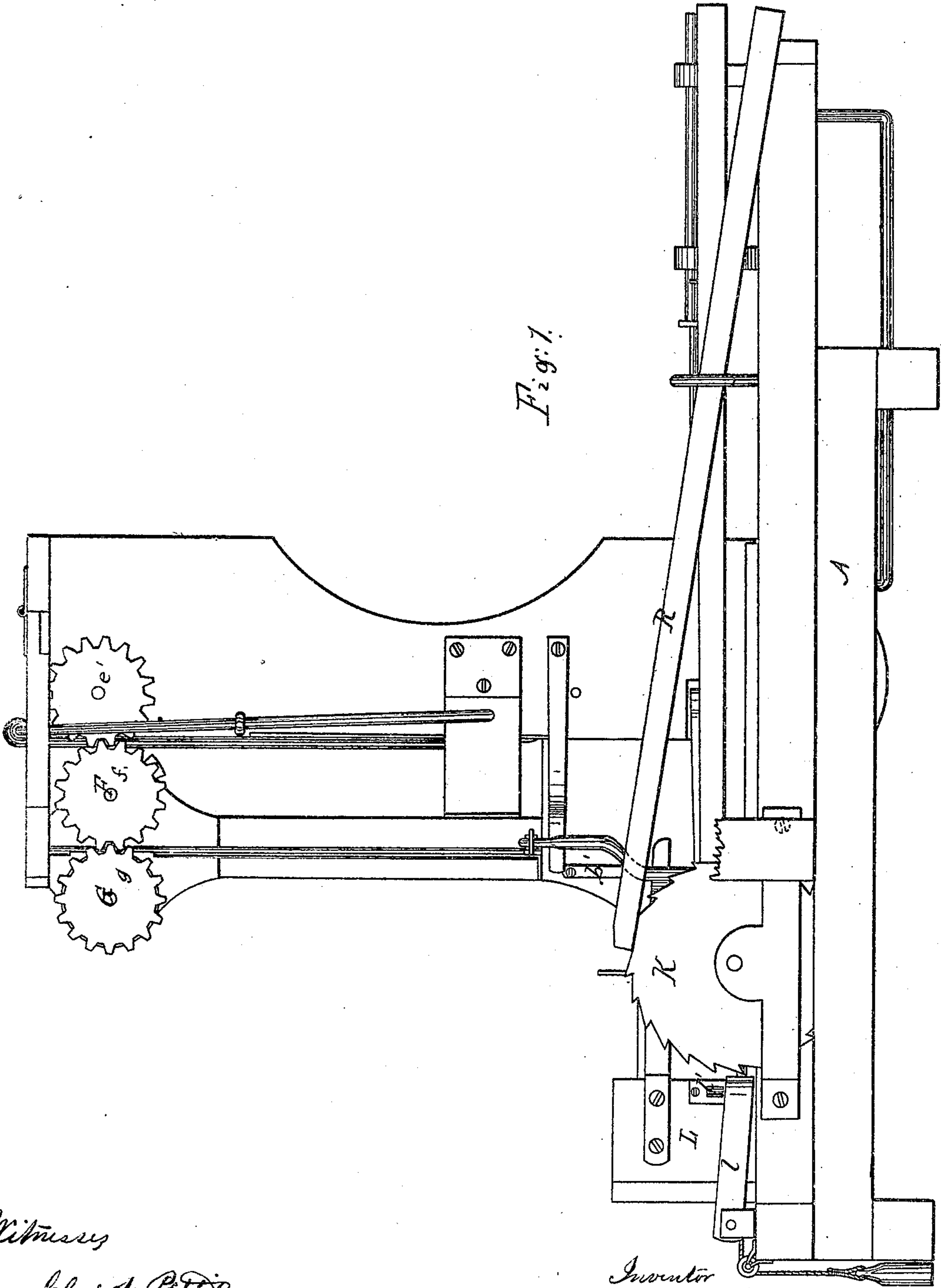


E. B. Olmsted. Sheet 1. of 4 Sheets.
Envelope Mach.

N^o 66876. Patented Jul. 16. 1867.

Fig. 1.



Witness

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E. B. Olmsted. Sheet 2. 4 Sheets.

Envelope Mach.

N^o 66870.

Patented Jul. 16. 1867.

