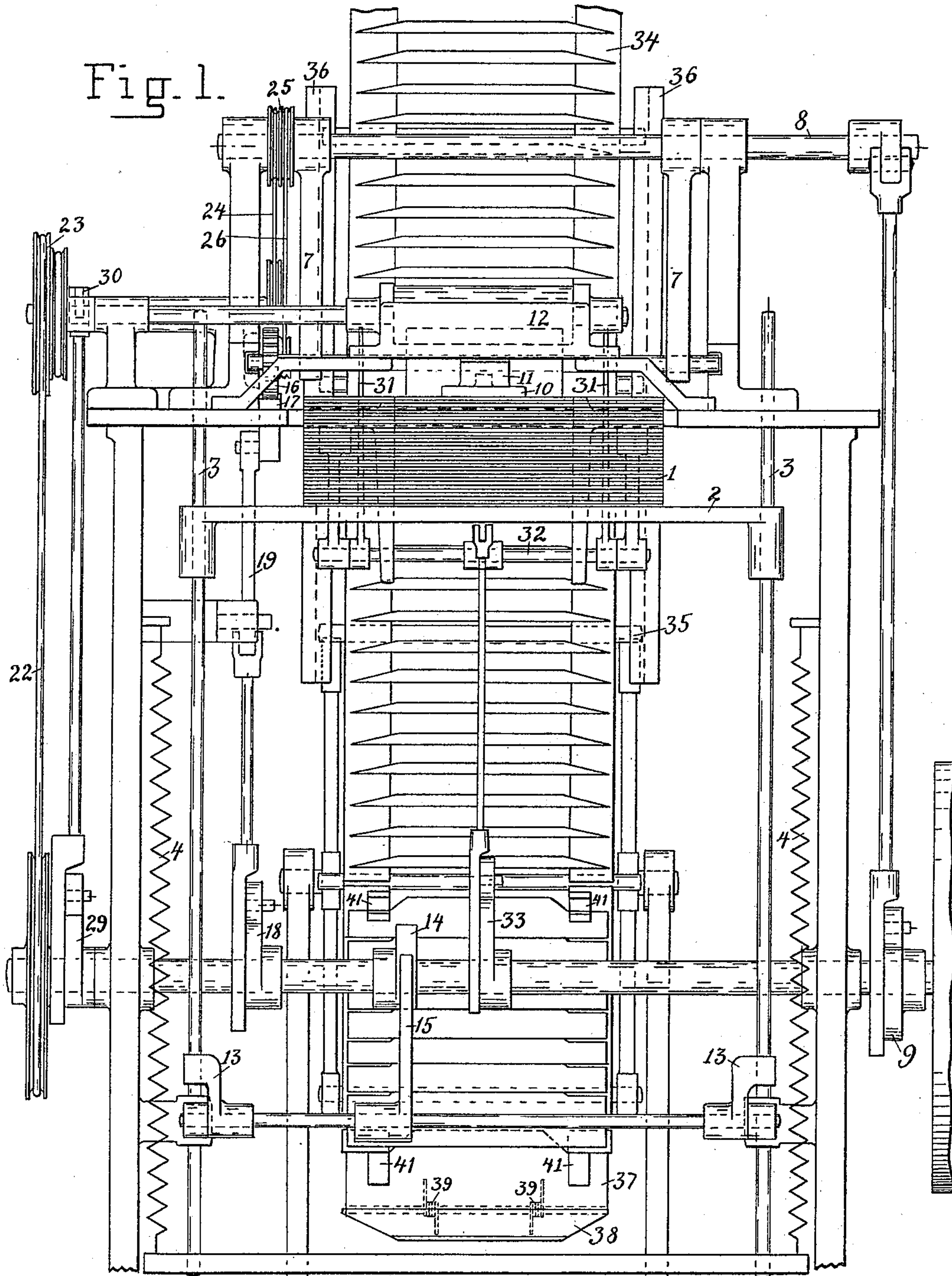


E. RAU.
MACHINE FOR GUMMING ENVELOPE BLANKS.

No. 439,039.

Patented Oct. 21, 1890.



