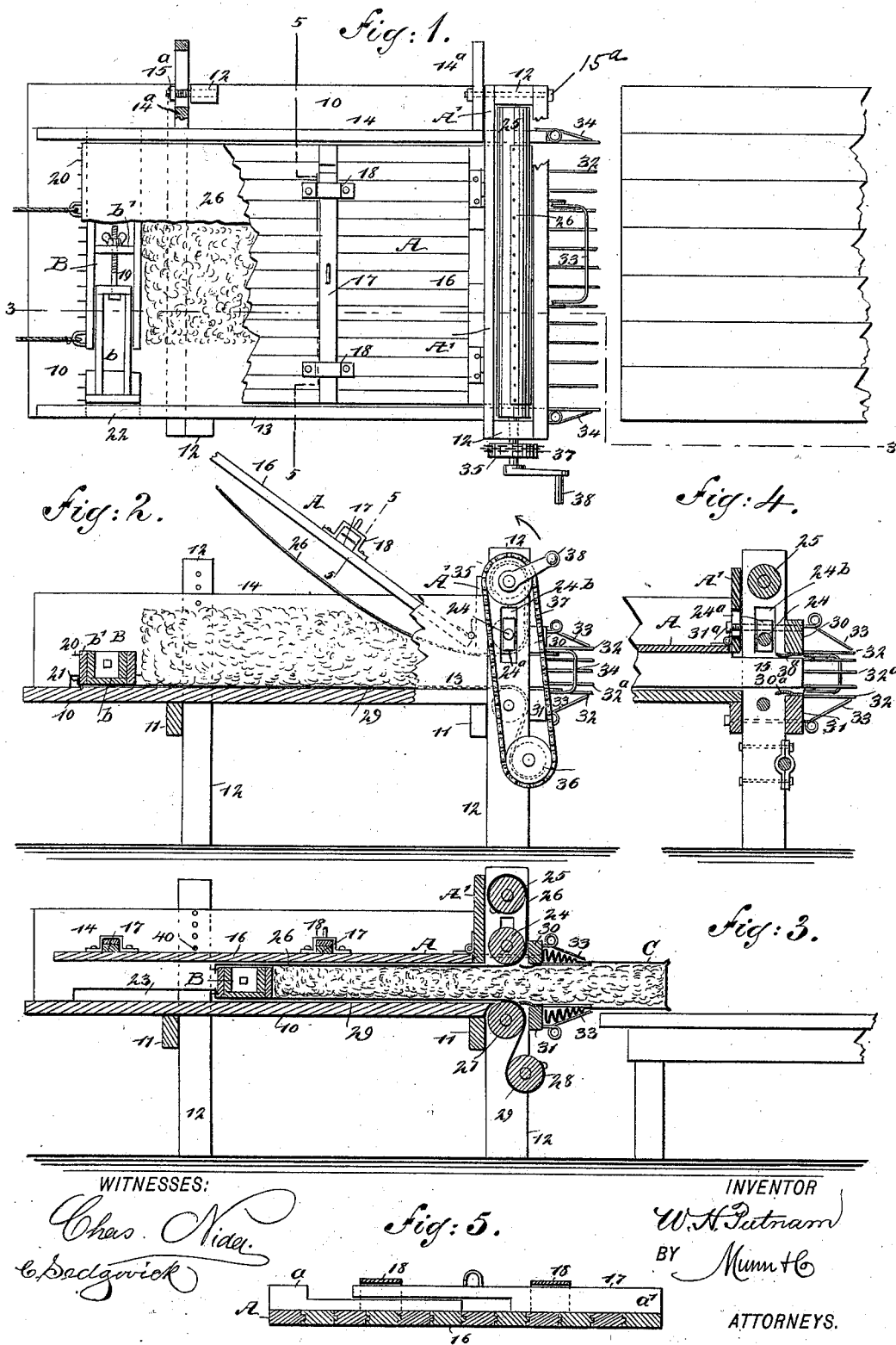


(No Model.)

W. H. PUTNAM.
MATTRESS FILLING MACHINE.

No. 519,203.

Patented May 1, 1894.



UNITED STATES PATENT OFFICE.

WILLIAM H. PUTNAM, OF DURAND, MICHIGAN.

MATTRESS-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,203, dated May 1, 1894.

