

No. 636,291.

Patented Nov. 7, 1899.

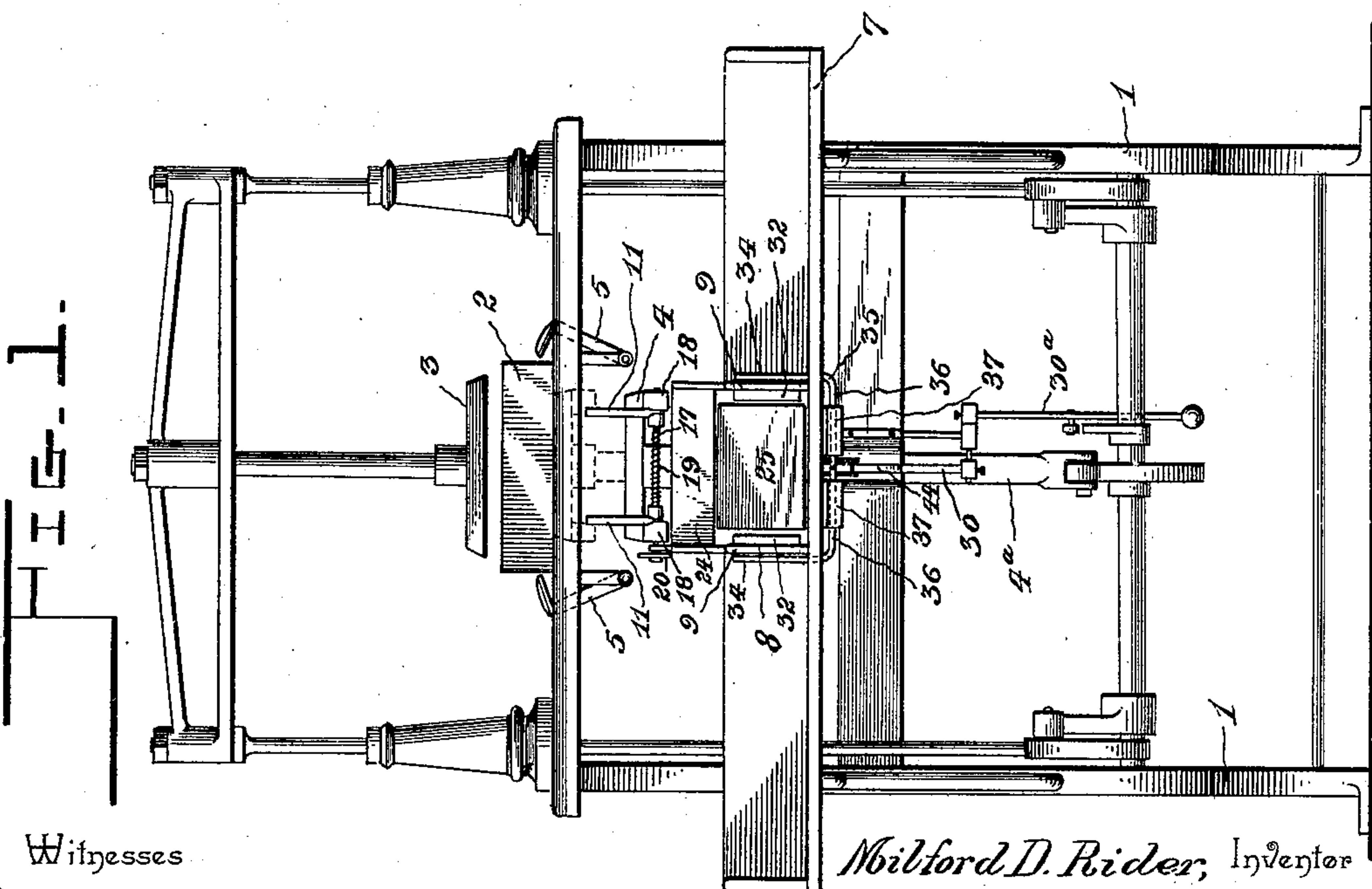
