

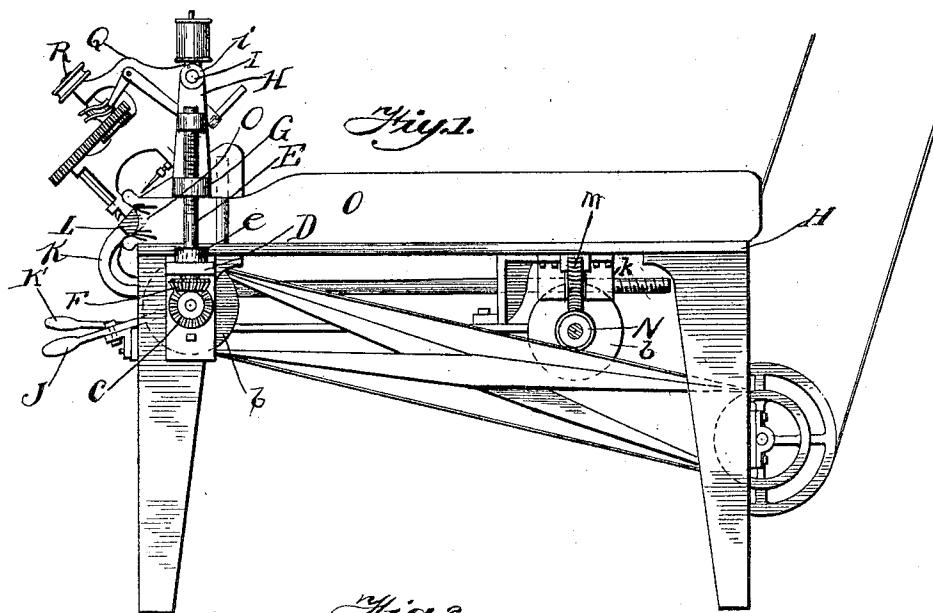
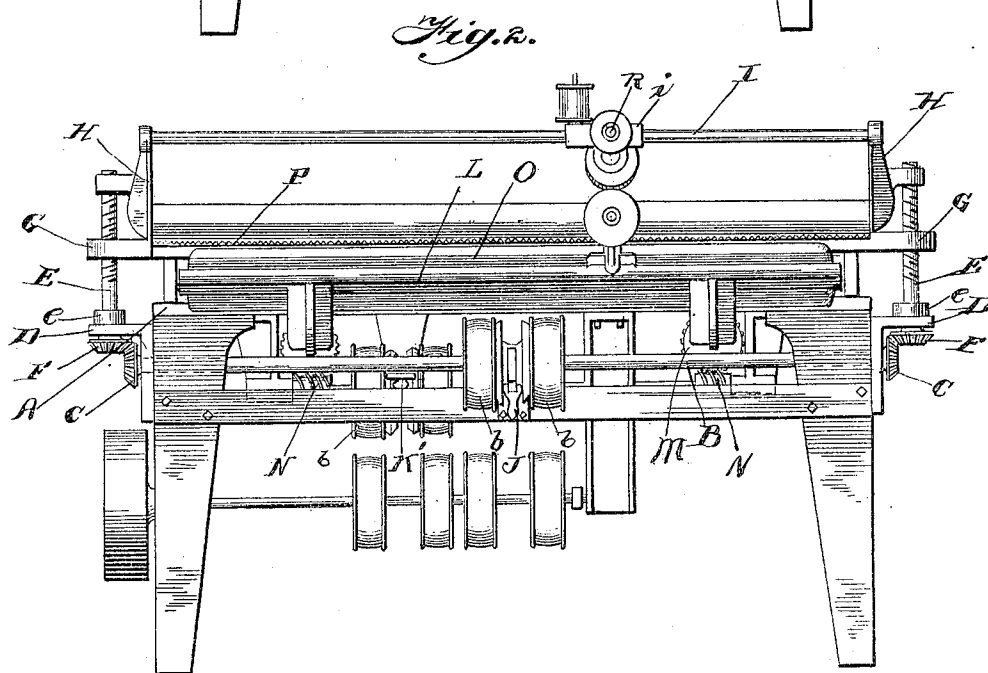
No. 807,451.

