

No. 749,378.

PATENTED JAN. 12, 1904.

H. HARTE.

MECHANISM FOR SEALING AND DELIVERING ENVELOPS.

APPLICATION FILED FEB. 11, 1903.

2 SHEETS—SHEET 1.

NO MODEL.

Figure 1.

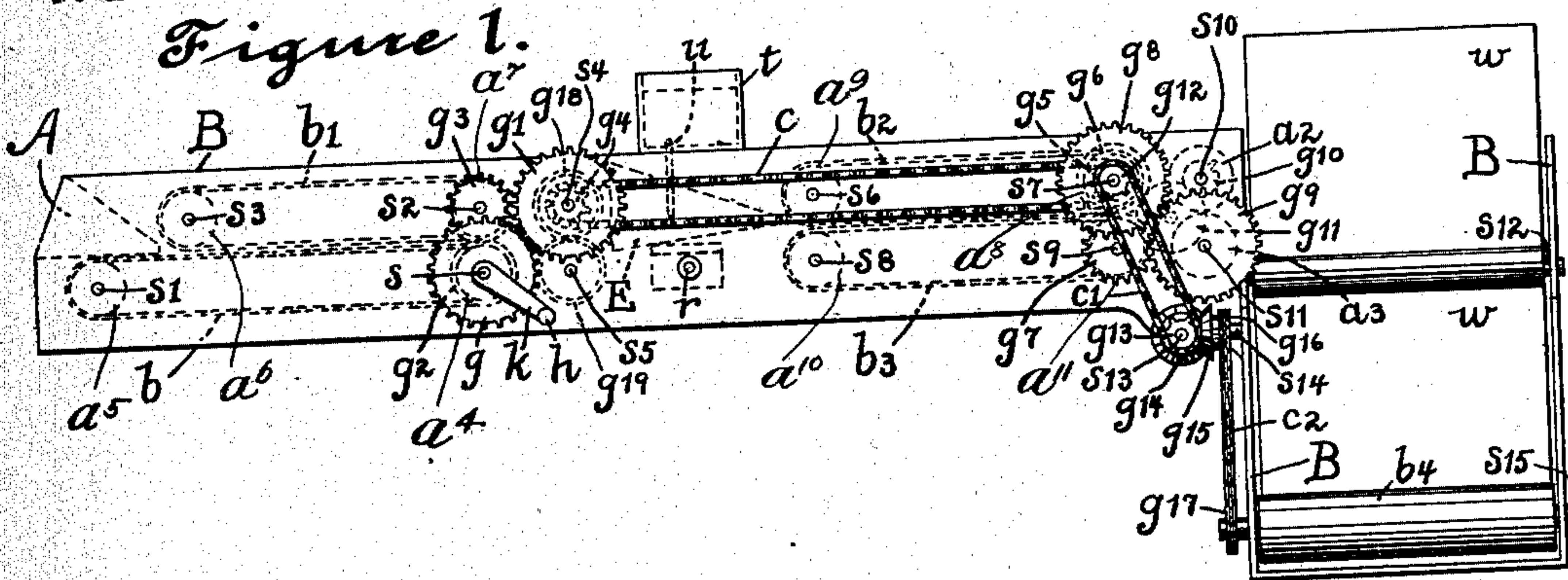


Fig. 2.

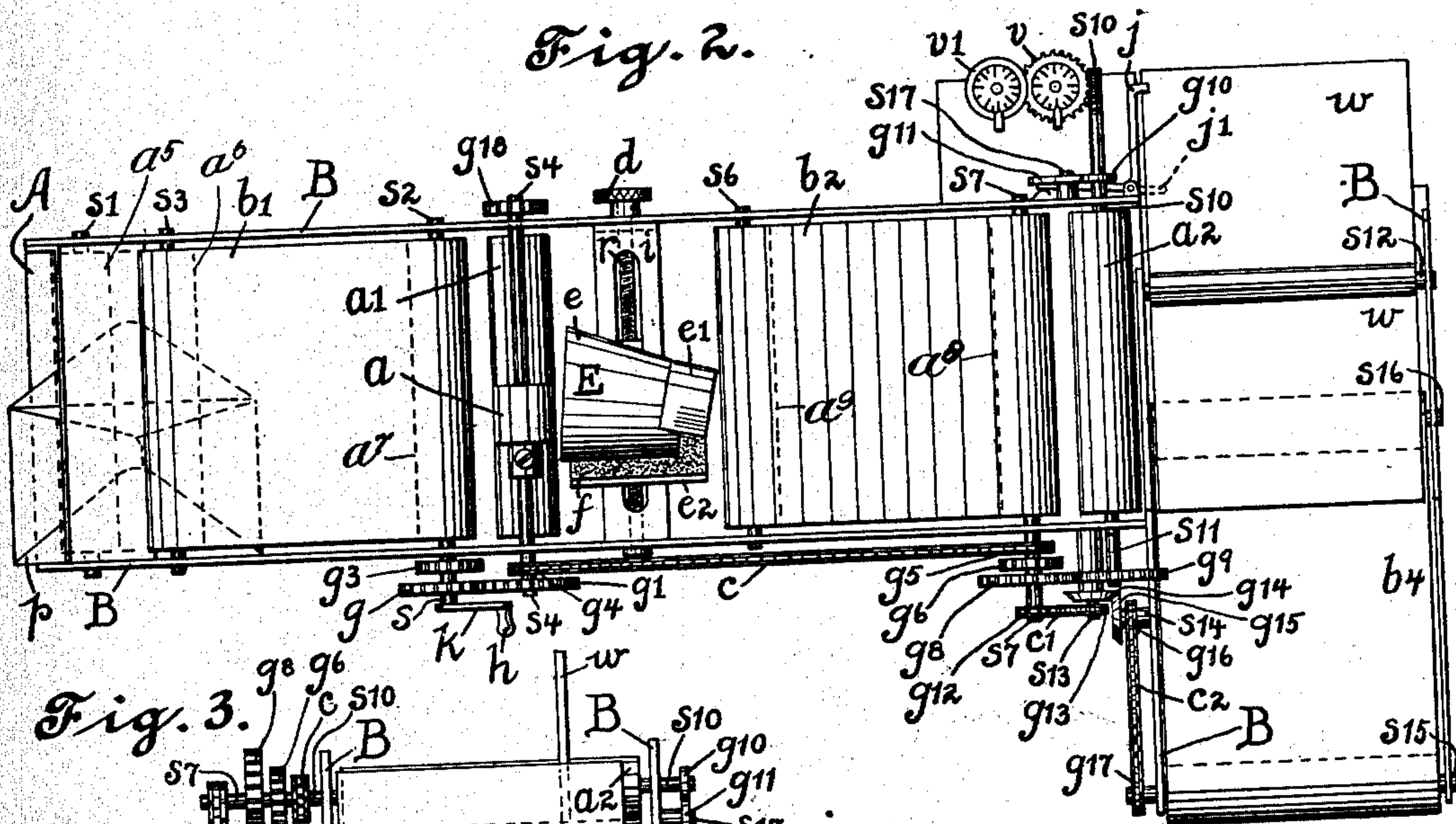


Fig. 3.

