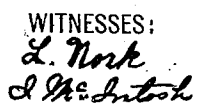


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5 SHEETS—SHEET 1.



INVENTOR

E. J. Brasseur

BY

BY *J. E. Edwards*
ATTORNEY

E. J. BRASSEUR.
ENVELOP SEALING APPARATUS.

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6 SHEETS—SHEET 2.

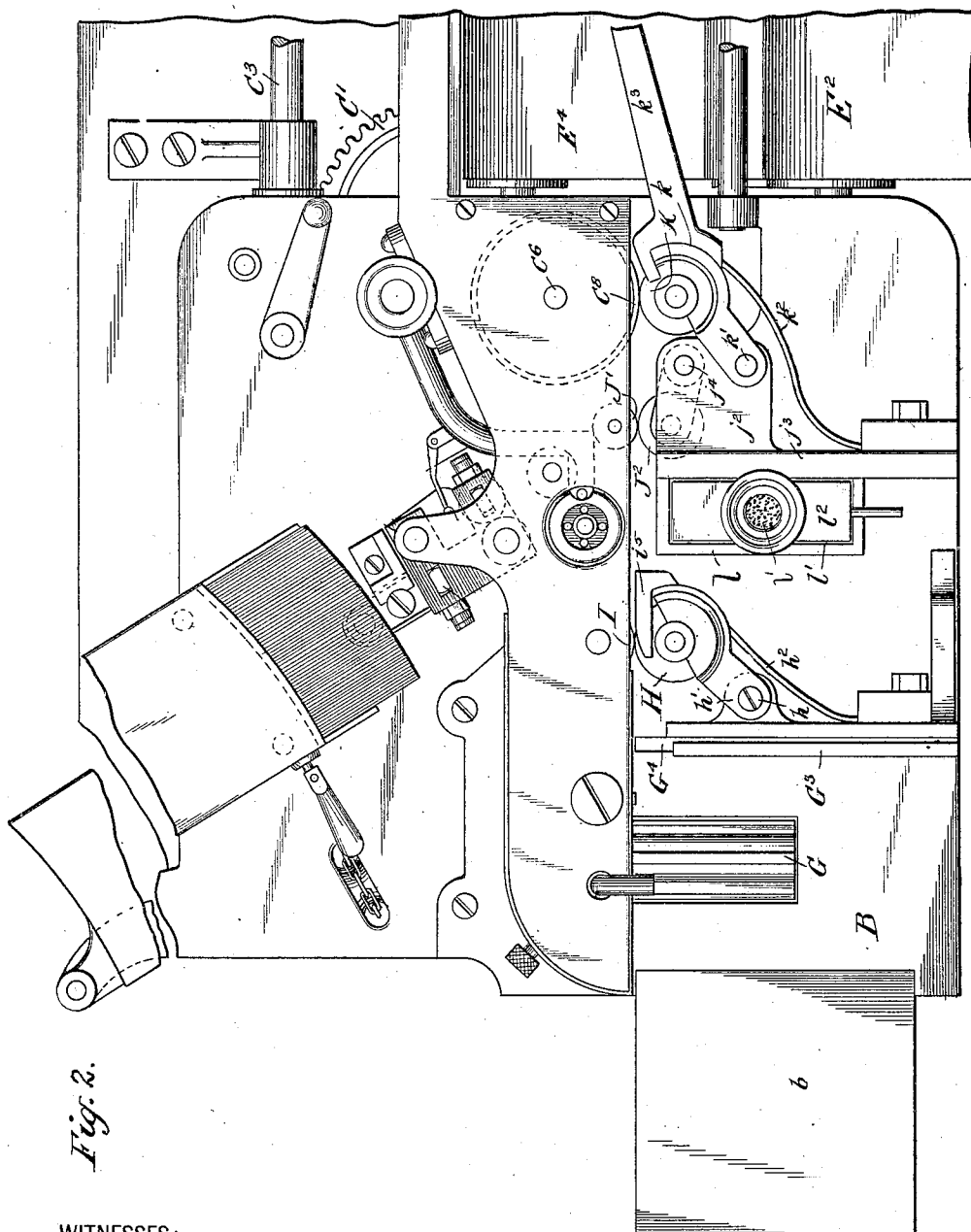


Fig. 2.

WITNESSES:
L. Nork,
J. M. Ditch.

