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PATENTED NOV. 6, 1906.

J. E. BROAD.
MACHINE FOR STAMPING AND SEALING ENVELOPS.

APPLICATION FILED AUG. 12, 1905.

4 SHEETS—SHEET 1.

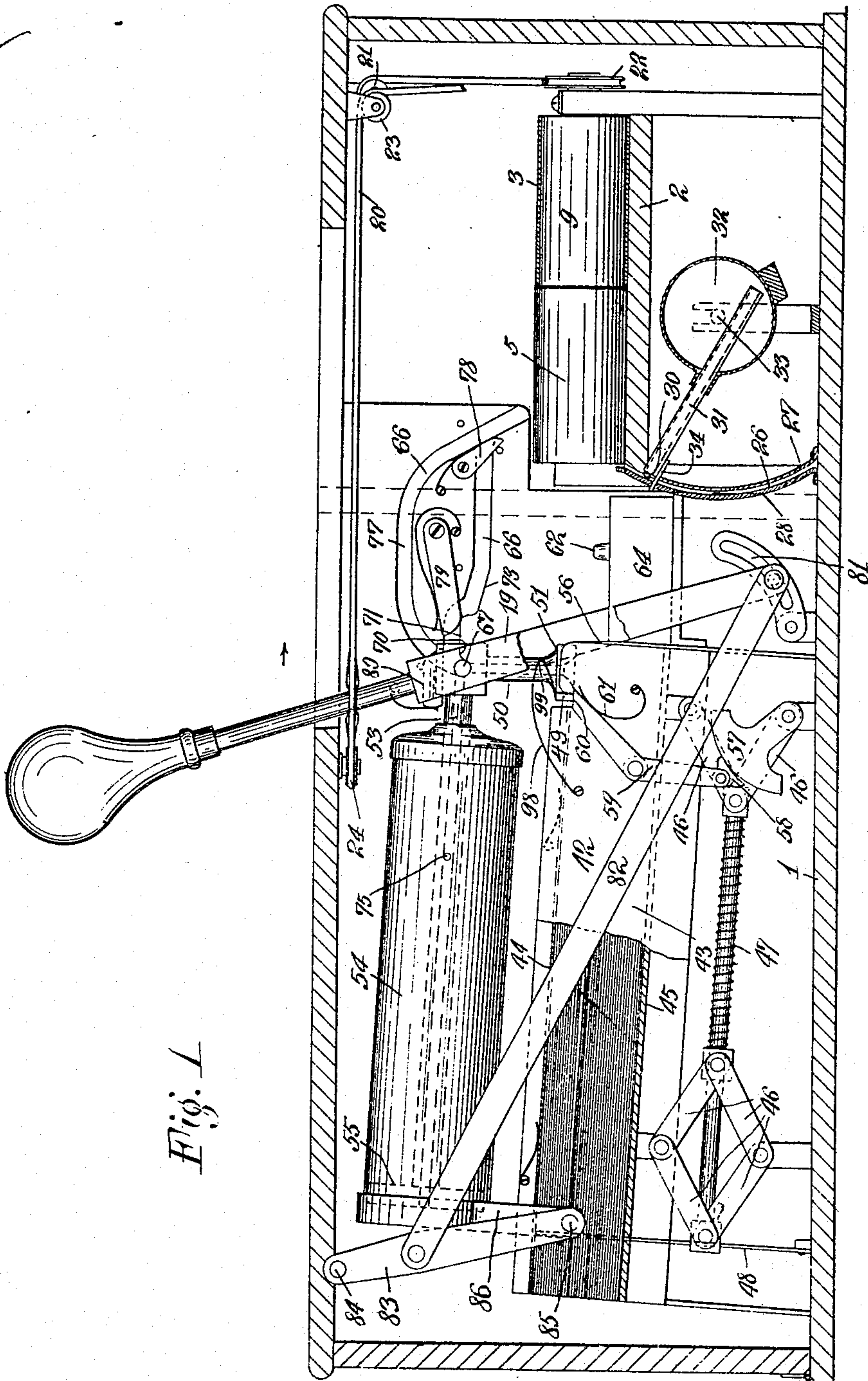


Fig. 1

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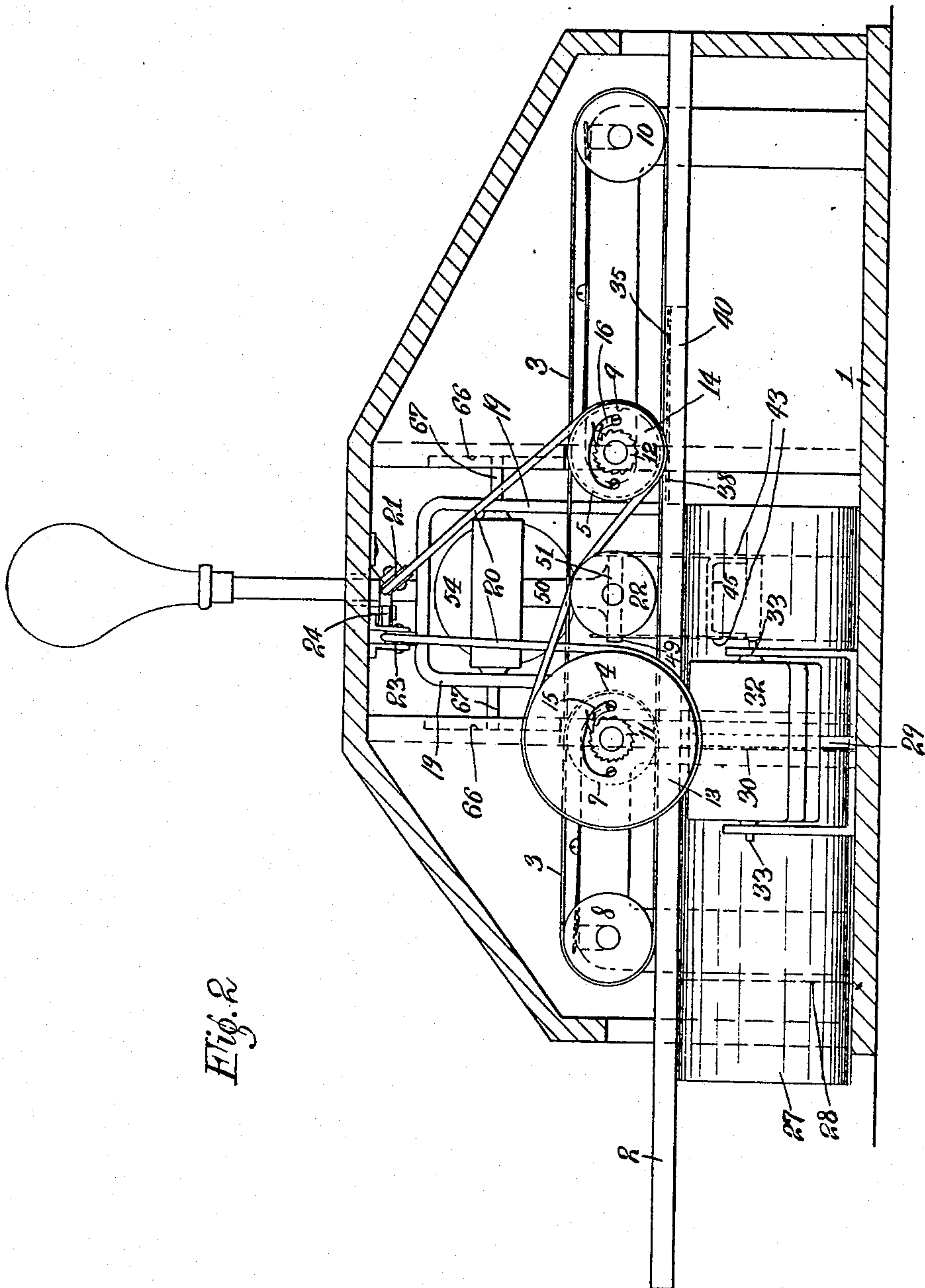


