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PATENTED JAN. 29, 1907.

W. B. SPENCER.
ENVELOP SEALING MACHINE.
APPLICATION FILED SEPT. 16, 1905.

2 SHEETS-SHEET 1.



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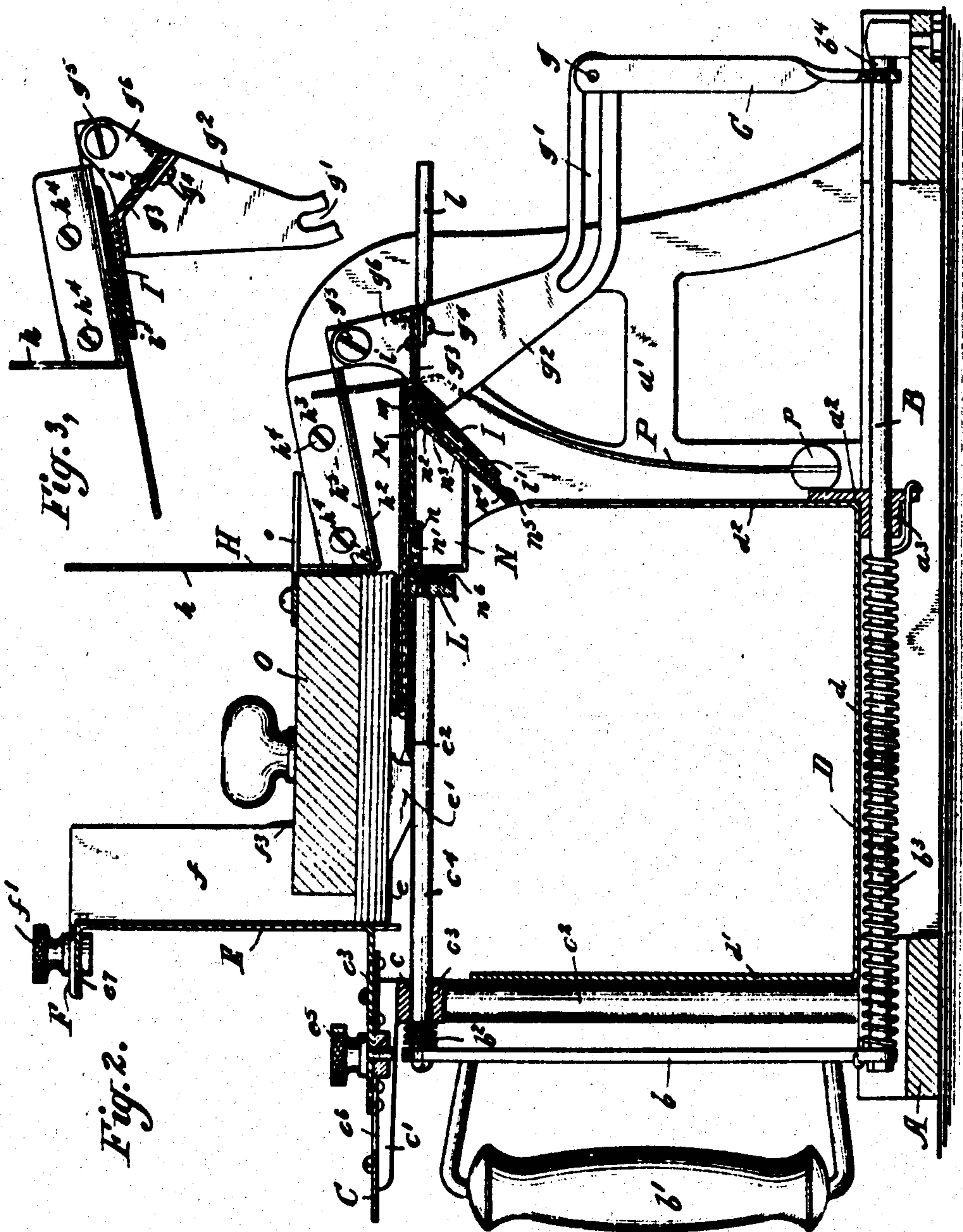
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WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM B. SPENCER, OF CHICAGO, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ENVELOP-SEALING MACHINE.