PATENTED DEC. 19, 1905.

C. A. FISHER.
MATTRESS SEWING MACHINE.

APPLICATION FILED OCT. 21, 1901.

4 SHEETS—SHEET 1.



Witnesses:
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M. E. Shields

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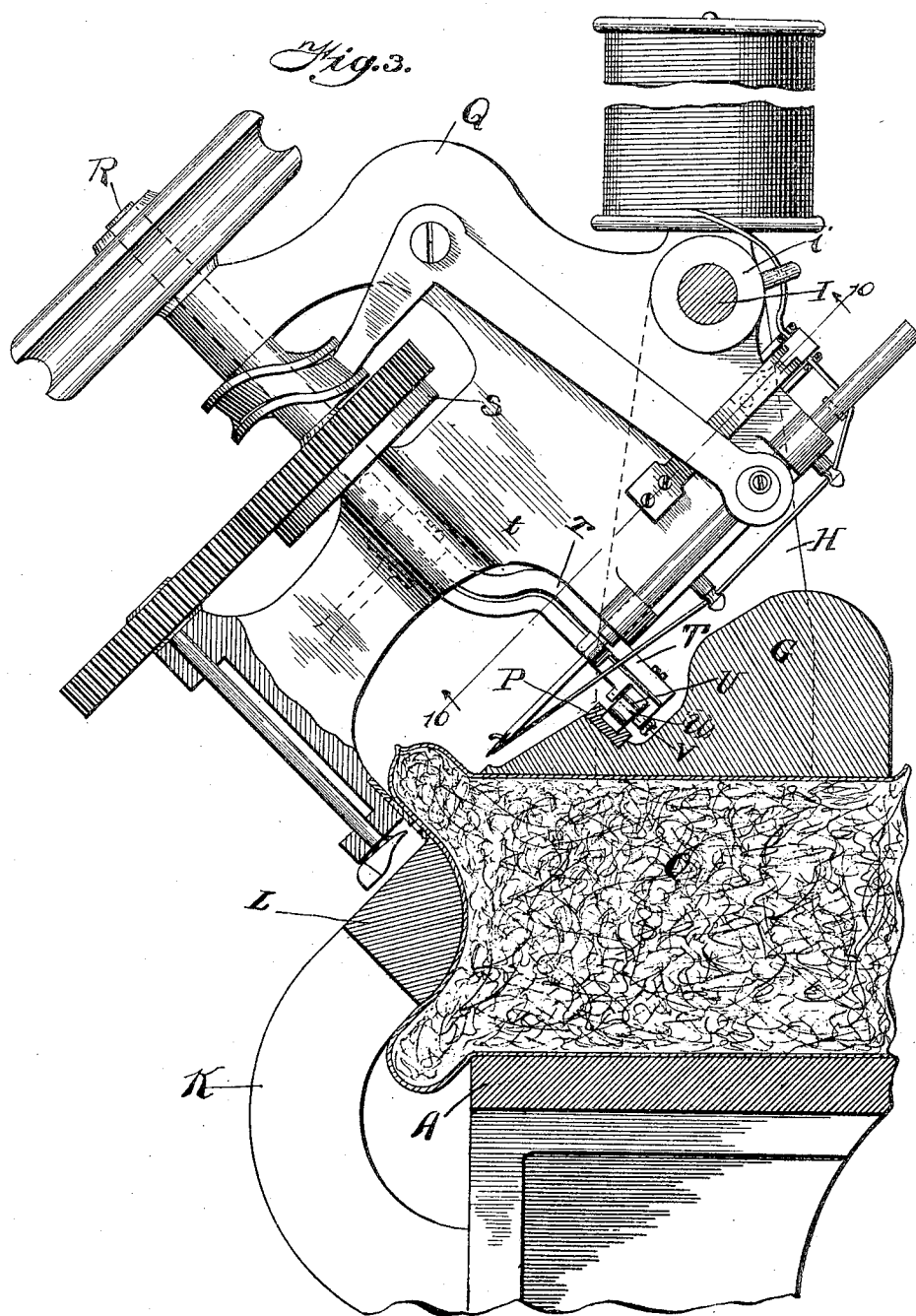
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