

(No Model.)

3 Sheets—Sheet 1.

C. W. WHITE.
MATTRESS STUFFING MACHINE.

No. 568,648.

Patented Sept. 29, 1896.

Fig. 1.

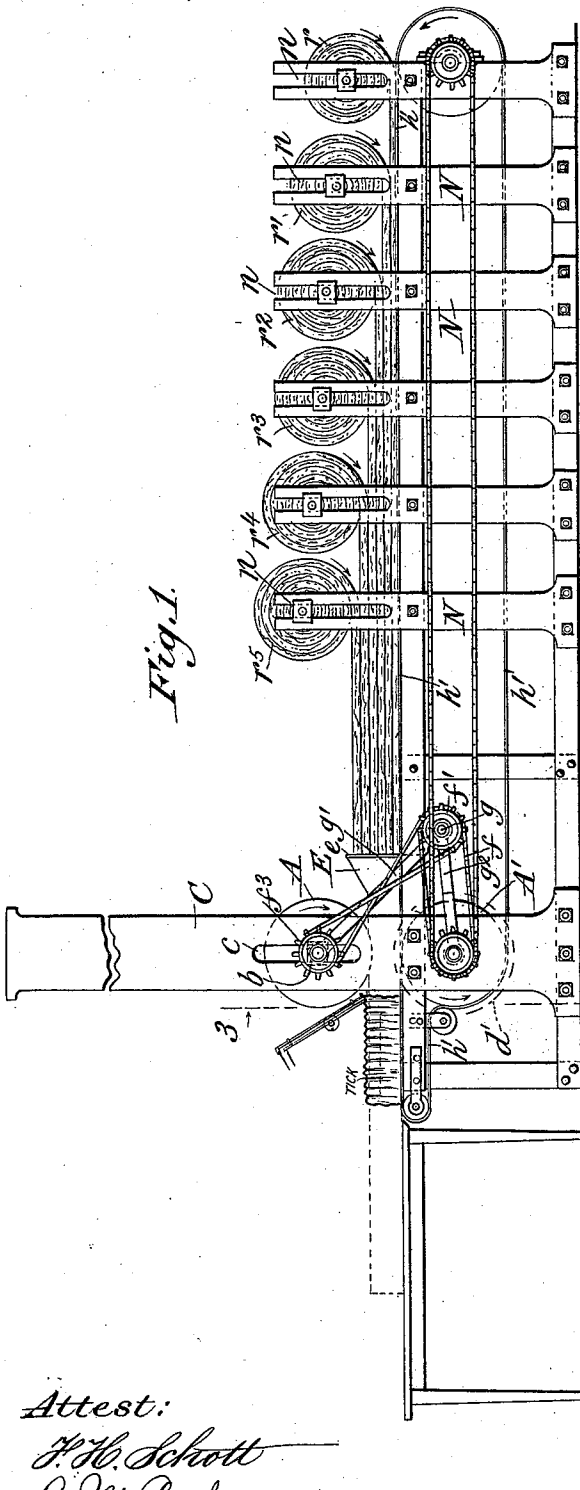
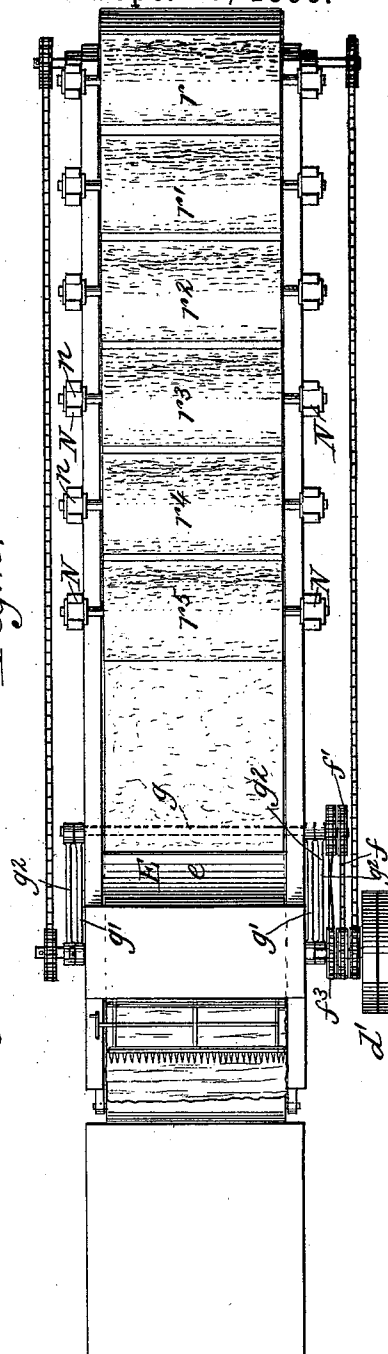


Fig. 2.



