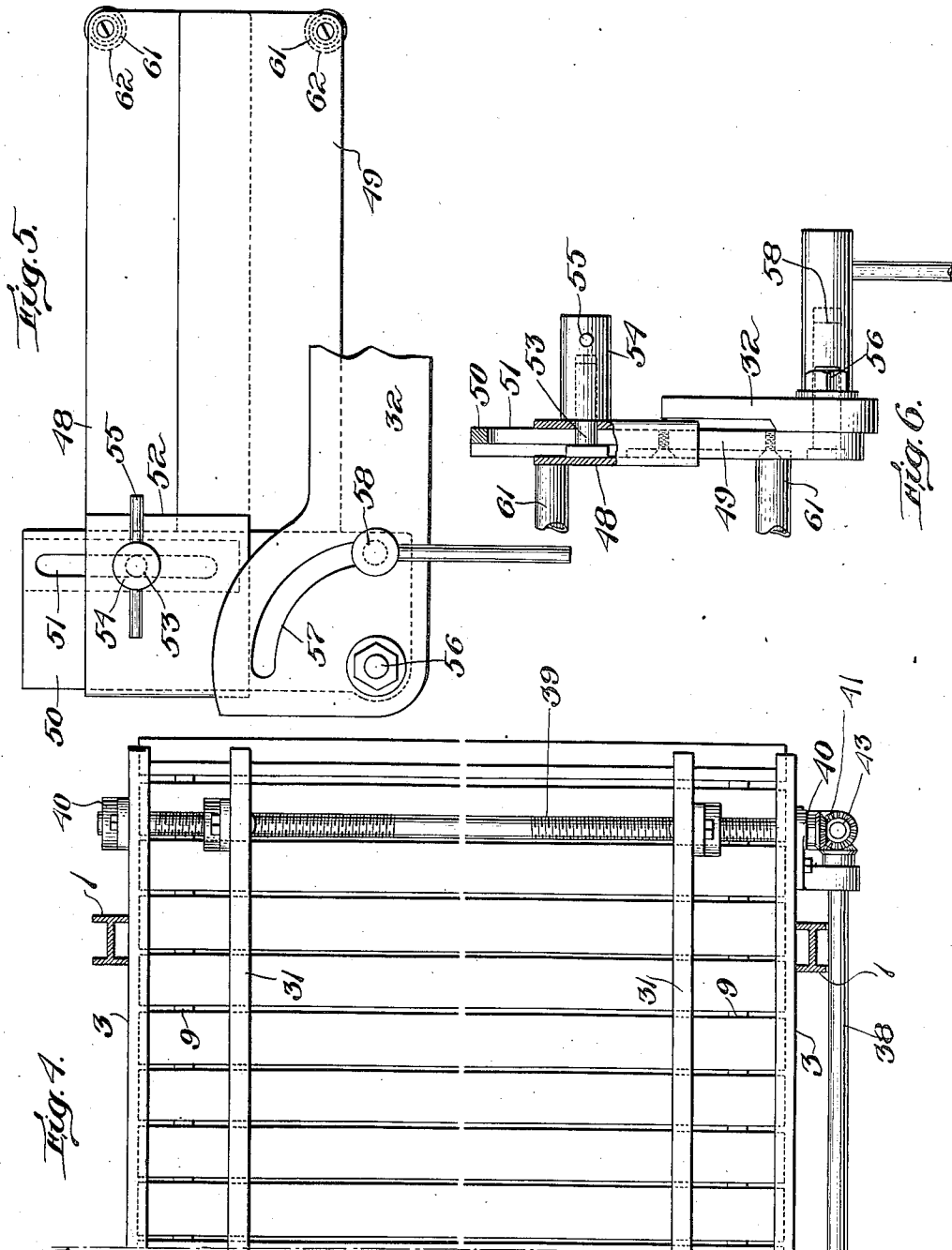
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

EMIL ZOFNASS, OF BOSTON, MASSACHUSETTS.

MATTRESS-FILLING MACHINE.

No. 894,307.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed December 4, 1907. Serial No. 405,005.

To all whom it may concern:

Be it known that I, EMIL ZOFNASS, a citizen of the United States, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Mattress-Filling Machines, of which the following is a specification.

My invention relates to mattress filling machines and its object is to provide certain improvements in mattress filling machines of the character set forth in Letters Patent of the United States No. 656,833 dated August 28, 1900.