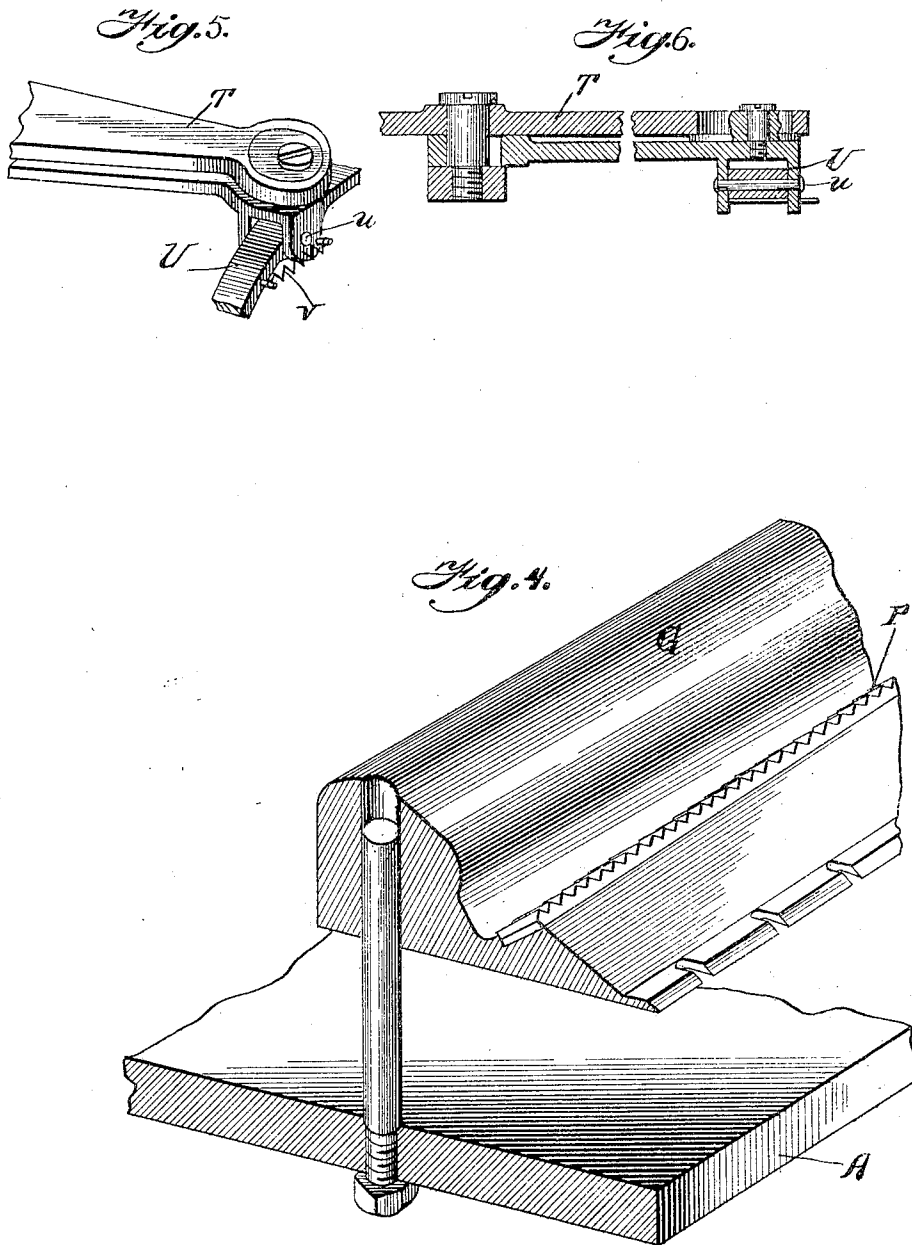
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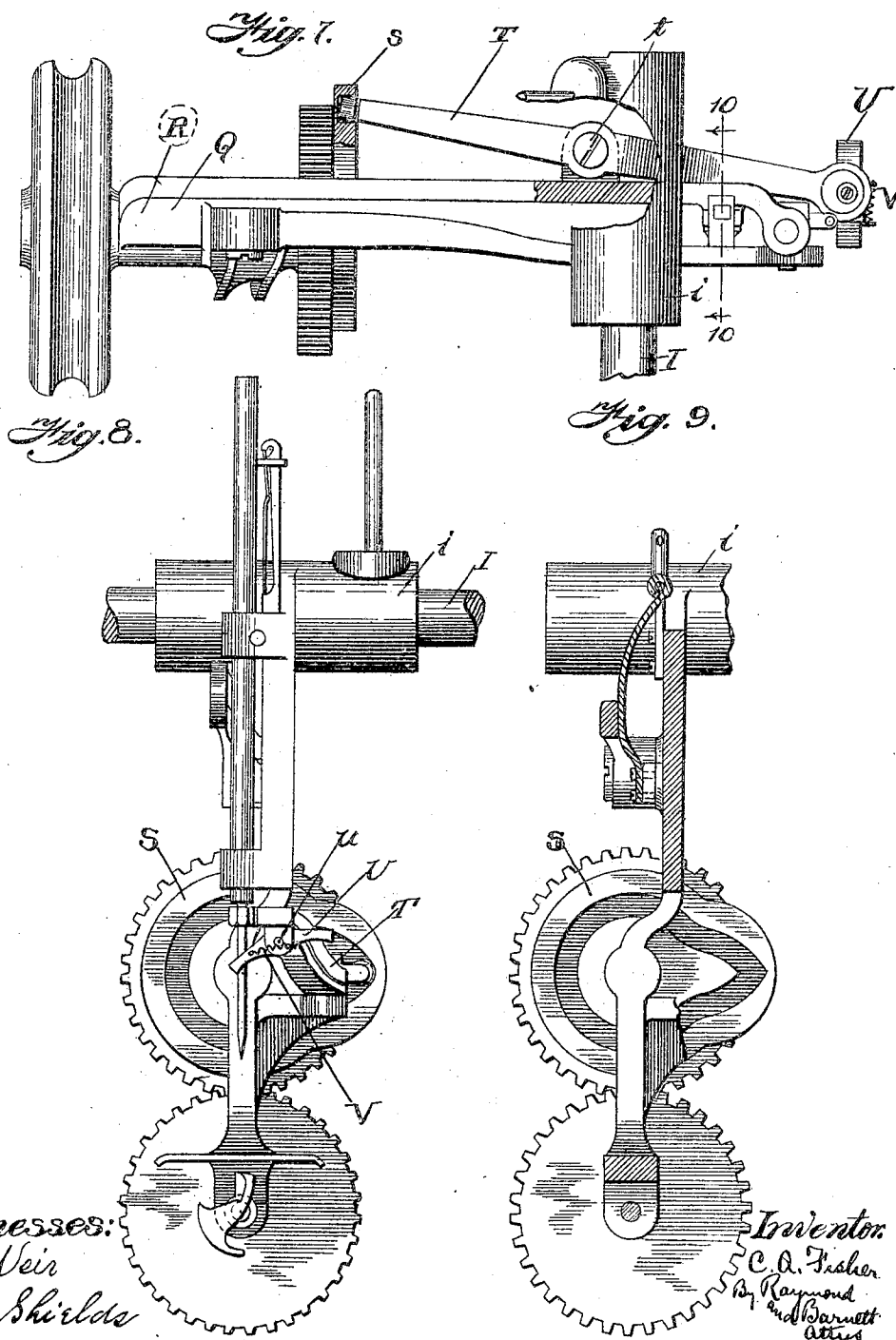