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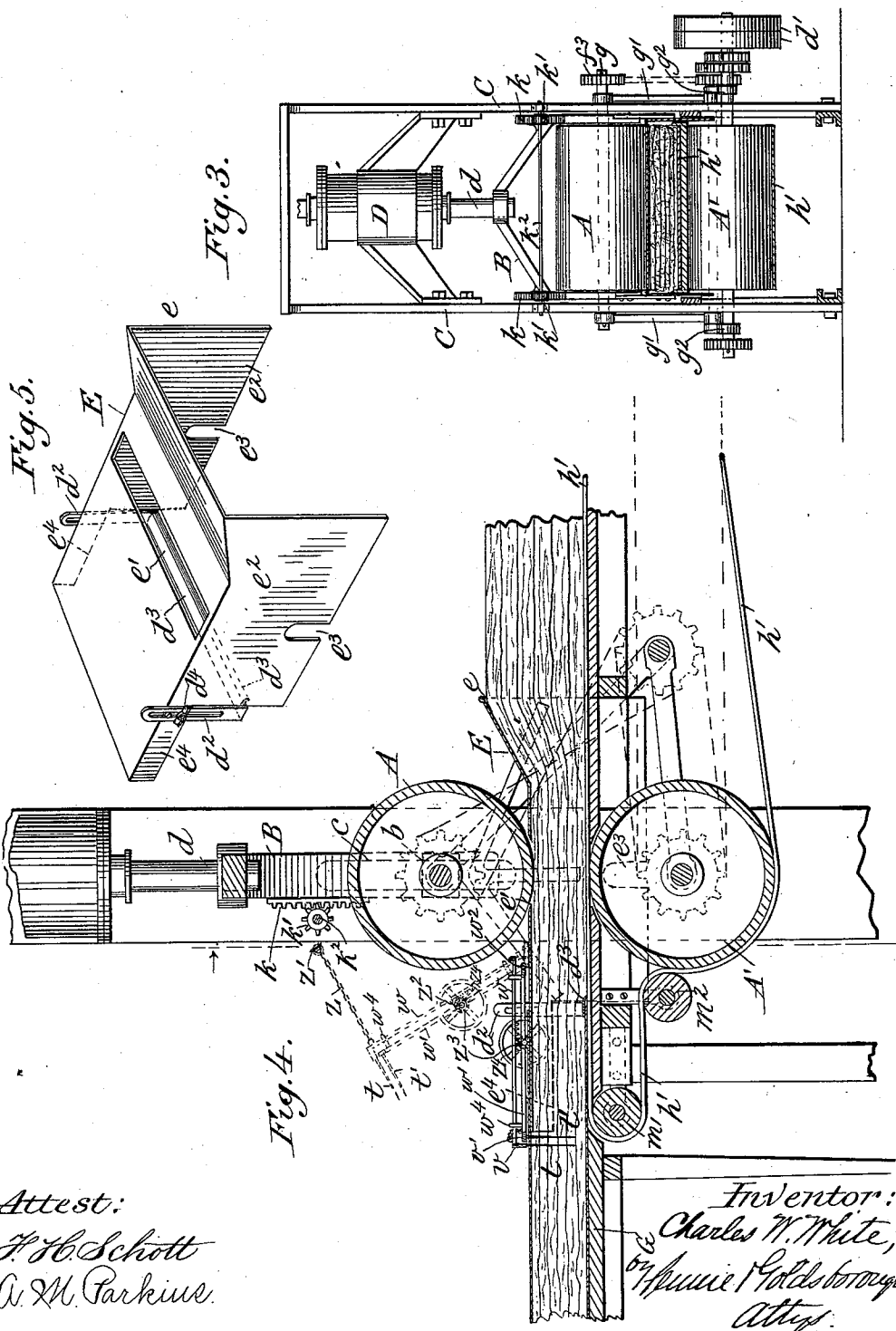
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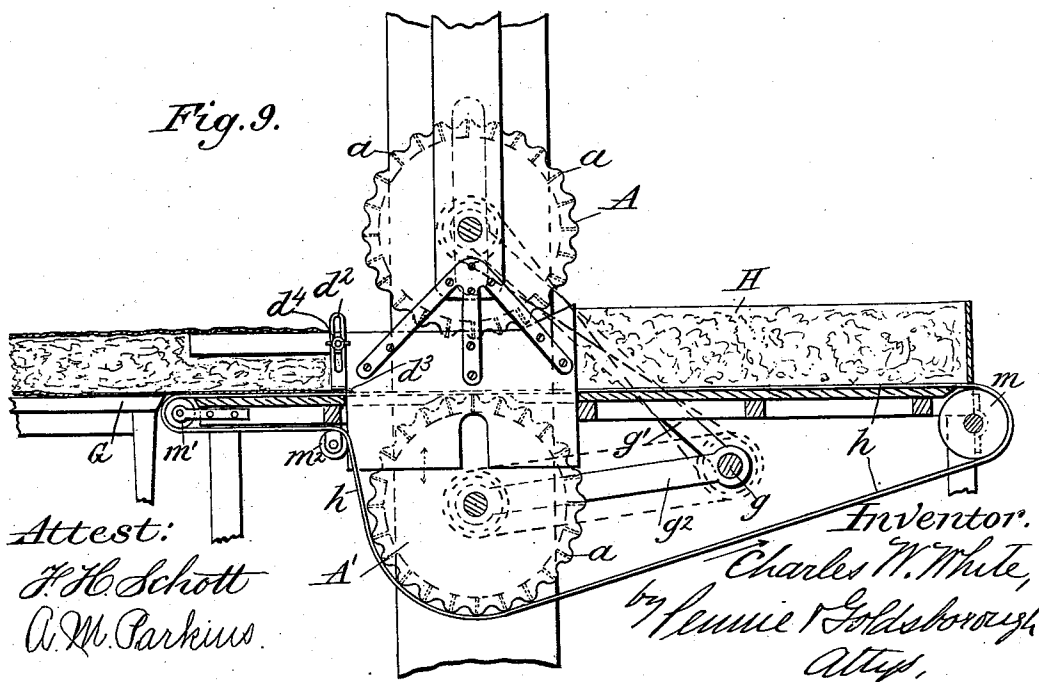