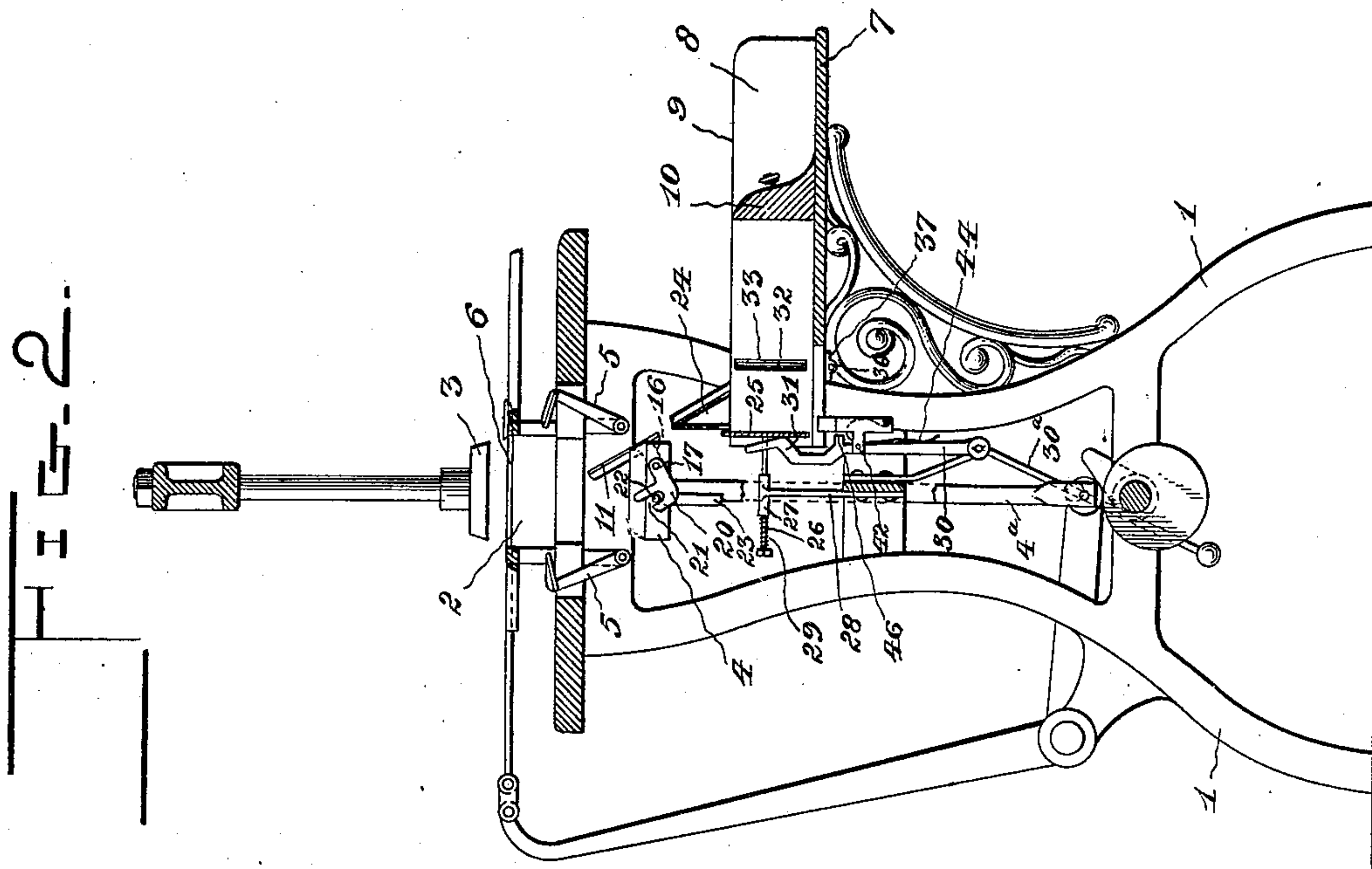
M. D. RIDER.