No. 842,264.

Specification of Letters Patent.

Patented Jan. 29, 1907.

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To all whom it may concern:

Be it known that I, WILLIAM B. SPENCER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Envelop-Sealing Machines, of which the following is a specification.

The object of the present invention is to provide apparatus of the character stated which shall be simple and durable in construction, and therefore cheap of manufacture, and which shall be capable of reliable and efficient operation in the sealing of envelopes.

In carrying out the invention I employ, speaking generally, a receptacle for the unsealed envelopes, and preferably directly underlying this a receptacle for sealed envelopes. The receptacle first named is provided with means for supporting a pile of unsealed envelopes, and below such means (and over the receptacle for the sealed envelopes) I employ a reciprocating feeder and flap-moistener operating in a plane parallel with that of the envelopes of the pile, the forward end thereof cooperating with the lowermost envelopes successively between the body portions and flaps thereof to feed such envelopes forward one at a time. Said feeder reciprocates toward and from a hinged presser-plate, against which it moves the flap of the envelop being fed, and at the termination of its forward (feeding) movement the flap-moistener carried by said feeder is pressed against the adhesive side of said flap, the other side of said flap being against said presser-plate, to suitably moisten said adhesive side. On the return of the feeder preparatory to the next feeding movement thereof the presser-plate is moved upward, pressing the flap of said envelop against the body thereof and the body of said envelop against an overlying plate, thereby firmly uniting the flap and the body of said envelop. The forward movement of the envelop under the influence of the feeder is against the tension of suitable springs, such tension being at maximum when the envelop has reached its furthestmost position, and after the feeder has been withdrawn and the flap sealed upon the body said envelop is upon the return movement of the presser-plate thrown from the position which it occupied during the sealing opera-

tion into the sealed-envelop receptacle below the receptacle for unsealed envelopes and below the feeder. The mechanism is so constructed and arranged as to permit this operation to be performed at high speed even under manual actuation.

In the following specification I shall describe and in the drawings have illustrated a form which the invention may take and which for the purpose of the present disclosure I shall describe in detail.

In said drawings, Figure 1 is a plan view illustrating the machine in inoperative position and unprovided with the envelopes to be sealed. Fig. 2 is a central vertical section on the line 2-2, Fig. 1, the parts being in substantially the same position as in Fig. 1, but the unsealed-envelop receptacle being shown as provided with envelopes and the feeder as cooperating with one of such envelopes; and Fig. 3 is a detail view illustrating a portion of the mechanism shown in Figs. 1 and 2 at a different stage, however, in its operation.

Referring to these drawings, in which similar letters denote corresponding parts, A designates the base of the machine, and $a\ a'$ upwardly-extending brackets secured thereto. Extending between and connecting said brackets $a\ a'$ is a cross-bar a'' , here shown as provided with a bearing a''' , in which operates the reciprocating rod B, presently to be referred to.

C designates a bed-plate supported upon a cross-bar c , having rearwardly-extending arms c' . Said cross-bar c is supported upon two posts c'' and is provided about midway its ends with the bearing c''' , in which operates the reciprocating rod c''' . The extreme ends of said cross-bar c are provided with ears $c^4\ c^5$, secured to which are the ends of rods $c^6\ c^7$, the other ends of said rods being secured to ears $a^1\ a^2$, carried by or formed integral with the brackets $a\ a'$.