Fig. 2

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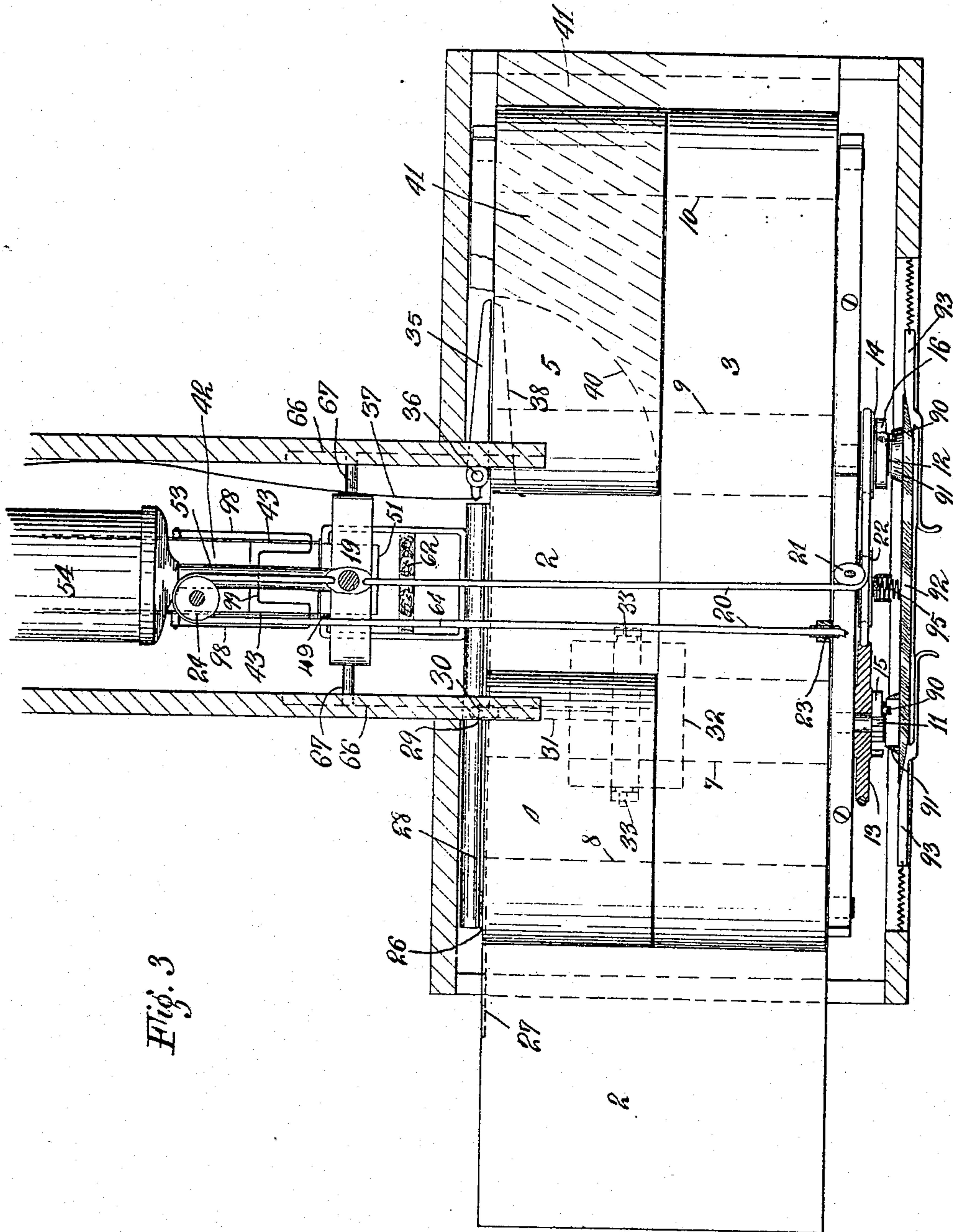


