

No. 775,966

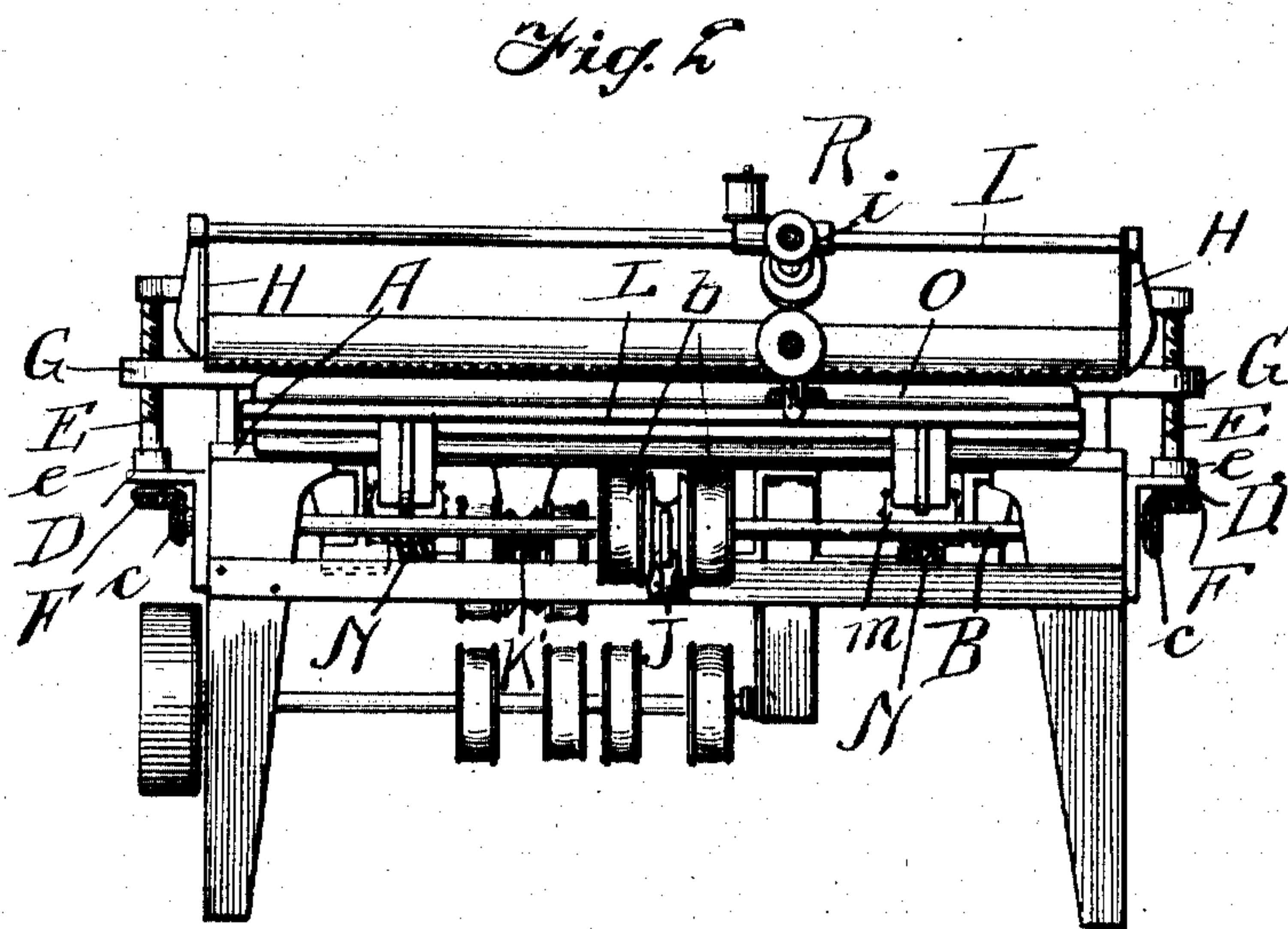