DELIVERY ATTACHMENT FOR ENVELOP MACHINES.

(Application filed Apr. 3, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

John F. Deufferwid
S. J. H. H. H. H. H.

By his Attorneys,

Milford D. Rider, Inventor

C. A. Snow & Co.

No. 636,291.

Patented Nov. 7, 1899.

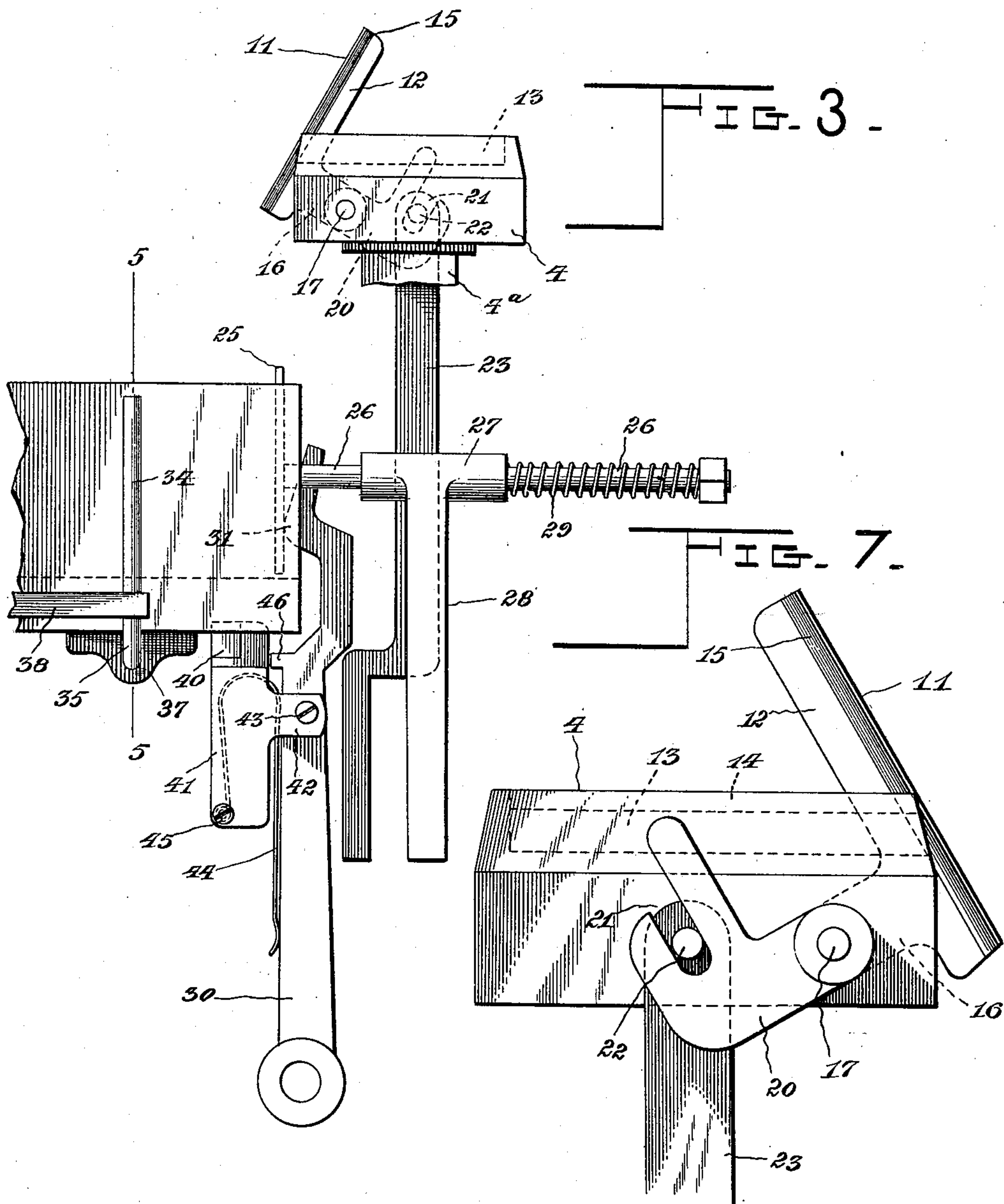
M. D. RIDER.

DELIVERY ATTACHMENT FOR ENVELOP MACHINES.

(No Model.)

(Application filed Apr. 3, 1899.)

3 Sheets—Sheet 2.



Witnesses

John T. Deffenwald
D. H. Haupt

Milford D. Rider, Inventor

By *his* Attorneys,

C. A. Snow & Co.

No. 636,291.

Patented Nov. 7, 1899.