D designates the sealed-envelop receptacle, here shown in the form of a U-shaped plate, having a bottom d and sides $d^1\ d^2$, said receptacle being supported by the base A and, if desired, secured to the posts c'' and brackets $a\ a'$. The envelop-box includes the vertical wall-plate E, the forward side whereof is provided with the forwardly-extending envelop-supporting arms e , each of these having the angular flange e' , the forward edge whereof is cut away at e^2 for the

purpose hereinafter described. Said wall-plate is also provided with the rearwardly-extending adjusting-arm e^3 and guide-arms $e^4 e^4$. The adjusting-arm e^3 is provided with a set-screw e^5 , coacting with a slot e^6 , formed in the bed-plate C, the vertical wall-plate of the envelop-receptacle being thereby adjustable longitudinally of the machine. The upper edge of said wall-plate E is flanged rearwardly, as shown at e^7 , and coacting with the upper surface of this flange are arms F F, carrying vertical side plates f , each of said arms being provided with a set-screw f^1 , coacting with a slot f^2 , formed in the flange e^7 , said side plates being thereby adjustable relatively to each other. If desired, the lower portion of each of said side plates may be flanged inwardly, as shown at f^3 , so that only such inwardly-flanged portion shall come in contact with the lowermost envelop or envelops of the pile to minimize the frictional drag on such envelops.

The reciprocating rods c^1 and B are here shown as connected at their rearward ends by the connecting-bar b , to which may be secured the operating-handle b^1 when the machine is constructed for manual operation. Said rods c^1 may be provided with the coil-spring b^2 between the bar b and the bearing c^2 , and the rod B may be provided with the coil-spring b^3 , one end thereof being secured to said bar b , the other end being secured to the bearing a^2 of the cross-arm a^1 . The tendency of the spring b^3 is to hold the parts in the position in which they are shown in Fig. 2, the operating-handle b^1 being moved toward the left against the tension of such spring.

The forward end of the rod B, which may coact with a rubber buffer b^4 , carried by the base A, is provided with an upwardly-extending presser-plate-operating arm G, carrying a screw or stud g , coacting with a curved elongated slot g^1 , formed in an angular lever g^2 , secured to the under side of a shelf g^3 by any suitable means—as, for instance, by the screws g^4 . Said shelf forms the support for the presser-plate hereinbefore referred to and which will be presently described.

H designates the forward vertical wall of the unsealed-envelop receptacle, this being here shown as taking the form of two upwardly-extending arms $h h$, formed integral with an angular plate h^1 , having the forwardly-flanged portion h^2 , the lateral edges of such forwardly-flanged portion being upturned, as at $h^3 h^3$, and such portions being secured to the inner faces of the brackets $a a^1$ by any suitable means—such, for instance, as the screws h^4 .

$h^5 h^5$ designate two plates secured upon the upper surface of the forwardly-flanged portion h^2 of the forward vertical wall H, and these plates are provided with downturned ears to which are pivoted at g^5 the upwardly-

flanged ends g^6 of the shelf g^3 , to which is connected the lever g^2 .

I designates the presser-plate. This is here shown as secured by means of screws i upon the upper surface of the shelf g^3 and projecting rearwardly and downwardly from said shelf. The rearward edge of said presser-plate is preferably thickened, as shown at i^1 , this edge tapering to a blunt point about midway of its ends and the thickened portion as a whole corresponding generally to the gum-line on the flap of an envelop. Also said presser-plate may for the purpose of securing greater resiliency be provided with parallel slits or slots i^2 . As will be seen, (see particularly Figs. 2 and 3,) the rearward movement of the handle b^1 and the corresponding movement of the arm G rocks the lever g^2 , thereby moving the presser-plate I upwardly into coaction with the forwardly-flanged plate h^2 .

The forward end of the reciprocating rod c^1 is secured to the feeder-carrying cross-arm L, the ends of which are provided with guide-rods $l l$, having bearings in ears l^1 , formed upon the brackets $a a^1$. The feeder comprises the plate M, the forward edge whereof is downwardly and rearwardly turned, as shown at m , Fig. 2. The extreme forward edge of said feeder may be provided with pins m^1 for the purpose of assuring reliable contact with the inner surface of the fold between the body and flap of an envelop. The rearward edge of said feeder is provided with the arms $m^2 m^2$, the extremities of which are preferably downwardly curved. Said feeder, including the arms m^2 , operates between the forwardly-extending arms $e e$ of the vertical wall E of the unsealed-envelop receptacle. The plate M is secured to the cross-arm L in any suitable manner—as, for instance, by angular downturned lips secured to said arm by means of screws.