INVENTOR

E. J. Brasseur

BY

O. Edwards

ATTORNEY

E. J. BRASSEUR.
 ENVELOP SEALING APPARATUS.
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 5 SHEETS—SHEET 3.

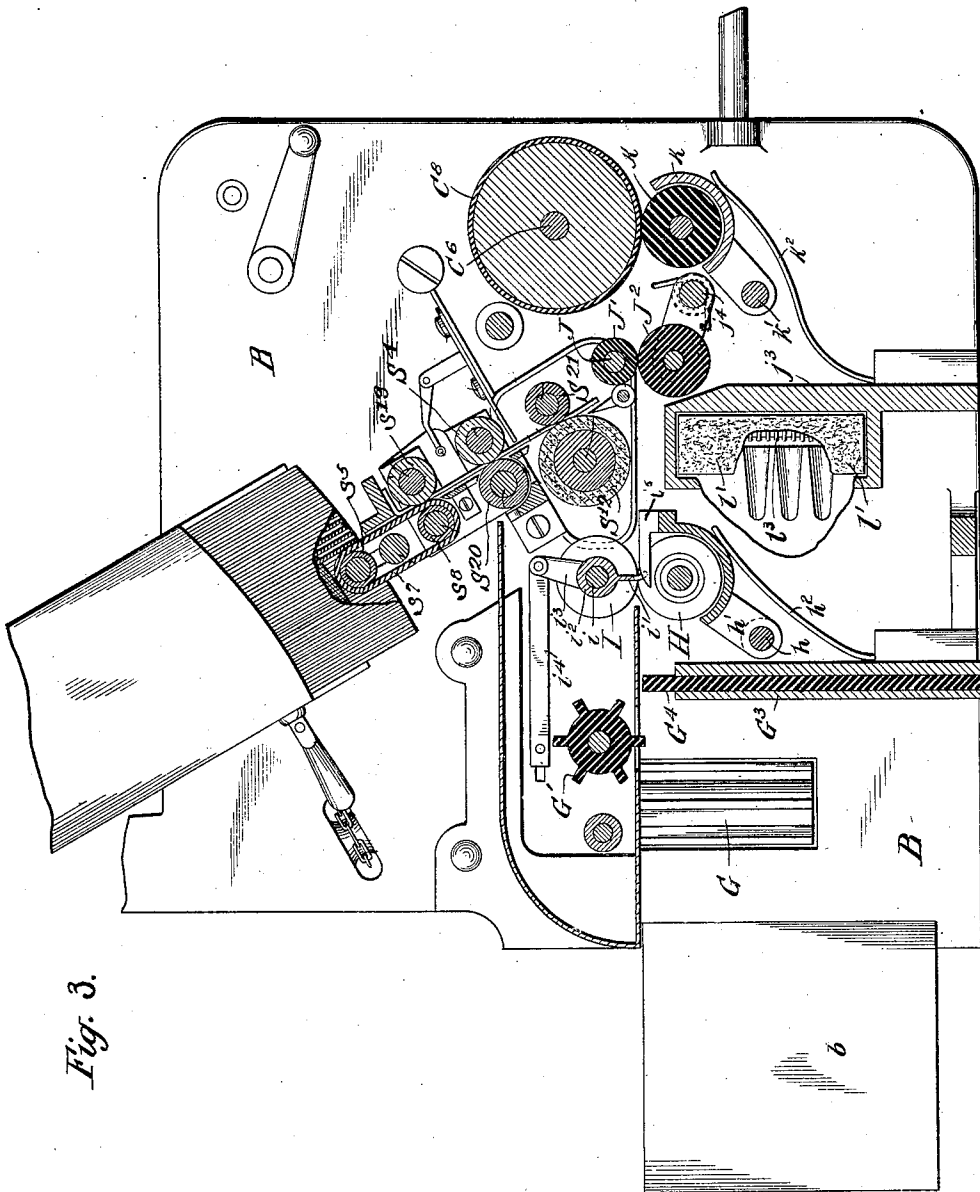


Fig. 3.

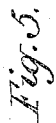
WITNESSES:
L. Nork
J. M. Lintok

INVENTOR
E. J. Brasseur
 BY *J. T. Edwards*
 ATTORNEY

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Patented Jan. 11, 1910.

5 SHEETS—SHEET 5.



L. Hork,
of Mr. Entook

E. J. Brasseur
BY 
ATTORNEY

UNITED STATES PATENT OFFICE.

ERNEST J. BRASSEUR, OF CHICAGO, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ENVELOP-SEALING APPARATUS.

945,743.

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Application filed March 25, 1905, Serial No. 252,623. Renewed January 31, 1907. Serial-No. 355,138.