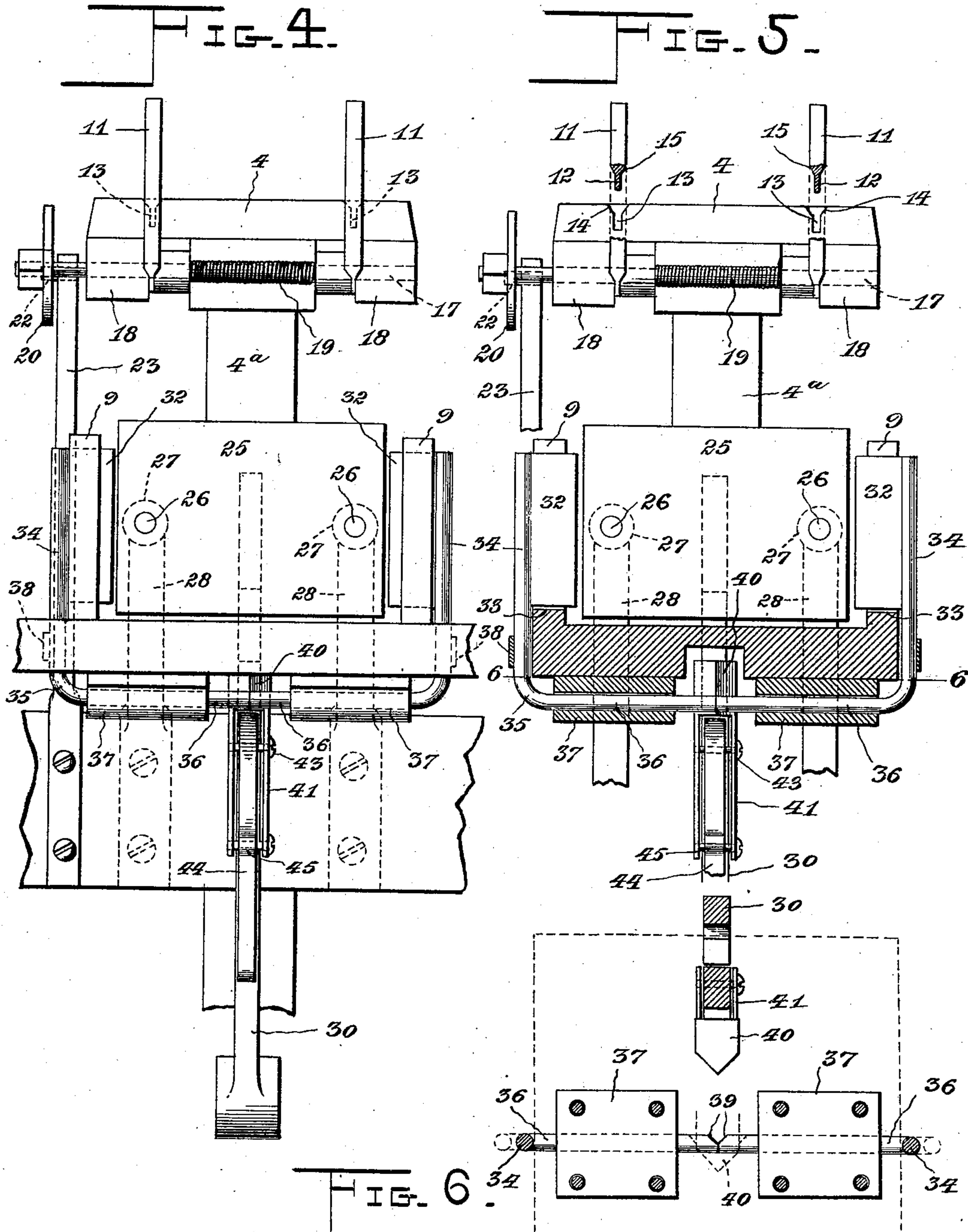
M. D. RIDER.

DELIVERY ATTACHMENT FOR ENVELOP MACHINES.

(No Model.)

(Application filed Apr. 3, 1899.)

3 Sheets—Sheet 3.



Witnesses

John F. Deufferin
J. H. Haupt

By his Attorneys,

Milford D. Rider, Inventor

Cashnow & Co.

UNITED STATES PATENT OFFICE.

MILFORD D. RIDER, OF PITTSFIELD, MASSACHUSETTS.