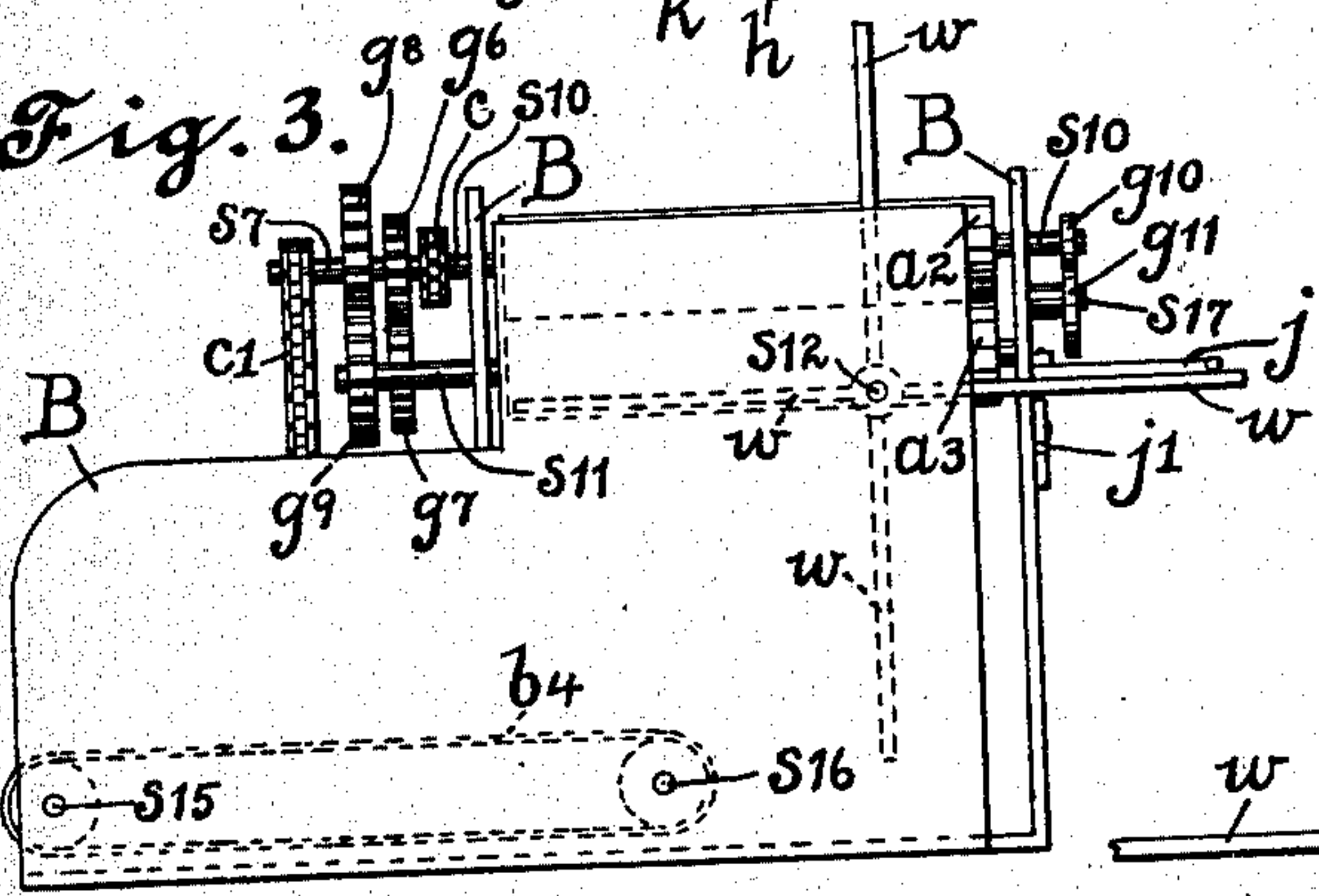


Fig. 4.

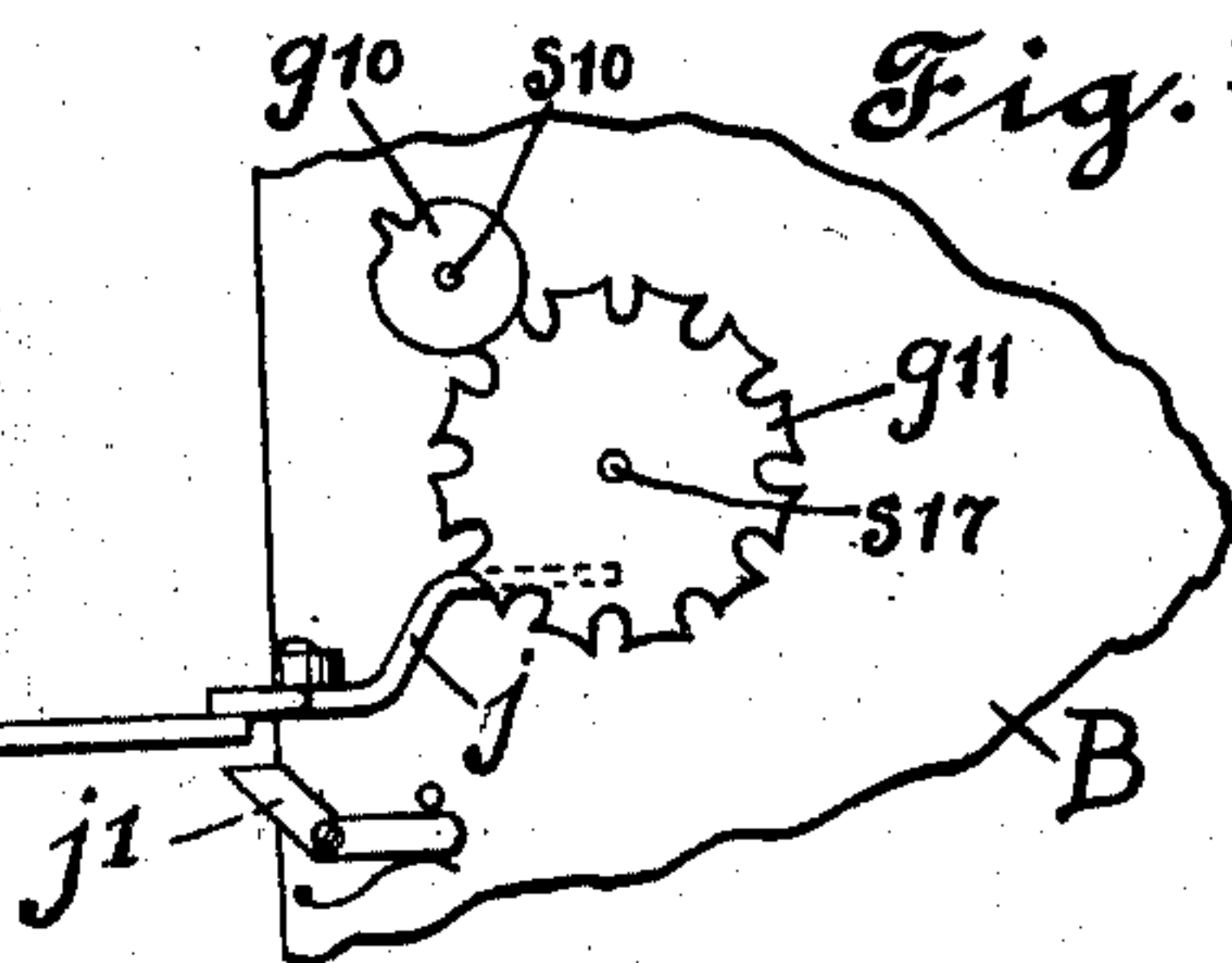
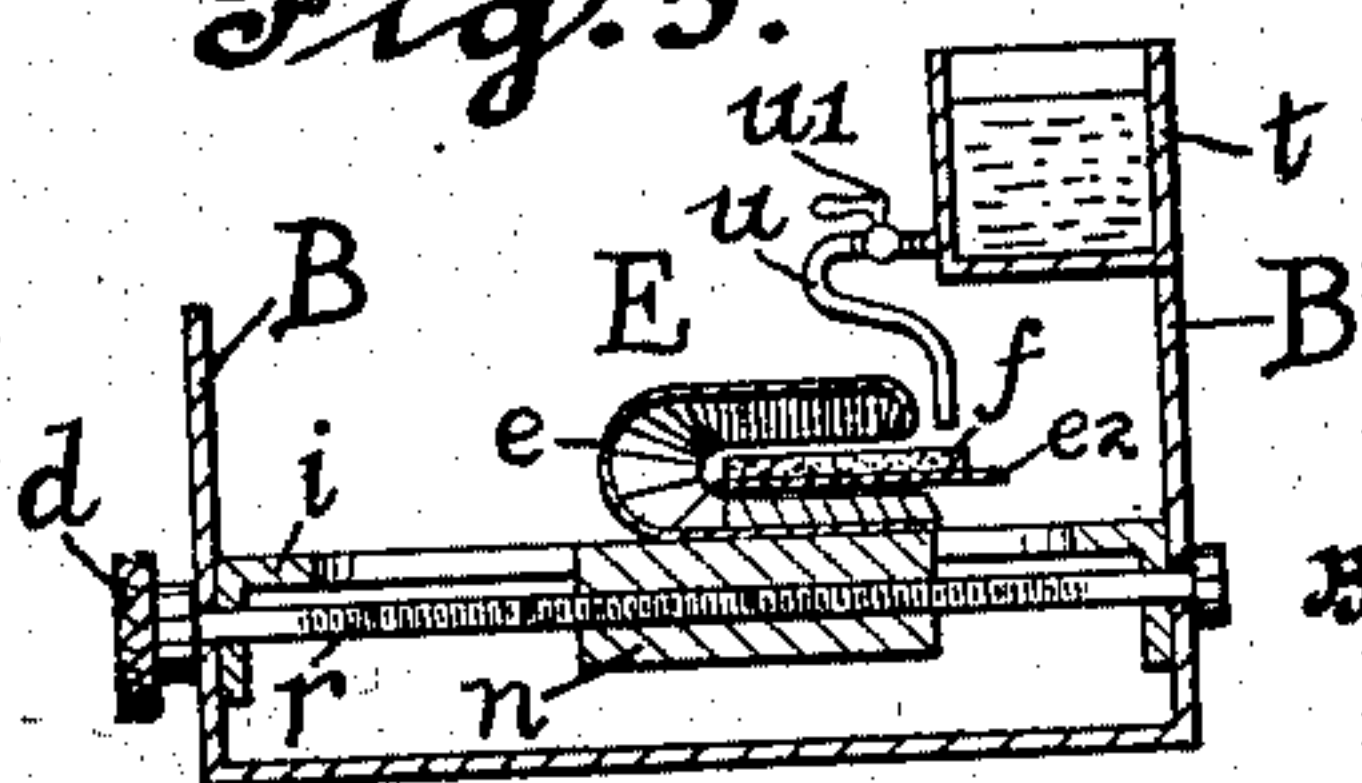