Witnesses=
Jno. H. Bennett
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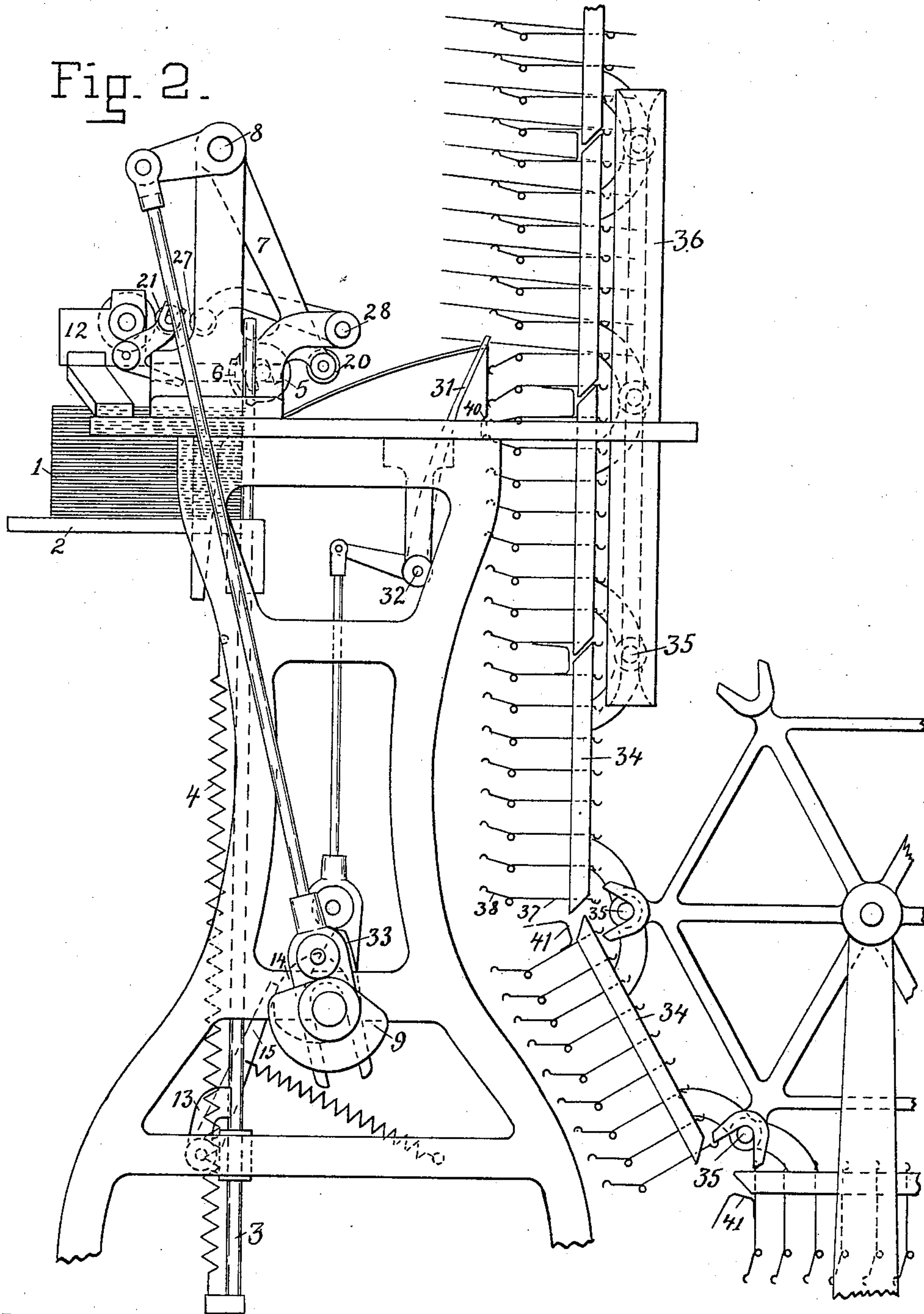
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Fig. 2.