Said improvements will be hereinafter described and pointed out in the claims.

In the accompanying drawings, in which like parts are indicated by like reference numerals,—Figure 1 is a side elevation of the front end of a mattress filling machine containing certain embodiments of my invention; Fig. 2 is a plan and sectional view on broken line 2—2 of Fig. 1; Fig. 3 is a side elevation of the rear end of said machine; Fig. 4 is a plan view of the rear end of said machine; Fig. 5 is a side elevation of the ticking holder presently to be described; Fig. 6 is a detail view showing an elevation of the end of part of said ticking holder; and Fig. 7 is a detail view of one of the cross members of said ticking holder.

The frame of the machine consists of uprights 1, 1, suitable horizontal bars as 2, 2, and the longitudinal outer boards 3, 3. The boards 3, 3 are tapered at their front ends, as shown in Fig. 1 to admit of the arrangement of the feeding and compressing aprons presently to be described. At the front end of the machine a shaft 4 is journaled in suitable bearings 5 secured to the front uprights of the frame; and at the rear end of the machine a shaft 6 is journaled in suitable bearings 7 secured to the rear uprights of the frame, at the same level with shaft 4. Said shafts are provided with sprocket wheels 8, 8, carrying the endless chains 9, 9, one at either side of the machine, extending between the front and rear shafts 4 and 6. Attached to the outer sides of said chains 9, 9, crosswise of the machine, are the lags 10, 10, arranged close together, constituting an endless apron. Longitudinal bars 11, support antifriction rollers 12 arranged tandem, as shown, and adjacent to the inner side of

said apron for such distance along its operative stretch as is desired. As many rows of these rollers may be employed as desired, but under ordinary conditions two rows will be found satisfactory. The row or rows of rollers may extend toward the rear of the machine as far as desired, but I have found it sufficient to extend them back to a point where the compression of the filling material, when the machine is operating, first tends to cause sufficient friction between the apron and its support to create substantial heating between the moving parts. Without the use of friction rollers, especially near the delivery end of the machine where the compression is greatest, the parts tend so to heat that there is danger of fire. The lower apron is driven through pulley 13, receiving power from some external source, shaft 14 on which said pulley is mounted, spur gear 15 on shaft 14, spur gear 16 in mesh with gear 15 and secured on shaft 4.

The upper apron 17, which is constructed like the lower apron heretofore described, is mounted on sprocket wheels 18 and 19 secured respectively to shafts 20 and 21. Shaft 21 is supported by and journaled on a bracket 22 attached to one of the uprights of the frame of the machine. A frame work for the upper apron is provided by which the upper apron may be adjusted relatively to the lower apron, comprising bars 23 having bearings 24 at the rear end by which the bars are supported on shaft 21, and having bearings 25 at the front end in which shaft 20 is supported and journaled. The upper and lower aprons converge toward the front end of the machine as shown, the upper apron inclining downwardly from rear to front. In order to vary the space between the delivery ends of said aprons, and thus vary the thickness or density of the mass of filling material as delivered, and so adapt the machine for making mattresses of different thicknesses, the front end of the upper apron is vertically adjustable, the frame work carrying the upper apron swinging on shaft 21 as a pivot. This vertical adjustment is effected by screw shaft 26, mounted in a threaded lug 27 secured to the upright 1, and engaging at its lower end with a bracket 28 fastened to the bar 23. A precisely similar device is provided at the opposite side of the machine, and both may be operated simultaneously by a chain and sprocket connection 29. Anti-

friction rollers 30 arranged tandem are supported adjacent to the inner side of the upper apron 17 in a manner similar to the above described rollers 12 adjacent to the lower apron.

