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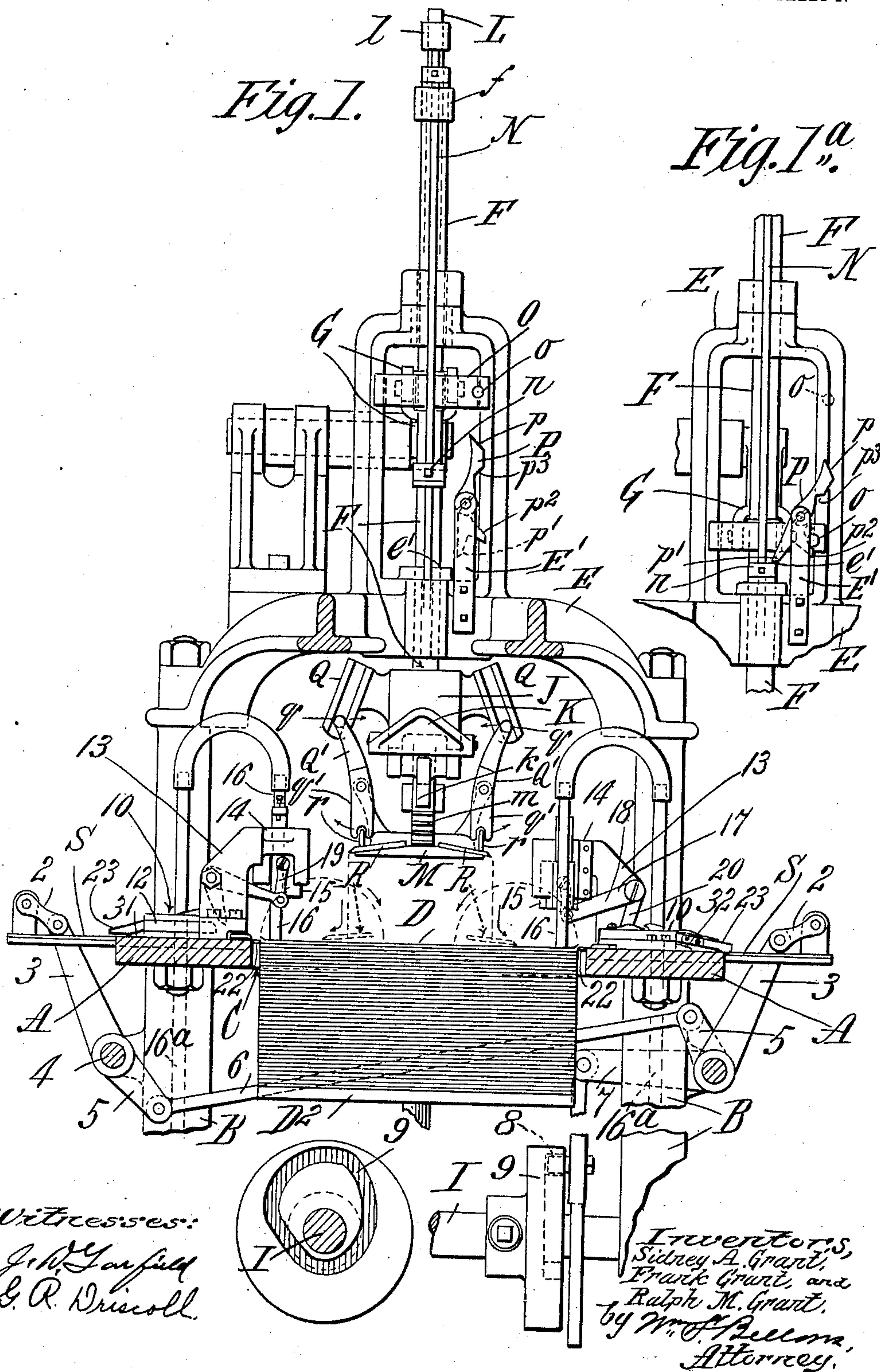
PATENTED AUG. 28, 1906.

S. A., F. & R. M. GRANT.

ENVELOP MACHINE.

APPLICATION FILED DEC. 19, 1904.

