

No. 855,235.

PATENTED MAY 28, 1907.

W. DICHMANN.
MACHINE FOR MAKING PACKING STRIPS.

APPLICATION FILED JAN. 31, 1906.

5 SHEETS—SHEET 1.

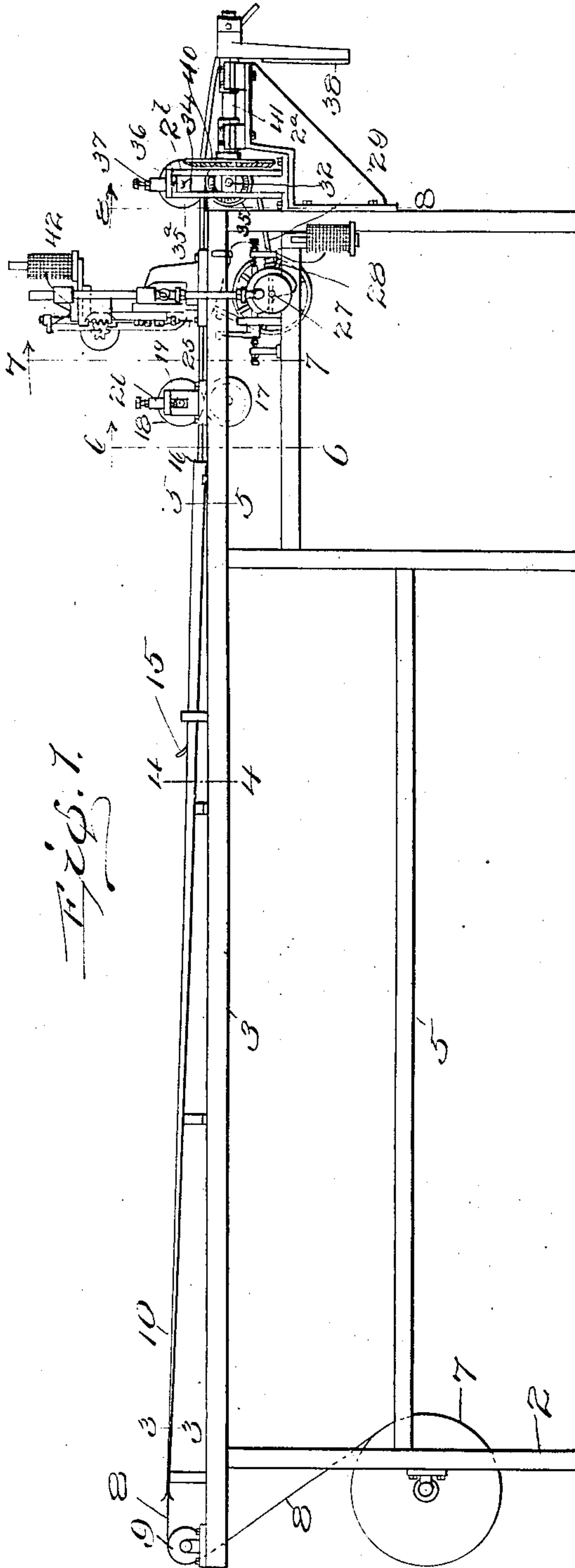


Fig. 1.

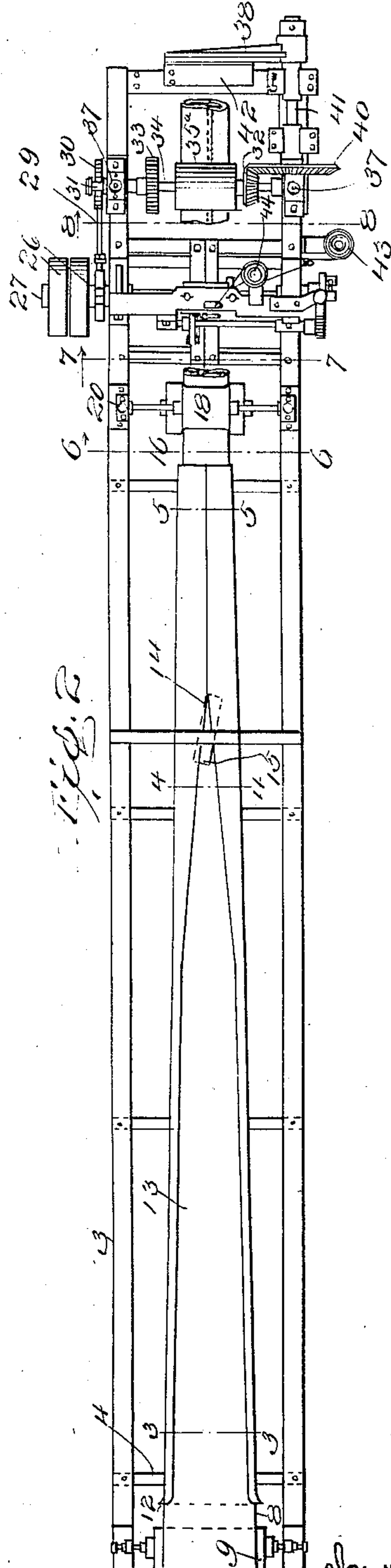


Fig. 2.