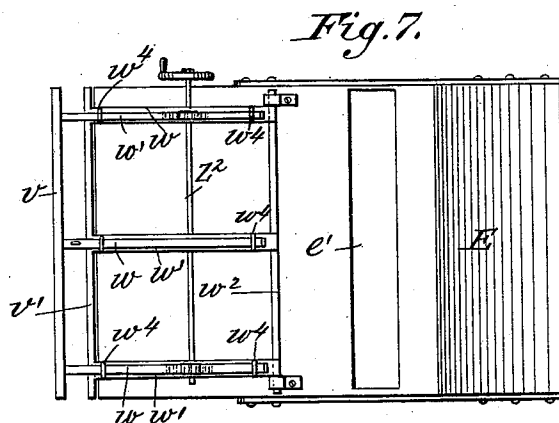
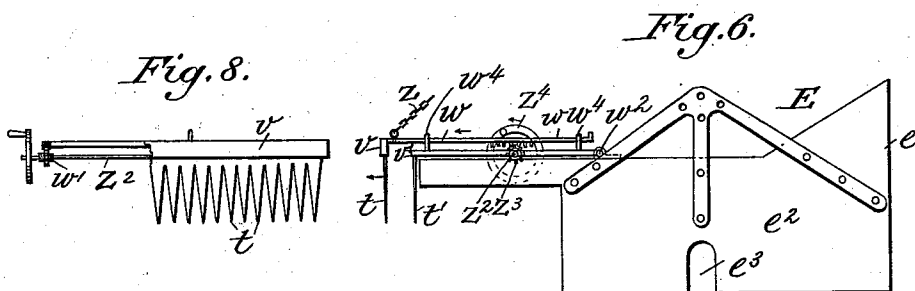
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UNITED STATES PATENT OFFICE.