Fig. 5.



Witnesses:

Albert C. Bell.
Ethel M. Smith.

Inventor

Henry Harte.

By his atty. Wm. H. Cooley.

No. 749,378.

PATENTED JAN. 12, 1904.

H. HARTE.

MECHANISM FOR SEALING AND DELIVERING ENVELOPS.

APPLICATION FILED FEB. 11, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 6.

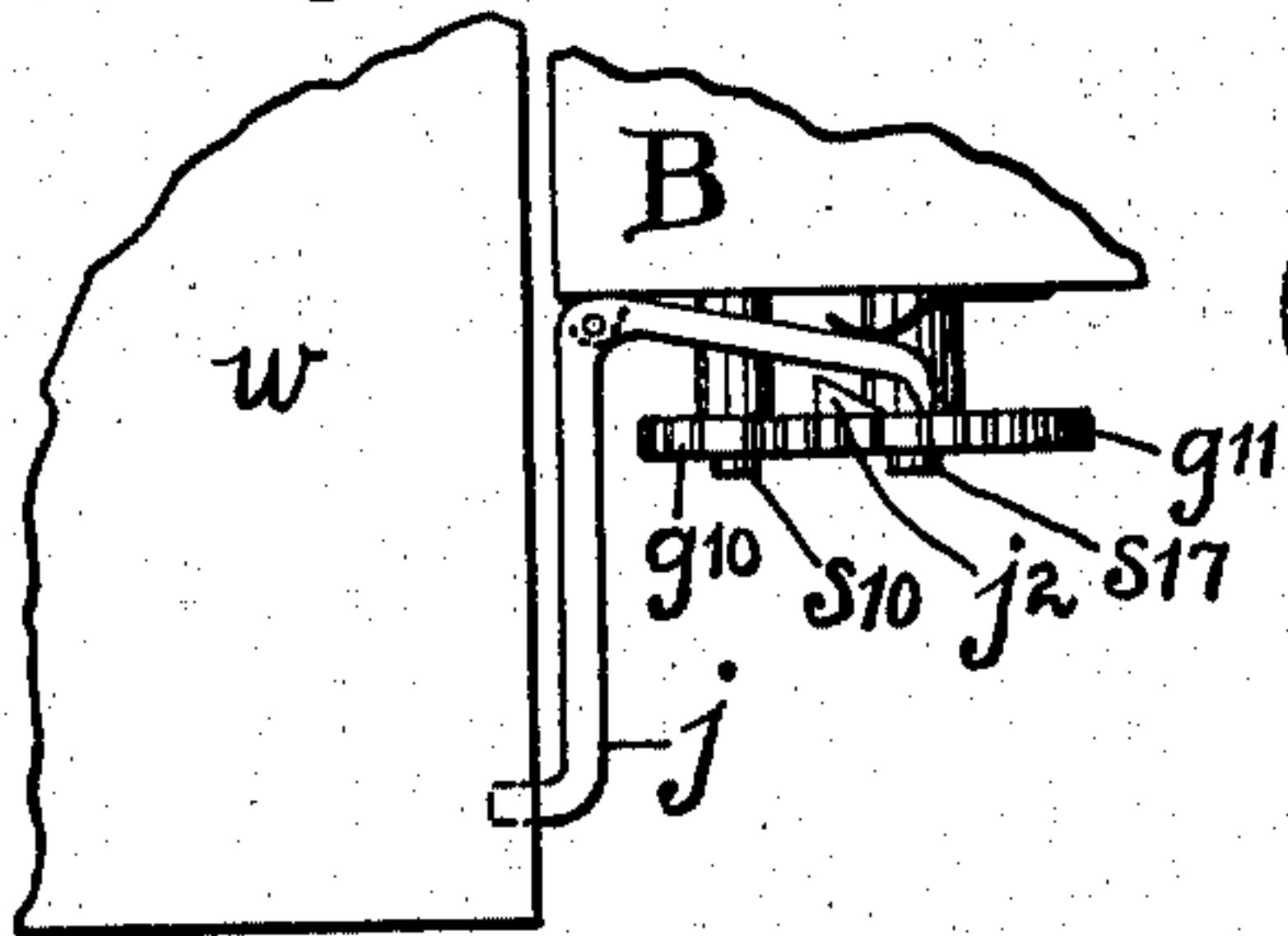


Fig. 7.