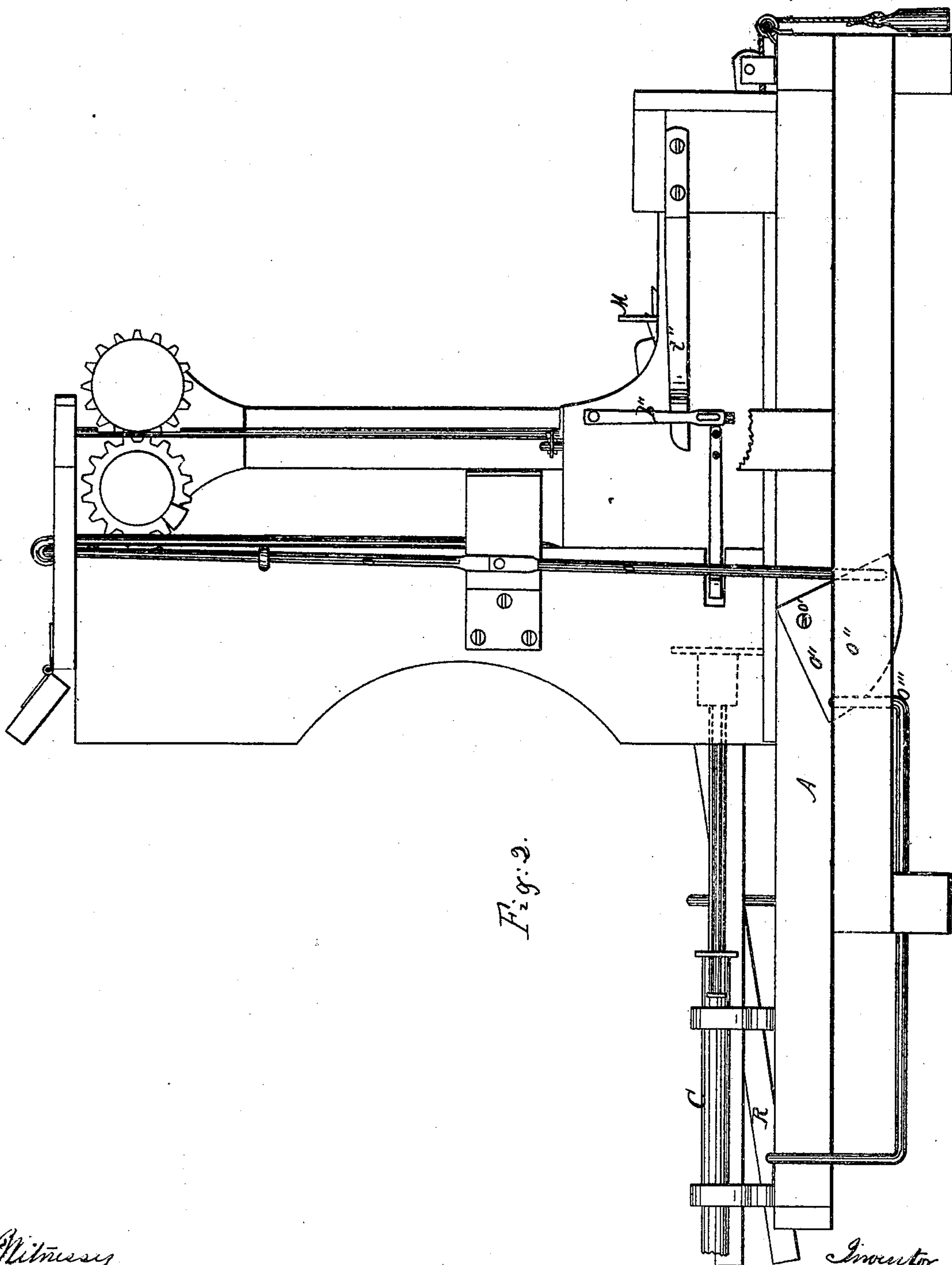


Fig. 2.