Fig. 3

Witnesses
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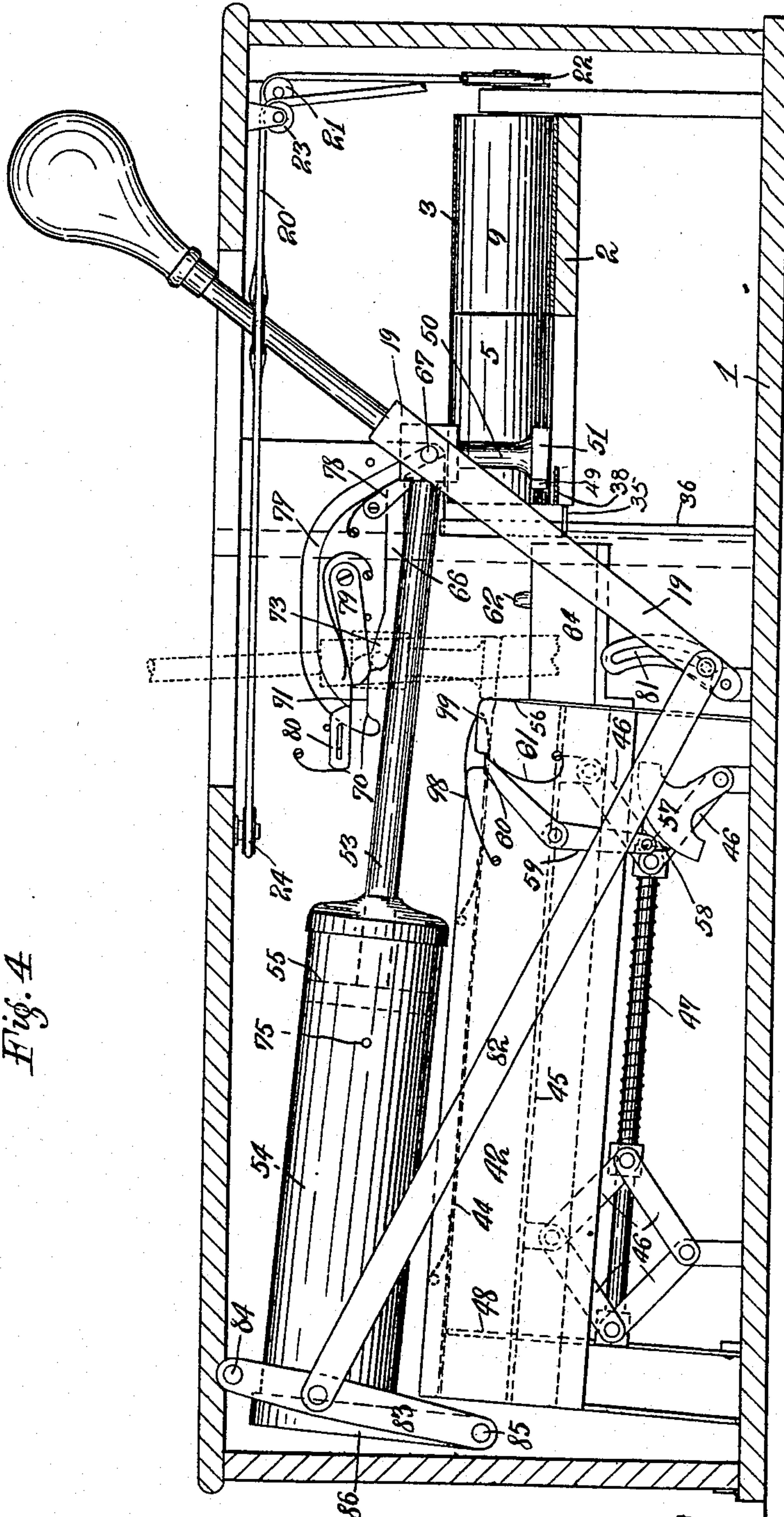


Fig. 4

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UNITED STATES PATENT OFFICE.

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MACHINE FOR STAMPING AND SEALING ENVELOPS.

No. 835,234.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed August 12, 1905. Serial No. 273,851.

To all whom it may concern:

Be it known that I, JOHN E. BROAD, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Machines for Stamping and Sealing Envelops, of which the following is a specification.

This invention relates to machines for stamping and sealing envelops, and more particularly has reference to a machine for this purpose which shall be simple in construction, composed of relatively few parts, and not likely to get out of order.