Side boards 31, 31, are provided one at either side of the machine and running lengthwise throughout the whole length of the machine. These side boards are tapered at their forward ends to fit between the converging aprons and are substantially similar in form to the outer boards 3, 3 above described. Side boards 31, 31, are both laterally adjustable, simultaneously and equally toward or from each other, thus insuring that the work of compressing and feeding the filling material shall always be central of the machine, that is, symmetrical with relation to the central axis. The antifriction rollers therefore remain central or symmetrical with relation to the central axis of the work in whatever position the side boards 31, 31, may be adjusted. At the delivery ends of the side boards 31, 31, are the brackets or arms 32, 32, extending forward in front of the machine. The means by which the side boards are adjusted simultaneously and equally toward and from each other comprise cross shaft 33 journaled in suitable brackets 34 secured to some part of the machine as the boards 3, 3, said shaft 33 being provided at one end with a right handed screw threaded surface, and at its other end with a left handed screw threaded surface, said screw threaded surfaces engaging respectively with correspondingly threaded bores provided within hubs 35 on brackets 32. At one end of shaft 33 is a bevel gear 36, in mesh with bevel gear 37, secured at the end of shaft 38 journaled on the framework of the machine, and extending from front to rear of the machine. At the rear end of the machine cross shaft 39 is provided journaled in suitable brackets 40 on boards 3 and having right and left-handed screw threaded surfaces cooperating with screw threaded bores provided therefor in the side boards 31 in a substantially similar manner to that above described with reference to the front shaft 33. Gear connection between shaft 38 and shaft 39 is provided consisting of bevel gears 41 and 42, and the intermediate shaft 43 journaled on bracket 40.

At some convenient point on shaft 38 means are provided for rotating the same on its longitudinal axis, such as the spiral gear 44 mounted on bracket 45 secured to board 3, and spiral gear 46 secured to shaft 38. A crank handle 47 is provided for turning gear 44 which imparts a rotary movement to shaft 38 through the gear or screw 46. When shaft 38 is rotated it imparts a rotary movement to both front and rear shafts 33 and 39 which in turn cause the side boards 31, 31, simultaneously and equally to move toward or from

each other, remaining parallel and symmetrical with relation to the central axis of the machine.

At the delivery end of the machine is my improved expansible and contractible ticking holder supported on arms 32, 32, close to the delivery opening between the upper and lower aprons and the adjustable side boards. The ticking holder comprises side plates expansible and contractible vertically, and cross rods connecting the ends of said side plates and adjacent to the delivery end of the machine, expansible and contractible in direction of the width of the machine. Each of the expansible and contractible side members comprises plate 48 and plate 49. Plate 49 has an upwardly extending projection 50 provided with a slot 51. Plate 48 is bent backwardly upon itself as shown at 52 so that the parts 48 and 52 embrace said projection 50. A headed stud 53 is mounted in part 52 registering with slot 51 through which the shank of the stud extends and under which the head of the stud is held. An internally threaded hub 54 engages with the correspondingly threaded end of the shank of stud 53 and is provided with a handle 55, by turning which the plate 48 may be clamped upon or loosened from the projection 50 at any desired point of adjustment within the vertical slot 51. Thus the plates 48 and 49 may be vertically adjusted with relation to each other to expand or contract the ticking holder in depth. The projection 50 also extends below plate 49 as well as above plate 49 and is pivotally secured at 56 to the supporting arm 32. A curved slot 57 described about pivot 56 as a center, and a headed screw stud 58 mounted in the part 50, admits of swinging the ticking holder upward and forward and of clamping it at any desired position of angular adjustment, thus affording convenient and rigid means for placing the ticking upon the ticking holder and thereafter swinging the ticking holder into operative position and there fastening it.

It will be understood that the mattress ticking is placed on the ticking-holder in an inside-out condition, the ticking being crimped or puckered in order to get it all on the ticking-holder; that the closed end of the ticking is presented in an inside-out condition to the delivery end of the machine, the ticking-holder being in the position shown at Fig. 1; and that, as the mattress filling material is fed out of the machine, it causes the ticking to be reversed, the filled part of the mattress being forced between the side plates and the cross rods of the ticking-holder. It is to facilitate the rapid and easy placing of the ticking on the ticking-holder that the latter is pivoted to the arms 32 to permit it to be swung upward and forward.

Expansible and contractible cross members are provided connecting respectively the

upper corners and the lower corners of the side plates of the ticking holder adjacent to the delivery end of the machine. These cross members consist of inwardly projecting opposed rods 60 and 61 secured to the opposite upper corners of said side members and connected by a telescoping sleeve 62. Sleeve 62 is of sufficient length to remain in engagement with and to connect rods 60 and 61 in all adjustments of the ticking holder from its position of contraction to its position of extreme expansion.