CHARLES W. WHITE, OF WACO, TEXAS, ASSIGNOR TO MARY J. WHITE, OF
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MATTRESS-STUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,648, dated September 29, 1896.

Application filed August 28, 1895. Serial No. 560,772. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. WHITE, a citizen of the United States, residing at Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Mattress-Stuffing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in mattress-stuffing machines, and has for its object the production of a machine for such purpose of efficiency and facility in operation and of economy and simplicity in manufacture.

A main characteristic feature of the machine is its capability of feeding the stuffing material directly from the bale and in superposed layers, wherein, if desired, the intermediate layers may be of different quality than that of the outside layers or even of entirely different material.

In the accompanying drawings, Figure 1 represents a side elevation of a mattress-stuffing machine embodying my improvements, the upper power-cylinder being omitted. Fig. 2 represents a plan view of the parts shown in Fig. 1. Fig. 3 represents a section on the line 3 3 of Fig. 1. Fig. 4 represents, on a larger scale, a fractional view in longitudinal section of the compression part of the machine and the neighboring parts. Fig. 5 represents a perspective view of the condenser guide-box or former with its tick-holding auxiliary portion. Figs. 6 and 7 represent, respectively, a side elevation and plan thereof, together with the divider for separating the material that has been forced into the tick from the remainder of the compressed material at the termination of a stuffing operation. Fig. 8 represents a front elevation, partly in section, of the said divider; and Fig. 9 represents a longitudinal sectional view of a modification of the machine.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawings, the compressor consists of two hollow rollers A A', which may be corrugated and provided with perforations

a, as shown in Fig. 9, so that the air contained in the material undergoing compression may pass through said perforations and out through the interior of the rollers, so as not to interfere with the compressing action.

The pass or space between the rollers is designed to be varied according to the thickness of the tick to be filled. To this end one of the rollers, for instance, the roller A, is mounted within a yoke B and is provided with bearing-blocks b, adapted to slide in guide-slots c of the frame C, which frame sustains the steam or hydraulic power-cylinder D, whose piston d is connected at its outer end to the yoke B. By this arrangement the power-cylinder is enabled to raise the roller A to the height necessary to afford the pass desired.

The roller A' is driven by means of the belt-pulley d' or the like from any suitable source of power. A sprocket-chain f transmits its motion to a sprocket-wheel f' upon a shaft g, said shaft g being supported by swinging arms g' g'', mounted loosely upon the shaft g and the shafts of the rollers A A'.

A sprocket-chain (crossed as shown in Figs. 1 and 9) transmits motion from the sprocket-wheel f' to the sprocket-wheel f'' and to the roller A.

From the lower part of the side arms of the yoke B is suspended the condenser or former box or conduit E, which therefore bears a constant relationship to the roller A, rising or descending with the latter.

The condenser E is preferably provided with a flaring mouth e, and is slotted transversely at e', so that the periphery of the roller A extends through said slot. The sides e'' of the condenser cover the ends of the roller-pass and are recessed at e''', so that they may fit over the shaft of the roller A' when the roller A is in its lowermost position. The condenser is furthermore provided with a rearward extension e'', constituting a tick-holder, in conjunction with a yoke having slotted side pieces d'' and downwardly-curved cross-piece d'''. By means of butterfly-nuts d'' upon threaded pins the yoke may be adjusted vertically, as required. The tick is adapted to be drawn over the tick-holder, crimped together, as shown in Fig. 1, and as

it is fed with the stuffing material it is gradually pushed back from the tick-holder, as shown in Fig. 9, and out upon a supporting-table G. The extreme lower forward end of the tick extends beneath the cross-piece or scraper d^3 , which therefore serves to guide the material into the tick.

When the tick is to be stuffed with unbaled or loose material, said material may conveniently be inserted within a suitable box II, Fig. 9, having in its bottom an endless conveyor-belt h , which passes over idler-rollers $m m' m^2$ and about the roller A' , from which it derives its power.

The conveyer, it will be noted, extends entirely through the pass of the rollers $A A'$ and beyond the mouth of the tick to the end of the table G, thereby absolutely insuring the efficient delivery of the material into the tick. The conveyer thus serves not only to feed the material to the compression-rolls, but also to convey the same after compression and feed it to the tick. This construction not only affords a more direct and positive feed than where the material is projected by the rolls only, but, in addition, it prevents the dropping of material between the exit side of the roller-pass and the end of the tick. This is a matter of importance, especially where loose material is employed for stuffing, as illustrated in Fig. 9.