In this particular embodiment of the invention shown herein the machine is operated by a lever and upon supplying envelops and stamps the succeeding operations of positioning, stamping, sealing, and feeding out the envelop are performed automatically. The machine comprises generally an intermittently-actuated envelop-feed which positions the envelop simultaneously with the picking up and moistening of the stamp, the latter being affixed as the forward motion of the envelop stops, the flap of the envelop having been also moistened ready to be fed forward and sealed upon the next feeding motion. This next feeding motion occurs simultaneously with the return of the stamp-carrying mechanism for the next stamp, which motion also draws the next envelop partially into the machine.

The stamping mechanism comprises a receptacle adapted to contain strips of stamps piled on one another and a pneumatic picker mechanism adapted to pick up the end stamp, then cutting it off and moistening it on the forward movement before striking the envelop. Means is provided for holding the pile of stamps normally under pressure, which is automatically relieved when one is to be picked up, and also means for preventing more than one stamp from being taken up at a time.

An important feature of the invention resides in the manner in which the envelop is moistened and sealed. I propose to partially spread the flap at the time the envelop is first put in, and then pass the flap between two plates, thereby preventing it from buckling. Mounted adjacent these plates is a moistening-pot having a moistener which moves along the edge of the flap similarly to a cam as the envelop moves along, the width of the

moistener being proportioned to the width of the gum on the flap. The envelop having been thus moistened is sealed and pressed during its further movement by a sealing-finger.

The invention will be more fully described with reference to the accompanying drawings, in which—

Figure 1 is a transverse view, partly in section, showing the picker mechanism in position to take a stamp. Fig. 2 is a longitudinal elevation showing the feeding and driving mechanism. Fig. 3 is a plan view, and Fig. 4 shows the picker in the position of applying a stamp.

1 represents the base of the machine having mounted thereon the feed-table 2, which extends lengthwise of the machine. The envelops are fed along the table 2 by means of belts 3 4 5, the belts 4 5 being spaced and intermittently driven by pawl-and-ratchet devices. The belt 4 is mounted on rollers 7 8, the latter also carrying one end of belt 3. The belt 5 is similarly mounted on rollers 9 10, the latter carrying the other end of belt 3. The shafts of rollers 7 and 9 carry ratchets 11 12 and loose pulleys 13 14, respectively, the latter also having driving-pawls 15 16. Attached to the operating-lever 19, the operation of which will be hereinafter described, is driving-belt 20, which passes around guide-pulley 21, pulley 14, idler 22, pulley 13, guide-pulleys 23 24 to lever 19. Assuming the lever about to move in the direction of the arrow Fig. 1, it will be seen that pawl 16 will pass idly over ratchet 12, but that ratchet 11, and consequently roller 7, will be driven by pulley 13 and pawl 15. The driving of roller 7 also drives roller 8 through belt 4 and belt 5 through belt 3 and roller 10, thus feeding the envelops on the table as the belts move. When the lever 19 is moved in the reverse direction, as from the position shown in Fig. 4, the direction of movement of the driving-belt 20 is reversed and the feed-belts will be driven in the same direction as before through pulley 14, pawl 16, ratchet 12, roller 9, belt 5, roller 10, and belt 3, the pawl 15 now moving idly over ratchet 11.

The envelops are inserted at the left of the machine, Figs. 2 and 3, with their flaps inserted into the slot 26, formed by the curved plates 27 28, the plate 28 being slightly higher, so as to form a guide for the top edge of the envelop. About under roller 7 the plates 27

and 28 have a vertical slot 29, in which oscillates a moistener 30. The moistener 30 comprises a tube 31, attached to a rocking reservoir 32, supported by trunnions 33. At the outer end of the tube 31 are the moistener 30 and a shoe 34, which engages the leading edge of the envelop-flap as the envelop is fed along. The reservoir is approximately balanced, so that a very slight pressure suffices to rock it, and thus as the shoe 34 follows the edge of the flap the moistener contacts with the gum, and there is no tendency to buckle the flap, since the pressure is so slight. By this mechanism the flap is necessarily moistened in exactly the right place, and as the reservoir tips up sufficient water will run into the tube to keep the pad 30 wet, or a wick may be used.