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UNITED STATES PATENT OFFICE.

CHARLES A. FISHER, OF CHICAGO, ILLINOIS.

MATTRESS-SEWING MACHINE.

No. 807,451.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed October 21, 1901. Serial No. 79,409.

To all whom it may concern:

Be it known that I, CHARLES A. FISHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mattress-Sewing Machines, of which the following is a specification.

My invention is intended primarily for use in making that class of mattresses in which a ticking is fitted over or filled with resilient material and a seam is then sewed diagonally through the upper and lower edges of the tick when so filled, such seam extending diagonally from the upper or lower surface of the mattress through the tick and also through the filling material and again through the tick to a vertical surface of the mattress. It will thus be seen that with a tick of this class such a seam results in forming a fold or cushion of filling material inclosed within the tick and extending along the upper and lower edges of the mattress.

Owing to the resilient nature of the filling material used, it is necessary that the same shall be held under compression while the mattress is being made, and it is also necessary that by some means the surfaces of the mattress shall be compressed and held in the required shape while the seam above noted is being made. This is necessary both to insure uniformity in the marginal cushion formed by said seam as well as to insure uniformity in the seam itself. Furthermore, where the mattress is filled with material—such as excelsior, moss, curled hair, or the like—which has a tendency to “bunch up” the cushions extending around the upper and lower edges of the mattress, as above described, will not be properly filled unless the material is forced into these corners or edges of the mattress, so as to tightly fill them, and is firmly held in that position while the above-described seam is sewed diagonally through the tick adjacent to but back of its edges, so as to retain the filling material within these edges and complete the forming of these edge cushions. On the other hand, where such soft material as cotton-batting or loose cotton is used it is practically impossible to drive a needle through the material unless the material is firmly held as a body against the pressure of the needle, so that it also may be necessary with material of this kind that it shall be tightly forced into the corner edges of the tick and held there while the above previously-described seam is being sewed.

My invention therefore relates to machines for compressing the surfaces of mattresses and for holding them under compression in the desired shape and position to enable the operator to accurately and readily sew the marginal seam above described.

The object of my invention is to provide a machine of simple construction and positive operation for compressing mattresses to any desired thickness and for compressing the ends or sides thereof at the same time, so as to provide a marginal rib or fold along the upper and lower corners or edges of the mattress, through which the operator may sew the usual marginal seam in the mattress.

Another object of my invention is to provide means for sewing such marginal seam, which means shall travel along the mattress while the mattress is held in a stationary position.

A further object of my invention is to have such sewing means so constructed that it will sew when moving in either direction across the edge of the mattress.

These and such other objects as may hereinafter appear are accomplished by the devices shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is an end elevation of said machine. Fig. 3 is an enlarged detail of the sewing-machine and associated parts. Fig. 4 is a detail of a portion of the vertical presser-bar. Fig. 5 is a detail in elevation of the feed mechanism of the sewing-machine. Fig. 6 is a longitudinal section of the same, showing the parts partially broken away. Fig. 7 is a plan view of a portion of the sewing-machine, showing the feed mechanism. Fig. 8 is an end elevation of the sewing-machine looking from the direction of the needle, and Fig. 9 is a view on the line 10 10 of Fig. 8 looking in the direction indicated by the arrows.

Like letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the bed of the machine, beneath which is mounted a shaft B, provided at each end with bevel-gears C. Upon brackets D, at each end of the bed of the machine, are mounted screw-threaded adjustment-shafts E by means of collars *e*. Attached to the lower ends of these adjustment-shafts E are bevel-gears F, meshing in gears C.