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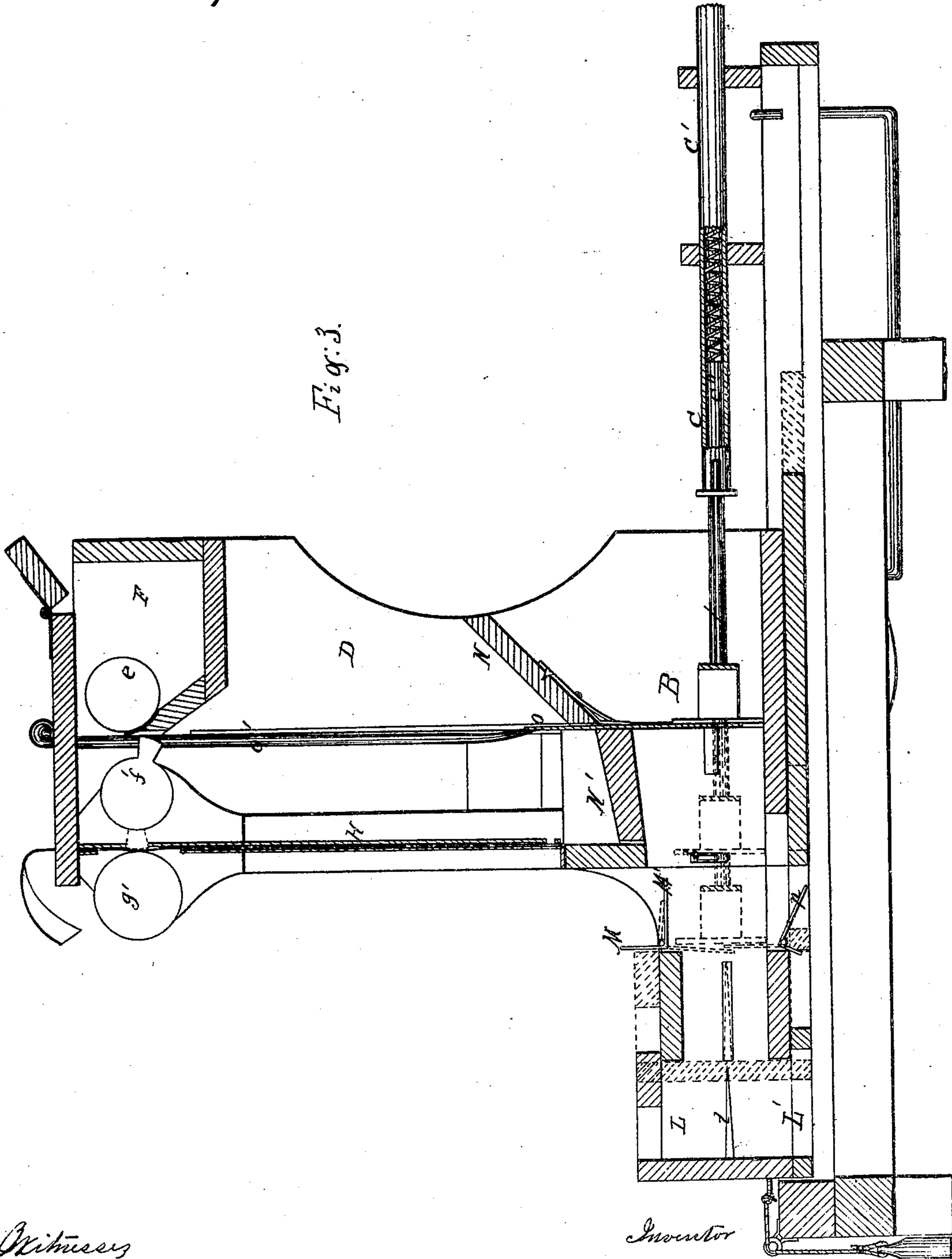
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Envelope Mact.

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Fig. 3.