3 SHEETS—SHEET 1.



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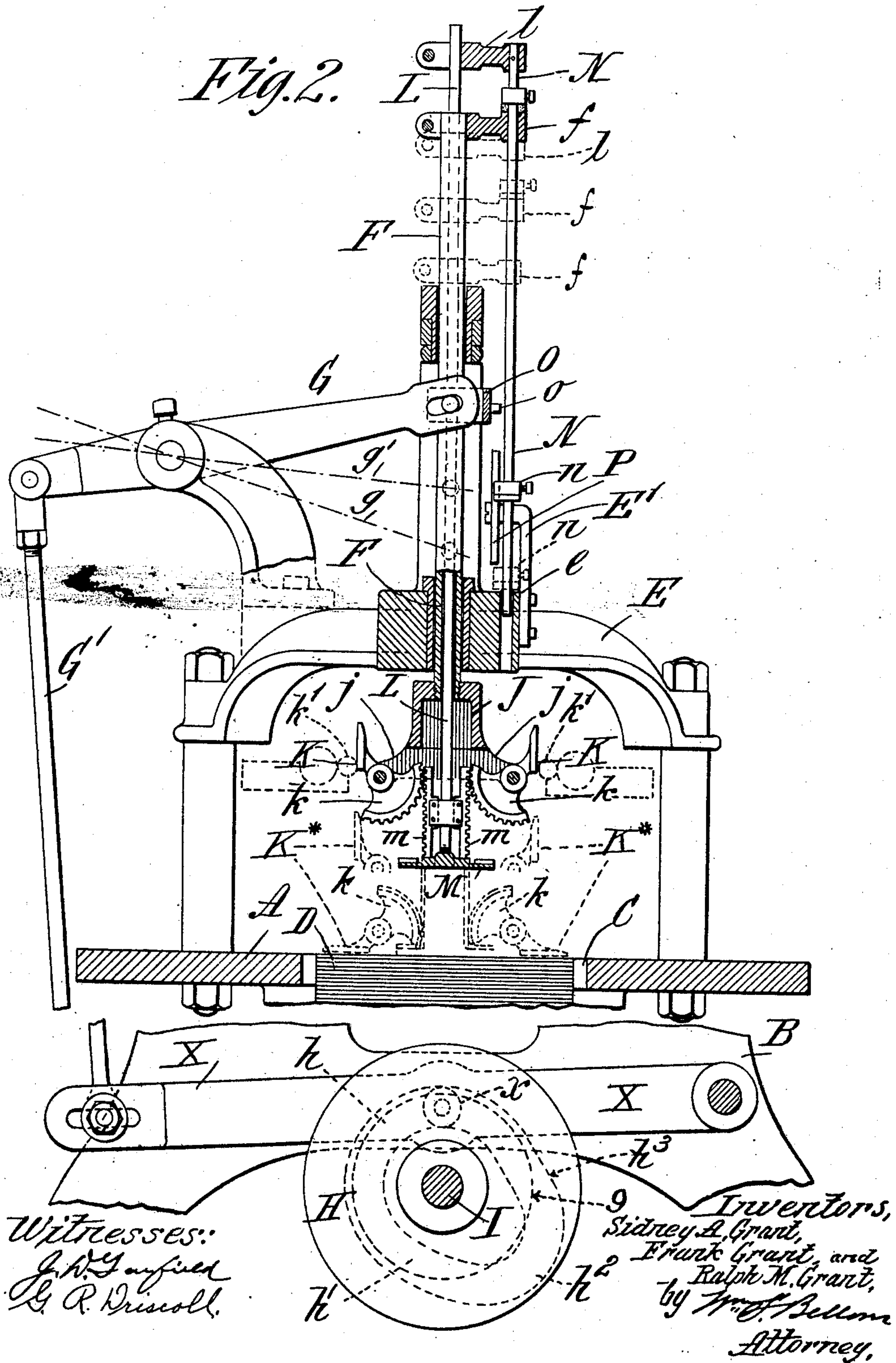
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