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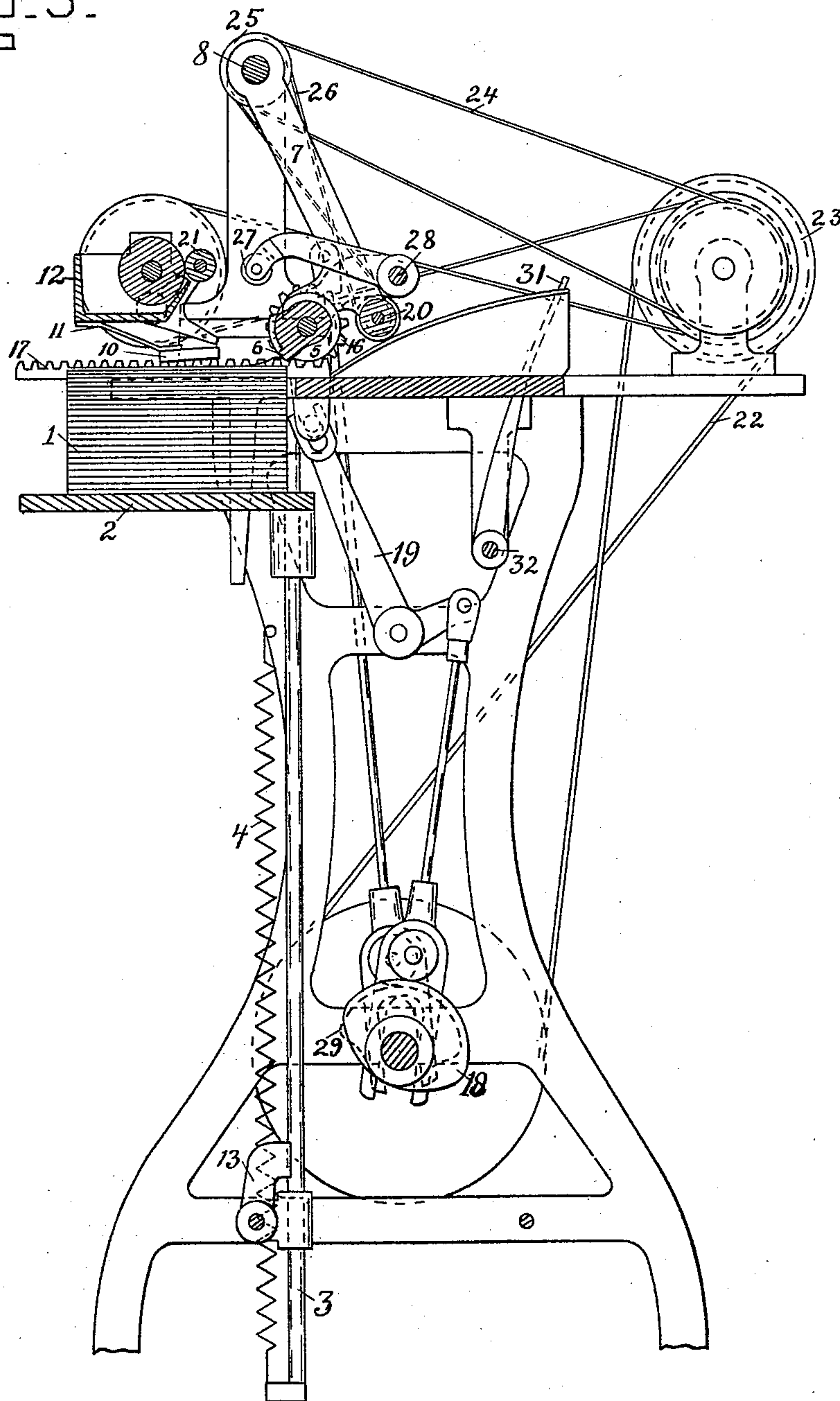
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Fig. 3.