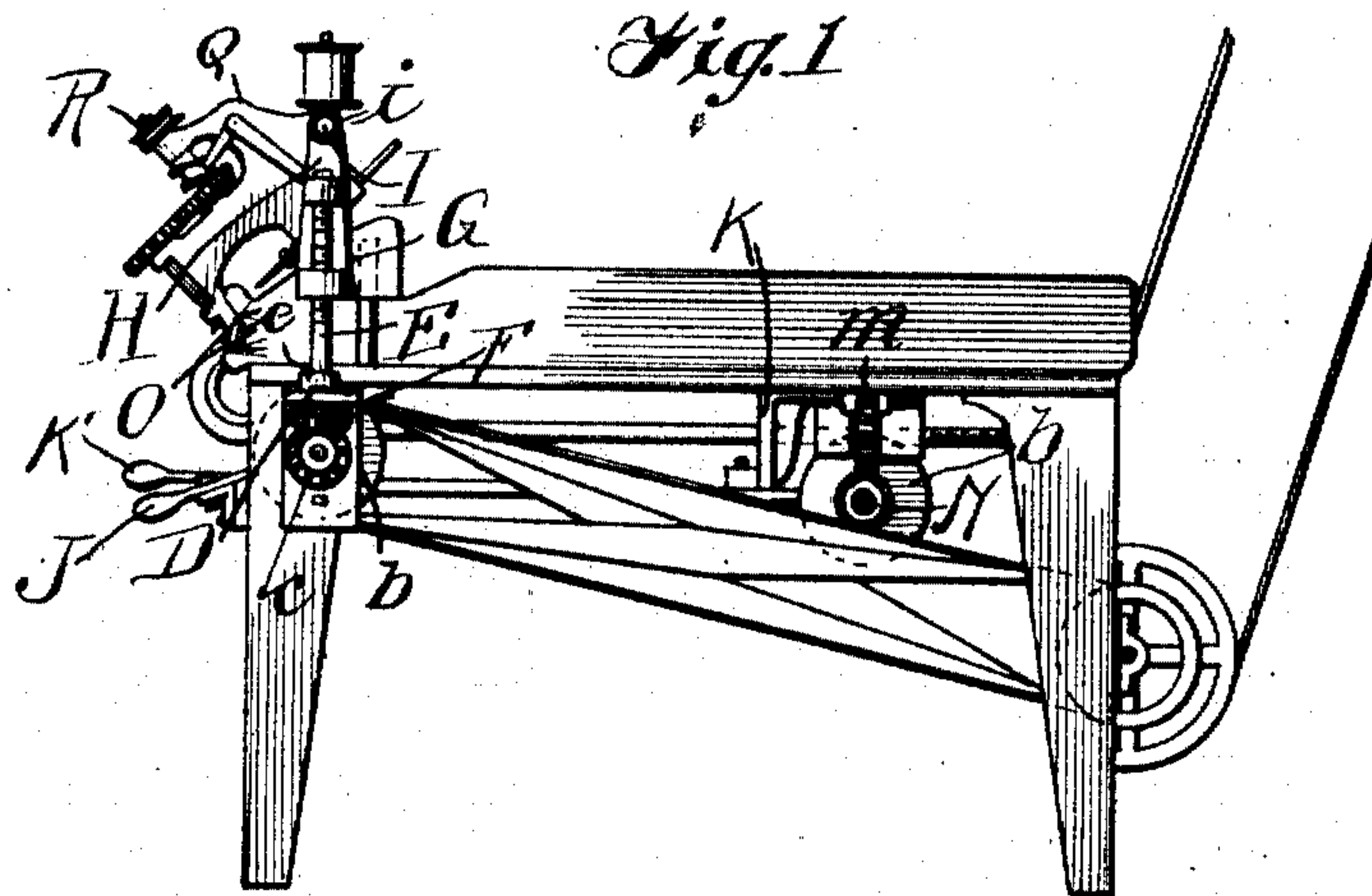
PATENTED NOV. 29, 1904.