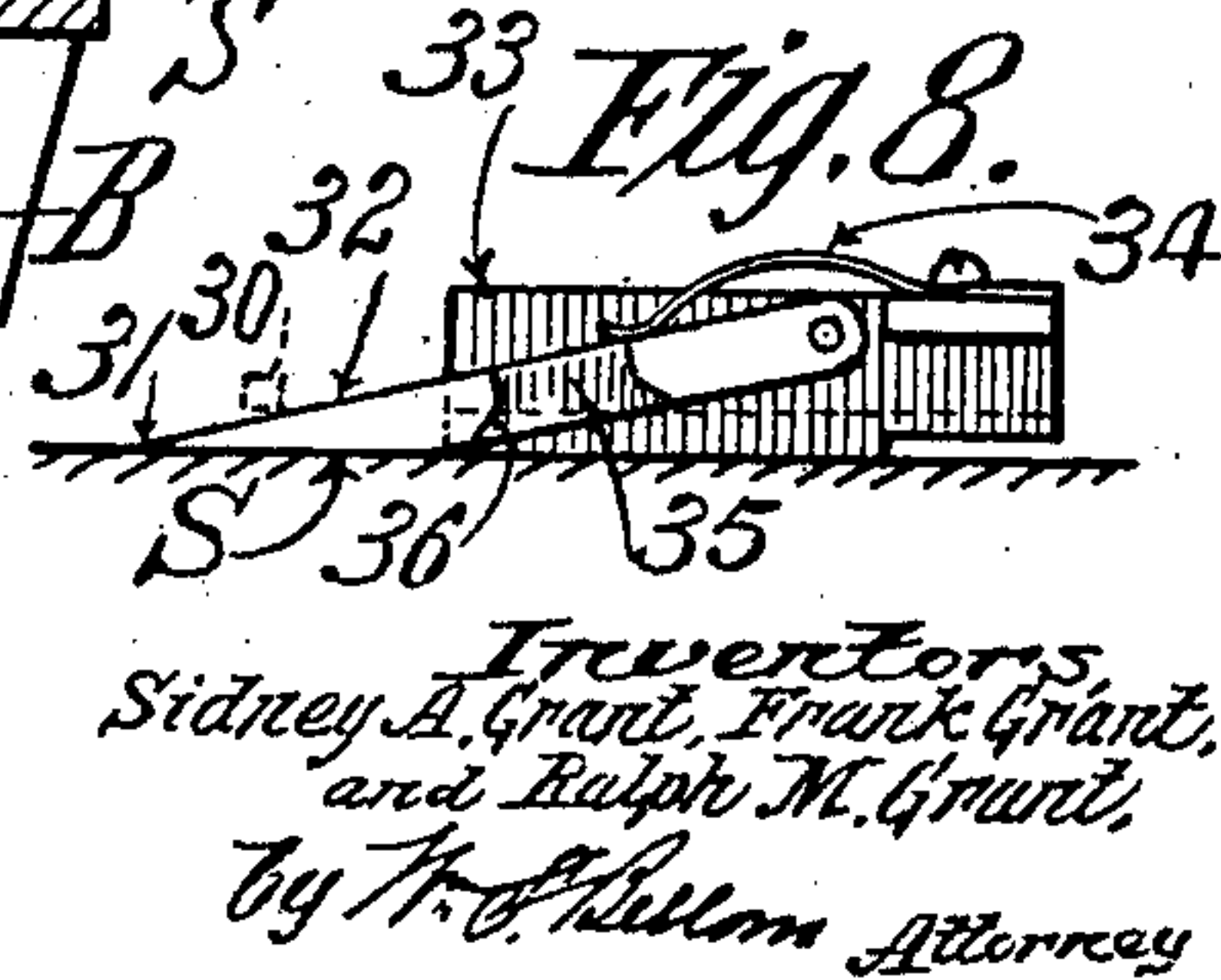
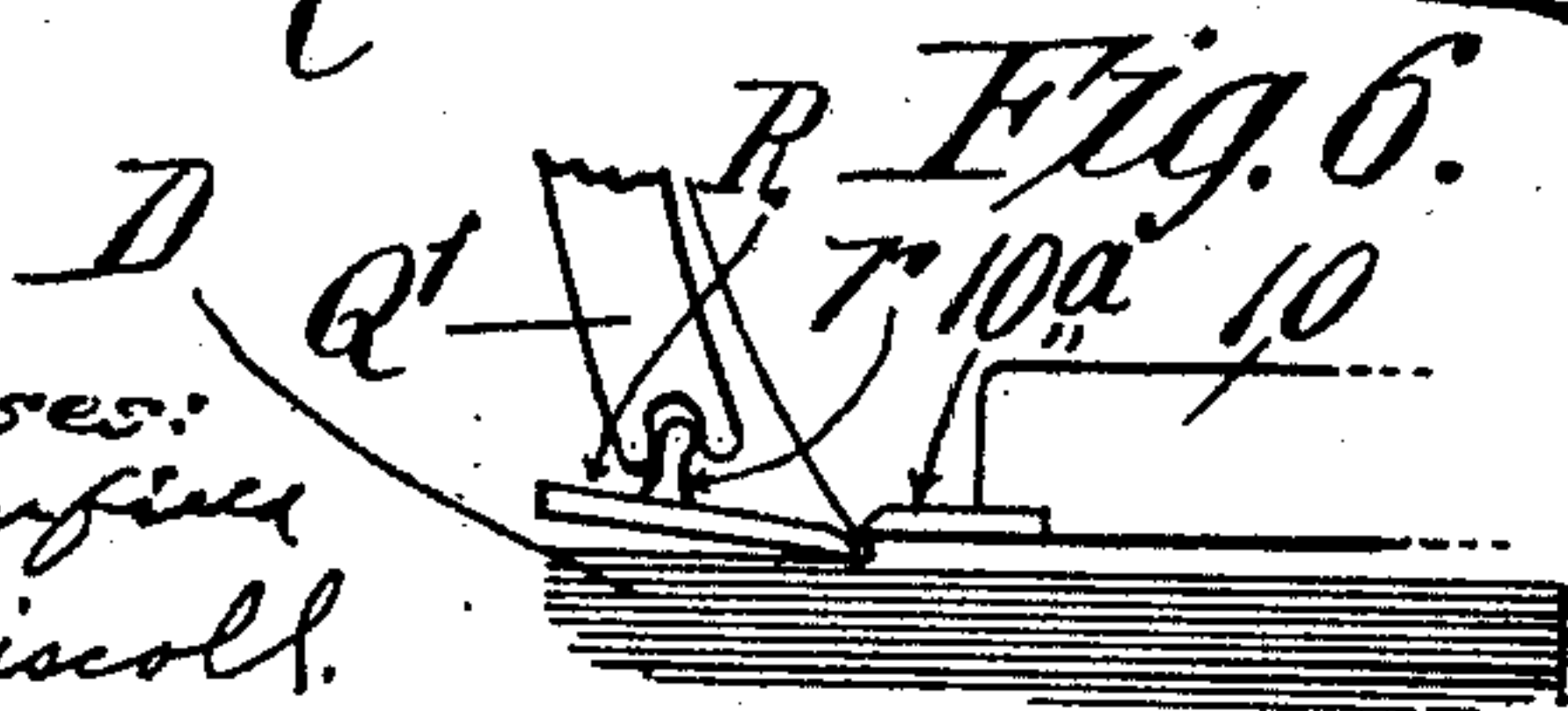
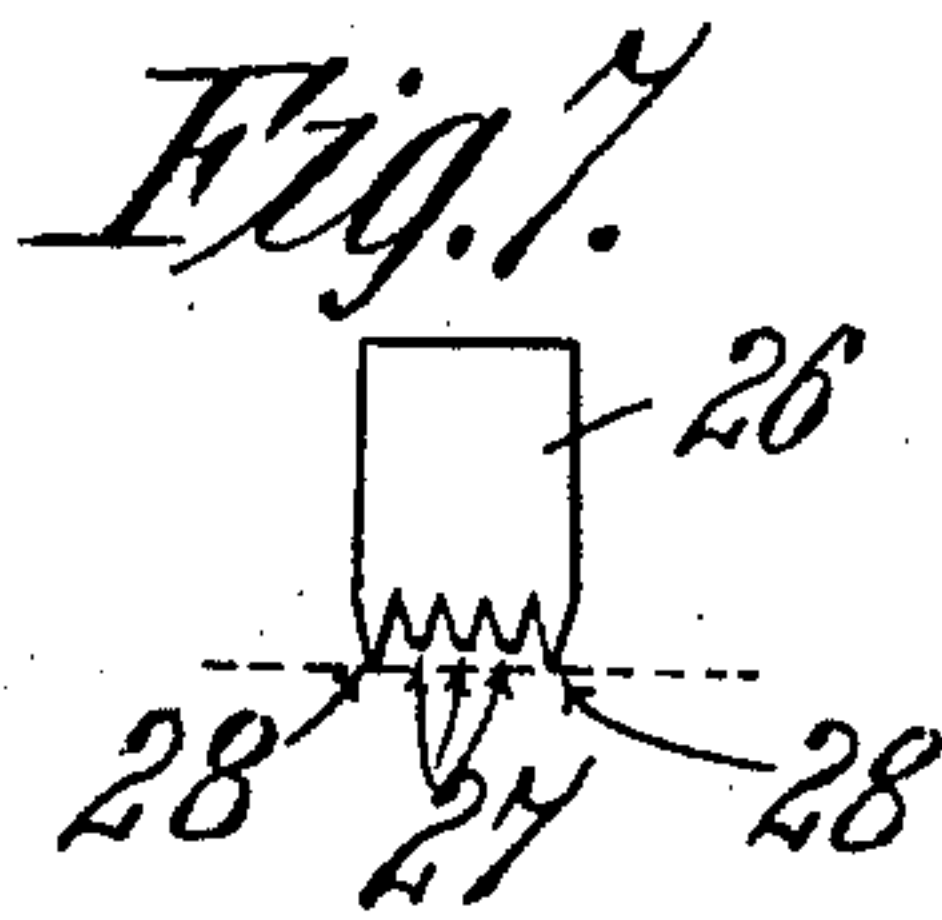
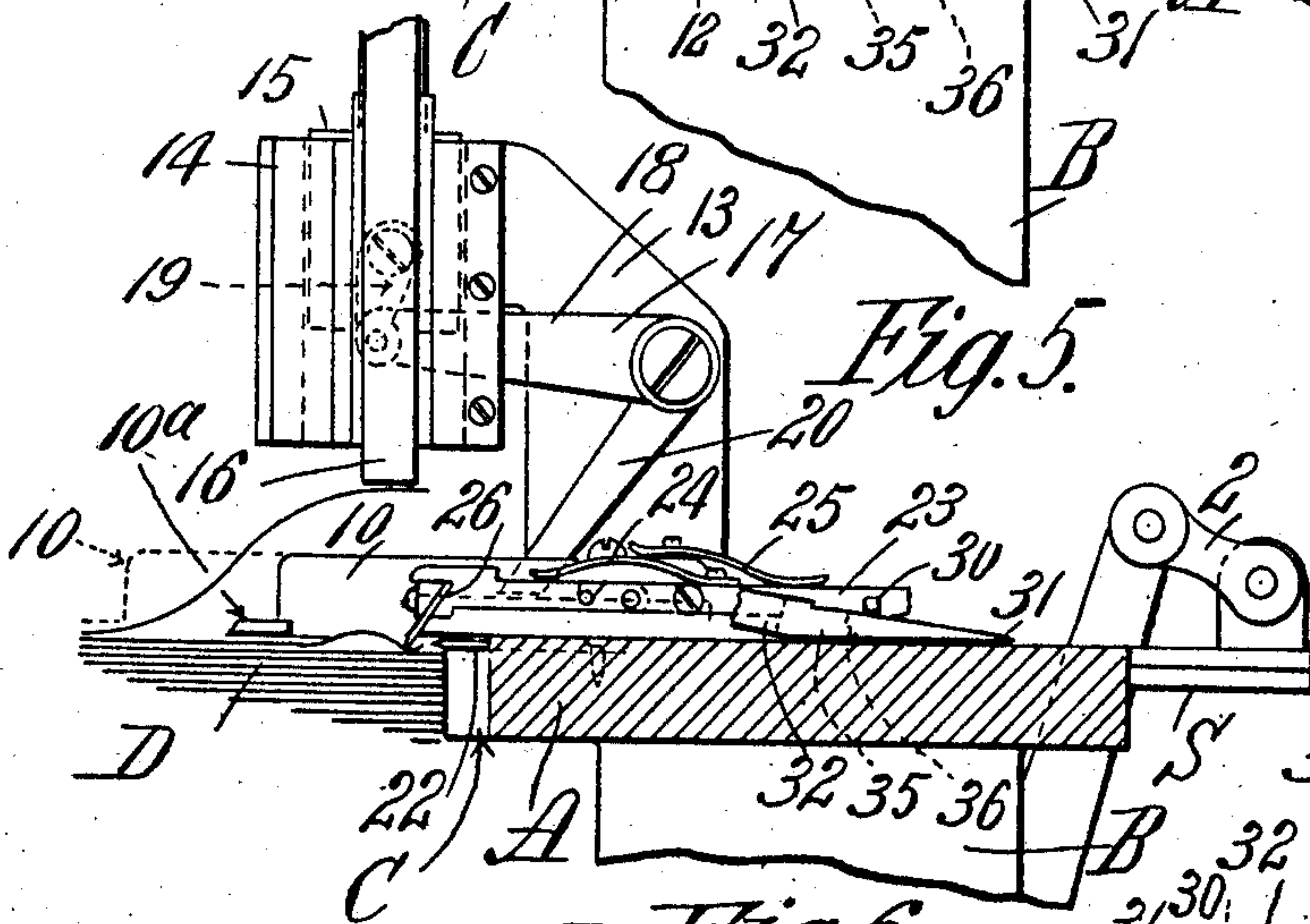