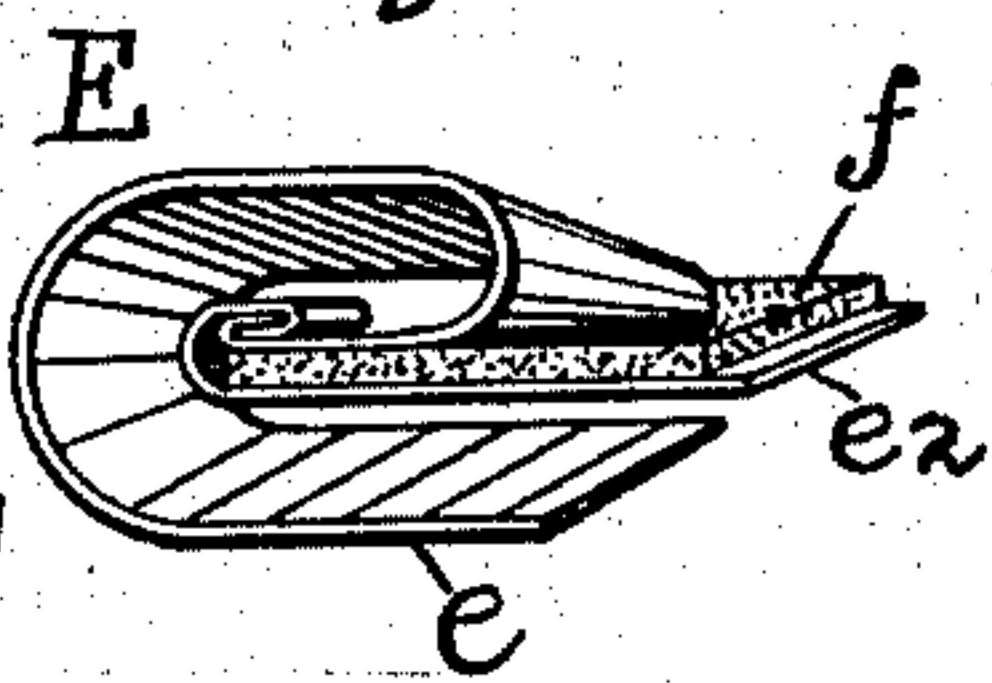


Fig. 8.

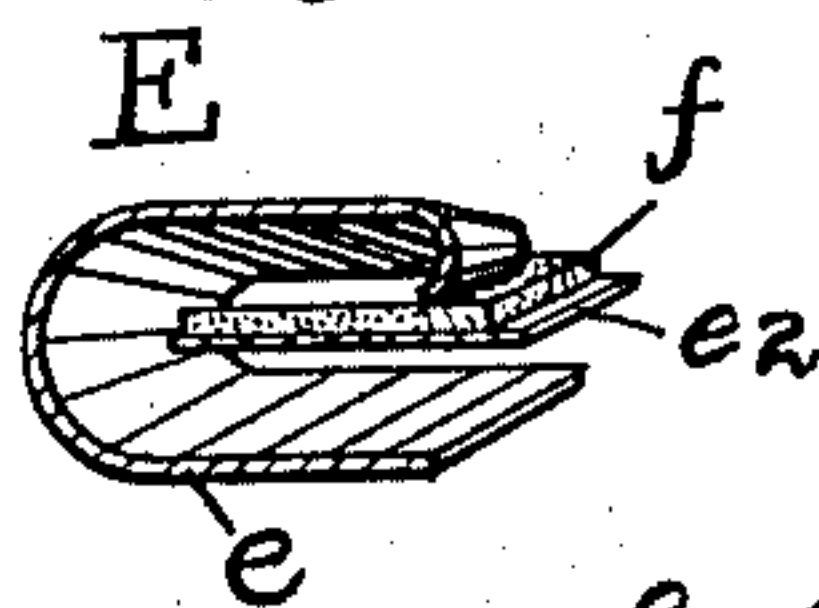


Fig. 9.

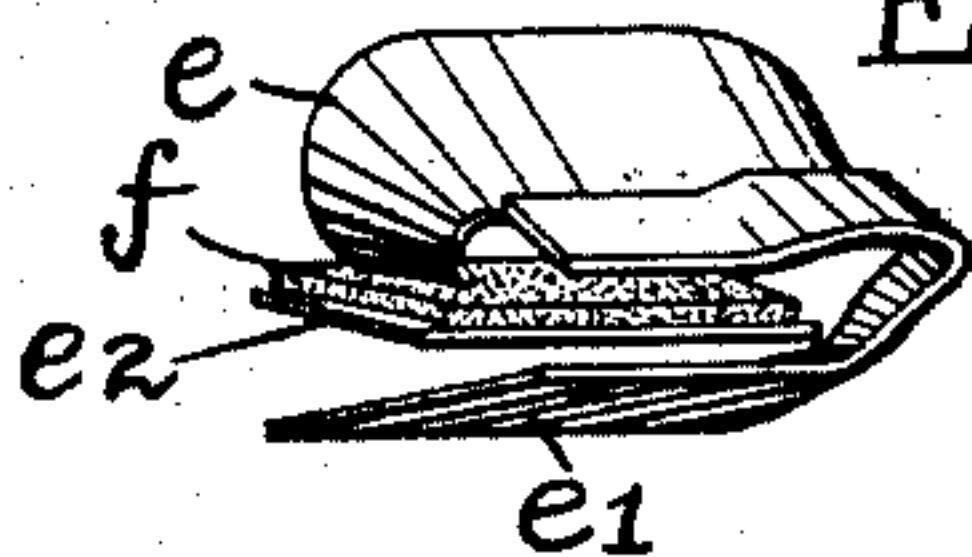


Fig. 10.