Witnesses

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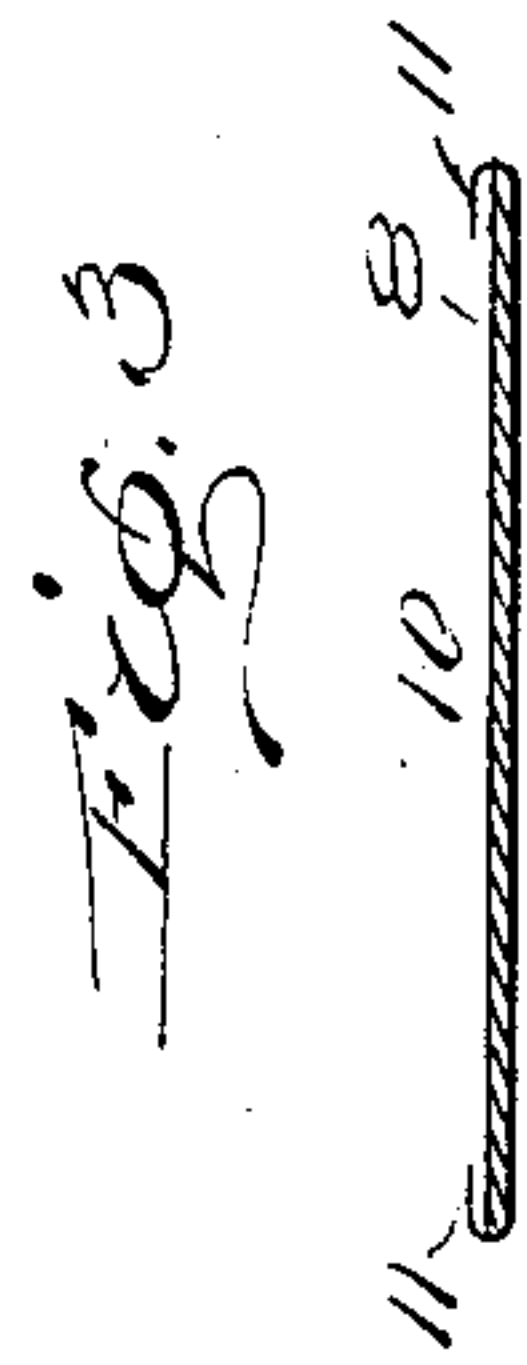
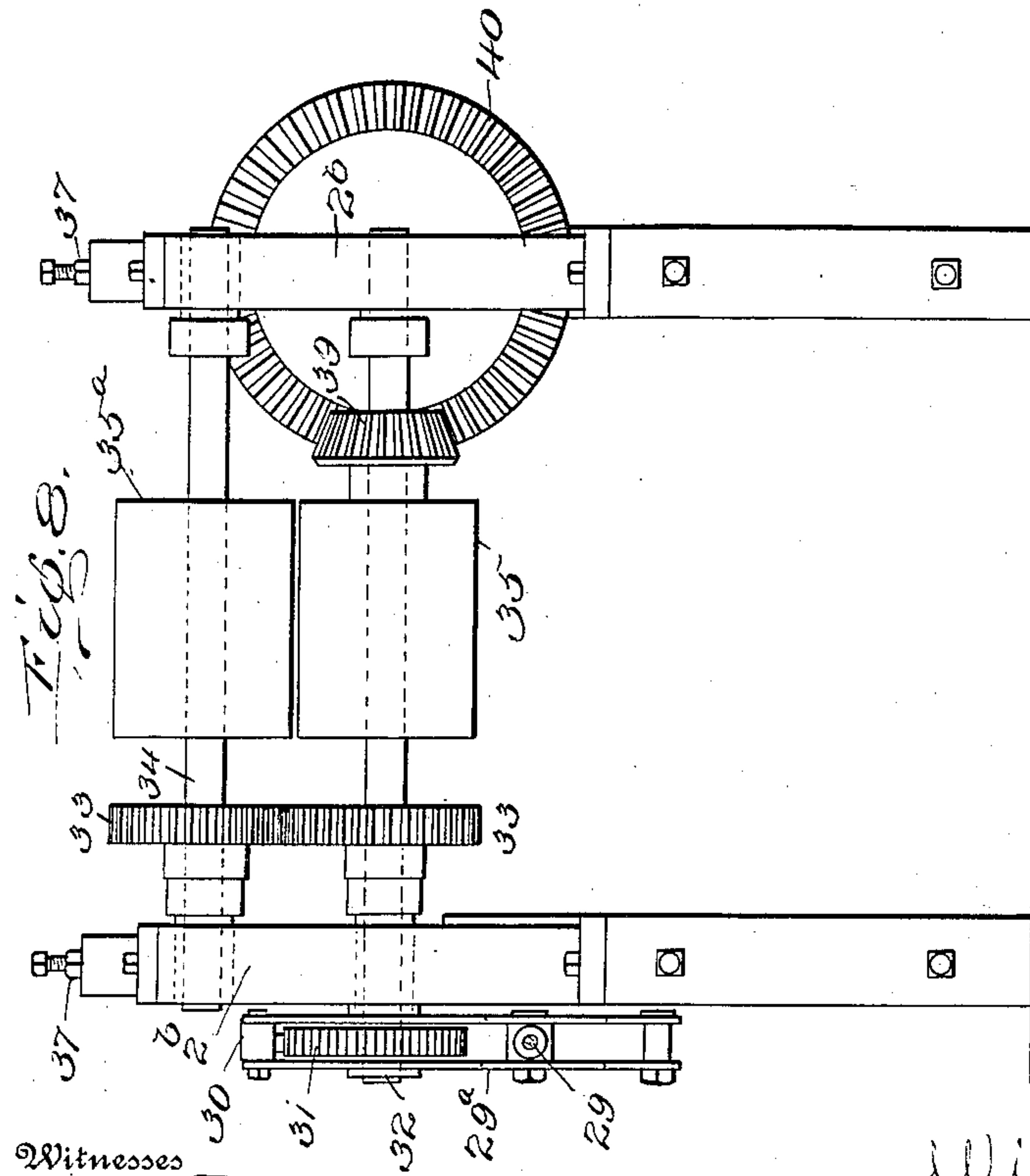