G is a presser-bar extending across the bed

of the machine, the ends of which bar have a screw-threaded engagement with the adjustment-shafts E. Mounted upon the presser-bar G by means of supports H is a guide-rod I, extending the length of the presser-bar G and parallel therewith.

Power is transmitted to the shaft B through pulleys *b* in any suitable manner.

J is the clutch mechanism for throwing the pulleys *b* into or out of engagement with the shaft B.

Extending beneath the bed A and in a direction crosswise of the presser-bar G is a pair of presser-arms K, arranged one at each side of the bed A. The forward ends of these presser-arms are preferably curved or crook-shaped. At their extreme forward end the presser-arms K carry a horizontal presser-bar L, which extends in front of and parallel with the bed A. The inner ends of the presser-arms K are supported by brackets *k*, mounted on the under side of the bed A, and have screw-threaded engagement with gear-teeth formed around axial openings through gear-wheels *m*, which gear-wheels mesh with worm-gears N, mounted upon a second shaft under the bed A, to which power is transmitted in any suitable or convenient manner.

If the mattress is to be sewed by hand, my device as above described is complete and operates as follows: First, the presser-arms K are drawn outwardly until the horizontal presser-bar L stands clear of the bed A of the machine. With the device constructed as shown in the drawings this is accomplished by imparting motion to the worm-gears N, whereby the gear-wheels *m* are caused to rotate, which having screw-threaded engagement with the presser-arms K cause the same to move outwardly. One of the pulleys *b* being next thrown into operation by the clutch mechanism J, the shaft B is caused to rotate in the desired direction and by means of the gears C F causes a corresponding rotation of the adjustment-shafts E, whereby the presser-bar G is lifted to the desired point, whereupon the pulley *b* is thrown off. A mattress O is now laid upon the bed A, so that one end or side thereof shall slightly overhang the forward edge of the bed A. Thereupon the other pulley *b* is thrown into engagement with the shaft B, causing a reverse rotation thereof and a correspondingly-reversed rotation of the adjustment-shaft E, whereby the presser-bar G is drawn down upon the upper surface of the mattress O, as shown in Fig. 1. When the mattress has been compressed to the desired point—such, for instance, as shown in Fig. 1—the pulley *b* is thrown out of engagement with the shaft B and the downward movement of the presser-bar ceases. Thereupon by means of the gears previously described movement is imparted to the presser-arms K, whereby the horizontal presser-bar L is drawn backwardly against the overhang-

ing end or side of the mattress O until such end is compressed in the desired manner, as shown in Fig. 1. Thereupon the movement of the presser-bars K is stopped and the mattress is firmly held under pressure in the position shown in Fig. 1, whereby a rib or fold is formed in the mattress along the upper and lower corners or edges thereof, where portions of the mattress protrude between the adjacent surfaces of the presser-bars G and L, on the one hand, and the presser-bar L and the bed A, on the other hand. While held in this position the corner or edge seam may be sewed by hand through the projecting or bulging rib or fold of the mattress, no skill being required to insure that the necessary filling is contained in such rib or fold and no care being required on the part of the operator to see that the mattress is at all times under the same compression while said seam is being sewed. As soon as said seam or seams are sewed along one end or edge of the mattress it is released by the reverse rotation of the gears; and by the consequent reverse movement of the presser-bars G and L the mattress is turned around and the next side or edge is compressed by the presser-bars, and so on until all edges of the mattress have been properly sewed.