N designates the moistener-trough, this having an orifice n in its upper portion, through which water may be introduced into said trough, and which orifice may be closed by means of the screw n^1 . The forward angular portion n^2 of said trough is provided with perforations n^3 and also preferably with the extension n^4 . In contact with said forward angular portion n^2 of the moistener-trough is the pad n^5 , of absorbent material, to which water may be transmitted through the perforations n^3 . Said trough N may be held in position in any suitable manner—as, for instance, by placing the same between the angular downturned lip m of the feeder and the cross-arm L—a spring n^6 holding said trough in this position.

Preferably the envelop pile will be provided with means for exerting downward pressure thereon. For this purpose I have shown the block O provided with forwardly-extending arms o , which when said block is

properly positioned make contact with the inner edges of the upwardly-extending portions *h* of the wall-plate *II*.

P P designate springs, the lower ends 5 whereof are here shown as secured to studs *p*, projecting inwardly from the adjacent faces of the brackets *a a'*, said springs operating through slots *p'*, formed in the angular plate *h'* and in the overlying plates *h''*. Normally said springs occupy a position to the 10 left of that in which they are illustrated in Fig. 2, being pressed to the Fig. 2 position by the movement of the feeder.

The operation of the apparatus has been to 15 some extent indicated in connection with the description of the several parts and need not, therefore, be stated in detail. The front wall *II* of the unsealed-envelope receptacle being immovable, the rear wall *E* and side 20 guide-plates *f* are adjusted to adapt the receptacle formed thereby to the size of the envelopes to be sealed, the envelop-pile being placed within said receptacle with the open flaps of the envelopes downward and resting 25 upon the forwardly-extending arms *e*. The block *O* is then placed on top of the pile. If now the feeder be drawn rearwardly (as by the handle *b'*) against the tension of the spring *b''* and allowed to move forwardly 30 again, the forward edge thereof will enter between the flap and body of the lowermost envelop, thereby moving the same forward, as above explained, in contact with and against the tension of the springs *P P*. At the termination of this forward feeding movement the 35 parts occupy the position shown in Fig. 2, the flap of the envelop being bent at a substantial angle to the body thereof and the thickened portion *i'* of the presser-plate *I* pressing the gummed portion of said flap 40 against the pad *n''* to thereby moisten the same for sealing. As the feeder is again drawn rearwardly to feed the next succeeding envelop the coaction of the stud or pin *g* of 45 the arm *G* with the curved elongated slot *g'* of the lever *g''* rocks said lever upon its pivots *g''*, moving the presser-plate *I* and the flap and body of the envelop, which has been fed upwardly, and pressing said flap firmly upon 50 said body and both said flap and body against the under side of the plate *h''*, thereby securely sealing said envelop. As the feeder is again moved forward said presser-plate is moved out of contact with the envelop which 55 it has just sealed, and said envelop is thrown by the action of the springs *P P* into the sealed-envelope receptacle *D*, the presser-plate *I* returning to the position illustrated in Fig. 2, ready for coaction with the next succeeding envelop to be fed. The downturned 60 flanges *e'* of the arms *e* contribute to the reliability of the sealing and discharge of the envelopes, for, particularly if said envelopes be bent or curved between their edges, the substantially perpendicular portions *e'* of said

flanges prevent said envelopes from being moved backward as the feeder *I* moves upward and, in addition, when said envelopes are pressed backward by the springs *P P* tend to guide the envelopes into the sealed-envelope 70 receptacle *D*.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. In an envelop-sealing machine, the 75 combination with means for supporting an envelop with its flap outermost, of a reciprocating feeder coacting with said envelop between the body and flap thereof, a member against which said envelop may be pressed, a 80 presser-plate pivotally mounted below said member and coacting with said envelop and said member and a receiver for the sealed envelopes, substantially as set forth.