DELIVERY ATTACHMENT FOR ENVELOP-MACHINES.

SPECIFICATION forming part of Letters Patent No. 636,291, dated November 7, 1899.

Application filed April 3, 1899. Serial No. 711,550. (No model.)

To all whom it may concern:

Be it known that I, MILFORD D. RIDER, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new and useful Delivery Attachment for Envelop-Machines, of which the following is a specification.

This invention relates to envelop-machines; and it has for its object to provide an improved delivery attachment designed for use in connection with any approved make of envelop-machine of the plunger type, wherein the envelop-blanks are formed in a folding-box between a pair of vertically-aligned movable plungers, the lower of which plungers is known in the art as the "bed" or "foundation" plunger.

In the type of machines referred to the blank is fed over the opening at the top of the folding-box, so that when the upper plunger descends the same forces the envelop-blank into the folding-box, thus partly folding the four flaps of the envelop, after which the usual flap-folders enter from the sides and complete the folding. The blank thus operated upon is then removed from the folding-box by the descent or downward movement of the lower bed-plunger, and it is the purpose of the present invention to associate with this bed-plunger improved means for delivering the envelop therefrom as it leaves the folding-box, thereby permitting the speed of the machine to be greatly increased, with a consequent increase in the output or production thereof.

To this end the invention primarily contemplates novel and efficient means for freeing the envelop from the lower or bed plunger and delivering the same into the receiving till or box for the completed envelops.

A further object of the invention is to provide novel means for advancing the completed envelops in the receiving till or box, and thus maintain an open receptacle or compartment for receiving the envelop from the bed-plunger.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combina-

tion, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

While the essential features of the invention are necessarily susceptible to a variety of modifications, still the preferred embodiment thereof is shown in the accompanying drawings, in which—

Figure 1 is a front elevation of a "Rau" or "Reay" envelop-machine, omitting the usual gumming devices, feed mechanism, and operating devices for the flap-holders and exposing the proper applied position of the various parts of the delivery attachment with relation to the upper plunger, the folding-box, the lower bed-plunger, and the receiving-table. Fig. 2 is a vertical sectional view of the construction shown in Fig. 1. Fig. 3 is an enlarged side view showing the attachments fitted to the lower bed-plunger and the receiving till or box and disassociated from the remaining portions of the envelop-machine proper. Fig. 4 is a front elevation of the parts shown in Fig. 3. Fig. 5 is a vertical transverse sectional view on the line 5 5 of Fig. 3. Fig. 6 is a detail view on the line 6 6 of Fig. 5, showing the operative relation between the supporting-arms of the check-plates and the trip-dog for separating such arms to withdraw the check-plates from within the receiving-till. Fig. 7 is a detail elevation of one side of the bed-plunger.

Referring to the accompanying drawings, the numeral 1 designates the upright stand or frame of an ordinary Rau or Reay envelop-machine, commonly known as the "plunger-type" envelop-machine, and machines belonging to this class can be operated in connection with the attachment forming the subject-matter of the present application. As the said attachment is only associated with the lower or bed plunger of the machine and the envelop till or box of the receiving-table, it is deemed unnecessary to illustrate in the drawings the devices for gumming the blanks and for operating the flap-holders as well as such other features of the machine as have no connection with the attachment; but for the purpose of properly understanding the present invention the upright stand or frame 1 of the machine is illustrated as supporting the usual bed-plate, having arranged thereon the fold-

ing-box 2, in which is designed to work the vertically-alined upper and lower plungers 3 and 4, respectively. Both of these plungers are reciprocated vertically through the usual operating mechanism, and the lower of said plungers is known in the art as the "bed" or "foundation" plunger. Coöperating with the upper and lower plungers of the folding mechanism are the usual flap-holders 5 and the conveyers or feeders 6 for feeding the blank over the opening of the folding-box before the upper plunger descends. These are the usual parts or elements of an ordinary envelop-machine of the plunger class, and such machines are also provided at the front side thereof with a receiving-table 7 for the completed envelops which are delivered from the machine, and said feeding-table is provided at a central point with the receiving till or box 8, having the parallel side walls 9 and receiving therein the usual follower 10, which permits of an accumulation of the envelops before the same are removed from the till. Said till projects sufficiently beneath the bed-plate to receive directly within its inner end portion the completed envelop as it is delivered from the lower or bed plunger 4 of the machine.