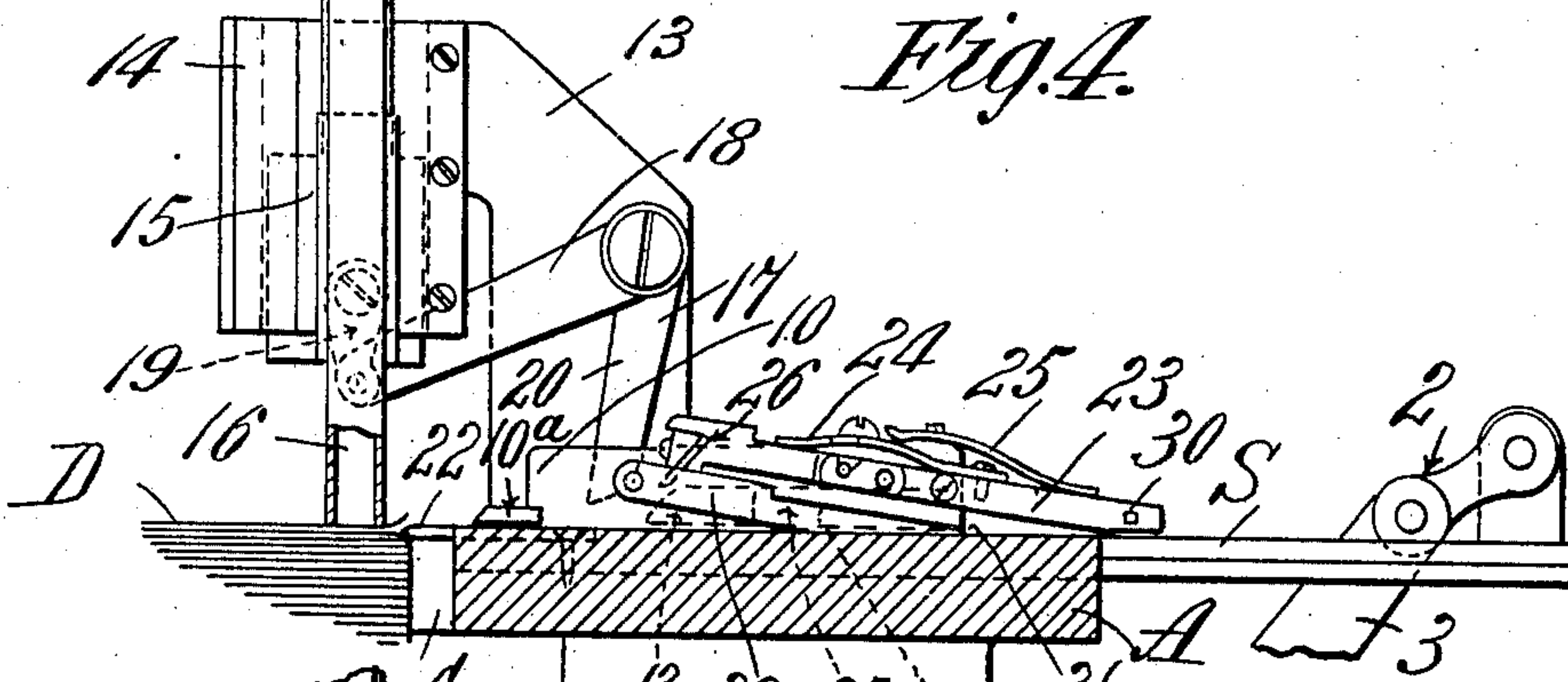
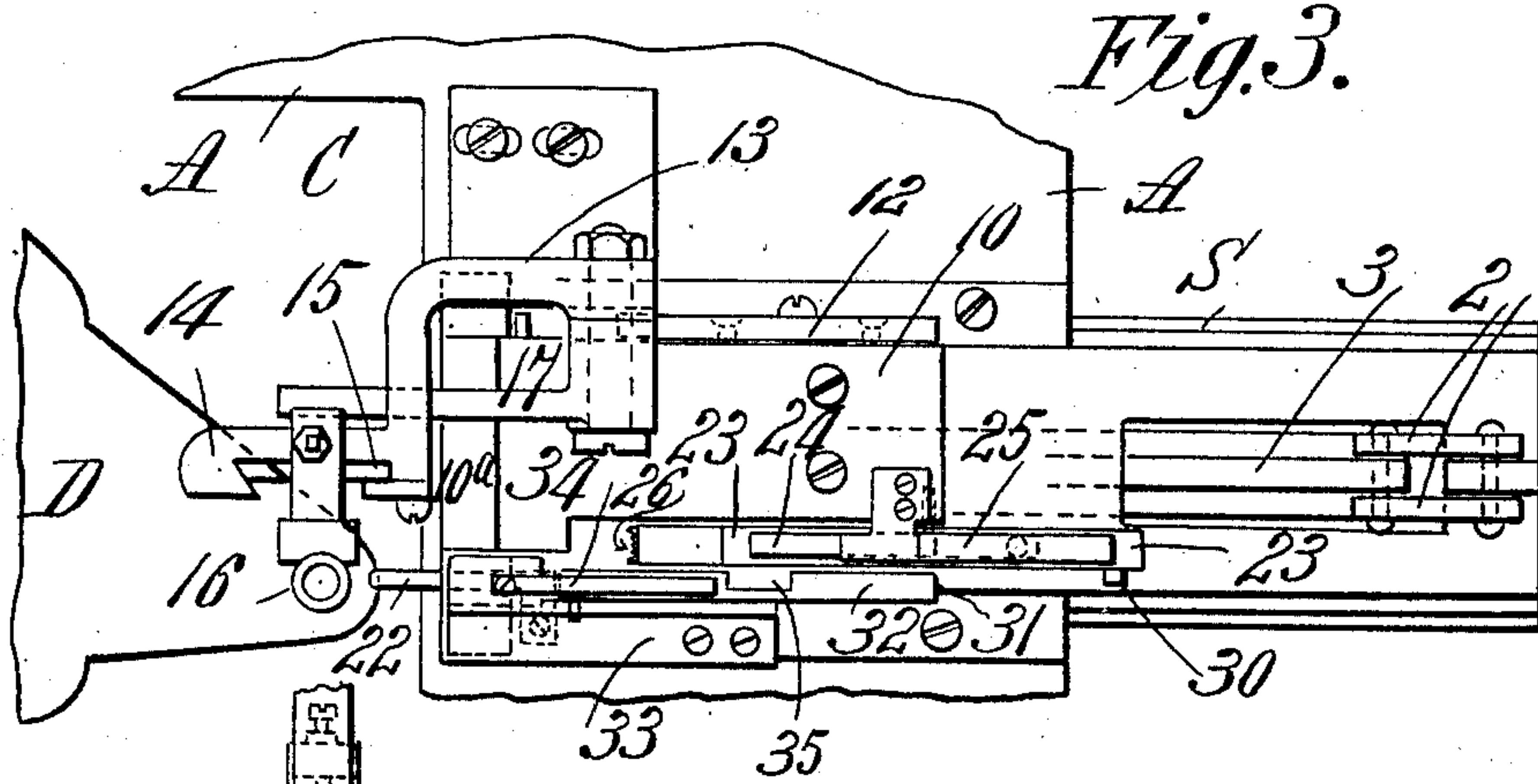
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