C. A. FISHER.
CUSHION FORMING MECHANISM.

APPLICATION FILED AUG. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
B. T. Domarus.
Robert H. Wei

Inventor:
Charles A. Fisher
By Raymond H. Arnold
Attys

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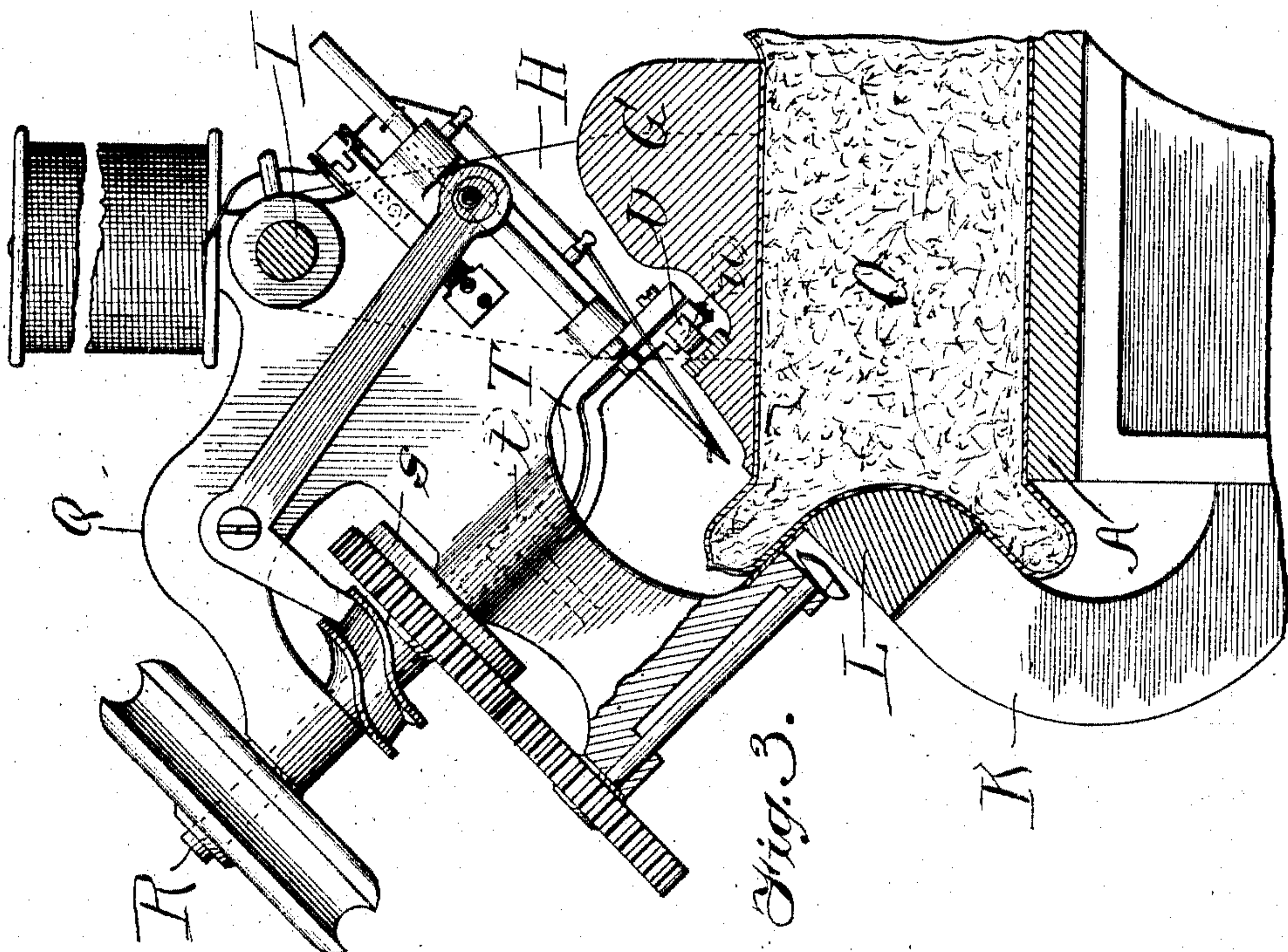
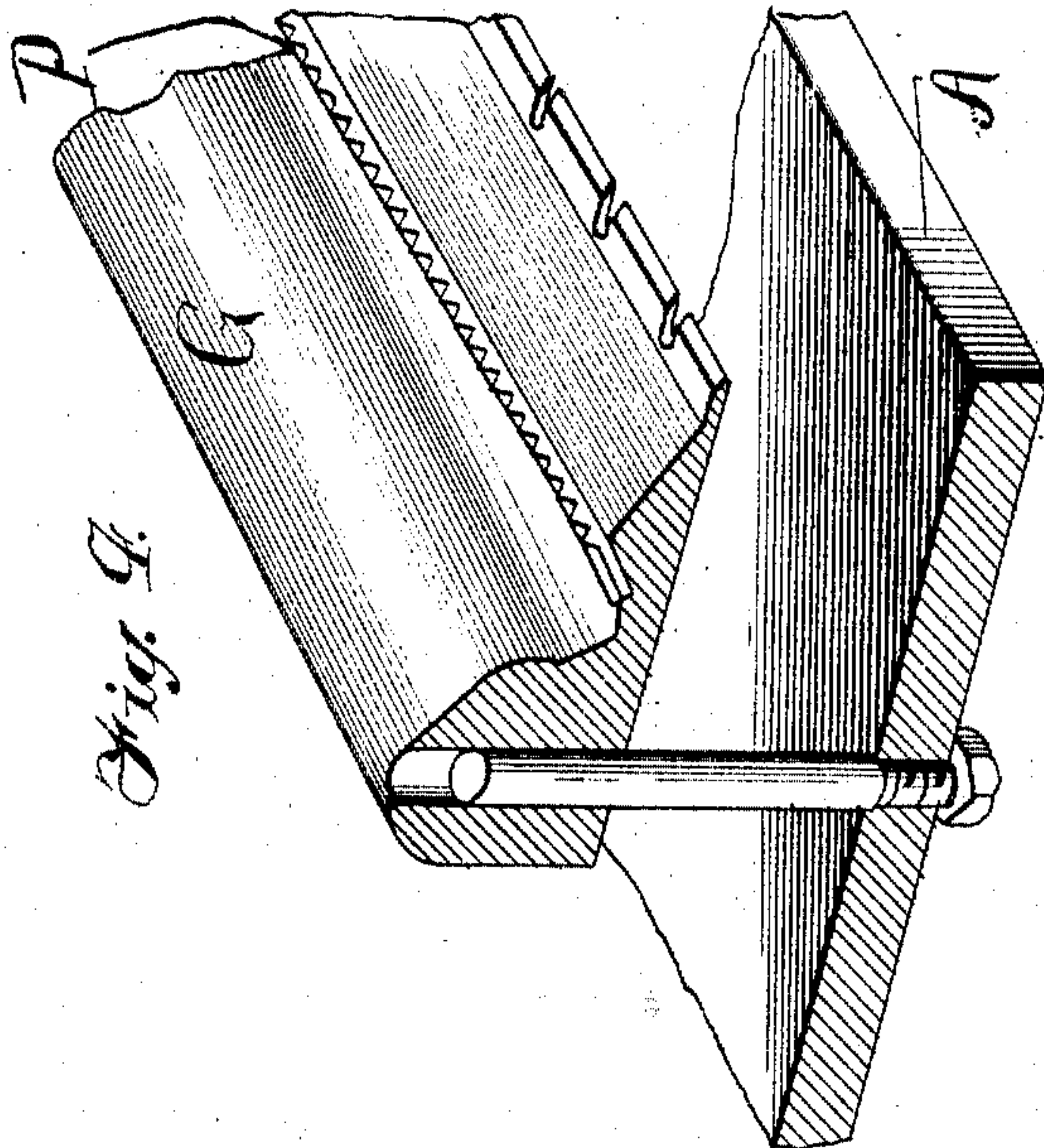
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APPLICATION FILED AUG. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