To provide for properly delivering the completed envelop from the bed-plunger 4, it is the purpose of the present invention to provide such plunger with a delivery-fly, which shall not interfere with the usual function of the plunger, but at the same time will provide means for lifting the envelop therefrom and causing it to be directed into the receptacle or compartment formed at the inner end of the receiving till or box. The delivery-fly essentially consists of a pair of oscillatory fly-fingers 11, arranged in parallel relation and spaced a suitable distance apart to provide for evenly lifting the envelop from the plunger. The said oscillatory fly-fingers are provided with flat faces and are formed at their under sides with thin blade portions 12, which are adapted to loosely register in the seat-grooves 13, formed in the upper face of the bed-plunger 4 and of a sufficient depth whereby the fly-fingers may be completely housed therein flush with the upper or working surface of the bed-plunger. The said seat-grooves 13, while being somewhat larger or wider than the blade portions 12 of the fly-fingers, are also flared, as at 14, contiguous to the upper surface of the plunger to receive therein a correspondingly-beveled portion 15 at the under side edges of the fly-fingers. By reason of constructing the fly-fingers in the manner described and having the seat-grooves somewhat larger than such fingers if a blank of paper should accidentally become caught under the fly-fingers when the latter are closing into their recesses the same would not wedge or bind in the seat-recesses, so as to interfere with the free operation of the fingers on the next downward stroke of the plunger.

The oscillatory fly-fingers 11 are adapted to swing upward from the face of the bed-plunger 4 and beyond one side of the vertical center of the plunger, as plainly shown in Fig. 3 of the drawings, to provide for throwing the envelop entirely clear thereof and to properly support the fly-fingers to insure this movement of the same. The said fingers have projected from the under sides thereof near one end the short attaching-arms 16, which are secured fast on the rock-shaft 17, journaled in suitable bearings 18, formed at the under side of the bed-plunger 4. The said rock-shaft has secured thereon intermediate the bearings 18 a coiled spring 19, which assists in the complete closing of the fly-fingers into the seat-grooves therefor, and at one end the rock-shaft, which carries the fly-fingers, has fitted thereon a substantially L-shaped or bell-crank cam-plate 20, one arm of which is provided with a bifurcation or slot 21, the side portions of which are of different lengths to insure the proper engagement of the cam-plate with the fixed fulcrum stud or pin 22, projected laterally from the upper end of a supporting post or standard 23, fastened to a suitable part of the machine stand or frame.

Upon the ascent of the bed-plunger 4 to its operative position within the folding-box 2 of the machine the cam-plate 20 rides upon the stud 22 to provide for closing the fly-fingers 11 into the seat-grooves 13; but the said cam-plate 20 is of such a form that when the plunger rises it will nearly carry the fly-fingers completely into the seat-grooves; but as an auxiliary for insuring the complete closing of the fly-fingers before the bed-plunger comes into contact with another envelop the torsional action of the spring 19 is utilized. Upon the descent of the bed-plunger with the completed envelop thereon the engagement of the cam-plate 20 with the stud 22 causes an upward oscillation of the fly-fingers 11 out of the seat-grooves and to a position at one side of the bed-plunger. This movement of the fly-fingers evenly lifts the envelop from the plunger, even though there may be some gum adhering to the latter, and delivers the envelop into the delivery spout or chute 24, which opens into the inner end portion of the receiving-till 8. This action of the fly-fingers is rendered possible only by reason of the fact that the same are straight from end to end and on account of their peculiar movement with relation to the plunger. In this movement the fly-fingers are not only thrown upwardly, but also laterally, causing them to assume positions with the upper faces lying in an inclined plane wholly outside of and beyond the plunger.