SIDNEY A. GRANT, OF SPRINGFIELD, AND FRANK GRANT, OF WESTFIELD, MASSACHUSETTS, AND RALPH M. GRANT, OF SOUTH WINDSOR, CONNECTICUT.

## ENVELOP-MACHINE.

No. 829,583.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed December 19, 1904. Serial No. 237,568.

*To all whom it may concern:*

Be it known that we, SIDNEY A. GRANT, a resident of Springfield, and FRANK GRANT, a resident of Westfield, in the county of Hampden, State of Massachusetts, and RALPH M. GRANT, a resident of South Windsor, in the county of Hartford and State of Connecticut, citizens of the United States of America, have invented certain new and useful Improvements in Envelop-Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements on the envelop-machine described and shown in Letters Patent of the United States issued to Sidney A. Grant March 1, 1904, No. 753,256.

The invention, in part, relates to improvements in mechanism for operating the gummers which have quadrantal or quarter rotational movements between their elevated positions and their positions against the top blank of the pile for applying the gum thereto.

The invention furthermore relates to improved devices against or relatively to which the end flaps are folded over onto the middle portion of the blank and means for alternately distending and retracting blades or plates comprised in such device.

The invention furthermore relates to devices for retaining the higher sheets of the blank pile in place, and to devices provided for operation in conjunction with the end-flap pneumatic pickers for separation while the pickers are carrying up the end flaps of one blank the flaps of the next blank thereunder from the pile proper to prevent, because of the freedom of air-entrance under the so-separated blanks, the flaps of more than one blank from being carried upwardly by the pneumatic pickers in the properly-timed action thereof; and the invention consists in improved means and devices for the carrying out of the above-stated objects, and in the constructions and combinations of parts included in the respective devices, all substantially as hereinafter described, and set forth in the claims.

In the accompanying drawings so much of the envelop-machine of the general character and organization exemplified in the aforementioned patent is shown as is requisite for making plain the inclusion or the substitu-

tion in such machine of the present improvements, and in said drawings—

Figure 1 is a sectional elevation from front to rear of the machine. Fig. 1<sup>a</sup> is a similar elevation of a portion of the machine, showing different positions of the parts. Fig. 2 is a sectional elevation as seen at right angles to Fig. 1. Fig. 3 is a plan view of the blank-separating and pneumatic picking devices. Fig. 4 is a side elevation of the same; and Fig. 5 is a view similar to Fig. 4, but with the position of the movable parts changed. Fig. 6 is a view of coöperating parts in particular relations to be hereinafter referred to. Fig. 7 is a view of the plate-finger. Fig. 8 is a side view of the finger-operating yieldingly-movable cam.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the table of the machine supported on side frames B and having a rectangular-shaped aperture C, through which aperture the blank pile D is raised gradually by an "elevators" of any of the suitable and approved kinds, the top of said blank pile being sustained at substantially the same level as the top of the table A.

An arch E above the blank pile guides the vertically-operated tubular plunger-shaft F, which plunger-shaft has an intermittent upward and downward movement imparted thereto by the connection through lever G, connecting-rod G', and lever X with the path-cam G on main shaft I of the machine.

Secured to the lower end of plunger-shaft F is a cylindrical head J, having front and rear extensions j, in which are mounted the gumming flaps or wings K, having the segmental gears k formed thereon. A second plunger-shaft L is slidably supported in the tubular plunger-shaft F, and passing down through the head J is provided at its lower extremity with a presser-foot or foot-plate M. Rising from this foot-plate and rigidly secured to the plunger-shaft L are two rack-bars m, which engage the geared segments k, as seen in Fig. 1 and still more clearly in Fig. 2 of the drawings. Extending parallel with plunger-shaft L and somewhat to the rear thereof is a vertical trip-rod N, the upper end of which is pinned to the bracket-arm l, which extends rearwardly from and is se-



cured to the upper end of plunger-shaft L. This trip-rod is guided through a bracket-arm  $f$ , (similar to bracket  $l$ ), which extends rearwardly from plunger-shaft F, and the lower end of said rod N is guided in the arch F. (See Figs. 1 and 2.)

The cam H on main shafts I, the cam-groove or path of which is clearly shown in dotted lines in Fig. 2, comprises a "dwell" or concentric groove portion  $h$ , leading by a steep rise  $h'$  to a second dwell or concentric portion  $h^2$ , from which is a steep drop  $h^3$ , back to dwell  $h$ , and thus through the engagement of the cam-roller  $x$  of the horizontal lever X and the connections G and G', before mentioned, an alternate elevation of plunger-shafts F and L, followed by a corresponding depressing of the same, with a dwell or stationary period between each of said upward and downward actuations of said plunger-shafts is produced.