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To all whom it may concern:

Be it known that I, WILLIAM H. PUTNAM, of Durand, in the county of Shiawassee and State of Michigan, have invented a new and Improved Mattress-Filling Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in mattress filling machines, and it has for its object to provide a machine which will be exceedingly simple, durable and economic in its construction, and by means of which the filling may be expeditiously and conveniently held in proper quantity and perfect distribution, and fed in that shape to a casing held to receive the filling, the filling while being forced into the casing having pressure equalized upon it to such an extent that no portion of the filling will be disturbed while it is being placed within the casing.

Another feature of the invention is to provide a machine capable of being expeditiously and conveniently adjusted to produce mattresses of different sizes.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the machine, portions of it being broken away. Fig. 2 is a sectional side elevation of the machine, the machine being shown in position to receive the filling. Fig. 3 is a longitudinal vertical section taken essentially on the line 3—3 of Fig. 1, illustrating the machine in position for delivering the filling to the mattress casing or ticking. Fig. 4 is a partial vertical and longitudinal section through the forward portion of the machine, illustrating the adjustability of its parts; and Fig. 5 is a transverse section through the presser board of the machine, the section being taken essentially on the lines 5—5 of Figs. 1 and 2.

In carrying out the invention the body of the machine may be said to consist of a bed 10, which bed rests upon suitable sills 11, and the sills are attached to legs 12, whereby the

bed is maintained a proper distance above the floor. The legs are preferably made to extend vertically upward beyond the bed, and serve as supports for side bars or pieces 13 and 14. One side board, the side board 13, for example, is securely fastened to the bed and to the upper portion of the legs at that side of the machine, while the opposite side board 14, is adjustable to and from the center of the bed and is raised sufficiently from the bottom of the bed to permit a strip of canvas, to be hereinafter described, to pass freely underneath it. This board 14, is made adjustable in order that provision may be made for making mattresses of different widths. The side boards are extended at their lower ends beyond the forward legs or uprights 12, the extensions 15 of the boards, as shown in Fig. 4, passing over the inner faces of the legs or standards. The adjustment of the side board 14, is preferably accomplished by projecting from the outer face of the said side board arms 14^a, the arms being longitudinally slotted to receive bolts 15^a, which bolts are passed through slots in the legs or standards 12, or in sections connected therewith.

A presser board A, is pivoted or hinged at one of its ends to a board or beam A', extending from one forward leg or standard to the other transversely across the bed; the beam or board A' being located at some elevation from the bed, as shown in both Figs. 3 and 4. This beam or board A', is adjustable, and the manner in which it is adjusted will be hereinafter set forth. The presser board A, is located between the side boards 13 and 14, and the presser board is constructed in such manner that it may be expeditiously reduced or increased in width, as the presser board is adapted to fit snugly between the side boards of the bed no matter how said boards are adjusted. To that end the presser board is made up of a series of strips 16, having a tongue and groove or like connection, as shown in Fig. 5; and each of the strips 16 is removable from the board A, by loosening the screws of the hinge joint or in any other approved manner, and a series of battens 17, is located upon the upper face of the presser board, its lower face being straight or smooth. The said battens are placed loosely upon the presser board, being made to slide under

straps 18, secured to the board, as best shown in Fig. 5. The battens are preferably made in two sections a and a' , the sections of the battens being recessed at their opposing ends in such manner as to reduce them in width; and the reduced ends of the battens are made to slide one upon the other, the engaging portions of the sections passing beneath one of the straps 18, and the reduction of the opposing ends of the batten sections is so made that when these sections of the battens are in engagement they are combinedly of the same width as their uncut portions. Thus it will be observed that the presser board may be increased or decreased in width by adding strips to the body portion of the board, or removing sundry of the strips therefrom. The batten sections are always so located upon the presser board that the ends of the sections will be flush with the said edges of the board, or practically so. The center batten may be, and preferably is, provided with a staple or the equivalent thereof, whereby a block and fall may be attached to a batten to elevate the free end of the board.