2. In an envelop-sealing machine, the 85 combination with means for supporting an envelop with its flap outermost, of a reciprocating feeder coacting with said envelop between the body and flap thereof, a member against which said envelop may be pressed, 90 a presser-plate underlying said member and adapted to coact with said feeder and member and the envelop between the same, a receiver for the sealed envelopes below said member and plate, and mechanism for simultaneously operating said feeder and said 95 presser-plate, substantially as set forth.

3. In an envelop-sealing machine, the combination with means for supporting an 100 envelop with its flap outermost, of a reciprocating feeder underlying said supporting means and a moistening device carried thereby, a member against which said envelop may be pressed, a presser-plate pivotally 105 mounted below said member, mechanism for simultaneously operating said feeder and presser-plate, and a receiver into which the sealed envelopes may fall by gravity when released by said presser-plate, substantially as 110 set forth.

4. In an envelop-sealing machine, the combination of means for supporting an envelop with its flap outermost, a reciprocating 115 feeder coacting with said envelop between the body and flap thereof, a flap-moistener carried thereby, a pivotally-mounted pressing member, means for operating said feeder to move an envelop forward and press its flap into contact with said pressing member, a 120 second pressing member and means for turning said pivotally-mounted pressing member on its pivot toward the other member to press the body and flap of the envelop together between them, substantially as set 125 forth.

5. In an envelop-sealing machine, the combination of an unsealed-envelope receptacle, a reciprocating feeder, a sealing device, means within said receptacle for supporting an envelop-pile, and a device mount- 130

ed stationarily with respect to said receptacle and forming a stop to prevent backward movement of an envelop fed to sealing position by said feeder, substantially as set forth.

6. In an envelop-sealing machine, the combination of means for supporting an envelop with its flap outermost, a reciprocating feeder coacting with said envelop between the body and flap thereof, a flap-moistener carried thereby, a pivotally-mounted pressing member, means for operating said feeder to move an envelop forward and press its flap into contact with said member, a second pressing member, means for turning said pivotally-mounted pressing member on its pivot toward the other member to press the body and flap of the envelop together, means for preventing backward movement of the envelop when moved against said pressing member by the feeder, and a spring against the tension of which the feeder is operated, substantially as set forth.

7. In an envelop-sealing machine, the combination with a receptacle and means for supporting an envelop-pile therein, of an underlying reciprocating feeder and a flap-moistener carried thereby, a spring against the tension of which the envelopes of said pile may be successively fed by said feeder, means for preventing backward movement of an envelop with said feeder after it has been moved to sealing position by the feeder, and means for sealing said envelops, substantially as set forth.

8. In an envelop-sealing machine, the combination with a receptacle and means for supporting an envelop-pile therein, of an underlying feeder coacting successively with said envelops between the bodies and flaps thereof to move the same forward, means for preventing backward movement of an envelop with said feeder after it has been moved to sealing position by the feeder, a moistening device, a member against which said envelops may be successively pressed, a movable presser device for pressing said envelops against said member, means dependent upon the movement of said feeder for successively releasing said envelops after the same have been fed and sealed, and connections for simultaneously operating said feeder and presser device, substantially as set forth.

9. In an envelop-sealing machine, the combination with a receptacle and means for supporting an envelop-pile therein, of an underlying feeder coacting successively with said envelops between the bodies and flaps thereof to move said envelops forward, means for preventing backward movement of an envelop with said feeder after it has been moved to sealing position by the feeder, a pivotally-mounted presser-plate into contact with which said envelops are succes-

sively moved by said feeder, a member overlying said presser-plate and into contact with which said envelops may be moved thereby, means for operating said presser-plate simultaneously with said feeder, and a spring for discharging the fed and sealed envelops, said spring being moved to operative position by the feeding movement of said feeder, substantially as set forth.