The upper position of lever G is shown in Fig. 2 and the lower position of the same is indicated by the broken line  $g$ .

The gumming-flaps K, as illustrated in Figs. 1 and 2, are shown as at their extreme uppermost limit of travel, with their gumming-surfaces in a vertical position and in facewise contact on the gum-distributing rolls  $k'$ , (shown in dotted position in Fig. 1,) and from this point are carried downward by the cam-actuated means above described to the position indicated by dotted lines at K\*, with the gumming-flaps still in their vertical or gum-receiving position. At this point the foot-plate M on plunger-shaft L rests on the top of the blank pile D, and a collar  $n$  on trip-rod N contacts with the arch E at a point  $e$ , Fig. 2.

On the continued downward movement of the plunger-shaft F, carrying the gummers K thereon, the plunger-shaft L, by which the racks  $m$  are carried, is held stationary, and the gear-segments  $k$  of the gummers K are caused to have partial rotary (quadrantal) movements in their descent by their engagement with and movements relatively to said racks  $m$ , thereby bringing the gumming-surfaces of the gumming-wings K to a horizontal or gumming position against the top blank of the pile D.

At the point of engagement of lever G with plunger-shaft D a cross-head O is secured, and forwardly projecting from this cross-head is a pin  $o$ , which on the downward movement of said cross-head engages the beveled surface  $p$  of a latch P, this latch being pivotally mounted on an upright E' of the arch E.

The first engagement of pin  $o$  with beveled surface  $p$  swings the depending lower end  $p'$  of the latch P in a direction away from plunger-shaft F, and the continued downward movement of the plunger-shaft brings pin  $o$  into engagement with a second beveled sur-

face on the angularly-projecting arm  $p^2$ , which swings the depending end  $p'$  against the top of the collar  $n$  on trip-rod N, thus preventing its upward movement with the return or upward movement of plunger-shaft F, and thereby causing, on such return movement of shaft F, the partial rotation in the opposite direction to that first described of gear-segments  $k$ , resulting in the returning of the gumming-faces to the vertical position shown in full lines in Fig. 2.

On the arrival of lever G to the position indicated by the broken line  $g'$ , Fig. 2, on the upward movement of plunger F the pin  $o$  on cross-head O after having an extent of lost motion comes into contact with the beveled surface  $p^3$  of latch P, causing a swinging of the depending end  $p'$  from its point of engagement on top of collar  $n$ , whereby the continued upward movement of the shaft F carries the foot-plate M on shaft L with it, thus maintaining the gumming-wings K in their vertical position.

Referring now to Fig. 1 of the drawings, the head J is shown as provided with the angularly-placed grooved cams Q, in which the rounded angular ends  $q$  of the pivoted levers Q' are engaged, the depending and forked lower ends  $q'$  of which engage lugs  $r$  on the sliding plates R of the foot-plate M, and on the outer ends of which the envelop and flaps are folded on parallel lines, whereby the differential movements of foot-plate M relatively to the head J, as described, cause the plates R to be slid outwardly by the descending movement of the cams Q through the engagement therewith of the levers Q' and to be retracted by the return upward movement of the said cams.

On the table A of the machine at either side of the apertures C are end-flap-sliding folders S, which have reciprocating movements imparted thereto by links 2, connected to upstanding levers 3, mounted on the rock-shafts. These rock-shafts 4 at either side of the machine are connected together by the short levers 5 and connecting-rod 6, so that both shafts 4 have the same degree of movement. The shaft 4 at the right of the machine has a horizontal lever 7, from which a depending forked rod having a cam-roller 8 thereon is engaged by the path-cam 9 (see Fig. 1) on main shaft I, giving said end-flap folders the above-mentioned intermittent reciprocating motions toward and away from each other.

Mounted on the ends of the folder-slides S nearest the aperture C are blocks 10, on one side of which are secured long cam-pieces 12. Secured to the table A adjacent to and located on this same side of the block 10 are the upstanding supports 13, on angular extensions of which and at points over the blank pile D are provided vertical slideways 14, in which are carried on suitable slides 15,



movable vertically in said ways 14, the tubular pneumatic pickers 16.

The tubular pneumatic pickers are by the extension of pipes 16<sup>a</sup> connected in the usual manner with a pump (not shown) for periodically establishing suction in and through the picker-tubes; but so far as the pickers 16 are concerned they have their regular rising and falling movements and have their suctions and terminations thereof in nowise different from those commonly carried out in the already well-known and extensively-used pneumatic picker.

One arm 18 of an angle-lever 17, pivoted on support 13, is connected to the pneumatic-picker slide 15 by the link 19 and the other arm 20 of said lever 17 extends downward from its pivotal point and is of such a length as to bring its extreme lower end in front of and in the path of the cam 12, with the result that on the movement of the slide S toward the blank pile D the cam 12 lifts the lower end of the arm 20 of the lever 17 and raises the other arm 18 thereof, thus lifting the pneumatic pickers from against the blank pile D, at which time a properly-timed air-pump or other similar device produces an exhaust-pressure in the pickers, thus enabling the said pickers to raise the ends of the top blank, as shown in Fig. 5.

Two blank-retaining fingers 22 are secured to the table A at either side of the aperture C and extend a slight distance over the end-flap portion of the blanks. Hence the operation just described can only lift a blank after it has been freed from these fingers 22. To insure the freeing, one at a time, of the blanks from under these fingers 22, I have provided a blank freeing or loosening mechanism which I will now describe.

On the opposite side of the block 10 from the cam 12 and pivoted thereto is a jointed lever 23, made in the parts endwise arranged and pivoted together. A spring 24 keeps the two parts of said lever normally in alinement, and a spring 25, attached at one end to the block 10 by its free end, presses the end of lever 23 farthest from the blank pile down against the slide S. The other end of said lever being held at some distance above slide S has secured thereon the angularly-disposed finger-plate 26. This finger-plate 26 has several points or fingers 27, as seen in Fig. 7, the outside ones 28 being somewhat longer and sharper than the intermediate ones—i. e., the extreme points of the intermediate ones are ground off, as shown, the effect of which is that but two minute marks of the fingers 28 appear on the envelop-blank acted upon thereby. The operation of this finger-plate 26 on lever 23 is as follows: On the movement toward the end of the blank pile D of the slide S a pin or stud 30—in effect, a pawl—on lever 23 encounters the point 31 of an inclined lever-cam 32, which is pivoted at

its opposite end to a stationary block 33 on table A. A spring 34, secured on said block, keeps the point 31 of lever-cam 32 pressed down against slide S. Somewhat back from the point 31 on the lever-cam 32 is a recess 35, (clearly shown in Fig. 8,) the side of which recess nearest the point 31 being inclined, as shown at 36, and hence the pin 30 as it passes up the inclined top edge of the device 32 depresses the other end of lever 23, carrying the finger-plate 26 thereon down and into engagement with the end-flap portion of the top blank of the blank D and carries said end-flap portion of such blank slightly toward the center of the blank pile by reason of its bodily movement along and as one with the slide S, releasing the blank end portion from under the finger 22, as seen in Fig. 5. A continued movement now of stud or pawl 30 up the incline of lever 32 brings it to the recess 35, through which it drops, thereby permitting the elevation of the finger-plate 26 from its blank-engaging position, which position of engagement, as may be understood, was of but slight duration, and now of course the extremity of the blank being released it by its natural elasticity becomes straightened out, lying above the finger 22, which holds it separated from the next blank therebelow, leaving an air-space between the blank next to be taken by the pneumatic picker and insuring that the picker will carry up but one blank.