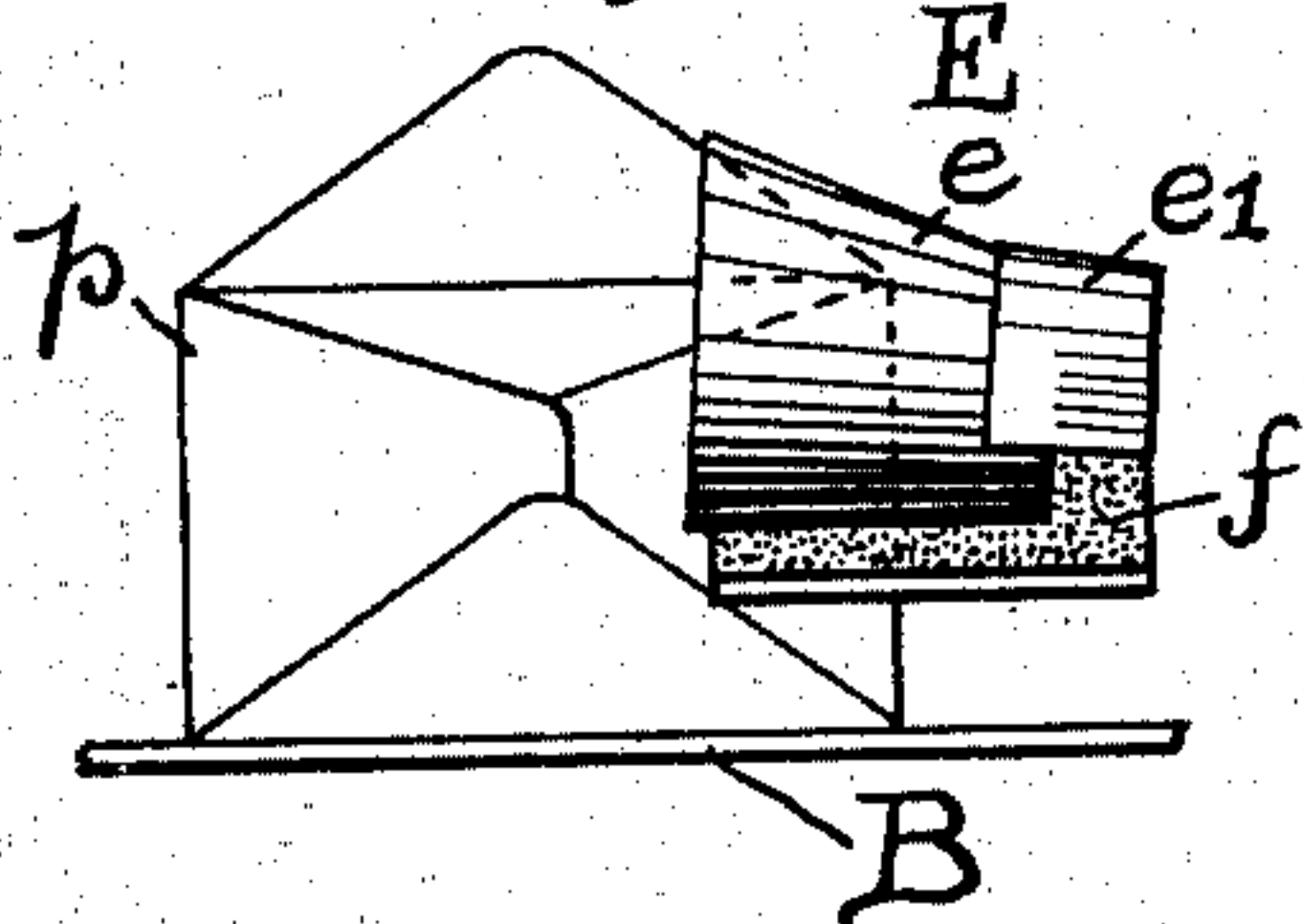


Fig. 11.

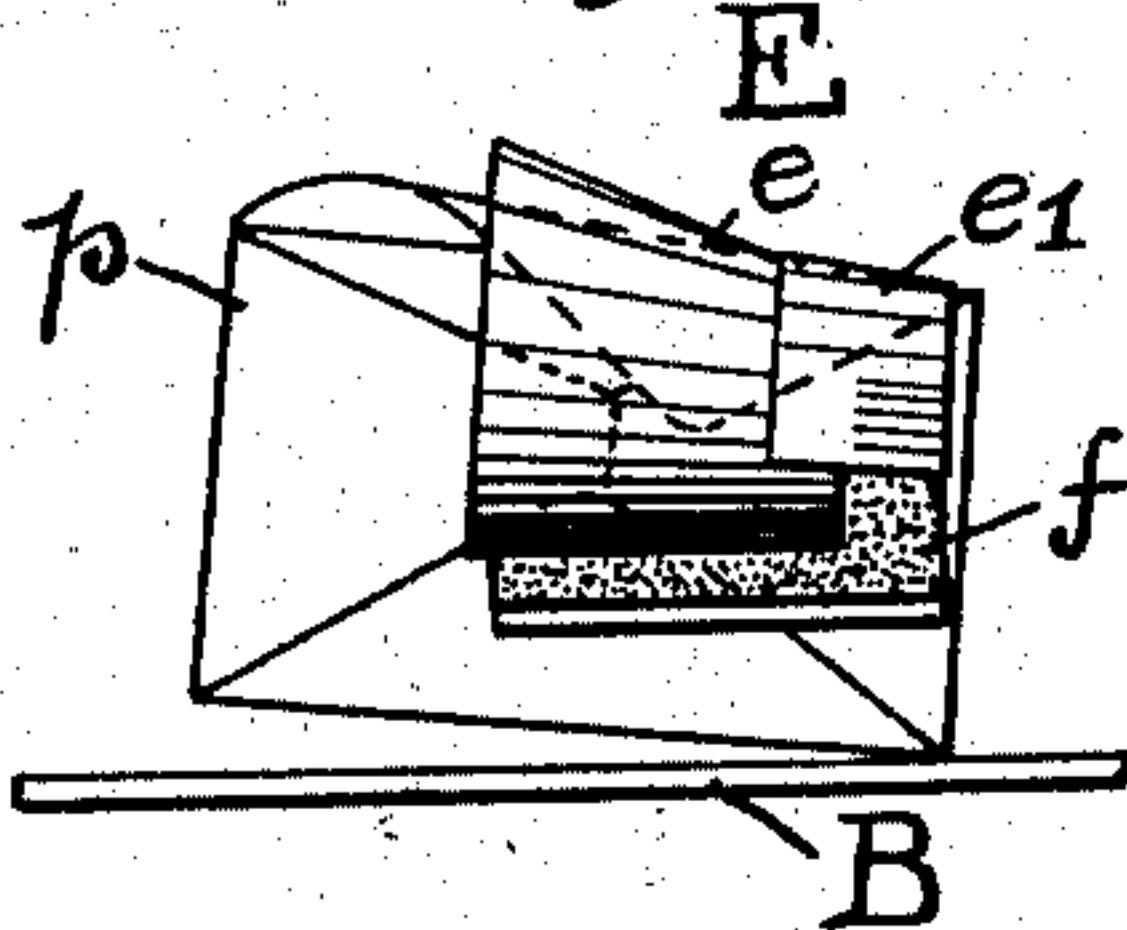


Fig. 12.