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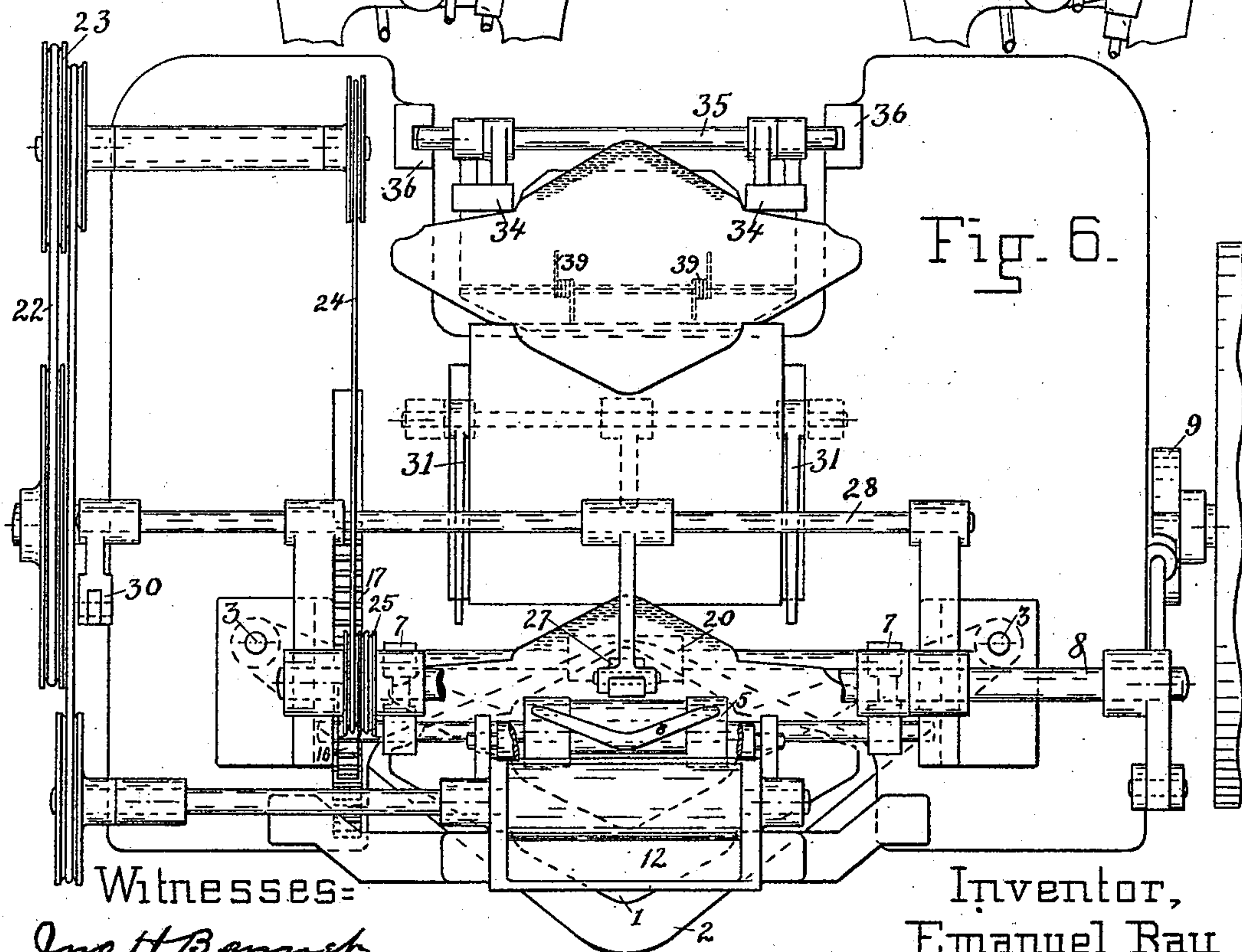