Referring again to Fig. 5 of the drawings, it will be understood that while the releasing of the second blank from the top of the pile from under the finger 22 is being accomplished, as above described, the top blank has been held at some distance above the top of the pile by the pneumatic pickers 16. At the time of the release and consequent straightening out of the next to the top blank the exhaust-pressure of the pneumatic pickers is shut off, thereby releasing the top blank from engagement therewith. The continued and final inward movement of slide S' now to the position shown in dotted lines in Fig. 5 results in the flat plate extension 10<sup>a</sup> engaging the end flaps of the loose top blank, carrying them to a folded position over the distended formers R, as clearly shown in Fig. 6, and leaving them in such position that the gummed side flaps of the blank (which have been manipulated and brought to their proper overturned positions over the formers R by means of the front and rear folders described in the previously-mentioned patents issued to S. A. Grant) may be brought over and properly in relation to the overturned end flaps, it being understood that the formers R are inwardly withdrawn and the foot-plate upwardly retires, all in such season as to in no way obstruct the operation of folding the side flaps over the end flaps, and the forcing of the completed blank



from off the pile is accomplished by means also described and shown in said patent. The return or outward movement now of slide S returns the parts carried thereby to their normal position—that is, to the position shown in Fig. 1—and during this return movement the stud 30 on lever 23 encounters cam edge 36 (see Fig. 8) of the recess 35 in cam-lever 32, thereby raising said cam-lever, so that the stud, permitted to pass under the point 31 thereof, assumes its position to again ride upon the inclined lever-cam and swing the finger-carrying lever 23.

Having now described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying a rack-bar, of another plunger-shaft, carrying a gummer pivotally mounted thereon, and having a gear in mesh with the rack, and means for causing said plunger-shafts to have relative motions, for the purpose set forth.

2. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying a rack-bar, and a gum-supplying roller directly above the location of the pile, of another plunger-shaft, carrying a gummer pivotally mounted thereon, and having a gear in mesh with the rack, and means for causing said plunger-shafts to have relative motions, for the purpose set forth.

3. In an envelop-machine, the combination with a plunger-shaft having a foot member, and a pair of rigid upstanding rack-bars, of a tubular plunger-shaft telescopically movable in unison with, and also additionally movable relatively to, the first plunger-shaft, and having a pair of gummer-wings, pivotally mounted on a lower part thereof, and having segmental gear extensions in mesh with said rack-bars, and mechanism for imparting the respective movements to the said two shafts.

4. In an envelop-machine, the combination with the tubular vertically-guided shaft F having at its lower portion a widened part in which are pivotally mounted a pair of gummers having segmental gear extensions, and having at its upper portion an abutment member, and a cam-actuated lever operable to alternately impart rising and falling movements to said shaft, of the second shaft L endwise movable within the tubular shaft F, having an abutment at its upper portion above and normally separated from the first-named abutment, and having at its lower end a foot-piece with the upstanding rack-bars thereon.

5. In an envelop-machine, the combination with a plunger-shaft movable toward and

away from the top of the blank-pile support, and carrying a rack-bar, of another plunger-shaft, carrying a gummer pivotally mounted thereon, and having a gear in mesh with the rack, means for causing said plunger-shafts to have reciprocatory motions, and one of said shafts to have movements independently of the other, and a device operable for temporarily locking the first-named plunger-shaft in its lowermost position.

6. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-plate having formers movable transversely thereon, of another plunger-shaft, carrying cam-formed parts, levers engaging both the formers and the cams, actuated by the cams, and operable on the formers, and means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other.

7. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-plate having formers movable transversely thereon, of another plunger-shaft, carrying cam-formed parts, levers engaging both the formers and the cams, actuated by the cams, and operable on the formers, means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other, and a locking device, for temporarily holding the first-named plunger in its lowermost position, controlled by the positions of the second plunger-shaft.

8. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-plate having formers movable transversely thereon, and supporting intermediately pivotally-mounted levers, the lower ends of which engage said formers, and the upper ends thereof having angular projections, of another plunger-shaft, carrying members Q having cam-grooves angularly arranged, and in which the projections of said levers engage, and means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other.

9. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-plate having formers movable transversely thereon, and supporting intermediately pivotally-mounted levers, the lower ends of which engage said formers, and the upper ends thereof having angular projections, of another plunger-shaft, carrying members Q having cam-grooves angularly arranged, and in which the projections of said levers engage, means for causing said plunger-shafts to have motions



both in unison with each other, and also the one relatively to the other, and a device for temporarily locking the first-named plunger-shaft in its lowermost position, controlled by the movements of the second-named plunger-shaft.

10. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-piece having formers movable transversely thereon, of another plunger-shaft, carrying cam-formed parts, levers engaging both the formers and the cams, actuated by the cams, and operable on the formers, means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other, blank-flap-folder slides arranged for reciprocatory movements horizontally over, and away from over, the blank pile, and means for imparting their movements thereto.

11. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-plate having formers movable transversely thereon, and supporting intermediately pivotally-mounted levers, the lower ends of which engage said formers, and the upper ends thereof having angular projections, of another plunger-shaft, carrying members Q having cam-grooves angularly arranged and in which the projections of said levers engage, means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other, blank-flap-folder slides arranged for reciprocatory movements horizontally over, and away from over, the blank pile, and means for imparting their movements thereto, and a device, for temporarily locking the first-named plunger-shaft in its lowermost position, controlled by the movements of the second-named plunger-shaft.

12. In an envelop-machine, the combination with the tubular vertically-guided shaft F having at its lower portion a widened part in which are pivotally mounted a pair of gummets having segmental gear extensions, and having at its upper portion an abutment member, and a cam-actuated lever operable to alternately impart rising and falling movements to said shaft, of the second shaft L endwise movable within the tubular shaft F, having an abutment at its upper portion above and normally separated from the first-named abutment, having at its lower end a foot-piece with the upstanding rack-bars thereon, and carrying a trip-rod provided with an engagement-shoulder, a latch mounted for engagement with, and disengagement from, the said shoulder, and a part carried by, and movable with, the plunger-shaft F for controlling the position of the latch.