A follower B, is held to travel upon the bed 10, and this follower is preferably located at the rear portion of the machine, and is adapted to have free movement to and from the forward end of the bed. The follower is preferably made in two sections b and b' , the sections being connected by an adjusting bolt and nut 19, as best shown in Fig. 1, or an equivalent device, one section of the follower being made to slide in the other section, and the two sections may be connected by one or more springs in addition to the connection formed by the bolt 19. The follower is ordinarily made rectangular in cross section, and it is provided upon its upper and lower edge upon its outer face with a series of pins, the upper set being designated as 20 and the lower set as 21. In order that the follower may have proper guided movement upon the bed, the sections of the follower at their outer ends are provided with bottom extensions 22, shown in dotted lines in Fig. 1, which extensions pass through slots 23, made in the bottom portions of the side boards immediately over the bed. Between the upper portions of the front set of legs, standards or uprights 12, a guide roller 24, is pivoted, the axis of the roller being preferably in horizontal alignment with the pivot point of the presser board, as shown in Figs. 3 and 4, or practically so; and this roller 24, is journaled in boxes 24^a, which boxes have sliding movement in openings 24^b made in the said uprights, as shown best in Figs. 2, 3 and 4, the boxes being raised or lowered by suitable adjusting mechanism. A second roller 25, is located above the guide roller 24, and a strip of canvas 26, or like material, is secured upon the upper roller, which latter is a winding roller, and the canvas strip is passed downward to an engagement with the guide roller 24 and thence rearward to the follower. A second guide roller 27, is jour-

naled beneath the guide roller 24, opposite the forward end of the bed; and a lower winding roller 28, is journaled beneath the lower guide roller, the winding roller having secured upon it one end of a canvas strip 29, which strip is passed over the lower guide roller and thence rearwardly along the bed to the follower. The distance between the two guide rollers 24 and 27 will determine the thickness of the mattress to be made; and the upper strip 26, is adapted to be attached to the follower B, through the medium of its upper row of pins 20, while the lower strip is adapted to be attached to the follower through the medium of its lower set of pins 21. It will be understood that strips 26 of different widths are employed to fill mattresses of different widths. Thus one strip will pass over the top of the follower and the other strip under its bottom portion. The follower B, in addition to being adjustable longitudinally may likewise be made adjustable vertically.

In front of the guide rollers beams are located upon the frame of the machine, extending transversely of it, the upper beam being designated as 30 and the lower one as 31. The lower beam is stationary while the upper beam is vertically adjustable, and is adjusted to correspond to the adjustment of the upper guide roller 24, the adjustment being effected through the medium of the adjusting mechanism connected with the box 24^a of the said upper guide roller 24, since the board A' to which the presser board is connected, the box in which the upper guide roller is journaled and the upper beam 30 are connected by a bolt 31^a or the equivalent thereof, a suitable vertical slot being produced in the front and rear faces of the upper sections of the front standards 12 to admit of the vertical movement of the bolts. Each beam 30 and 31, is provided with a metal strip 30^a, attached to the lower edge of the upper beam and the upper edge of the lower beam, and the said metal strips extend inward, resting against the forward extensions and the sides of the machine frame, the plates 30^a, extending practically the length of the beams. The purpose of these plates is to fill the gap between the beams 30 and 31, and the canvas strips 26 and 29, to guide the filler and prevent it from bulging outwardly. Each beam is provided with a series of fingers 32, projected horizontally from it, the fingers of the upper beam extending from its lower edge, while the fingers of the lower beam are carried from its upper edge; and side fingers 32^a, are projected from the forward extensions of the side pieces of the machine frame, as is likewise shown in Figs. 4 and 2.

Each beam is provided with a clamp 33, the said clamps being adapted for engagement with the fingers of the beams, the clamp upon the upper beam engaging with the upper surface of the fingers of that beam, while the clamp upon the lower beam engages with the lower faces of the fingers of that beam; and

side clamps 34, are also employed to engage with the side sets of fingers. All of the clamps are preferably spring clamps, normally bearing with considerable tension upon the fingers, and the upper and lower clamps are ordinarily so placed that they engage with the central fingers and with the fingers at each side of the center, although the clamps may be of any desired length. The two winding drums are revolved by projecting trunnions beyond one side of the machine, as shown in Fig. 2, the trunnions of the upper drum being provided with a sprocket wheel 35, while the trunnion of the lower drum is provided with a corresponding wheel 36, the two wheels being connected by a chain belt 37; but other forms of pulleys and belting may be employed, and in the drawings the two winding rollers or drums are manipulated by attaching to the upper one a crank 38, but the said crank may be secured upon one of the trunnions of the lower roller, or other form of power may be applied to either roller.