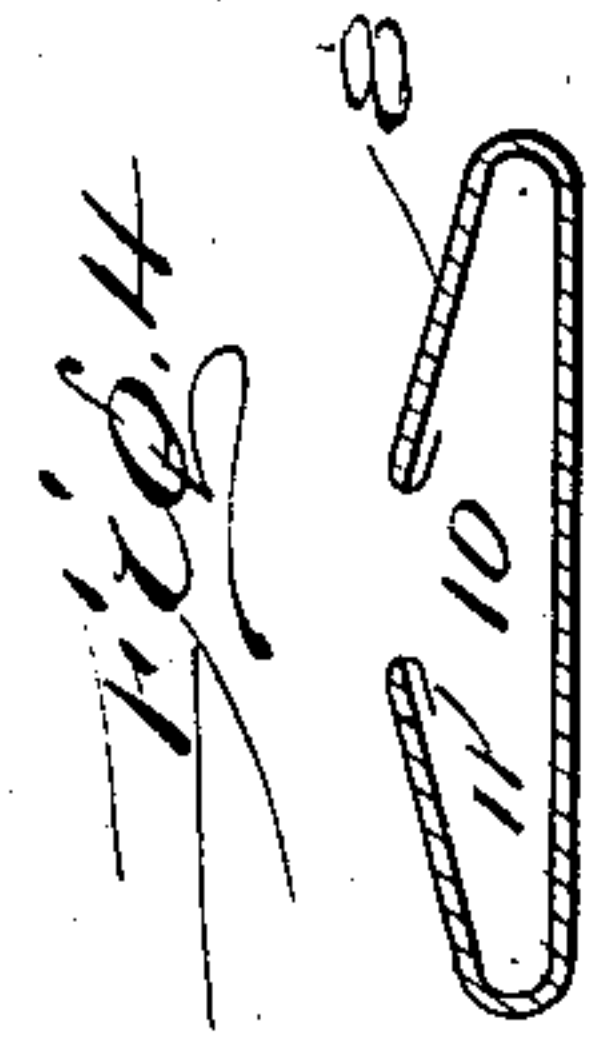
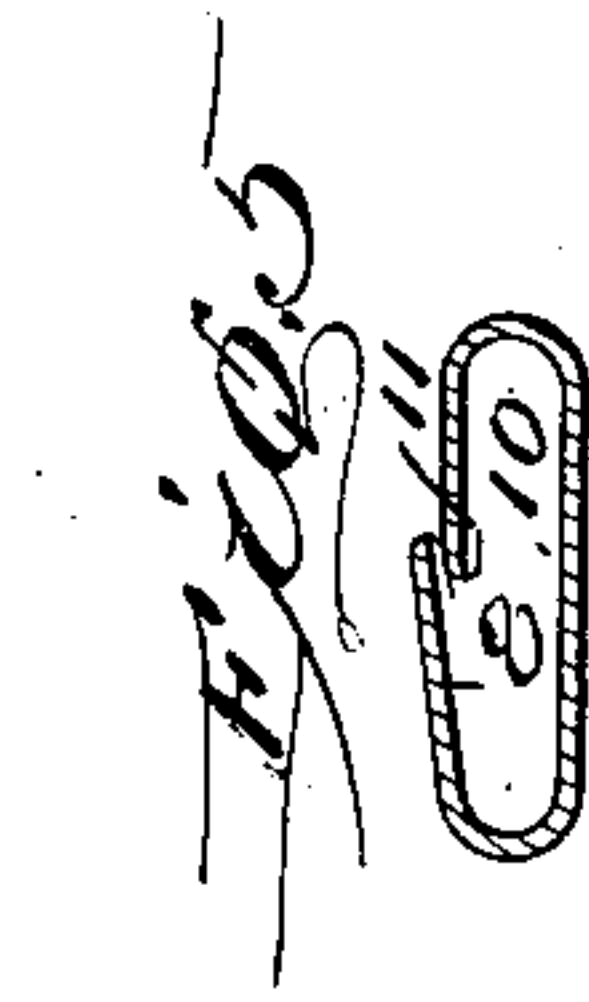
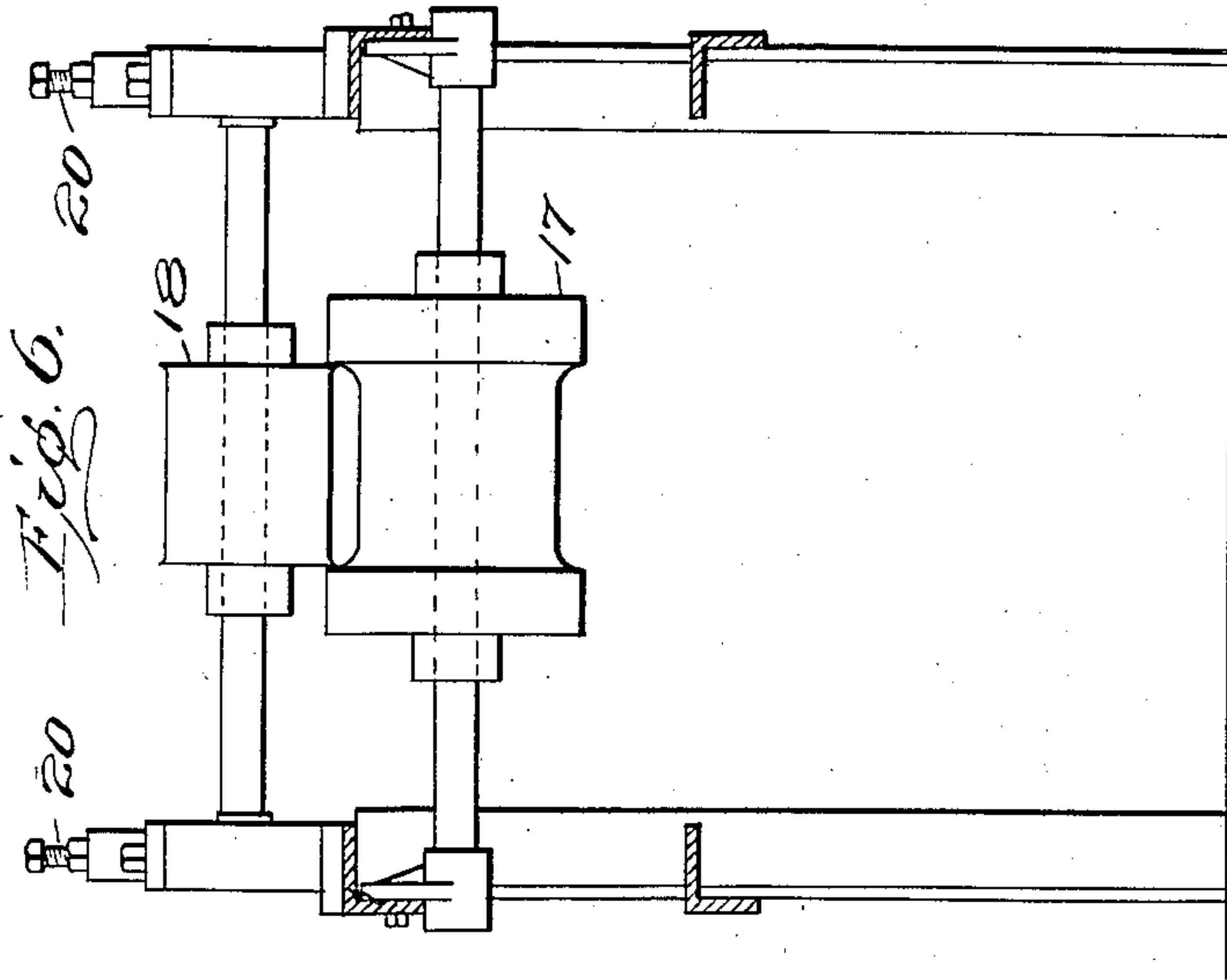