To provide for advancing the completed envelops into the front portion of the receiving-till, and thereby maintain an open receptacle or compartment at the inner end of the till for receiving the envelop from the bed-plunger, there is employed a reciprocatory push-head 25, working within the inner end portion of the till and of a less width than the dis-

tance between the side walls 9 of the latter. The said push-head 25 is mounted at the front ends of a pair of horizontal sliding stems 26, mounted to slide in the bearing-sleeves 27, supported at the upper ends of suitable standards 28, mounted within the machine stand or frame, and at one side of the bearing-sleeves 27 the sliding stems 26 have mounted thereon the retractile springs 29, which normally exert a tension to retract the push-head to its initial position at the inner end of the receiving-box, and the advance or forward movement of the push-head against the tension of the springs is accomplished through the medium of the swinging operating-lever 30. The swinging operating-lever 30 has the usual operative connection 30^a at its lower end with the main shaft, which also operates the lower plunger-stem 4^a of the envelop-machine, and is provided at its upper end with an elbow 31, contacting with the rear side of the push-head 25 and pressing thereagainst. The movement of the swinging lever 30 is properly timed, so that it will advance forward through the receiving-till when the fly-fingers on the bed-plunger are inactive, and this forward movement of the push-head carries the completed envelop against the pack within the till in front of the oppositely-arranged check-plates 32. The check-plates 32 are arranged at diametrically opposite sides of the till, at a point intermediate the front and rear ends of the latter, and said plates normally project through vertically-disposed slots 33, formed in the side walls 9 of the till, and extend within the till a sufficient distance, so as to engage with and hold the envelops in the front portion of the till, and thereby prevent the same from backing into the rear portion of the till when the push-head 25 recedes to its initial position. The oppositely-arranged inwardly-projecting check-plates 32 are fitted to the inner sides of the vertical members 34 of the elbow or L-shaped plate carrying arms 35, the lower horizontal members 36 of which arms are slidably mounted in the bearing-boxes 37, fitted to the under side of the receiving table or till, and the check-plates are normally held projected within the till by means of the pressure-springs 38, fitted to the outer sides of the till-walls 9 and having their free ends bearing upon the vertical members 34 of the plate-carrying arms, as plainly illustrated in Figs. 3 and 4 of the drawings. The inner contiguous ends of the horizontal members 36 of the plate-carrying arms normally abut at a central point beneath the receiving-till and are provided at one side of such ends with the registering chamfered edges 39, which are adapted to be engaged by the V-shaped wedge-head 40, formed at the upper end of the tilting trip-dog 41. The tilting trip-dog 41 is longitudinally bifurcated so as to embrace and tilt over the swinging lever 30 and is provided at an intermediate point with offstanding pivot-arms 42, which are pivotally fastened by means of a pivot-bolt 43 to the said

lever 30, and the said dog 41 receives within the bifurcation thereof the adjusting-spring 44. The said spring 44 is secured at one end, as at 45, within the lower end of the dog and is looped upwardly within the bifurcation of the latter. The free arm of said spring extends downwardly from the dog 41 and bears against one side of the lever 30, so that the pressure of the spring will normally hold the upper wedge-head 40 of the dog against the rigid stop-lug or projection 46, formed at one side of the lever 30, near the upper end of the latter. Now it will be obvious that when the lever 30 swings in a direction to advance the push-head 25 the wedge-head 40 will engage the chamfered edges 39 at the abutting ends of the plate-carrying arms 35 and, passing between such ends, will necessarily spread the plate-carrying arms apart, and thereby withdraw the check-plates 32 in a lateral direction from the till, whereby the envelops can be freely pressed forward by the push-head 25; but as soon as the wedge-head 40 has passed between the abutting ends of the plate-carrying arms the springs 38 come into play and force the arms back into their normal positions, thus causing the check-plates to again project into the till and preventing backward movement of the envelops when the push-head recedes to its initial position. In this connection it will be observed that upon the retirement of the push-head from the envelops the unbeveled side of the wedge-head 40 strikes against the abutting plate-carrying arms and will cause the dog to tilt on its pivot, and thereby pass beneath the said plate-carrying arms, after which it is thrown to its normal erect position by the pressure of the adjusting-spring 44. This operation is kept up continuously and automatically during the operation of the envelop-machine.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described attachment will be readily apparent to those skilled in the art without further description, and it will be further understood that changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In an envelop-machine, the combination with the receiving-till and the bed-plunger, of parallel fly-fingers fitted to and carried by the plunger, said fly-fingers being straight from end to end, and adapted to be seated in the top face of the plunger, and means for swinging said fingers upwardly from the top surface of the plunger, and also laterally to a position with their straight faces lying in an inclined plane wholly outside of and beyond the plunger, whereby the envelop is first

lifted bodily from the surface on which it rests, and then carried to a position at one side of the plunger, substantially as set forth.