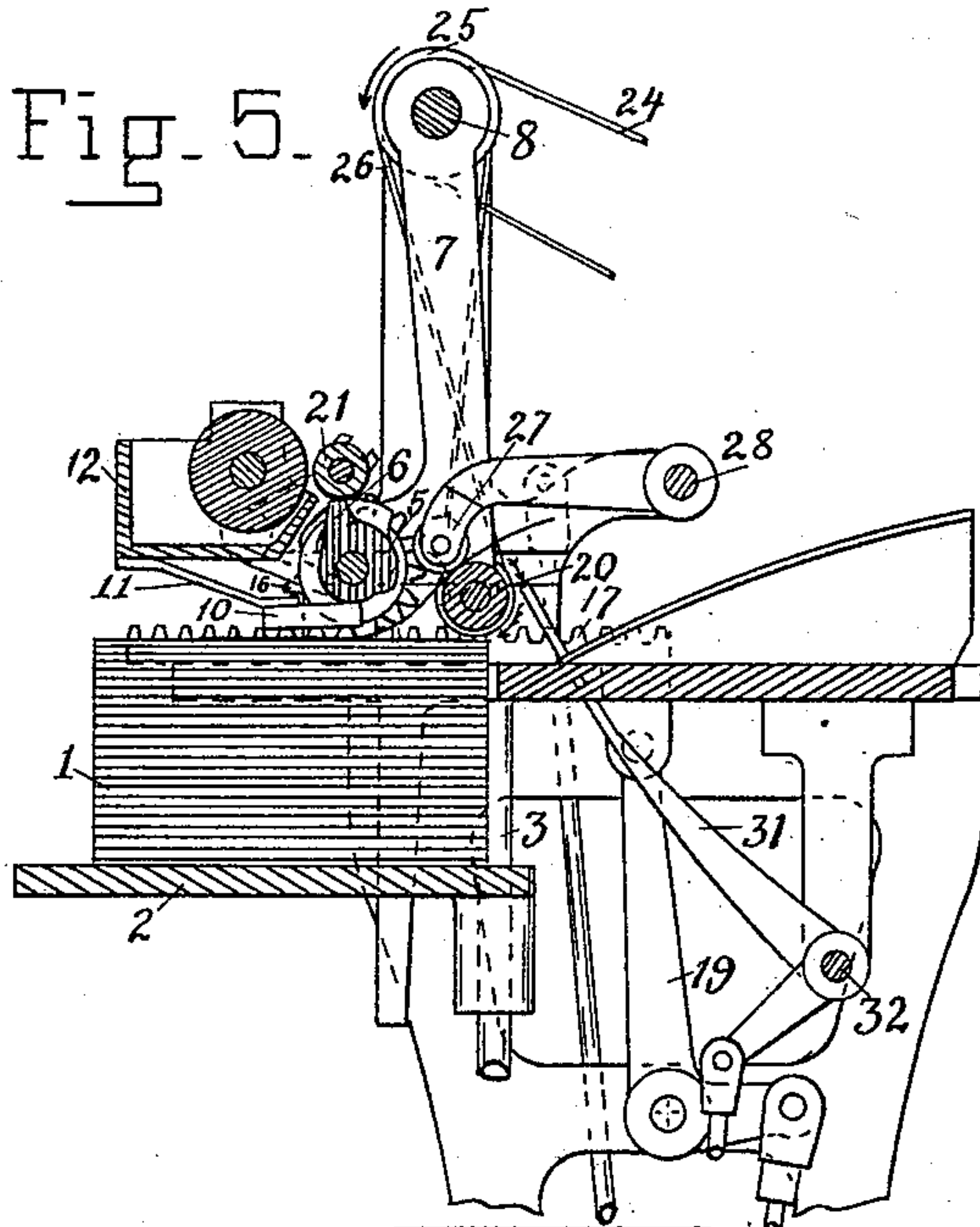
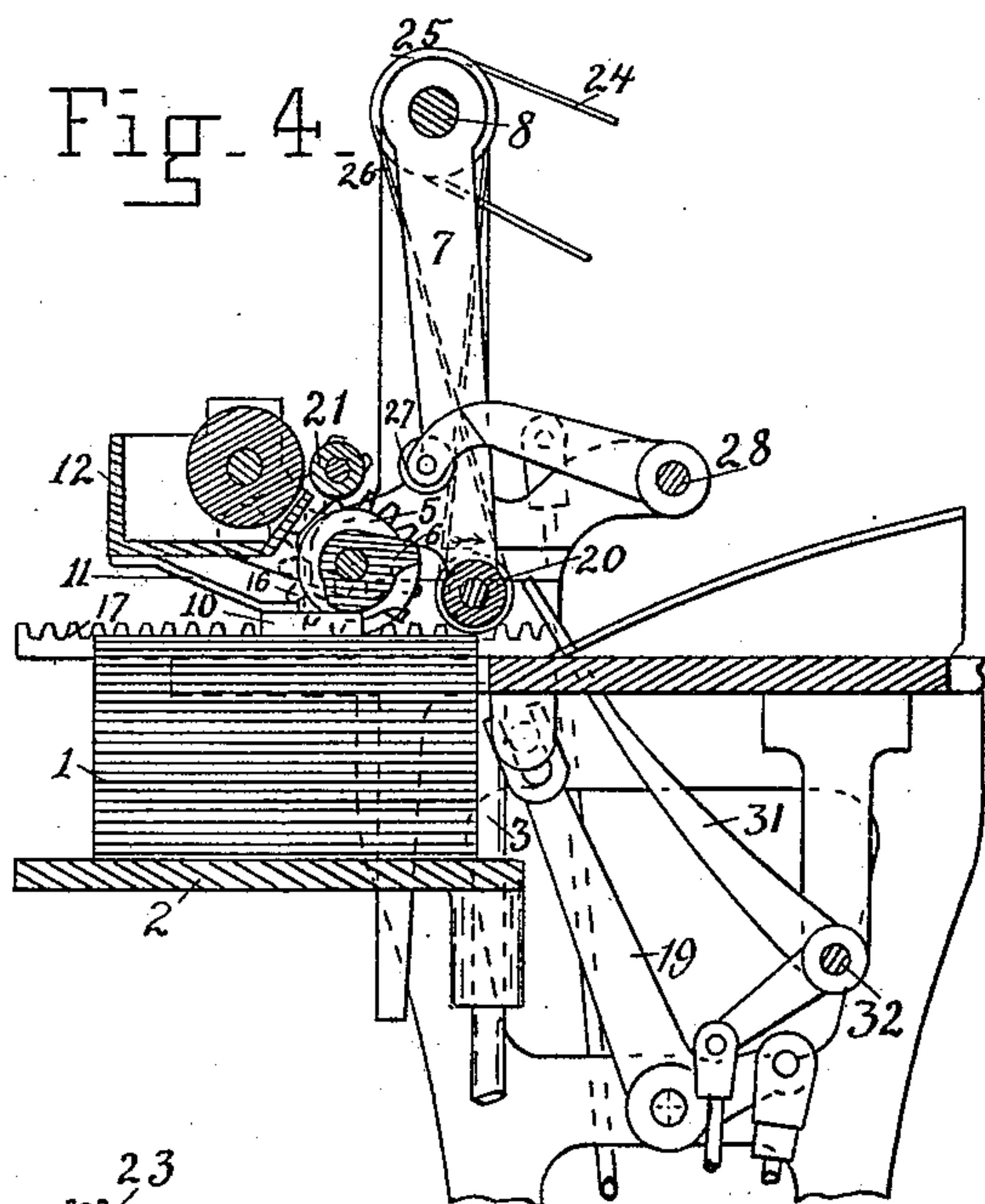
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UNITED STATES PATENT OFFICE.