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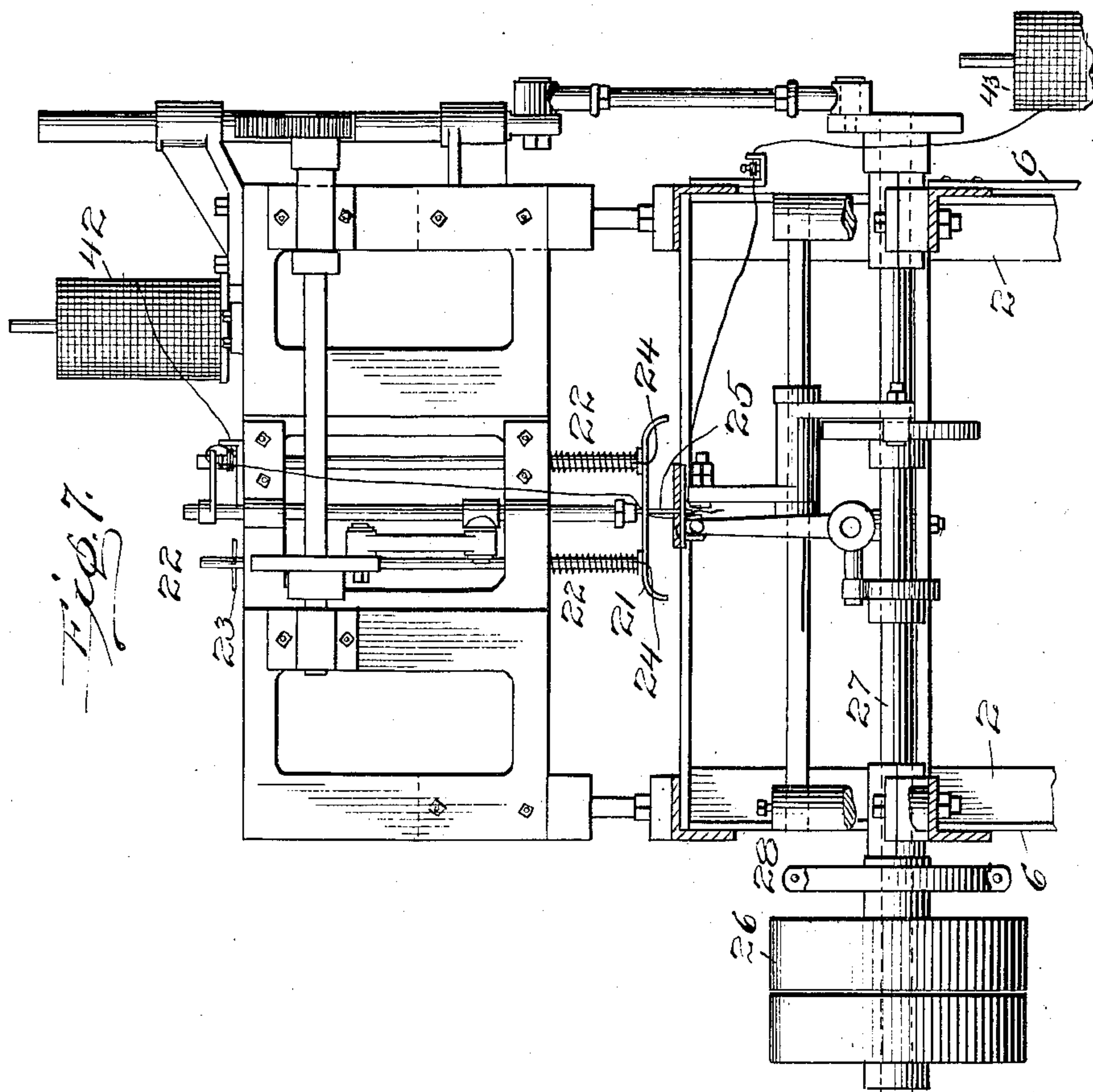
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5 SHEETS—SHEET 3.