Witnesses

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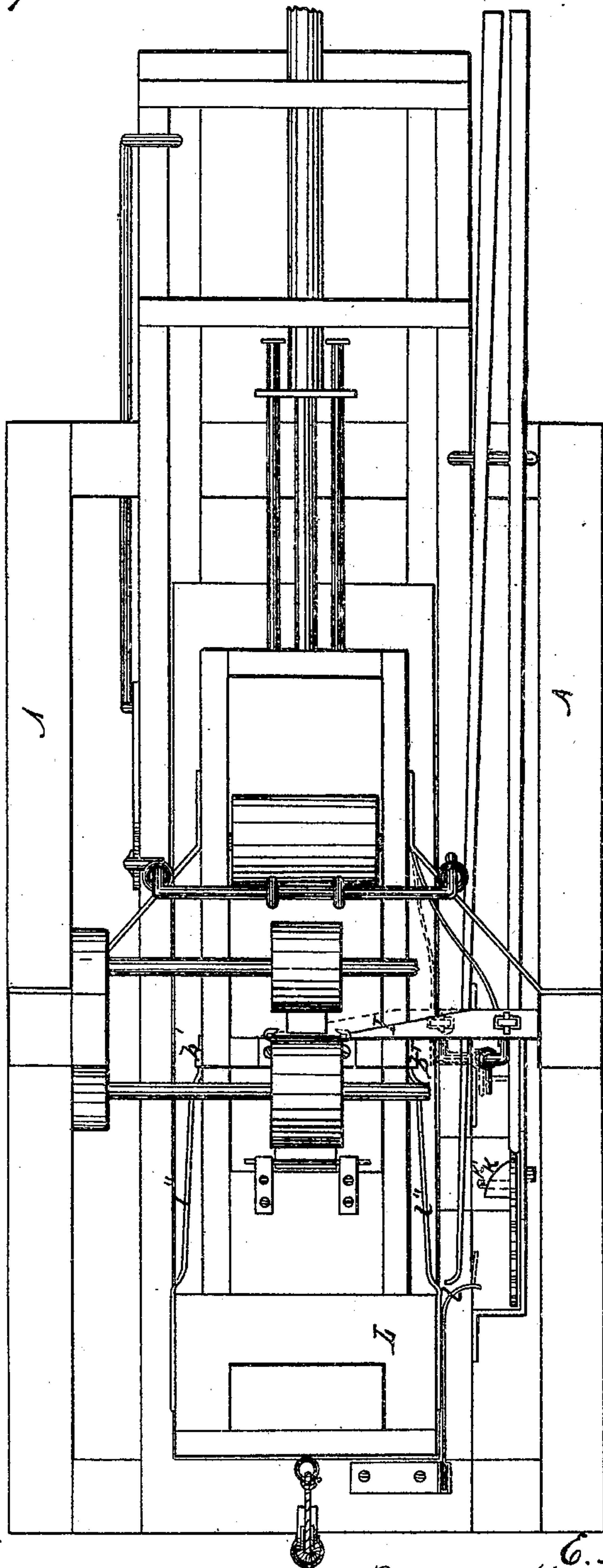
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E. B. Olmsted.
Envelope Mach.

N^o 66876.

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Fig. 4



Witnesses

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United States Patent Office.

E. B. OLMSTED, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 66,876, dated July 16, 1867.

PACKING APPARATUS FOR ENVELOPE MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. B. OLMSTED, of the city and county of Washington, and District of Columbia, have invented a new and improved Packing Apparatus for Envelope Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a horizontal elevation of my invention.

Figure 2 is a horizontal elevation of the same showing the side opposite to that seen in fig. 1.

Figure 3 is a horizontal sectional elevation of the same.

Figure 4 represents the same as seen from a point directly above it.

Similar letters of reference indicate corresponding parts in the several figures.

This improved apparatus receives the envelopes from the carrier, folds the lappet, places the envelopes in packages of any desired number, fastens a band around such packages, and delivers them into a box.