35 is the sealer, consisting of an oscillating finger pivoted at 36 and connected with the lever 19 by a link 37, having a resilient bearing on the side of the casing, so as to be oscillated horizontally in Fig. 3 and throw the flap up around a thin stationary finger 38, attached to the edge of the table 2. 40 is a cut-away portion of the table in which the oscillating finger 35 works, and as the envelop moves along the finger 35 will seal the flap around finger 38, the envelop at the same time moving free of the stationary finger 38 and over the corrugated portion 41 of the table 2.

The stamping mechanism comprises a stamp-receptacle 42, composed of parallel sides 43 43, a yielding top plate 44, a movable bottom 45, mounted on parallel links 46 and resiliently pressed upward by a spring 47, and, lastly, the pneumatic picker mechanism proper. The receptacle 42 is intended to contain stamps, preferably in strips of ten, placed gummed side down, and 48 is a pin having a rounded end bearing against top plate 44 and passing through the perforations of the last two stamps. The object of this pin is to permit only the top strip of stamps to be picked up, as these will ride over the rounded end of the pin while the other layers will not do so. 50 is the picker proper, consisting of a tubular body having the enlarged end 51 and attached to the tubular piston-rod 53, working in the pump-cylinder 54. 55 is the pump-piston.

56 is a fixed knife for cutting off the forward stamp after it has been lifted and drawn sufficiently forward by the picker. Connected with one of the links 46 is a sector 57, on which a brake 58, carried by lever 59, normally bears. The upper end 60 of lever 59 is engaged by a laterally-projecting lug 49 on the picker, as seen in Fig. 1, to release the brake, thereby allowing the top layer of stamps to be pressed against the top plate 44, so as to facilitate the withdrawal of the top strip of stamps.

61 is a spring normally holding the brake on sector 57. Forward of knife 56 in Fig. 1 is the stamp-moistener 62, connected with a

suitable reservoir 64. The motion of the picker 50 is controlled by cam-slots 66, in which ride the pins 67, carried by the picker. The lever is forked, as seen in Fig. 2, and there is a pivotal connection between the pins 67 and the lever. Each slot 66 (see Figs. 1 and 4) causes the picker to first move the piston in the cylinder, so as to create sufficient vacuum to pick up the stamp, (upon moving the lever from the position shown in Fig. 1.) Then the picker and lever rise because of projection 70, which lifts the stamp over the edge of knife 56. Then the picker moves to draw the strip of stamps forward on the straight portion 71, then drops to draw the rear edge of the stamp over the knife, (see dotted position, Fig. 3.) Then a further drop on incline 73 draws the stamp over the moistener 62, and still further movement to the end of slot 66 brings the picker to the solid position of Fig. 4, where the stamp is released from the picker by vent 75 and applied to the envelop, which has been brought to the correct position, as before described. In returning the pins 67 ride in a slot 77, so as to lift the picker over the knife, switch 78 causing this.

79 is an accelerator for the picker during the stamp-cutting movement, and 80 is a switch to prevent the pins from going forward in slot 77 instead of 66.

Inasmuch as the lever 19 cannot swing about any fixed fulcrum and produce an initial suction before the picker moves, I mount it in a pivoted slotted link 81. A link 82 extends from the lower end of lever 19 to lever 83, pivoted at 84 on the frame, and at 85 to a projection 86, rigid with the pump-cylinder 54. The first movement of the lever 19 causes its lower end to travel downward in the slot of link 81 and through link 82 and lever 83, starting the suction by moving the pump-cylinder away from the piston. The initial movement of the lower end of lever 19 to the end of slotted link 81 besides producing an initial suction also fixes the lower end of the lever as a fulcrum, which permits the necessary vertical movement as the pins 67 move through the cam-slots 66, this being also in part accomplished by the reaction from the pump-cylinder through link 82, which also initially lifts the picker. A strong suction is thus produced independently of the movement of the picker, and at the same time the movement of the picker commences.

In some cases it is desirable to affix more than one stamp to a single envelop, and I have provided for this with mechanism which stops the feed at suitable times to enable the next stamp to be affixed. Each of the pawls 15 16 is provided with a lug 90, which is adapted to be engaged by a pair of reciprocating cones 91, mounted on a bar 92.