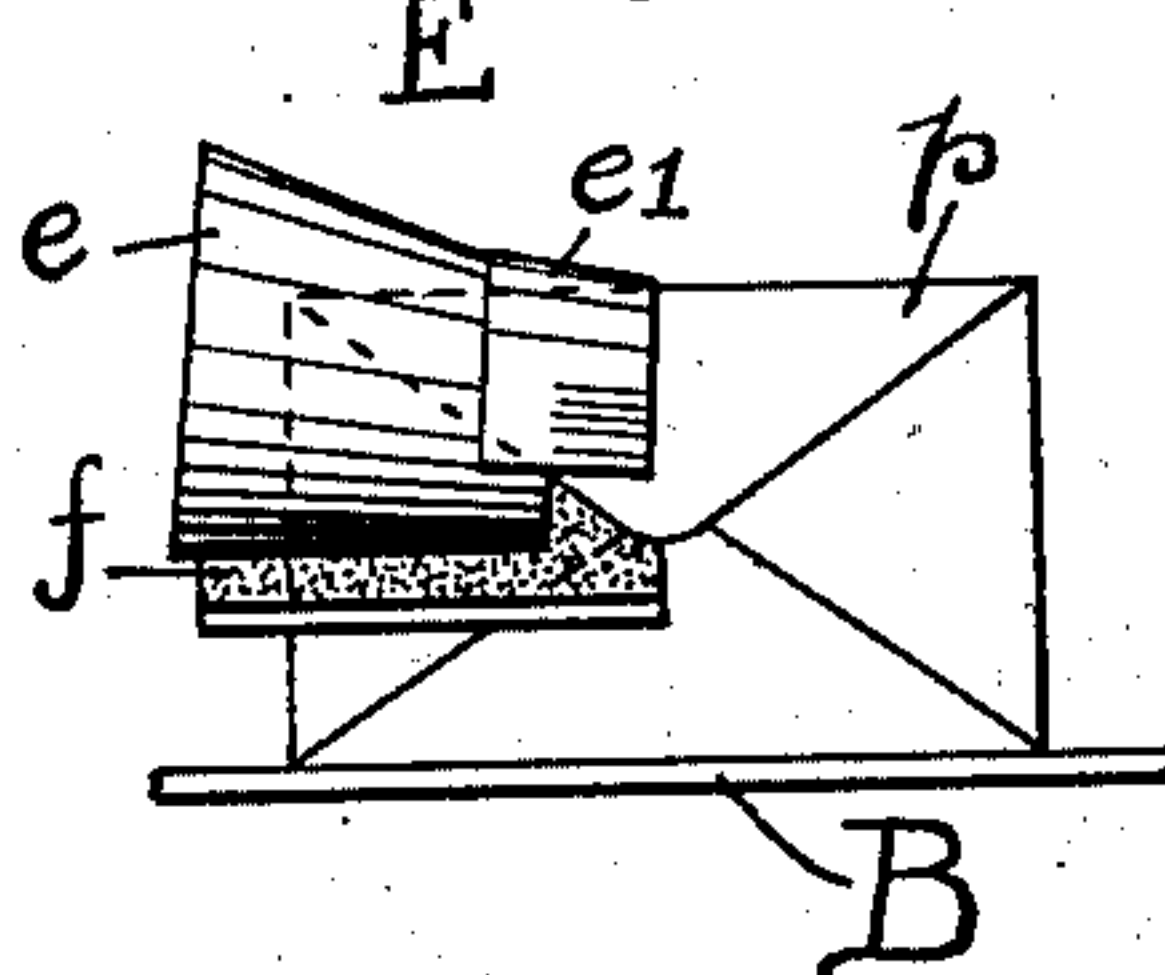
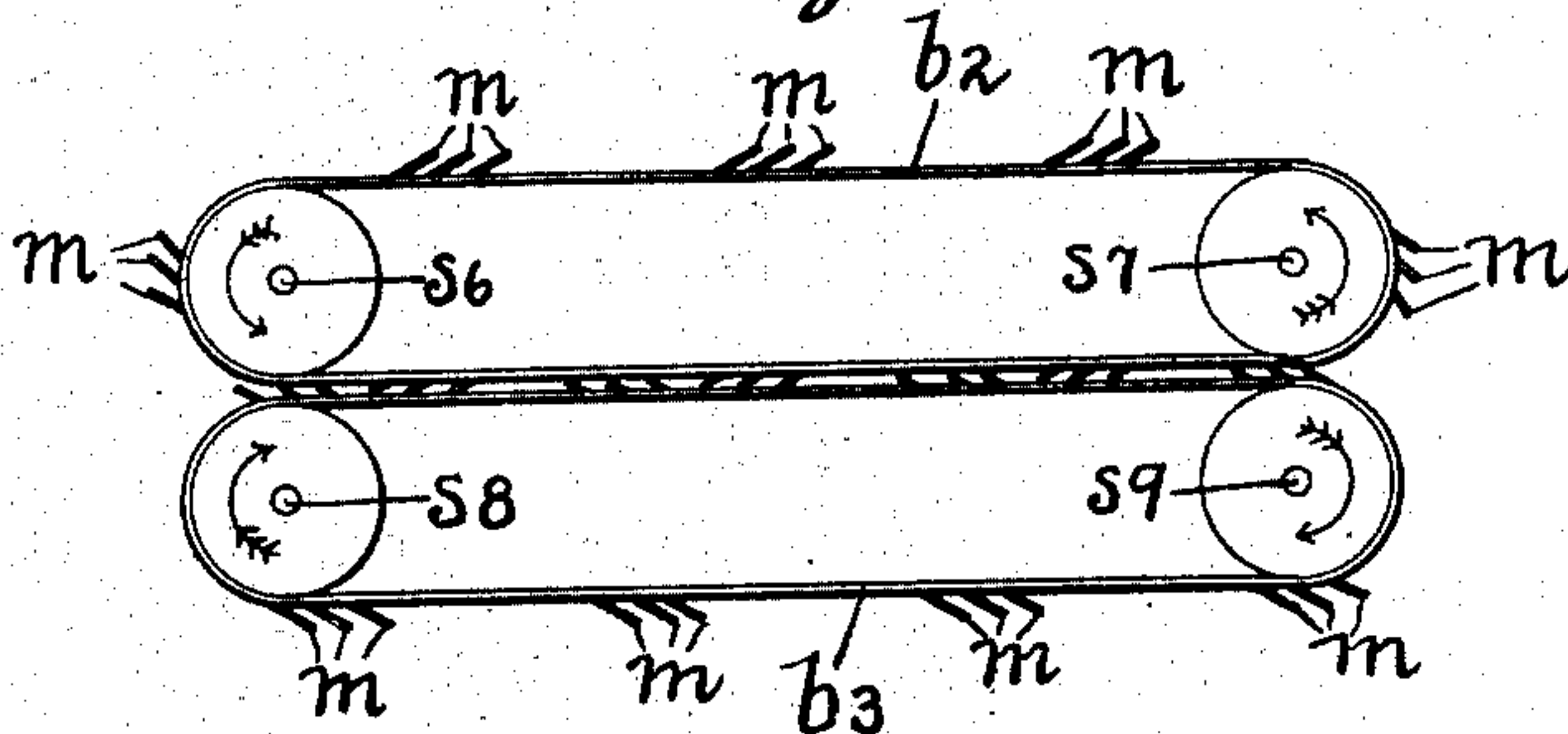


Fig. 13.



Witnesses:

Albert C. Buel

Etha M. Smith.

Inventor

Henry Harte

Wm. H. Cooley.

By his Atty.

UNITED STATES PATENT OFFICE.

HENRY HARTE, OF ROCHESTER, NEW YORK, ASSIGNOR TO HARTE-STEVENSON COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

MECHANISM FOR SEALING AND DELIVERING ENVELOPS.

SPECIFICATION forming part of Letters Patent No. 749,378, dated January 12, 1904.

Application filed February 11, 1903. Serial No. 142,970. (No model.)

To all whom it may concern:

Be it known that I, HENRY HARTE, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented an Improved Mechanism for Sealing and Delivering Envelops, of which the following is a specification, in which reference is made to the accompanying drawings, which are as follows.

Figure 1 is a side view, and Fig. 2 is a top view, of the mechanism complete. Fig. 3 is an end view of the parts seen in Fig. 1, taken from the right-hand end, with the registering mechanism removed. Fig. 4 is an enlarged detail side view of the mechanism used to release the vanes *w*. Fig. 5 is a vertical sectional view taken transversely with the machine and along the line of the center of the threaded rod *r* as seen in Fig. 1, such view showing such threaded rod in full, however, and being taken from the left and with all the parts to the left of the plane of the section being removed. Fig. 6 shows the parts seen in Fig. 4 as viewed from the under side and with the spring-pawl *j'* removed. Figs. 7, 8, and 9 are detail views of the folder *E*. Figs. 10, 11, and 12 are detail views showing the operation of closing an envelop. Fig. 13 shows in enlarged detail side view the bands *b*² and *b*³ and the shafts and rollers used to carry the same.

Similar letters refer to similar parts throughout the several views.

The object of my invention is to provide a means whereby envelops that have been filled with letters or with any articles of merchandise such as would admit of the envelop being passed through rollers without injury to their contents may be fed to the machine and sealed and delivered in bunches of any desired number and at the same time an accurate count kept of only those envelops which are delivered.