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6 SHEETS—SHEET 4.

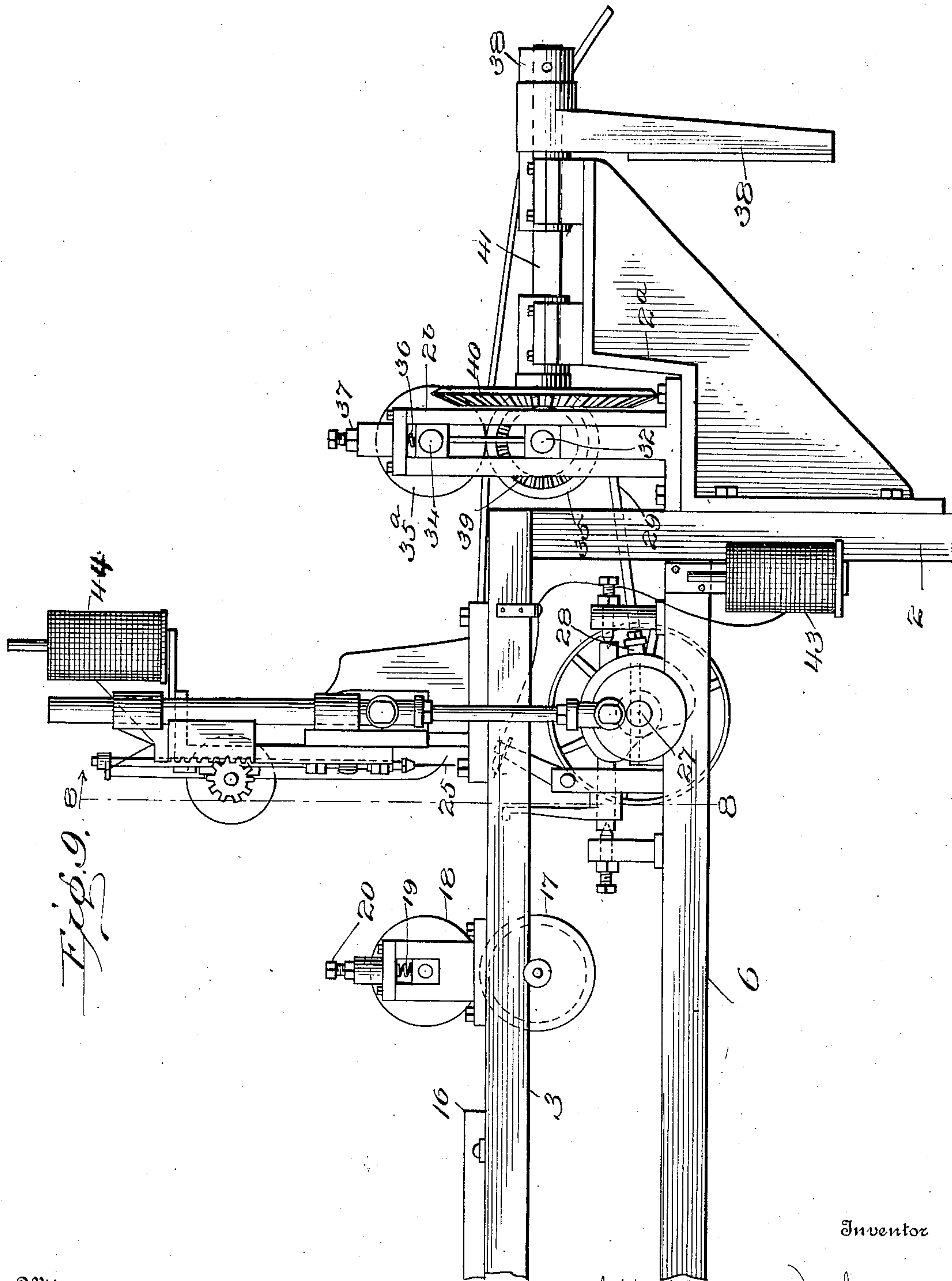


Fig. 9.