It will thus be seen, that, since the ticking holder is supported by arms 32, 32, carried by the adjustable side boards 31, the ticking holder will be expanded or contracted automatically and simultaneously in width with the lateral adjustment of the side boards 31, 31, the ticking holder thus at all times being of a width corresponding with the width of the compressed filling material and of the mattress to be stuffed. No independent adjustment of the ticking holder by the operator is required when passing from the manufacture of one size of mattress to another size. It will also be seen that by reason of the adjustability in depth of the ticking holder, the same ticking holder can be used by making a similar adjustment whenever the upper apron is adjusted vertically to stuff mattresses of varying thickness; whereas heretofore when varying the dimensions of the mattress it has been necessary to remove the ticking holder and substitute another one therefor of different size.

In order to drive the upper apron 17, which is vertically adjustable at its front end, by mechanism which shall remain operative and shall not require adjustment when the apron is adjusted, I provide a chain and sprocket drive connecting the rear apron shaft 21 whose location is fixed, with the driving shaft 14. This driving connection is shown in dotted lines in Fig. 1, sprocket wheel 66 being secured to shaft 14, sprocket wheel 68 secured to shaft 21, and chain 67 connecting said sprocket wheels.

The method of applying the ticking to the ticking holder and the general operation of the machine, excepting as hereinbefore specified, is substantially the same as described in said Patent No. 656,833 and no detailed description thereof is here necessary.

I claim:

1. A mattress filling machine comprising a frame, mechanism mounted on said frame for feeding and compressing the filling material, a pair of side boards cooperating with the feeding and compressing mechanism to confine and direct the filling material, said side boards being relatively adjustable toward and from each other, an expansible and contractible ticking-holder independent of said feeding and compressing means facing the delivery end of the machine and adapted

to present a ticking in an inside-out condition to the delivery end of the machine and to admit of the reversal of said ticking during the filling operation, and connection between said ticking-holder and said adjustable side boards to cause the ticking-holder to expand and contract in direction of its width automatically and simultaneously with the adjustment of the side boards.

2. A mattress filling machine comprising a frame, mechanism mounted on said frame for feeding and compressing the filling material, a pair of side boards cooperating with the feeding and compressing mechanism to confine and direct the filling material, said side boards being relatively adjustable toward and from each other, arms carried by the adjustable side boards and projecting in front of their delivery ends, and an expansible and contractible ticking-holder independent of the feeding and compressing means mounted on said arms facing the delivery end of the machine and adapted to present a ticking in an inside-out condition to the delivery end of the machine and to admit of the reversal of said ticking during the filling operation.

3. A mattress filling machine comprising means for compressing and feeding the filling material, side boards, a ticking holder supported by said machine at the delivery end thereof, and pivotal connection between said ticking holder and said machine whereby said ticking holder may be swung upward and forward to admit of placing a ticking thereon.

4. A mattress filling machine comprising a frame, mechanism mounted on said frame for carrying and compressing the filling material, a pair of side boards cooperating with the carrying and compressing mechanism to confine and direct the filling material, said side boards being relatively adjustable toward and from each other, an expansible and contractible ticking holder at the delivery end of the machine, supporting arms secured to the sides of said ticking holder and to the ends of said adjustable side boards, and pivotal connection between said ticking holder and supporting arms adapted to permit the ticking holder to be swung upward and forward.

5. A mattress filling machine comprising means for compressing and feeding the filling material, relatively adjustable side boards, and a ticking-holder facing the delivery end of the machine and adapted to present a ticking in an inside-out condition to the delivery end of the machine, and to admit of the reversal of said ticking during the filling operation, said ticking-holder comprising side plates each made in two sections fastened together with means to permit relative vertical adjustment thereof, and extensible and contractible cross bars connecting the upper and lower sections respectively.

6. A mattress filling machine comprising means for compressing and feeding the filling material, and a laterally expansible and contractible ticking holder at the delivery end
5 of the machine, said ticking holder having side plates, opposed cross rods extending inwardly from each side plate, and sleeves connecting the opposed cross rods.

7. A mattress filling machine comprising
10 means for compressing and feeding the filling material, and a laterally expansible and contractible ticking holder at the delivery end of the machine, said ticking holder having

side plates, opposed cross rods extending inwardly from each side plate, and sleeves
15 connecting the opposed cross rods, said sleeves being of sufficient length to remain in engagement with and to connect the cross rods in all of their positions from extreme contraction to extreme expansion.

Signed by me at Boston, Massachusetts,
this 21st day of November 1907.

EMIL ZOHNASS.

Witnesses:

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ROBERT CUSHMAN.