13. In an envelop-machine, the combination with a plunger-shaft movable toward and away from the top of the blank-pile support, and carrying at its bottom a foot-piece having formers movable transversely thereon, and having at its upper portion the extension l supporting trip-rod provided with a depending shoulder, of another plunger-shaft, carrying cam-formed parts, levers engaging both the formers and the cams, actuated by the cams, and operable on the formers; means for causing said plunger-shafts to have motions both in unison with each other, and also the one relatively to the other, blank-flap-folder slides arranged for reciprocatory movements horizontally over, and away from over, the blank pile; and means for imparting their movements thereto, a latch pivotally mounted and having movements of engagement with, and disengagement from the trip-rod shoulder, and an extension on the second-named plunger-shaft provided with a stud o for engaging and disengaging the latch.

14. In an envelop-machine, the combination with a vertically-guided plunger-shaft movable toward and away from the blank-pile support, having at its upper portion the extension l carrying a depending trip-rod N provided with a shoulder at its upper portion and a shoulder n near its lower portion, and having at its bottom the foot-plate M, of the latch-lever P pivotally mounted for swinging movement adjacent the lower shouldered portion of the trip-rod, of the second plunger-shaft F having at its upper portion the extension f, and having the extension O provided with the stud o for cooperation with the latch-lever, and the cam-actuated lever for imparting movements to the plunger-shaft F.

15. In an envelop-machine, the combination with a pneumatic picker having a vertical reciprocatory movement above the blank-pile support, of a slide horizontally movable over, and away from over, the top of the pile, a support mounted on, and adapted to swing relatively to, said slide and having a blank-engaging finger, means for reciprocating the slide, and means for imparting swinging movements to said finger-carrying support.

16. In an envelop-machine, the combination with a picker having a vertical reciprocatory movement above the blank-pile support, a reciprocatory plunger-shaft having a former at its bottom, and means for operating the plunger-shaft, of a folder-slide horizontally movable over, and away from over, the top of the pile, a support mounted on, and adapted to swing relatively to, said slide and having a blank-engaging finger, means for reciprocating the folder-slide, and means for imparting swinging movements to said finger-carrying support.

17. In an envelop-machine, the combination with a picker having a vertical reciprocatory



catory movement above the blank-pile support, of a folder-slide horizontally movable over, and away from over, the top of the pile, a support mounted on, and adapted to swing  
 5 relatively to, said slide and having a blank-engaging finger, means for reciprocating the slide, a device carried by the slide and operating the picker, and means for imparting swinging movements to said finger-carrying  
 10 support.

18. In an envelop-machine, the combination with a picker having a vertical reciprocatory movement above the blank-pile support, a finger 22 overlapping a marginal portion of the top blank of the pile, and a reciprocatory plunger-shaft having a former at its  
 15 bottom, and means for operating the plunger-shaft, of a folder-slide horizontally movable over, and away from over, the top of the pile, a support mounted on, and adapted to swing  
 20 relatively to, said slide and having a blank-engaging finger, means for reciprocating the folder-slide, and means for imparting swinging movements to said finger-carrying support.  
 25 port.

19. In an envelop-machine, the combination with a picker vertically guided for a reciprocatory movement above the blank-pile support, of a folder-slide horizontally movable over, and away from over, the top of the  
 30 pile, and provided with a cam, means for reciprocating the folder-slide, and a pivotally-mounted angular lever connected with the picker, and having an arm thereof in the path  
 35 of the cam carried on the folder-slide.

20. In an envelop-machine, the combination with a picker vertically reciprocatory and operable above the blank-pile support, and means for actuating it, of a folder-slide,  
 40 movable over, and away from over, the pile, and having pivotally mounted thereon a part carrying a finger, and provided with a stud, a cam-piece, normally stationary, located adjacent the course of movement of the finger-carrying part, yielding in one direction, and  
 45 having an aperture for the passage therethrough of said stud, for the purposes set forth.

21. In an envelop-machine, the combination with a picker vertically reciprocatory and operable above the blank-pile support, and means for actuating it, of a folder-slide  
 50 movable over, and away from over, the pile, and having pivotally mounted thereon a lever-like part, composed of pivotally-jointed members, with a spring for normally maintaining such members in line with each other, and permitting one thereof to yield relatively to the other, one of said members carrying a  
 55 finger, and the other provided with a stud, a cam-piece, normally stationary, located adjacent the course of movement of the finger-carrying part, yielding in one direction, and

having an aperture for the passage therethrough of said stud, for the purposes set  
 65 forth.

22. In an envelop-machine, the combination with a picker vertically reciprocatory and operable above the blank-pile support, and means for actuating it, of a folder-slide  
 70 movable over, and away from over, the pile, and having pivotally mounted thereon a lever-like part carrying a finger, and provided with a blank-engaging sidewise-extended stud, a cam-lever 32 pivotally mounted and  
 75 normally stationary, in an inclined position and located in the course of movement of the stud on the finger-carrying part, for the purposes set forth.

23. In an envelop-machine, the combination with a picker vertically reciprocatory and operable above the blank-pile support, and means for actuating it of a folder-slide  
 80 movable over, and away from over, the pile, and having pivotally mounted thereon a lever-like part, consisting of pivotally-jointed members, with a spring 24 for normally maintaining such members in line with each other, and permitting one thereof to yield  
 85 relatively to the other, and the spring 25 secured to the folder-slide and bearing downwardly against the portion of the lever-like part farther from the end at which the paper-engaging finger is carried, one of said members carrying a finger, and the other provided  
 90 with a stud, a cam-piece, normally stationary, located adjacent the course of movement of the finger-carrying part, yielding in one direction, and having an aperture for the passage therethrough of said stud, for the  
 95 purposes set forth.  
 100

24. In an envelop-machine, the combination with a picker vertically reciprocatory and operable above the blank-pile support, and means for actuating it, of a folder-slide,  
 105 movable over, and away from over, the pile, and having pivotally mounted thereon a part carrying a blank-engaging finger made with a plurality of bearing projections 27 and one or more longer paper-engaging teeth 28, and  
 110 provided with a stud, a cam-piece, normally stationary, located adjacent the course of movement of the finger-carrying part, yielding in one direction, and having an aperture for the passage therethrough of said stud, for  
 115 the purposes set forth.

Signed by us at Springfield, Massachusetts, in presence of two subscribing witnesses.

SIDNEY A. GRANT.  
 FRANK GRANT.  
 RALPH M. GRANT.

Witnesses:

WM. S. BELLOWS,  
 J. D. GARFIELD.