When it is desired to fill the tick from bales of cotton that have been wound in a roller-press upon a core having projecting journals, I locate said journals preferably in elongated bearings n , formed in supports N, located at opposite sides of the conveyer-belt h' , Figs. 1 and 2. The bale r in this arrangement rests directly upon the conveyer. As the conveyer moves, therefore, the bale is simultaneously unwound and the unwound layer carried forward toward the compressor. This forwardly-moving layer serves as the unwinding and forwarding conveyer of the bale r' in advance of it, and so on, the bales r^2, r^3 , &c., being unwound and their layers carried forward in like manner to the compressor by the moving layers beneath them.

For the higher grade of mattresses stuffed in accordance with my invention I preferably use cotton as the stuffing material, but in some instances, for purposes of economy and where a cheaper grade of mattress is to be produced, I may employ, in conjunction with the lower and upper layers of cotton, an intermediate layer or layers of some cheaper material, such as hay, excelsior, or the like.

The layers of stuffing material as they approach the compressor enter the flaring mouth of the condenser and are drawn upward by the rotating compressing-rollers, in conjunction with the conveyer-belt, and in the compressed condition are fed upward into the open mouth of the tick, which has been stretched upon the tick-holder in a crimped condition. As the material enters the tick

it gradually pushes the tick from the tick-holder, filling it regularly and evenly with a compact filling of the stuffing material. When the tick is completely filled, the moving body of stuffing material has entirely pushed the tick in its filled condition off the tick-holder and upon the receiving-table. The machinery is then stopped by the operator, and it now becomes necessary to separate that portion of the body of stuffing material that has entered the tick from the remaining portion. For this purpose I make use of what I will designate as a "divider." This divider, in the form shown in the drawings, consists of two sets of fingers $t t'$, depending from cross-bars $v v'$, which cross-bars are provided with supporting-arms $w w'$. The arms w' are connected to a rock-shaft w^2 , and the arms w are sustained in guides or bars w^4 , projecting upwardly from the arms w' , so that the entire divider may be swung upwardly into the position indicated in Fig. 4 and sustained in that position when out of use by means of a chain z , engaging with a hook z' upon the machine-frame. Transversely of the arms w' is journaled a shaft z^2 , having pinions z^3 , which engage with racks upon the under side of the arms w , and on the outer end of the shaft z^2 is a hand-wheel z^4 for rotating the shaft and its pinions.

When the tick has been filled, as hereinbefore described, the divider is brought down into the position indicated in Fig. 6 and the teeth $t t'$ enter the stuffing material, as indicated in Fig. 4. The operator thereupon revolves the shaft z^2 and its pinions by means of the hand-wheel z^4 , and consequently the teeth t are caused to move away from the teeth t' , thereby pulling the body of stuffing material apart and separating the portion that is within the tick from the remaining portion. The filled tick may thereupon be removed and another tick may then be drawn over the tick-holder for a second operation.

In feeding loose material through the condenser, under pressure, it will sometimes occur that a greater quantity of material is for a time at one side of the box, which would tend to tilt the cylinder A at one end, thereby straining the machinery and causing it to work with more friction and greater difficulty. To obviate this difficulty, I give a positive motion, alike at both ends, to the movable cylinder A. This is effected by mounting a shaft k^2 in the frame C, said shaft being provided with pinions k' , fixed thereon and engaging with racks k upon opposite sides of the yoke B, so that one end of the movable cylinder will be at the same elevation as the other whatever difference there may be momentarily in the distribution of the material fed between the roller-pass.

Having thus described my invention, what I claim is—

1. In a mattress-stuffing machine, the combination with compressing-rollers, one of which is movable toward and from the other,

of a condenser whose sides cover the ends of the roller-pass, said condenser being movable with the movable roller, a tick-holder located on the exit side of the roller-pass, and means for supplying the stuffing material to said pass; substantially as described.

2. In a mattress-stuffing machine, the combination with the compressing-rollers, of a tick-holder located on the exit side of the roller-pass, and a condenser covering the ends of the roller-pass, said condenser having a transverse opening through which the periphery of the upper roller extends; substantially as described.

3. In a mattress-stuffing machine, the combination with the condenser, of a tick-holding yoke adjustable up and down upon the condenser, the cross-piece of said yoke being downwardly inclined so as to serve as a scraper; substantially as described.

4. In a mattress-stuffing machine, the combination with a compressor, conveyer, and tick-holder, of a divider for mechanically separating or pulling apart the material stuffed into the tick, from the main body of the compressed material; substantially as described.

5. In a mattress-stuffing machine, the combination with a compressor, conveyer, and tick-holder, of a divider for mechanically separating or pulling apart the material stuffed into the tick, from the main body of the compressed material, said divider consisting of two sets of fingers adapted to enter the compressed material, and means for causing one set of fingers to separate from the other set; substantially as described.