93 represents actuating-cams, which reciprocate the bar 94, and thus lift the pawls, a spring

95 returning the bar when pressure of the operator on the cams 93 is released. By timing the actuation of the cams the amount of feed, and consequently the position of succeeding stamps, can be controlled as desired.

In order to hold the last loose stamp positively to permit the preceding one to be cut off as it is carried forward, I provide the spring holding-finger 98, which has the extension 99 riding on the upper surface of the picker, so as to lift the finger when the picker returns through the upper slot, but at other times bearing on the end stamp to prevent its accidental displacement.

It will therefore be seen that I have devised a machine which will stamp and seal envelopes in one operation and which is positive in its action and not likely to get out of order.

I do not restrict myself to the precise construction I have shown and described herein, as this represents but one embodiment of my invention, and modifications and changes may therefore be made without departing from the scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with means for positioning an envelop, of means for moistening the flap guided by the flap itself, means for applying a stamp thereto, and means for feeding the stamped envelop out of the machine and sealing it as it is fed out, substantially as described.

2. The combination with means for positioning an envelop, of means for picking up and affixing a stamp thereto, said positioning mechanism being controlled by said stamp-carrying mechanism, substantially as described.

3. The combination with a reciprocating stamp picking-up and carrying mechanism, and envelop-feeding mechanism, of means whereby the stamp is picked up, cut off from the succeeding one, moistened, and affixed to an envelop, substantially as described.

4. The combination with a reciprocating stamp picking-up and carrying mechanism, and envelop-feeding mechanism, of means whereby the stamp is picked up, cut off from the succeeding one, moistened and affixed to an envelop during its forward movement, substantially as described.

5. The combination with a reciprocating stamp picking-up and carrying mechanism, of means whereby the stamp is picked up, moistened and affixed to an envelop, and means whereby on the forward motion of the stamp-carrier the envelop is positioned to receive the stamp, and on the return motion of the stamp-carrier, the envelop is fed out, substantially as described.

6. The combination with a reciprocating stamp carrying and affixing mechanism, of an intermittently-actuated envelop-conveyer, envelop-sealing mechanism in the

path of said conveyer, actuating connections for said conveyer effective upon one movement of said stamp-carrying mechanism to position an envelop to receive a stamp, and upon the opposite movement to cause the stamped envelop to be fed forward and sealed, substantially as described.

7. The combination with a reciprocating pneumatic stamp carrying and affixing mechanism, of an intermittently-actuated envelop-conveyer, envelop-sealing mechanism in the path of said conveyer actuating connections for said conveyer effective upon one movement of said stamp-carrying mechanism to position an envelop to receive a stamp, and upon the opposite movement to cause the stamped envelop to be fed forward and sealed, substantially as described.

8. The combination with a pump, of a pneumatic picker connected therewith, means for moving the pump to create an initial suction on the picker, and means for thereafter moving the picker to maintain the suction and permit a stamp or other article to be carried, substantially as described.

9. The combination with a pump, of a pneumatic picker connected therewith, and a lever for operating said picker having connections whereby the initial movement of the lever starts the suction, while further movement continues the suction and moves the picker, substantially as described.

10. The combination with a movable pneumatic picker and its pump, of operating devices for the picker having connections whereby to move the pump to initially start the suction and thereafter move the picker to permit a stamp or other article to be carried, substantially as described.

11. The combination with a pump, of a pneumatic picker connected therewith, means for operating said picker, said operating means being adapted to produce an initial suction before moving the picker, means for directing the picker adjacent cutting-off and moistening devices, and means for relieving the suction as the picker approaches the end of its travel, substantially as described.

12. The combination with a pump, of a reciprocating picker connected therewith, a lever for operating said picker having connections whereby the initial movement of the lever starts the suction before it moves the picker, while further movement continues the suction and moves the picker, means for directing the picker adjacent cutting-off and moistening devices, and means for giving the picker a different path on the return of the lever, substantially as described.