Referring to the drawings, B B constitute the side and end pieces of the case of my machine. In the side pieces B are formed the bearings for the shaft *s*, carrying gear-wheels *g* and *g*² and also carrying on the end toward the observer in Fig. 1, being the lower end

in Fig. 2, a crank *k*, with a handle *h* thereon. Upon this shaft *s* and between the side pieces B there is located a roller *a*⁴. (Indicated in dotted lines.) Near the left-hand end of the machine as seen in Figs. 1 and 2 there is similarly located and supported a shaft *s'*, also carrying a roller *a*⁵, as indicated in dotted lines in Figs. 1 and 2, similar to the one already described as located upon the shaft *s*. A continuous band *b* encircles these rollers in such a way that the rotation of the shaft *s* is communicated to the shaft *s'* thereby. As indicated in Figs. 1 and 2, upon the shafts *s*³ and *s*² are located similar rollers *a*⁶ and *a*⁷, respectively, and by means of the band *b'*, encircling them, the rotation of the shaft *s*² is communicated to the shaft *s*³. A gear *g*² on the shaft *s* (indicated only in dotted lines in Fig. 1) and located immediately beneath the gear *g*³ on the shaft *s*² is arranged to communicate motion from the shaft *s* to the shaft *s*² in such a direction, as will at once be seen, that the bands *b* and *b'* travel in opposite directions and the contiguous surfaces thereof travel or move from the left to the right in Figs. 1 and 2 in such a way that envelops fed to the machine through the guide-piece A are carried to the right between these bands *b* and *b'*. Upon this shaft *s* there is also seen a gear *g*, meshing in turn with a gear *g'*, located upon the shaft *s*⁴, upon which there is also secured a sprocket-wheel *g*⁴, carrying the chain *c*, encircling at its right-hand end the sprocket-wheel *g*⁵ on the shaft *s*⁷, and thus communicating the motion of the shaft *s*⁴ to the shaft *s*⁷, upon which there is located a roller *a*⁸, encircled by a continuous band *b*², which also passes around a similar roller *a*⁹, located upon the shaft *s*⁶. Upon this shaft *s*⁷ there is also located a gear *g*⁶, engaging a similar gear *g*⁷ upon the shaft *s*⁹, which carries a roller *a*¹¹, encircled by a continuous band *b*³, which in turn also passes around a similar roller *a*¹⁰, located upon the shaft *s*⁸, whereby it will at once be understood that the rotation of the crank *k* by means of the handle *h* in a clockwise direction results in the movement of the contiguous members of the bands *b*² and *b*³ in a direction from the left to the right, whereby af-

ter the envelop has passed through the folding and sealing mechanism E, yet to be described, and between the bands b^2 and b^3 as they pass around the rollers on the shafts s^6 and s^8 such envelops are carried to the right and delivered in the manner and by means of the mechanism yet to be explained.

The bands b^2 and b^3 are preferably constructed, as indicated in Fig. 13, with flaps m upon them, which are inclined backward away from the motion of the bands and serve to aid in drawing the envelops forward between the bands with less pressure than would be required without such flaps.

Upon the shaft s^4 there is located a short section of a roller a , arranged to press upon the upper side of the envelop just below the flap thereof in such a way as to force the envelop from the left to the right and through the folding mechanism E, yet to be described, the envelop at this time being carried between the roller a and the roller a' , secured upon the shaft s^5 . Upon this shaft s^4 , at the farther end, being the upper end as seen in Fig. 2, there is located a gear g^{18} , meshing with a similar gear g^{19} on the shaft s^5 (indicated in Fig. 1) and by means of which a positive motion in the proper direction is imparted to the roller a' . The roller a is made short and is also adjustable longitudinally upon the shaft s^4 to provide for envelops of different widths, whereby such roller may be caused to bear upon the envelop only over a short portion of its width from the flap to the lower edge in order that the contents of the envelop may not be injured or forced through the envelop. Similarly the folding mechanism E is adjustable laterally, so as to accommodate envelops of different widths by means of mechanism yet to be explained. As the envelops leave the bands b^2 and b^3 they are caused to pass between the roller a^2 , located upon the shaft s^{10} , and a similar roller a^3 , located upon the shaft s^{11} . Upon this shaft s^{11} there is located a gear g^9 , arranged to be engaged by a gear g^8 , carried by and secured upon shaft s^7 , whereby to this shaft s^{11} there is imparted a positive motion and of course also to the roller a^3 , carried thereby. The roller a^2 is so adjusted relatively to this roller a^3 that the rotation of the shaft s^{11} does not cause any rotation whatever of the shaft s^{10} —that is, the roller a^2 is just out of contact with the roller a^3 , but so near thereto, however, that the envelops as they are forced between these rollers impart a positive motion to the roller a^2 , whereby it will be seen that as each envelop is carried to and between these rollers a^2 and a^3 there is imparted a rotary motion to the shaft s^{10} , which, owing to the relation of the circumference of the roller a^2 to the length of the envelop p , is just sufficient to produce one rotation of this shaft s^{10} for each envelop thus delivered. Each rotation of this shaft s^{10} results in advancing the primary wheel v of a train of registering-wheels

$v v'$ one step. Any desired number of such or similarly-operating registering-wheels may be arranged to coöperate together in the well-known way, so as to keep an actual count of the number of envelops passed through between the rollers a^2 and a^3 . Each envelop as it is passed through the rollers a and a' is forced into the folding mechanism E, consisting in a funnel-shaped piece e , so formed, as indicated in Figs. 2, 5, 7, 8, 9, 10, 11, and 12, that the flap of the envelop is folded over, so that the under or inner surface thereof comes in contact with the moistening-pad f , to which either water or, if desired, suitable adhesive or cementing material may be supplied from the reservoir t by means of the pipe u and in the manner clearly illustrated in Figs. 1 and 5. Then the envelop passes through the right-hand end of this folding mechanism e' , which is formed in such a way as to properly fold the flap over upon the upper portion of the envelop p at its upper edge, as indicated in Fig. 12, as it leaves the folding mechanism. A plate e^2 is provided beneath the pad f in order that the moisture of the pad may not reach the envelop, and a suitable faucet w' is provided in the pipe u in order to regulate the flow of liquid from the reservoir t to the pad f . In Figs. 10, 11, and 12 there is shown an envelop in connection with this folding mechanism in three different positions—first, just as it is entering the folder; second, just as the right-hand end of it has passed through the folder, and, lastly, in Fig. 12, just as the envelop has passed about one-half the distance through the folder. As the envelops are delivered from the rollers a^2 and a^3 they fall upon one of the vanes, receptacles, or blades w of a delivering or bunching mechanism consisting in four such vanes or receptacles w , each located at right angles with either adjacent one and carried by the shaft s^{12} , having its bearings, as indicated, in the side pieces B for this part of my machine. Upon the shaft s^7 there is located a sprocket-wheel g^{12} , arranged to carry the chain c' , which also encircles the sprocket-wheel g^{13} . This sprocket-wheel g^{13} is rigidly secured to the bevel-gear g^{14} and is revoluble upon the stud s^{13} , which is suitably supported from the side of the machine. This bevel-gear g^{14} meshes with a similar gear g^{15} , revoluble upon the stud s^{14} , which is also suitably supported from the side of the machine. This bevel-gear g^{15} is rigidly secured to the sprocket g^{16} , which is arranged to engage the chain c^2 , which in turn encircles the similar sprocket g^{17} , carried by the shaft s^{15} , upon which there is located a roller similar to those already described and around which there is arranged to pass a continuous band b^4 , which band, as seen in Fig. 3, passes around a similar roller located upon the shaft s^{16} . Upon this band b^4 the envelops after any desired number of them have been delivered upon any one of the vanes or receptacles

w are arranged to be delivered in the manner yet to be explained, and by means of such band b^4 they are carried from the machine and deposited upon any suitable table or in any desired receptacle. These vanes w are supported upon a very small steel shaft in such a way as to require very little or no effort to revolve them, and for ordinary rates of speed of my folding and sealing mechanism the weight of the envelops is sufficient to revolve such vanes when they are released. Each receptacle w as such receptacles are revolved, when it occupies a horizontal position, to the left as seen in Fig. 3, being indicated in this figure in dotted lines, is in position for receiving the envelops, and such vanes or receptacles as they revolve in delivering the envelops pass by the spring-pawl j' , as indicated in Figs. 3 and 4, in such a way as to be prevented thereby from moving backward, the direction of rotation of these receiving-vanes w being from the top over toward the observer in Figs. 1 and 2 and over to the left in Figs. 3 and 4 and for the portion of the vane seen in Fig. 6 from the observer.