In the drawings, A A A represent portions of the frame of the machine; B is a horizontal box in which works a plunger, C, operated by power from a part of the envelope machine not here shown. D is a vertical box situated over the box B, and corresponding to it in width, having at its upper extremity a mucilage-box, E, in which is a gum-roller, *e*, operated by the spur-wheel *e'*. This wheel actuates a shaft, F, bearing a spur-wheel, *f*, and a drum, *f'*, a projection upon which touches the surface of the gum-roller at each revolution. Another shaft, G, is situated back of the shaft F and parallel to it, working by a spur-wheel, *g*, in the spur-wheel *f*, and bearing a drum, *g'*, the face of which is presented to that of the drum *f'*, and is so near it that at every revolution of *f'* the gummed projection upon it touches any substance carried over the revolving surface of the drum *g'*. Between the drums *f'* and *g'* descends the strip of paper or tape which is destined to tie up the packages of envelopes. This tape is enclosed in the tube H, extending from the top of the machine to the box B. Between the drums *f'* and *g'* the walls of this tube are cut away to permit the unimpeded operation of the gumming projection on the drum *f*. The tape is moved downwards through the tube H, by the face of the drum *g* pressing against it. The tape will thus travel as fast as the drum *g* and no faster. At the bottom of the tube H is a knife, I, which cuts the tape at the proper length for tying each package. It is evident that if the knife I be made to operate at each revolution of the drum *g*, and the circumference of the drum *g* be equal to the required length of tape for tying a package, the tape will be cut into exactly the required lengths; and this is simply and easily effected by making the ratchet-wheel K operate the knife once at each revolution, and revolve simultaneously with the drum *g*. The apparatus for producing these revolutions is not fully shown in the drawings. It consists of two rods, each armed with a clutch at its extremity, both rods jointed to a pitman operated by the driving-wheel of the machine, and one clutch operating the twenty-five ratchet-teeth of the wheel K, while the other operates the twenty-five spur-teeth of the wheel *e'*, or teeth upon a ratchet-wheel attached either to the shaft of the wheel *e'* or to the shaft G. Instead of this arrangement, however, the wheels K and *g* might be directly connected by a belt on or by cog-wheels. The wheel K operates the knife by means of a cam, *k*, on its inner surface, the knife being returned to its place after the tape is cut by means of a spring. On the inner surface of the wheel K there is also a pin, *k'*, on the side diametrically opposite to the cam *k*, the office of which is to raise the guide *l* at each revolution of the wheel K, to a position directly opposite to the slot *l'* in the side of the sliding-box L, at precisely the same instant in which the knife I is operating upon the descending tape. A long rod, R, actuated by the driving-wheel, and bearing a clutch at its extremity, moves backward and forward at every revolution of the driving-wheel in a position alongside of the horizontal box B, so that its clutch comes opposite to the slot *l'* at every forward movement, but does not enter the slot, being prevented from doing so by a little spring which holds the rod R at a slight distance from the box. The clutch, in its ordinary movements, passes above the guide *l*, but when the guide is raised by the pin upon the wheel K, it intercepts the advancing clutch upon the rod R, and causes it to enter the slot and to draw the box L back with it in its returning movement until it reaches the end of that movement, when the clutch is again thrown out. The box L is designed to assist in packing the envelopes and to receive the pack and convey them to the delivery-box under the end of the machine. It is a wooden box open at the bottom, and the side facing the body of the machine, and having a small aperture in its top and slides over the end of the box B upon