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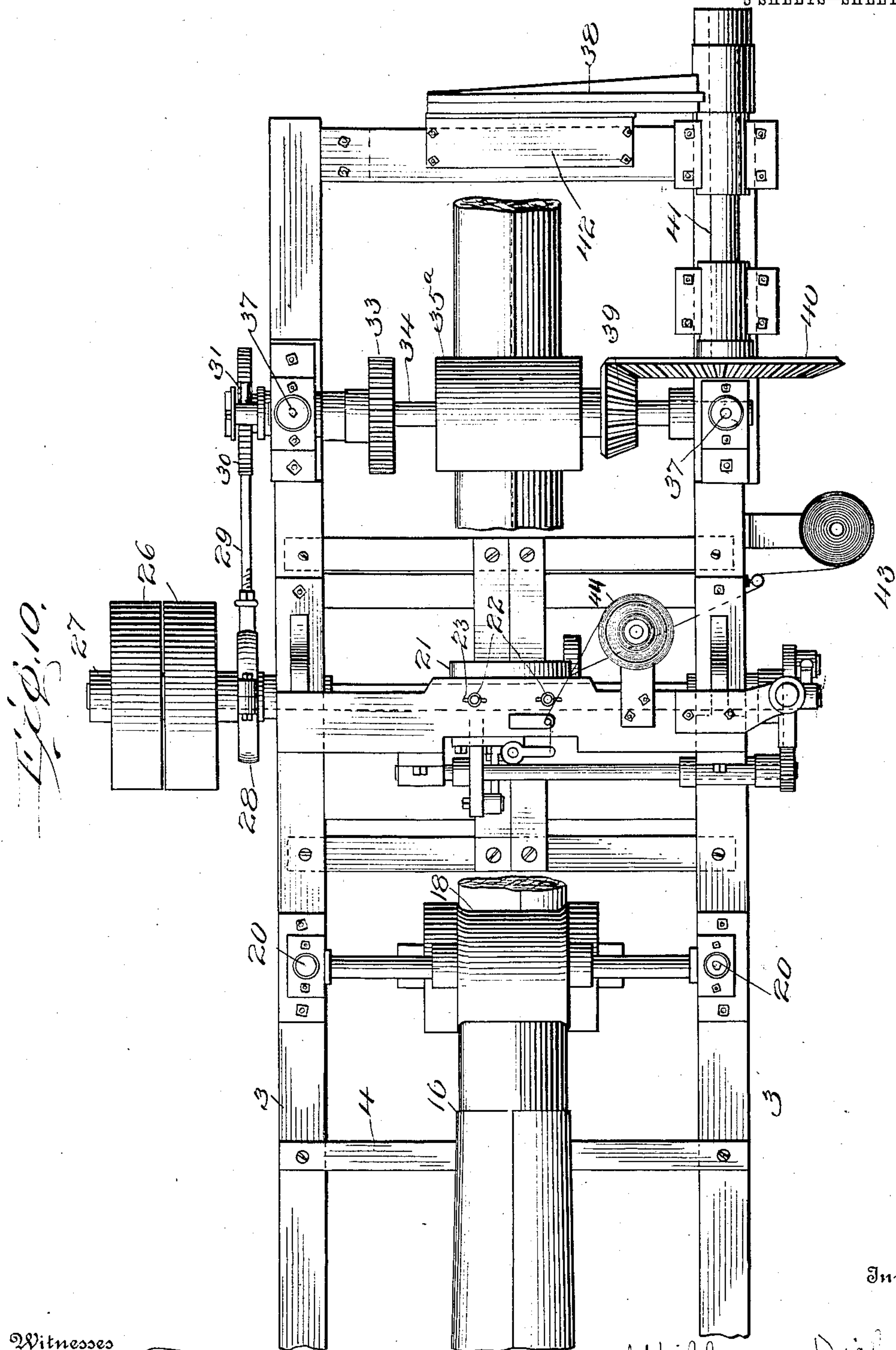
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING PACKING-STRIPS.

No. 855,235,

Specification of Letters Patent.

Patented May 28, 1907.

Application filed January 31, 1906. Serial No. 298,854.

To all whom it may concern:

Be it known that I, WILLIAM DICHMANN, a citizen of the United States, residing at Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Machines for Making Packing-Strips, of which the following is a specification.

My invention relates to improvements in machines for making packing strips such as are used in packing furniture and the like, both in crates and in boxes, the object being to provide a narrow cushion that may be interposed between any portion of the furniture and the crate, box or other confining case.

The essential features of my invention are a web of paper supplied continuously; means for forming the paper around a resilient material which is fed to the machine; means for lapping the paper to form an envelop and stitching the envelop with a confining stitch, and means for cutting the product the required length.