13. The combination with reciprocating means adapted to pick and carry a stamp or like article, of means for moistening said article during the forward movement and releasing it at the end thereof, a belt for feeding the envelopes, and means for operating

said belt at each movement of said stamp-carrying mechanism to intermittently feed the envelops forward, substantially as described.

5 14. The combination with reciprocating means adapted to pick up and carry a stamp or like article, of means for moistening said article during the forward movement and releasing it at the end thereof, and intermittent
10 envelop-feeding mechanism adapted to be actuated at each movement of said stamp-carrying mechanism, substantially as described.

15 15. The combination with a reciprocating carrier adapted to pick up and carry the end of a strip, of means for moving said carrier transversely of a knife and then downwardly to cut off the portion attached to said carrier, means for clamping the end of the strip
20 behind the knife, and means for releasing said severed piece from said carrier, substantially as described.

25 16. An envelop-feeding device, comprising supporting means, an intermittently-actuated belt extending along said support, and carried at each end on rolls, a pair of separated belts between said rolls, and carried at one end thereon, and reciprocating means adapted to actuate one of said belts at each
30 stroke and thereby actuate said first belt, intermittently, substantially as described.

35 17. The combination with sheet separating and carrying mechanism of a sheet-receptacle having a top and a movable spring-pressed bottom plate, means for retarding the pressure on the sheets, and means whereby the upward pressure is increased as a sheet is to be withdrawn, substantially as described.

40 18. The combination with pneumatic sheet separating and carrying mechanism, of a sheet-receptacle having a top plate and a movable, spring-pressed bottom plate, means normally retarding the pressure on the sheets, and means whereby the retarding means is
45 released as the pneumatic mechanism is about to take a sheet, substantially as described.

50 19. The combination with pneumatic sheet separating and carrying mechanism, of a sheet-receptacle having a top plate and a movable, spring-pressed bottom plate, a brake normally retarding the spring-pressure, and means whereby the brake is released just before a sheet is lifted, substantially as described.
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60 20. The combination with a receptacle adapted to contain perforated strips, of a rounded pin adapted to pass through said perforations to aline said strips and bearing against a plate, means for pressing said strips against the plate, and means for grasping and pulling the strip next the plate over the rounded end of the pin, substantially as described.

21. The combination with a table, and 65 means for feeding envelops along said table with their flaps spread out at an angle thereto, of a flat stationary finger projecting in the line of feed from the edge of said table along which the flaps travel, the table being cut 70 away interiorly so that the envelop is supported by said finger and the opposite edge of the table, means for sealing the flap around said finger while the envelop is over the cut-away portion of the table, and means for 75 then feeding the envelop off from the free end of said finger and pressing the flap, substantially as described.

22. The combination with stamp-carrying mechanism, of envelop-feeding mechanism, 80 and means for stopping the envelop-feed independently of the stamp-carrying mechanism, whereby a plurality of stamps may be applied to one envelop, substantially as described. 85

23. The combination with a pneumatic stamp-carrying mechanism, of envelop-feeding mechanism, moving simultaneously therewith, and means for stopping the envelop-feed independently of the stamp-carrying mechanism, whereby a plurality of stamps may be applied to one envelop, substantially as described. 90

24. The combination with a reciprocating stamp-carrying mechanism, of envelop-feeding mechanism actuated intermittently at each movement of the stamp-carrying mechanism, and means for throwing out the envelop-feed independently of the stamp-carrying mechanism, substantially as described. 95 100

25. The combination with envelop-feeding mechanism, of means for applying stamps thereto, means for sealing the flap around a stationary finger, and a belt adapted to move the envelop over a corrugated table to press 105 the stamp and the flap, substantially as described.

26. The combination with a means for guiding the flap of an envelop, of a bar adapted to engage and moved by the edge of said 110 flap, and a moistener carried by said bar for moistening the gummed surface of the flap, substantially as described.

27. The combination with a pair of plates adapted to guide the flap of an envelop, of a 115 bar adapted to be oscillated by the edge of said flap as it is moved along, and a moistener carried by said bar for moistening the gummed surface of the flap, substantially as described. 120

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of August, 1905.

JOHN E. BROAD.

Witnesses:

GEO. A. HOFFMAN,
GEO. N. KERR.