In using my device as above outlined it should be borne in mind that while I prefer constructing it as above described it is entirely practical to substitute gears operated by hand-wheels or, indeed, to use hand-operated rack-bars and pinions for reciprocating the presser-bars G and L. Where my device, however, is to be used in connection with a sewing-machine instead of sewing the seams by hand I pivotally mount such sewing-machine by means of a sleeve *i* upon the guide-bar I, by which the sewing-machine is in part supported and along which it travels. Upon the upper surface of the presser-bar G, I provide a rack-bar P. The sewing-machine, which except as hereinafter noted may be of any suitable type, (I am making no claim to the sewing-machine *per se*,) comprises a frame Q, within which is mounted a driving-shaft R, to which power may be transmitted in any suitable manner. The needle-bar may be actuated in the usual manner by means of a cam mounted upon the shaft R. Also mounted upon the shaft R is a grooved track-cam S, which engages one end of a pivoted feed arm or lever T, the opposite end of which actuates a double-acting pawl U, which engages the rack-bar P. The pawl S is so arranged and timed with reference to the needle-arm that the feed-arm T will only throw the pawl U in engagement with the rack-bar P when the needle-arm is raised and the needle is clear of the mattress. The pawl U being thrown in engagement with the rack-bar P, the further movement of the inner arm of the lever T by the rotation of the cam S will

drive or feed the machine along the guide-bar I and across the face of the stationary mattress, as the feed-lever T is pivoted to the frame of the machine at *t*. Further rotation of the cam S will carry the pawl U backward over the rack-bar P, and the machine is forced forward another step. It will thus be seen that the sewing-machine will be carried or fed along the rack-bar P at every rotation of the shaft R. The pawl U being a double-acting pawl, as shown in Fig. 6, and more particularly in Fig. 9, when the machine has reached the end of the bar I the pawl is reversed until the pawl-spring V is carried past the center of the pawl-pivot *u*, whereupon the spring V will hold the pawl in its new position, and the continued rotation of the shaft R will reverse the action between the pawl and the rack-bar P, and the machine will be carried backward to the other end of the bar I, and so on.

I do not here claim the subject-matter of my Patent No. 775,966, which was granted upon my copending application, Serial No. 168,047, which was a division of this application.

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

1. In a machine of the class described, the combination with a bed, of a vertically-adjustable presser-block, a guide-bar carried by said presser-block, means slidably mounted on said bar for sewing a seam, a rack-bar carried by said presser-block, a pawl carried by said sewing means and arranged to engage said rack-bar, and means for actuating said pawl to cause said sewing means to travel along said bar, substantially as described.

2. In a machine of the class described, the combination with a bed, of means for compressing a mattress into position to be sewed along its upper edges, and means for sewing said mattress arranged to travel across said mattress while sewing a seam therein, substantially as described.

3. In a machine of the class described, the combination with means for vertically compressing a mattress, of means for horizontally compressing a portion of said mattress whereby a fold of said mattress is caused to bulge

outwardly between said vertical compressing means and said horizontal compressing means, and means arranged to travel across said mattress and to simultaneously sew a seam along the base of said bulging portion, substantially as described.

4. In a machine of the class described, the combination with a bed, of a vertically-adjustable presser-block, a horizontally-adjustable presser-bar, a guide-rod mounted above said presser-block, a sewing-machine pivotally and slidably mounted upon said guide-rod, a rack-bar mounted below said guide-rod, and means actuated by the driving mechanism of said sewing-machine for engaging said rack-bar and driving said machine along said rack-bar during the operation of said machine, substantially as described.

5. In a machine of the class described, the combination with a bed, of means for compressing a horizontal and a vertical surface of a mattress along lines parallel with, but a short distance away from, the line where such vertical and horizontal surfaces intersect each other, and means for sewing a seam through said mattress from such horizontal to such vertical faces and on a line parallel with, but a short distance away from, the intersection between such vertical and horizontal surfaces, and means for causing said sewing means to travel across said mattress while sewing such seam, substantially as described.

6. In a machine of the class described, the combination with a bed, of a vertically-adjustable presser-bar, a guide-bar carried by said presser-bar, means slidably mounted on said guide-bar for sewing a seam, and means whereby said sewing means is caused to travel along said guide-bar, substantially as described.

7. In a machine of the class described, the combination with means for forcing the filling material into an edge cushion of a mattress, and for holding the material in the cushion under pressure, of means arranged to travel across the mattress and sew a seam through the mattress at the inner edge of said cushion, substantially as described.

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Witnesses:

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