EMANUEL RAU, OF BROOKLYN, ASSIGNOR TO THE EMANUEL RAU MANUFACTURING COMPANY, OF NEW YORK, N. Y.

MACHINE FOR GUMMING ENVELOPE-BLANKS.

SPECIFICATION forming part of Letters Patent No. 439,039, dated October 21, 1890.

Application filed May 8, 1890. Serial No. 351,099. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL RAU, a citizen of the United States, residing at Brooklyn, State of New York, have invented certain
5 new and useful Improvements in Machines for Gumming Envelope-Blanks, of which the following is a specification.

In the accompanying drawings these improvements are shown applied to a machine
10 whose function in the process of envelope manufacture is to take the envelope-blanks after they have been cut from the sheet and gum and dry the edge which is to become the seal-flap before passing the blanks to the en-
15 velope-machine, which gums the remaining edges, folds, and form them into envelopes. In my machine the elements of novelty relate to the means employed for detaching the envelope-blanks from the gumming-roll, to the
20 means employed for removing them from the position in which they are gummed, and in the construction of the leaves of the drying-chain, all as hereinafter described and claimed.

In the accompanying four sheets of drawings, Figure 1 represents a front view of the machine embodying my improvements. Fig. 2 is a side view drawn with especial reference to the exhibiting of such mechanism as lies to the right of the center in Fig. 1. Fig. 3 is
30 a section through the center of the machine, showing the mechanism on the left side of Fig. 1. Figs. 4 and 5 are views of a portion of the mechanism shown in the preceding figure, and are intended to illustrate the successive positions taken by the mechanism during the operation of the machine. Fig. 6
35 is a top view of the machine with the parts in the same relative positions as in Fig. 5.

Mechanism for applying gum to the blanks.—
40 The pile of envelope-blanks 1 rests on a platform 2, carried by vertical rods 3 3, which slide in guides and are drawn upward by springs 4 4. The gum is applied to the seal-flap of the top blank of this pile by means of
45 a gumming-roll 5. A raised surface 6 on this roll has an outline corresponding to that of the surface to be gummed. Arms 7 7, attached to the rock-shaft 8, are swung back and forth by the action of the cam 9 through the con-
50 necting mechanism. The ends of the shaft

through the gumming-roll slide in horizontal grooves in the sides of the uprights carrying the rock-shaft. Mounted above the pile of blanks is a presser-foot 10, which may be supported from the frame-work of the machine
55 in any convenient way that will restrain it from moving horizontally, while permitting it to have a slight vertical motion. This I have conveniently done by attaching it to a flat spring 11, the other end of which is made fast
60 to the underside of the gum-box 12. When the arms carry the gumming-roll over the pile of envelope-blanks to the position shown in Fig. 4, this gumming-roll rests on the top of the presser-foot and causes it to clamp the pile of
65 blanks, so that the further rotation of the gumming-roll, to which the top blank is adhering, will not draw this blank farther off from the pile; but since the blank is held the
70 raised surface 6 will now draw off from the gummed edge of the blank and detach the latter. When the presser-foot is against the top of the pile of blanks, the platform supporting them is prevented from descending and relieving the pressure, because clamps 13
75 13 rest against the rods 3 3, which carry this platform. When the gummed surface of the gumming-roll is turned down against the blanks, the cam 14, acting on the lever 15, which is fast to the rock-shaft carrying the
80 clamps, unclamps the rods 3 3 and permits the springs 4 4 to feed the pile of blanks upward against the gumming-roll. On the shaft with the gumming-roll is a gear 16. This gear meshes in a rack 17, so that a positive rolling
85 action will be insured to the gumming-roll in contact with the blank when the former is traversed across the latter by the swinging of the arms 7 7. Means are also provided for rotating the gumming-roll when these arms
90 are at rest. This is effected by sliding the rack by means of the cam 18, acting through the bent lever 19.

Order of the operations in the gumming of the blanks.—The gum is applied to the blank
95 during the movement of the arms away from the gum-box. Figs. 2 and 3 therefore show the mechanism in the position occupied after the gum has been applied to the top blank of the pile, and with the point of the blank, Fig. 100

3, which last receives the gum adhering to the gumming-roll. When the arms return, the gumming-roll rolls again over the surface already gummed, and in so doing picks up the gummed edge of the blank, so that it becomes wrapped on the roll, as shown in Fig. 4. While the arms are resting in the position shown in this figure the gumming-roll is made to continue its revolution by the movement of the rack 17. Since the roll in the first part of this revolution rests on the presser-foot and clamps the blank, the gummed surface of the roll will pull off from the gummed edge of the blank, and this edge on being released will fall on the top of the feed-roll 20. The continued revolution of the gumming-roll will carry its raised surface against the distributing-roll 21 for a fresh coat of gum and turn the portion bearing against the presser-foot so that its pressure against the blanks will be relieved, as shown in Fig. 5. The distributing-roll 21 is mounted on arms hinged to the gum-box. These arms have projections against which the shaft of the gumming-roll strikes when this latter roll is in the position shown in Fig. 5, thus rocking the distributing-roll away from the gum-box roll and bringing it in contact with the gumming-roll. When the gumming-roll is rocked away, the arms are free to return the distributing-roll to the gum-box roll.