In the accompanying drawing Figure 1 represents a side view and Fig. 2 a plan view of my invention. Fig. 3 is a vertical section showing the shaper or former and taken on the line 3—3 of Figs. 1 and 2. Fig. 4 is a vertical section of the same on the line 4—4 and Fig. 5 is a vertical section on the line 5—5. Fig. 6 is a vertical section showing the forming rollers, as on line 6—6 of Figs. 1 and 2. Fig. 7 is a vertical section illustrating the stitching device, as on line 7—7 of Figs. 1 and 2. Fig. 8 is a detail view illustrating the drawing rollers, as on line 8—8 of Figs. 1 and 2. Fig. 9 is an enlarged detail side elevation of the sewing machine parts seen in Fig. 1. Fig. 10 is an enlarged detail top plan of the sewing machine parts seen in Fig. 2.

In my invention I preferably use a web of paper as an envelop and a filling of marsh grass, which affords the required resiliency in connection with the paper, to form the cushion.

The machine constituting my invention is provided with a suitable frame and power communicating mechanism.

Referring to the drawing by numerals, 2, 2 represent the legs of the frame.

3, 3 represent the top rails, 4, 4 the cross-pieces and 5 a brace of the frame.

6—6 are rails supporting the stitching device and driving shaft.

7 represents a roll of paper.

8 represents the web of paper which passes over the idler 9 into the forming trough 10.

In the operation of the machine, the paper strip or web is drawn through the forming trough which constitutes a shaper and which is illustrated in Figs. 3, 4 and 5 of the drawing. The forming trough 10 is supported horizontally by the cross-pieces 4, 4, etc. and is inclined gradually toward the stitching device. The edges of the trough are rolled over downwardly to form ways 11, 11 at each side which extend the entire length of the former. The ways 11, 11 constitute guiding recesses which receive the edges of the paper. The front end of the former is belled at 12, 12 so as to readily admit the web of paper as it is drawn along. From the front end toward the stitching device the former is open at the top and has a similarity of lines to the point 13 and then gradually converges toward the stitching device, becoming closed at the point 14. The filling material is fed by the operator into the former between the positions 12 and 13 and is drawn along, gradually converging, toward the stitching device until the web of paper becomes lapped to form the envelop prior to stitching, as shown in Fig. 5. As the strip is drawn along, gradually converging, the edges of the paper draw against the inside surfaces of the ways 11, 11 and the stiffness of the paper assists in gradually rolling the confining material around the filling. The length of the former or shaper may be accommodated to the stiffness of the paper and the density of the filling.

15 represents an upwardly curved tongue attached to the top of the former at the point of closing for the purpose of guiding the filling material properly into the closed portion of the former.

16 represents the rear end of the former.

17 and 18 represent forming and guiding rollers between which the filled envelop is drawn toward the stitching device, the object of the rollers being to retain the web of paper with the inclosed filling in proper relation for stitching, the edges of the envelop being lapped. The lower roller, 17, is journaled to the frame and is provided with a central depression in which the upper roller is permitted to travel. The upper roller operates as a confining roller by means of the tension springs 19, 19, which are adjustable preferably by means of the set and lock screws 20, 20.

21 represents a spring-actuated upper

guide for the filled envelop, as it is drawn to the stitching mechanism. The guide 21 is a horizontally arranged plate curved downwardly at the side and supported by the sliding pins 22, 22, which pass upwardly through eyes in the frame and are limited in their vertical movement downward by the pins 23, 23.

The pressure springs 24, serve to press the guide 21 downwardly upon the filled envelop so that it may be properly passed between and stitched by the stitching mechanism.

The needle 25 of the stitching mechanism passes through a slot in the guide plate 21 and is adapted to pass the looped thread downwardly through the lapped edges of the envelop and through the filling material and the bottom of the web to the looper of the stitching mechanism. The stitching mechanism has heretofore been shown in my Patent 834,369, dated Nov. 6, 1906.

2^a, 2^a represent brackets which are attached to the legs of the frame 2—2 at the rear of the machine.

2^b—2^b are standards mounted thereon and form a support for the drawing rollers and the forming mechanism hereinafter described.

The power is applied to the fast and loose pulley 26 which operates the driving shaft 27, journaled to the rails 6—6, rigidly mounted on the driving shaft 27 is the eccentric 28, which, by means of the pitman 29, reciprocates the rocking lever 29^a to operate the pawl 30 upon the ratchet 31. The ratchet 31 is rigidly mounted upon the outer end of the shaft 32, which is journaled in the standards 2^b—2^b. The upper shaft 34 is also journaled in the standards 2^b—2^b. By means of the spur-gears 33—33, the draw rollers 35—35^a are revolved toward each other. The upper draw roller 35^a is spring-actuated and operates as a tension to draw the web along. The tension is provided by means of the springs 36—36 on each side, which are controlled by ordinary set screws and lock nuts 37—37.

It will be understood that the operation of the ratchet 31 provides an intermittent draw of the filled envelop relative to the stitch.

Power is communicated to the cutting-knife 38 by means of the bevel-gear 39 impinging upon the bevel-gear 40 which operates the shaft 41. The cutting-knife 38 is mounted upon the shaft 41 and is operated in a rotary manner thereby. The action of the cutting device is also intermittent. The rotary cutting-knife operates against the knife-plate 42 to effect a shear-cut of the finished product.