2. In an envelop-machine, the combination
5 with the bed-plunger and the receiving-till, of a rock-shaft supported by the plunger, a pair of oscillatory fly-fingers provided intermediate their ends with pendent arms attached to the rock-shaft, a slotted cam-plate
10 fitted to the rock-shaft, and a fixed fulcrum stud or pin engaged by said cam-plate, substantially as described.

3. In an envelop-machine, the combination
15 with a receiving-till, of the bed-plunger provided in its upper face with flared seat-grooves, a pair of oscillatory fly-fingers fitting flush within the flared grooves and provided with thin blade portions loosely registering therein, and means for operating said fly-fingers,
20 substantially as described.

4. In an envelop-machine, the combination
25 with the bed-plunger and the receiving-till, of a rock-shaft supported by the plunger, a pair of oscillatory fly-fingers mounted on the rock-shaft at one side of the center of the plunger, an L-shaped cam-plate fitted to the rock-shaft and having a slot or bifurcation, a fixed fulcrum stud or pin engaged by the cam-plate, and a spring engaging with the
30 rock-shaft to assist in the closing of the fly-fingers to their inactive positions, substantially as set forth.

5. In an envelop-machine, the combination
35 with the receiving-till, of the bed-plunger provided in its upper side with seat-grooves flared contiguous to the surface of the plunger, a pair of oscillatory fly-fingers having at their under sides thin blade portions adapted to loosely register in the seat-grooves, and also
40 provided at their under side edges with a beveled portion fitting flush within the flared portion of the grooves, and means, carried by the bed-plunger, for causing an automatic oscillation or swinging of the fly-fingers, substantially as set forth.

6. In an envelop-machine, the combination
45 with a receiving-till for the completed envelops, of a reciprocatory push-head working within the till to advance the envelops, a check device having members projecting within opposite sides of the till for engaging the advanced envelops, means, independent of the push-head, for automatically adjusting the members of the check device to inoperative
50 positions upon the advancement of the push-head, and separate means for causing said check-device members to resume their active positions prior to the retirement of the push-head, substantially as set forth.

60 7. In an envelop-machine, the combination with the receiving-till, of a reciprocatory push-head working within the rear portion of the

till, a check device having plates normally projecting into opposite sides of the till to hold the advanced envelops, means for automatically withdrawing the check-plates from
65 the till upon the advancement of the push-head, and means for causing the said plates to resume their active positions prior to the retirement of the push-head, substantially as set forth.

8. In an envelop-machine, the combination
75 with the receiving-till, of a spring-retracted push-head, a check device having plates normally projecting into opposite sides of the till, an operating-lever for advancing the push-head within the till, means, carried by said lever, for causing the check-plates to be withdrawn from the till upon the advancement of the push-head, and means for causing the said
80 plates to resume their active positions prior to the retirement of the push-head, substantially as set forth.

9. In an envelop-machine, the combination
85 with the receiving-till, of a spring-retracted push-head, oppositely-arranged laterally-movable L-shaped plate-carrying arms slidably mounted beneath the till and having their vertical members provided with check-plates working through the side walls of the
90 till, the lower horizontal members of said arms having their inner contiguous ends normally abutting and provided at one side with chamfered edges, springs for normally pressing the plate-carrying arms inward, and a swinging
95 operating-lever engaging with the push-head to advance the same, and carrying a tilting trip-dog provided with a wedge-head, adapted to engage with the chamfered edges of the abutting ends of the plate-carrying arms, substantially as set forth.

10. In an envelop-machine, the combination
105 with the receiving-till, of a spring-retracted push-head, oppositely-arranged plate-carrying arms having check-plates normally projected through the side walls of the till, said arms having lower horizontal members whose contiguous ends normally abut, an operating-lever for advancing the push-head, a tilting
110 trip-dog supported to swing upon the operating-lever, and provided at its upper end with a wedge-head adapted to pass between the abutting ends of the plate-carrying arms and also to trip backward beneath such ends, and a spring for normally holding the dog in an
115 erect position, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MILFORD D. RIDER.

Witnesses:

CHARLES B. DUNHAM,
ARTHUR S. PROUT.