J. V. Pomares.

Robert H. Weir.

Inventor:
Charles A. Fisher

By Raymond H. Barnett
Attys.

UNITED STATES PATENT OFFICE.

CHARLES A. FISHER, OF CHICAGO, ILLINOIS.

CUSHION-FORMING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 775,966, dated November 29, 1904.

Original application filed October 21, 1901, Serial No. 79,409. Divided and this application filed August 3, 1903. Serial No. 168,047. (No model.)

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 Cushion-Forming Mechanism, of which the following is a specification.

This application is a division of my application, Serial No. 79,409, filed October 21, 1901.

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. This 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, and Fig. 4 is a detail of a portion of the vertical presser-bar.

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 5 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, 15 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 axial openings 20 through gear-wheels M, which 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 30 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 40 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 50 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 overhanging end or side of the mattress O until such end is compressed in the desired manner, as shown in Fig. 1. Thereupon the movement 65 of the presser-bars K is stopped and the mat-

tress 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 70 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 75 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 80 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 move- 85 ment 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. 90

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 95 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. 105

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 110 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 115 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 cam S is so arranged and timed with reference to the needle-arm that the feed-arm T will 120 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 125 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 rota-

tion 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.

I claim—

1. In a machine of the class described, the combination of a bed, a presser-block arranged to reciprocate vertically above said bed, a presser-block arranged to reciprocate horizontally in front of said first presser-block so as to engage the edge of a mattress resting upon said bed only along a horizontal line below, but parallel with, the upper edge of said mattress, so that the upper corner edge of such mattress will be caused to bulge out and be clamped between said vertically and said horizontally reciprocating presser-blocks, and means for reciprocating said presser-blocks, substantially as described.

2. In a machine of the class described, the combination of a bed, a vertically-reciprocating presser-block, presser-arms extending below said bed, a horizontally-reciprocating presser-block carried by said presser-arms so as to engage the edge of a mattress resting upon said bed only along a horizontal line below, but parallel with, the upper edge of said mattress so that the upper corner edge of such mattress will be caused to bulge out and be clamped between said vertically and said horizontally reciprocating presser-blocks, and means for reciprocating said presser-blocks, substantially as described.

3. In a machine of the class described, the combination with a support, of a presser-block, arranged transversely of a mattress resting upon said support, to compress said mattress against said support along a line back of the forward edge of said mattress, a presser-block arranged to engage the forward vertical edge of said mattress along a line below and parallel with the upper edge of said mattress, and means for bringing said presser-blocks into and out of engagement with such mattress, whereby said mattress is caused to bulge outwardly between said presser-blocks, substantially as described.

4. In a machine of the class described, the combination with a support, of a presser-block arranged to compress a mattress against

said support, a second presser-block arranged to engage the forward edge of a mattress compressed between said first presser-block and said support, on a plane below the under surface of said first presser-block, and means for actuating each of said pressure-blocks, whereby said mattress is caused to bulge outwardly between said presser-blocks, substantially as described.

5. In a machine of the class described, means for forcing the filling material into the edge cushion of a mattress, and for holding such material in the edge cushion under pressure, while a seam is sewed through the mattress along the inner edge of said cushion, said means comprising a suitable support, pressing means arranged to reciprocate vertically of said support, other pressing means arranged to reciprocate at an angle to the line of travel of said first-named pressing means, and suitable mechanism for reciprocating said pressing means along their respective lines of travel, substantially as described.

6. In a machine of the class described, means for forcing the filling material into an edge cushion of a mattress, and for simultaneously constricting said cushion along the inner edge thereof, and for holding the mattress in that constricted portion, said means comprising a suitable support, pressing means arranged to reciprocate vertically of said support, other pressing means arranged to reciprocate at an angle to the line of travel of said first-named pressing means, and suitable mechanism for reciprocating said pressing means along their respective lines of travel, substantially as described.

7. In a machine of the class described, the combination with a mattress-support, of means for forcing the filling material into an edge of the mattress and for constricting a portion of the mattress adjacent to, and back of, said edge, so as to form an edge cushion, said means comprising horizontally and vertically reciprocating presser-blocks, substantially as described.

CHARLES A. FISHER.

Witnesses:

F. H. DRURY,
M. E. SHIELDS.