In the operation of the device, the follower, presser board and sides of the machine, and likewise the guide and feed rollers 24 and 27 having been adjusted, together with the upper finger beam 30 to accommodate filling for the ticking or casing C of predetermined size, the presser board is elevated and the upper strip of canvas or pliable material 26, is likewise elevated, and the filling to be used is placed upon the lower strip 29 between the follower and the front portion of the machine and the presser board and the said lower strip. When a proper quantity of filling has been placed upon the lower strip 29, the upper flexible strip is carried rearward and fastened to the upper portion of the follower, the lower flexible strip having been attached to the follower before the filling was placed in the machine. The presser board is then carried downward until it stands in a true horizontal position, thus exerting equal pressure over the entire surface of the filling, and the presser board is locked in that position by means of a bar, bolts or like devices entering the sides of the bed and bearing upon the board, as shown at 40 in Fig. 3. The filling will now be held between the upper and lower flexible strips in the same position it is intended to assume when placed in the casing. The casing or ticking C is fully made up, but is open at one end; and the open end or mouth of the ticking is slid over the fingers of the front finger beams of the machine, and likewise the side fingers 32, until the opposite end of the ticking shall have been engaged with the outer ends of the fingers, the clamps holding the ticking upon the fingers. A table or other equivalent support is placed opposite the forward end of the machine to receive and support the ticking when filled. The filling of the ticking is accomplished by operating the crank 38, and thereby turning the winding rollers 25 and 28 and causing the

flexible strips to be wound thereon, and while the strips are being wound the follower is drawn forward by the strips, but not in a manner to crowd the filling, as it is held perfectly flat at top and bottom, and likewise at its sides by means of the flexible strips, the follower and the sides of the machine. Thus it will be observed that a filling of the exact size and shape it is designed to have in the casing or ticking is fed into the latter; and as the ticking is filled it is moved along the table or support, the filled portions of the ticking slipping gradually from beneath the clamps which hold the ticking upon the fingers until the ticking has been entirely filled, at which time it is simply necessary to sew up the open end or mouth.

It is obvious that a machine constructed as above described is exceedingly simple and durable as well as economic, and that it may be manipulated with dispatch and in a convenient manner. Further it is evident that the filling will be placed in the ticking in a uniform manner, and that when the filled ticking leaves the machine it will be of uniform thickness throughout, or practically so.

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

1. In a mattress filling machine, a filling device, consisting of upper and lower stretches or pieces of pliable material, a follower connected with one end of said strips or pieces, a take up mechanism connected with the opposite ends of the strips, side boards, and top and bottom boards adapted to be held in contact with the outer surfaces of the said strips to keep them stretched in a plane surface as and for the purpose set forth.

2. In a mattress filling machine, the combination, with a bed, a presser board located above the bed, and adjustable side boards between which the presser board is placed, of a follower having movement upon the bed between the side boards, flexible strips located one above the other and adapted for attachment respectively to the upper and lower portions of the follower, a winding mechanism connected with the ends of the strips opposite the follower, and a case-holding mechanism located opposite the strips, as and for the purpose set forth.

3. In a mattress filling machine, the combination, with a bed, an adjustable follower held to slide upon the bed, adjustable sides supported by the bed, and an adjustable presser board located between the sides, of a winding mechanism located at one end of the bed, flexible strips connected with the winding mechanism and extending in parallel lines rearward over the bed, the strips being adapted for engagement respectively with the upper and lower portions of the follower, a case holding cage formed of longitudinal fingers projecting at the front end of the machine and clamps located one above the other

in essentially horizontal alignment with the strips, and adapted for engagement with the said fingers as and for the purpose specified.

4. In a mattress-filling machine, the combination, with a bed, an adjustable follower held to slide upon the bed, adjustable sides supported by the bed, and an adjustable presser board located above the bed and between the sides, of flexible strips adapted for
5 engagement with the upper and lower portions, respectively, of the follower, guide rollers located at the front end of the machine in essentially horizontal alignment with
10 the upper and lower surfaces of the follower,

respectively, winding rollers having a driving connection with one another, each of the said flexible strips being secured to one of the winding rollers and passed over one of the guide rollers to the follower, and a case-holding mechanism located at the front end of the machine in essentially horizontal alignment with the horizontal stretches of the said strips, as and for the purpose specified.

WILLIAM H. PUTNAM.

Witnesses:

CHAS. C. DE CAMP,
W. H. CLEMONS.