In the operation of the machine, the operator may stand at either side of the forming trough. The grass or other fibrous material is spread upon the open section of the web confined within the forming trough. The draw which furnishes the feed to the

machine is located to the rear of the stitching mechanism. The filling material may be of straw, grass, hay, excelsior or other fibrous and resilient material. The operator distributes this material sparsely upon the web of paper in the forming trough, accommodating the distribution of the filling material relatively to the thickness of the packing, the stiffness of the paper or other confining material, and the length of the former or shaper. It is important that there should be a conformity of these members relative to each other and the expert knowledge of the operator will readily conform to these different features and the filling material can be easily and properly fed in conformity. It is essential that the former shall present the edges of the envelop in a lapped condition, to the stitching mechanism so that the seam or plurality of stitches shall pass through and confine the lower side and upper lapped edges of the envelop. The bobbins of twine or thread for the stitching device are shown at 43 and 44. The tension of the stitch may be so regulated that the center of the packing strip will be more drawn together than the edges, thus obviating any danger of the twine, thread or other material used in the stitch from scratching or defacing the furniture or other article in conjunction with which the packing strip may be used. It will also be understood that the seam or plurality of stitches through the center of the packing strip, in addition to confining the filling to the web surrounding it, will also prevent any sliding or shifting of the filling within the confining material.

What I claim is:—

1. In a device of the class described, an envelop former, a stitching mechanism, forming rolls, intermittently rotated rolls under yielding tension and arranged to draw the formed envelop through the stitching mechanism and forming rolls.

2. In a device of the class described, an envelop former, a stitching mechanism, forming rolls disposed between the envelop former and the stitching mechanism, a cut-off mechanism, and drawing rolls operated with a step by step movement positioned between the stitching mechanism and cut-off and arranged to draw the formed envelop through the stitching mechanism and feed it to the cut-off.

3. In a device of the class described, an envelop former, a stitching mechanism, rolls disposed between the envelop former and the stitching mechanism and provided with envelop forming depressions in their peripheries, and means to draw the formed envelop through the rolls and the stitching mechanism.

4. In a device of the class described, an envelop former, a stitching mechanism, rolls disposed between the stitching mechanism

and the former, and provided with forming depressions in their peripheries, a cut-off mechanism, and intermittently operated rolls disposed between the stitching mechanism and the cut-off and arranged to draw the formed envelop through the forming rolls and the stitching mechanism and feed it to the cut-off.

5. In a machine of the class described, a tapered envelop former, an upturned filling guide carried by the former a stitching mechanism disposed adjacent the small end of the former, and means to draw the formed envelop through the former and stitching mechanism.

6. In a machine of the class described, a tapered envelop former, a stitching mechanism disposed adjacent the small end of the former, rolls positioned between the stitching mechanism, and the former and provided with forming depressions in their peripheries, and means to draw the formed envelop through the former, forming rolls and stitching mechanism.

7. In a machine of the class described, a tapered envelop former, a stitching mechanism disposed adjacent the small end of the former, rolls positioned between the stitching mechanism and the former, and provided with forming depressions in their peripheries, a cut-off mechanism, and intermittently operated feeding means disposed between the stitching mechanism and the cut-off.

8. In a machine of the class described, a tapered envelop former having inturned longitudinal edges, an upturned filling guide carried by one of the edges a stitching mechanism disposed adjacent the small end of the former, and means to draw the formed envelop through the former, and stitching mechanism.

9. In a machine of the class described, a tapered envelop former having inturned longitudinal edges, a stitching mechanism, rolls positioned between the stitching mechanism and the small end of the former and having forming depressions in their peripheries corresponding to and registering with the small end of the envelop former, and means to draw the formed envelop through the former, rolls and stitching mechanism.

10. In a machine of the class described, a tapered envelop former having inturned longitudinal edges, a stitching mechanism adjacent the small end of the former, a cut-off mechanism, and an intermittently operated feeding means disposed between the cut-off and the stitching mechanism.

11. In a machine of the class described, a

tapered envelop former having inturned longitudinal edges, a stitching mechanism disposed adjacent the small end of the former, rolls positioned between the stitching mechanism and the former and having depressions in their peripheries corresponding to and registering with the small end of the former, a cut-off mechanism, and intermittently rotated feeding rolls positioned between the cut-off and the stitching mechanism.

12. In a mechanism of the class described, a tapered envelop former having inturned longitudinal edges gradually approaching each other and overlapping, a curved filling guide carried by one of the overlapping edges a stitching mechanism disposed adjacent the small end of the former, and means to draw the formed envelop through the former and stitching mechanism.

13. In a machine of the class described, a tapered envelop former having inturned longitudinal edges gradually approaching each other and overlapping, a stitching mechanism, rolls positioned between the stitching mechanism and the small end of the former and having depressions in their peripheries corresponding to and registering with the small end of the former, and means to draw the formed envelop through the former, the rolls and the stitching mechanism.

14. In a machine of the class described, an envelop former having converging sides, a stitching mechanism positioned adjacent the small end of the former, rolls positioned between the stitching mechanism and the former, and provided with envelop engaging recesses formed in their peripheries, a rotary cut-off, and intermittently rotated feed rolls positioned between the cut-off and the stitching mechanism.

15. In a machine of the class described, an envelop former having gradually converging and overlapping sides, a stitching mechanism disposed adjacent the small end of the former, forming rolls positioned between the stitching mechanism and the former and provided with envelop engaging peripheral recesses, a rotating cutting knife, and feeding rolls positioned between the cutting knife and the stitching mechanism and means to intermittently move the feeding rolls and cutting knife.

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

WILLIAM DICHMANN.

Witnesses:

W. H. WYMAN,

A. R. WATERHOUSE.