6. In a mattress-stuffing machine, the combination with a compressor, conveyer, and tick-holder, of a divider for mechanically separating or pulling apart the material stuffed into the tick, from the main body of the compressed material, said divider consisting of two sets of fingers adapted to enter the compressed material, rack-gear connected to one of said sets of fingers, pinion-gear connected to the other set of fingers and means for revolving the pinion-gear; substantially as described.

7. In a mattress-stuffing machine, the combination with a compressor, conveyer, and tick-holder, of a divider for mechanically separating or pulling apart the material stuffed into the tick, from the main body of the compressed material, said divider consisting of two sets of fingers adapted to enter the compressed material, rack-gear connected to one of said sets of fingers, pinion-gear connected to the other set of fingers and means for revolving the pinion-gear, said divider being hinged or pivoted, whereby the fingers may be swung into or out of operative position; substantially as described.

8. In a mattress-stuffing machine, the combination with the compressor, of the tick-holder, and a plurality of supports serving to sustain the journals of bales of the stuffing

material fed to the compressor; said tick-holder being located on the exit side of the compressor, and receiving the compressed material in layers therefrom; substantially as described.

9. In a mattress-stuffing machine, the combination with the compressor, of the tick-holder, and a plurality of supports serving to sustain the journals of bales of the stuffing material fed to the compressor, said supports having elongated journal-bearings; substantially as described.

10. In a mattress-stuffing machine, the combination with the compressor, of the tick-holder, and a plurality of supports serving to sustain the journals of bales of the stuffing material fed to the compressor, said supports being located in a row one in advance of the other in front of the compressor; substantially as described.

11. In a mattress-stuffing machine, the combination with the compressing-rollers, of a table having an opening through which the periphery of the lower roller projects, a condenser having an opening through which the periphery of the upper roller projects, an endless conveyer-belt extending through the roller-pass and over the table, and a tick-holder constituting a continuation of the condenser; substantially as described.

12. In a mattress-stuffing machine, the combination with the compressing-rollers, of a table having an opening through which the periphery of the lower roller projects, a condenser having an opening through which the periphery of the upper roller projects, an endless conveyer-belt extending through the roller-pass and over the table, and a tick-holder constituting a continuation of the condenser, and provided with an adjustable securing-yoke; substantially as described.

13. In a mattress-stuffing machine, the combination with the compressing-rollers, of a table having an opening through which the periphery of the lower roller projects, a condenser having an opening through which the periphery of the upper roller projects, an endless conveyer-belt extending through the roller-pass and over the table, and a tick-holder constituting a continuation of the condenser, and a series of supports serving to sustain the journals of bales of the stuffing material fed to the machine; substantially as described.

14. In a mattress-stuffing machine, a conveyer for feeding superposed layers of stuffing material to the compressor, in combination with the compressor and a condensing former box or conduit having a flaring mouth through which the conveyer passes, substantially as described.

15. In a mattress-stuffing machine wherein superposed layers of stuffing material are fed to the compressor, the combination with the compressor, of a condensing former box or conduit having a flaring mouth, and a con-

veyer-belt entering said mouth and extending through the compressor; substantially as described.

16. In a mattress-stuffing machine, the combination with the condenser of the tick-holder, and the divider, the tick-holder constituting a continuation of the condenser, and the divider being pivoted to the condenser, whereby it may be swung into and out of operative position; substantially as described.

17. In a mattress-stuffing machine, wherein bale material is fed to the compressor, the combination with the compressor, of a conveyer leading thereto, said conveyer being located beneath the bale-journals, and said journals being in elongated bearings, whereby the conveyer is enabled to continuously unwind the bale and feed its layers forward to the compressor; substantially as described.

18. In a mattress-stuffing machine, wherein

superposed layers of bale material are fed to the compressor, the combination with the compressor, of a conveyer leading thereto, and a plurality of bale-supports, arranged in a row one in advance of the other and above the conveyer, whereby the conveyer is enabled to continuously unwind the entire series of bales simultaneously and feed their layers superposed, to the compressor; substantially as described.

19. In a mattress-stuffing machine, the combination with the adjustable compressing-rollers, of a condenser located at the roller-pass, and means for moving the condenser vertically; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. WHITE.

Witnesses:

ROBERT J. TOLSON,
GEO. H. WIEBUSCH.