10. In an envelop-sealing machine, the combination with an unsealed-envelop receptacle and means for supporting an envelop-pile therein, of an underlying sealed-envelop receptacle, a feeder reciprocating between said receptacles and coacting with the under side of the envelop-pile between the flap and body of the lowermost envelop to feed the same forward, means for moistening and sealing the envelop so fed, and mechanism dependent upon the movement of said feeder for discharging the sealed envelop into said sealed-envelop receptacle, substantially as set forth.

11. In an envelop-sealing machine, the combination with an unsealed-envelop receptacle and means for supporting an envelop-pile therein, of an underlying sealed-envelop receptacle, a feeder reciprocating between said receptacles and coacting with the under side of the envelop-pile between the flap and body of the lowermost envelop to feed the same forward, a moistening device carried by said feeder, a movable presser-plate and a coacting member between which and said presser-plate the flap-moistened envelop is pressed, and mechanism thrown to operative position by the movement of said feeder for discharging the sealed envelop into said sealed-envelop receptacle after the same has been released from coaction with said presser-plate and member, substantially as set forth.

12. In an envelop-sealing machine, the combination of an unsealed-envelop receptacle, an underlying sealed-envelop receptacle, a feeder reciprocating between said receptacles and engaging the lowermost envelop in said unsealed-envelop receptacle between the body and flap thereof to feed the same forward, means for moistening the envelop-flap, a movable device for sealing the envelop and then releasing it to permit it to drop into said sealed-envelop receptacle, and operating mechanism for said feeder and said movable device, substantially as set forth.

13. In an envelop-sealing machine, the combination of an unsealed-envelop receptacle, an underlying sealed-envelop receptacle, a feeder reciprocating between said receptacles and engaging the lowermost envelop in said unsealed-envelop receptacle between the body and flap thereof to feed the same forward, means for preventing backward movement of the envelop with said feeder, means for moistening the envelop-flap, a

movable device for sealing the envelop and then releasing it to permit it to drop into said sealed-envelop receptacle, and operating mechanism for said feeder and said movable device, substantially as set forth.

14. In an envelop-sealing machine, the combination of an unsealed-envelop receptacle, an underlying sealed-envelop receptacle, a feeder reciprocating between said receptacles and engaging the lowermost envelop in said unsealed-envelop receptacle between the body and flap thereof to feed the same forward, means for moistening the envelop-flap, a pivotally-mounted presser-plate and a member coacting therewith, and operating mechanism for reciprocating said feeder, for turning said plate on its pivot to seal an envelop between it and said member and for retracting said plate to release the envelop and permit it to drop into said sealed-envelop receptacle, substantially as set forth.

15. In an envelop-sealing machine, the combination of an envelop-receptacle, a reciprocating feeder adapted to engage the lowermost envelop in said receptacle between the flap and body thereof and move the same forward, a moistening device carried by said feeder, a sealing-plate into engagement with which the flap of the envelop is carried by

said feeder, a second sealing-plate, one of said plates being movably mounted, and operating mechanism for reciprocating said feeder and for moving said movable plate to press the flap and body of the envelop together between said plates, substantially as set forth.

16. In an envelop-sealing machine, the combination of an unsealed-envelop receptacle, a reciprocating feeder, a moistener carried thereby, a sealed-envelop receptacle below the feeder, a pair of sealing-plates one of which is pivotally mounted, means for reciprocating said feeder to engage the lowermost envelop in the unsealed-envelop receptacle between the body and flap thereof, carry said envelop forward, press the flap thereof against one of said plates and moisten the flap, and means for turning said pivotally-mounted plate on its pivot to press the body and flap of the envelop together between said plates and then release the envelop, substantially as set forth.

This specification signed and witnessed this 8th day of September, 1905.

WILLIAM B. SPENCER.

Witnesses:

W. G. ARNOLD,
M. H. BURKART.