Upon the shaft s^{10} there is secured an intermittent gear-wheel g^{10} , coöperating with the gear g^{11} , revoluble upon the stud s^{17} , suitably supported from the side of the machine. The relation between these gears g^{10} and g^{11} is such that for twelve complete rotations of the gear g^{10} one complete rotation is imparted to the gear g^{11} . As seen in Fig. 6, this gear-wheel g^{11} carries a cam j^2 , arranged to engage the projection formed at the right-hand end of the bell-crank stop-lever j at the completion of each rotation of this gear-wheel g^{11} , whereby this stop-lever j , which normally engages the upper surface of one of the receiving-vanes w , is caused to be disengaged from the vane w , and the weight of the envelops on the other vane w , lying in the same plane with the one just engaged by such stop-lever j , causes these vanes to rotate in the direction already indicated and described, so as to deliver the envelops that were upon the left-hand horizontal vane w (viewing Fig. 3) upon the continuously-traveling belt b^4 and therefrom into any suitable receptacle. The weight of the envelops is sufficient to rotate these vanes over to the left as seen in Fig. 3 without any additional mechanism being used therefor. The arrangement and proportions of the parts as shown in the drawings are such that at each delivery of twelve envelops to a receptacle w such vanes are permitted to rotate and deliver the twelve envelops onto the continuously-traveling band b^4 in the manner already described.

The shafts $s^2, s^3, s^4, s^5, s^6, s^7, s^8, s^9, s^{10}, s^{11}, s^{15}$, and s^{16} all receive suitable support from the side pieces B of the machine.

It will of course be understood that envelops shorter in length than the distance between

the centers of the pairs of shafts s^4, s^5 and s^6, s^8 —that is, between the centers of the positively-acting feed-rolls for forcing the envelops through the folder E and the centers of the rear rolls carrying the bands b^2 and b^3 —cannot be folded and sealed in my machine, while, however, envelops of a considerably greater length than the distance between the centers of such bands may be folded and sealed by my machine, the varying widths of such envelops being provided for by means of the adjustable features already described.

My machine may be built in different sizes to accommodate envelops of lengths shorter than the minimum length which any one machine will fold and seal.

The operation of my mechanism is as follows: The envelops to be sealed are first, of course, supposed to have been filled with merchandise or whatever matter it is desired that they should contain and then fed with their flaps lying open, as indicated in Fig. 2, to the receiving member or spout and forced therein just far enough so that the forward end is caught between the bands b and b' , by means of which they are carried to the right and caused to be engaged by and carried between the rollers a and a' and by means of which they are forced through the folding mechanism E in such a way that their forward ends are caught between the bands b^2 and b^3 , and thereby carried still farther to the right and forced between the rollers a^2 and a^3 . The space between the rollers a and a' and the rollers located on the shafts s^6 and s^8 , over which the bands b^2 and b^3 pass, is such that the envelops are caused to be engaged by the bands b^2 and b^3 before they are released from the rollers a and a' . The folding and sealing mechanism E is arranged to slide upon a suitable guide-piece i and may be adjusted laterally relatively to the machine or longitudinally relatively to such guide-piece, so as to provide for different widths of envelops, by means of the screw r , threaded through the piece n , carrying this folding and pasting mechanism. This screw r may be operated by means of any suitable head, as d , all as indicated in Fig. 5. After passing through the rollers a^2 and a^3 the envelops fall upon one of the vanes w , where they are collected until the desired number is reached, when they are dropped upon the band b^4 and carried from the machine and deposited upon any suitable receiving-table.

It will of course be understood that where my counting mechanism is made use of the roller a^2 must be of such a circumference as to practically equal the length of one of the envelops passing through the machine.

What I claim is—

1. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad

and the body of the envelop, such funnel-shaped folding mechanism extending to the rear of such pad and supporting-plate and arranged to fold the flap of the envelop down upon the body of the envelop after passing such pad.

2. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such pad and supporting-plate located entirely within such funnel-shaped folding mechanism.

3. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such funnel-shaped folding mechanism extending both to the rear and in front of such pad and supporting-plate and arranged to fold the flap of the envelop down upon the body of the envelop after passing such pad.

4. In an envelop-sealing machine, a folding and sealing mechanism consisting in a pad supplied with suitable liquid, a funnel-shaped folding mechanism arranged to fold the flap of the envelop over upon such pad, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such pad located within such funnel-shaped folding mechanism, and a pair of positively-operating sealing-rollers, in combination with positively-operating feed-rolls, arranged to feed the envelops to such folding and sealing mechanism.

5. In an envelop-sealing machine, a folding and sealing mechanism consisting in a pad supplied with suitable liquid, a funnel-shaped folding mechanism arranged to fold the flap of the envelop over upon such pad, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such pad located within such funnel-shaped folding mechanism, and a pair of positively-operating sealing-rollers, in combination with positively-operating feed-rolls, arranged to force the envelops through such folding and sealing mechanism and positively deliver the same to such sealing-rollers.

6. In an envelop-sealing machine, in combination with a stationary moistening device, positively-operating feed-rolls preceding such moistening device and arranged to feed the envelops to such moistening device and partially therethrough, and a second pair of rolls arranged to engage such envelops after passing through such moistening device and before being disengaged from such positively-operating feed-rolls.

7. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, a stationary moistening device, and mechanism for folding the flap of the envelop over upon such

moistening device and then upon the body of the envelop just prior to entering between such sealing-rolls, such moistening device and such folding mechanism both interposed between such first and second pair of rolls.

8. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, and interposed between such first and second pair of rolls mechanism for folding the flap of the envelop nearly or quite down upon the body of the envelop just prior to entering between such sealing-rolls, and a stationary moistening device lying in the path of the flap of the envelops through such machine and between such first and second pair of rolls, such sealing-rolls so located relatively to such feed-rolls that the envelop is engaged by such sealing-rolls before being disengaged from such feed-rolls.

9. In an envelop sealing and delivering machine, a folding mechanism and a sealing mechanism, means for feeding the envelops to and through such folding mechanism and such sealing mechanism, a positively-driven member and a delivering mechanism arranged to deliver the envelops in predetermined quantities, an element lying in the path of such envelops through such machine and arranged to control the operation of such additional delivering mechanism, and means whereby such positively-driven member actuates such element lying in the path of the envelops through such machine by means of one of such envelops.

10. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, and a moistening and folding mechanism interposed between such first and second pair of rolls and arranged to engage the flap of the envelop and moisten and fold the same down upon the body of the envelop, such moistening and folding mechanism cooperating to moisten and fold the envelop when fed therethrough in a direction longitudinal of the fold between the flap and the body thereof.

11. In an envelop-sealing machine, positively-operating feeding mechanism and a pair of sealing-rolls, and interposed between such feeding mechanism and such sealing-rolls the following elements, viz., a stationary moistening device and a folding mechanism arranged to fold the flap of the envelop down upon the body thereof just prior to entering between the sealing-rolls, such sealing-rolls so located relatively to such feeding mechanism that the envelop is positively engaged by such sealing-rolls before being disengaged from the feeding mechanism.

HENRY HARTE.

Witnesses:

F. E. DUTTON,
J. M. ANGLE.