Mechanism for removing the gummed blank.—The feed-roll 20, on which the blank rests after receiving the coating of gum, is carried by the arms 7 7 and is revolved in the direction of the arrow, the power being derived from the cam-shaft and transmitted through the belts and pulleys 22, 23, 24, 25, and 26. Above this feed-roll is an idle-roll 27, mounted on an arm fast to the rock-shaft 28. This rock-shaft is turned by the cam 29, acting through its cam-roll and connections to the lever 30, so that the idle-roll will be lifted away from and let rest against the feed-roll, as required. Pushing-fingers 31 31 are provided to carry the blank after it has left the feed-roll. These are mounted on the rock-shaft 32 and moved by the cam 33.

Order of operations in removing the gummed blank.—After the completion of the operations which take place in gumming the blank, as described above, it rests on the top of the revolving feed-roll, and the presser-foot has released its pressure on the pile of blanks. The idle-roll is now brought down on the upper side of the gummed blank, inside of the gummed edge, where it will not become gummed, and clamps the blank against the feed-roll. This latter, in revolving, exerts a traction on the blank that removes it from under the gumming-roll. It will be evident on noting the shape of the edge of the blank last leaving these rolls that when this edge is just passing out from between them at the center it will be out at the sides sufficiently for the pushing-fingers to

rock up behind. The pushing-fingers next rock up behind the blank and transfer it between the leaves of the drying-chain.

Construction of the drying-chain.—The links 34 of the drying-chain are hinged together on rods 35. The ends of these rods project so as to enter grooves in guide-pieces 36 36 on the machine, whereby the drying-chain is steadied where the blanks are inserted. Leaves 37 are carried by the links of the chain and serve to carry the gummed blanks while the gum is drying. These leaves have flaps 38 hinged to their front edges and are normally deflected at a slight angle by springs 39 39. As the chain is carried upward past the table of the machine to receive the successive gummed blanks on its successive leaves, a fixed cam 40 deflects the flaps in the opposite direction to which the springs keep them, so that a much wider space than the distance between the leaves is afforded for the entrance of the blanks as they are fed to the chain by the pushing-fingers. Spring guard-strips 41 are placed between the leaves attached to contiguous links of the chain and serve to prevent the edges of the blanks from entering the joints between the links.

I claim as new and desire to secure by Letters Patent—

1. A vertically-adjustable platform for supporting a pile of envelope-blanks and means, substantially as described, for clamping this platform at the desired height, in combination with a presser-foot mounted above the pile of blanks, a gumming-roll, mechanism, substantially as described, for vibrating this gumming-roll across the top blank of said pile with a rolling action thereon and against said presser-foot, mechanism, substantially as described, for turning this roll when it is not being vibrated, and a frame-work for the support of the above-mentioned elements, substantially as and for the purpose set forth.

2. In a machine for gumming envelope-blanks, a feed-roll positioned where the blank can fall upon it after receiving its coating of gum, in combination with an arm carrying an idle-roll above said blank and feed-roll, mechanism, substantially as described, for swinging said arm so as to bring said idle-roll against said feed-roll to clamp said blank between said rolls, mechanism, substantially as described, for rotating this feed-roll, a gumming-roll, mechanism, substantially as described, for vibrating this gumming-roll across the top of a pile of envelope-blanks, and a frame-work for the support of the above-mentioned elements, substantially as and for the purpose set forth.

3. In a machine for gumming envelope-blanks, a feed-roll positioned where the blank can fall upon it after receiving its coating of gum and an arm carrying an idle-roll above said blank and feed-roll, in combination with pushing-fingers adapted to be rocked up between the feed-roll and the blank when fed

therefrom, mechanism, substantially as described, for swinging said arm so as to bring said idle-roll against said feed-roll and clamp said blank between said rolls, mechanism, substantially as described, for rotating this feed-roll and moving said pushing-fingers, and a frame-work supporting said elements, substantially as and for the purpose set forth.

4. In a machine for gumming envelope-blanks, a drying-chain having leaves for carrying said blanks, flaps hinged to the front edges of said leaves, springs between said flaps and leaves, and a fixed cam for deflecting

said flaps, combined substantially as and for the purpose set forth.

5. In a machine for gumming envelope-blanks, a drying-chain having leaves for carrying said blanks, in combination with spring guard-strips between the leaves, attached to contiguous links of the chain, substantially as and for the purpose set forth.

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Witnesses:

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