which it fits tightly. The regularity and accuracy of its motions may be greatly promoted by fixing it upon guides or ways $L L'$. It has no motion forward except that imparted to it by the rod M , as above described, and when that is over it returns to its former position by means of a pulley and weight at the extremity of the machine. Projecting into the interior of the box B are two stops, $b b$, each attached to a spring, b' , outside of the box B , which keeps the stop in its place, and moving through little slots in the walls of the box B . When the box L is drawn forward it moves these stops out from the box B by means of bent arms $l' l''$, which are thrust under the springs $b' b'$ and forces them out away from the box B . Directly in front of the stops $b b$ are two springs, $b'' b''$, projecting a short distance into the interior of the box B , and presenting their ends to the rear of the machine towards the stops $b b$, so that when an envelope is deposited on its edge in the box B , between the stops $b b$ and the springs $b'' b''$, the latter prevent it from falling back or being drawn back by any casual adhesion to the face of the plunger C . The plunger C is composed of two parts, one, C' , connected with the driving-wheel, the other, C'' , sliding either inside or outside of the former like the sections of a telescopic tube and having a spiral spring, c , at its extremity, where it unites with C' , to keep it extended to the utmost, its face being composed of two plates with a wide space between them. This plunger plays backward and forward in the box B , its forward motion being stopped by the stops $b b$ when they are in their place in the box, but when they are withdrawn, which only happens, as before explained, when the box L is drawn up towards the tape, the spiral spring c impels the part C'' of the plunger through the whole length of the box B , and against the front part of the box L , carrying with it, of course, any envelopes that may have fallen in the box B and depositing them in the box L . When the box L reaches the point at which its forward motion stops, it strikes against a flange or arm upon the two pieces M and M' , the former turning vertically upon a hinge in the upper part of the box B , and the latter upon a hinge under and a little behind the first, so as to be first reached and closed. These pieces M and M' are flat strips of metal bent at right angles so as to form two arms, respectively, comprising two-thirds and one-third of the height of the strips, and hinged at the angle. They close against the front part of the box L when it strikes their bent arms, and when not held closed by the pressure of the box L against their arms, are kept open by means of springs, weights, or any suitable device, so as to offer no impediment to the passage of anything from the box B to the box L . It will be noticed that the stops $b b$ are withdrawn from the box B , permitting the plunger C to pass the entire length of the box B at or near the beginning of the forward movement of box L , while the pieces $M M'$ are closed at the end of the forward motion of box L . In this way, whatever happens to be in box B , in the way of the plunger C , is first forced into the box L , and then the pieces $M M'$ closed upon the front of box L ; operating between the two plates composing the face of the plunger-box B is of course open at the top and bottom where the pieces M and M' operate. In the vertical box D is an inclined shelf, N , upon which the carrier, not shown in the drawings, delivers the envelopes from the cutting, gumming, and folding apparatus. When thrown upon this shelf the envelopes slide down till the unfolded lappet comes to the proper position at the bottom of the shelf, and on the slightly inclined table N' lying directly across the narrow vertical slit or passage between the shelf N and the less inclined table N' . The envelope may be assisted in its movement down the shelf N by a movable apron or any other of the well-known devices used for such purposes in machines. While the envelope is lying in the position just described, the vertical plunger O , sliding in grooves at the rear edge of the box D , and actuated by power from the driving-wheels applied through the pitman O' , crank O'' , frame O''' , and supporting-rods $o o$, descends upon it striking it on the line along which it is to be bent to form the new lappet, and forcing it down between the shelf N and the table N' , by which it is broken and folded into the box B , where the plunger C immediately thrusts it past the springs $b'' b''$, where it rests on its edge between the springs $b'' b''$ and the stops $b b$. Twenty-five envelopes are thus deposited in this position during a single revolution of the wheel K . When the twenty-fifth has been brought down by the vertical plunger O , the revolution of the wheel K is complete, the cam k operates the knife cutting the descending tape, the pin k' raises the guide l , and the box L , commencing its forward movement, withdraws the stops $b b$ from the box B , while the plunger C , now free to travel the whole length of box B , instead of stopping, as before, when it has thrust the envelope beyond the springs $b'' b''$, continues its motion to the box L , thrusting the whole twenty-five envelopes into that box, after which it immediately withdraws and does not pass the stops $b b$ again until another twenty-five envelopes have accumulated between springs $b'' b''$ and stops $b b$. It will be observed that just as the plunger C commences the work of carrying the twenty-five envelopes to the box L , the tape hanging down through the box B , close to the stops $b b$, on the side towards the box L , has been cut, the portion cut off is directly in the way of the moving bunch of envelopes, and is caught by them at its centre and carried with them into the box L , its ends, which have been gummed as before explained, dragging behind. When the bunch of envelopes has been deposited in box L , these gummed ends of the tape are left just in the position to be caught and forced tightly together, one lapping over the other by the flat strips of metal $M M'$, which are at that instant forced together as previously explained by the movement of box L , the lower strip M' first closing, and an instant after the other piece M , and the twenty-five envelopes are thus fastened in a neat and compact bunch or pack. The retreating movement of the box L carries the pack back to the aperture p , through which it is dropped into the delivery-box below. To insure the delivery of the pack into the delivery-box, little barbed arms $t t'$ may be inserted into the inner wall of the box L .

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

1. The vertical box D , containing the inclined shelf N , and the gumming-box E , and roller e , and supporting and guiding the plunging-plate O , substantially as and for the purpose described.
2. The horizontal box B , containing the plunger C , the stops $b b$, the springs $b'' b''$, and the hinged plates M and M' , substantially as and for the purpose specified.
3. The sliding-box L , moving on the end of the box B , and having the arms $l' l''$, the slot l' , and the interior barbed arms $t t'$, substantially as and for the purpose described.

4. The apparatus for moving, cutting, and gumming the binding tape, consisting of the shaft G, with the drum g' , and ratchet-wheel g , the tube H, the knife I, and the ratchet-wheel K, bearing the cam k , all arranged and combined substantially as and for the purpose described.

5. The plunger C, consisting of the two parts C' and C'' , and the spring c , and having a face composed of two vertical plates with a wide space between them, substantially as and for the purpose specified.

6. The rod R, having the clutch at its extremity, in combination with the guide l and the slot l' , in the wall of the box L, substantially as and for the purpose described.

Witnesses:

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E. B. OLMSTED.