To all whom it may concern:

Be it known that I, ERNEST J. BRASSEUR, a subject of the King of Belgium, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Envelop-Sealing Apparatus, of which the following is a specification.

This invention relates to means for sealing envelops and is directed to the provision of an envelop sealing machine which is particularly adapted for use in connection with mechanism for affixing stamps to the envelop during the operation of sealing the flaps thereof.

The object of the invention is to provide an envelop sealing apparatus which is simple in construction, which is uniform, reliable and efficient in its operation and which may be run at high speed. An embodiment of my invention by which these objects are attained is illustrated in the accompanying drawings in which—

Figure 1 is a front elevation illustrating the mechanism on a scale about one-half size, Fig. 2 is a top plan view, some of the parts being omitted, Fig. 3 is a horizontal section on line 4—4 of Fig. 1, Fig. 4 is a similar section on line 6—6 of Fig. 1, and Fig. 5 is an end view of the machine showing the sealing aprons and the rolls therefor in section.

In these drawings I have illustrated a machine which is capable of performing either or both of the functions of sealing the flaps of envelops and affixing stamps to the envelops and the design of the envelop sealing device here shown is employed because it is well adapted for use in connection with stamp affixing mechanism of the type shown; however, I wish it understood that my invention may be employed in a machine for sealing envelops only and that in such case the construction employed may differ widely from that here shown without departing from the principles of my invention.

The stamp affixing mechanism partially illustrated in the drawings, is described in detail in an application filed by me September 14, 1904 and serially numbered 324,417; I will now describe the mechanism for sealing the flaps of the envelops.

In the drawings, A designates the base

and B a shelf-plate over which the envelops are passed, most of the parts which coact with the envelops being located above the plate B while the operating mechanism of these parts is located between that plate and the base A. The envelops are fed from left to right (Fig. 1), they being collected by and passed through the aprons at the extreme right of the machine after the flaps have been moistened.

The main shaft C of the machine is shown in Fig. 4; it is journaled between the plates A and B and has a spiral gear C' mounted thereon to which power is transmitted by a worm C² carried by a power shaft C³. Secured to spiral gear C' is a spur gear C⁴ meshing with gear C⁵ on a shaft C⁶, mounted for rotation in bearings in plates A and B. Mounted on the shaft C⁶ near the base plate A is a pinion e meshing with a larger pinion e' on a stub shaft e² and directly overlying said pinion e is a beveled pinion e³ with which meshes a similar pinion e⁴, mounted on a stub shaft e⁵ supported from the base plate A of the machine. This stub shaft carries a beveled pinion e⁶ meshing with a similar pinion e⁷ on a shaft e⁸ supported in a suitable standard e⁹ on the base plate of the machine and upon which is mounted a roll E. This roll E forms one of a series of rolls over which an elastic belt or apron E² extends. A similar elastic belt or apron E⁴ is mounted on rolls adjacent to the apron E² with a portion thereof in contact with the apron E². The rolls carrying the aprons E² and E⁴ guide these aprons so as to form a V shaped space between them at the top thereof into which the sealed envelops drop, the envelops then passing down between the aprons, the latter serving to press the flaps against the body portions of the envelops while the gum is drying.

A hinged extension b of the shelf-plate B is provided over which the envelops are fed. These envelops are initially acted upon by a horizontally disposed feed roll G having a fluted periphery which operates through an opening in the plate B and also by a vertically disposed feed roll G'. The horizontally disposed roll G is mounted upon a shaft provided with a spiral gear meshing with a similar gear g' (Fig. 1) carried by a shaft g² on which the vertically disposed

feed roll G' is mounted. At the lower end of shaft g^2 a pinion g^3 is loosely mounted thereon to which motion is imparted as hereinafter explained.

5 g^4 designates a clutch on the shaft g^2 and g^5 an annulus forming part of the upper member of the clutch. A lever g^6 carried by a rock shaft d^8 coacts with said annulus so that upon the rocking of shaft d^8 the clutch members are separated thereby bringing
10 shaft g^2 and feed rolls G and G' to rest. The means for actuating shaft d^8 and arm g^6 will be hereinafter explained.

The gear g^3 is driven from the power shaft by means of a train of gearing inserted between the gear e' and gear g^3 , this train of gearing including pinion j , gear j' , pinion i^2 and gear i^7 , each of these gears and pinions being secured upon a suitable shaft
20 mounted for rotation in bearings provided therefor in the base A and shelf plate B . The operation of the clutch g^4 is controlled by a detent which is adapted to extend into the path of movement of an envelop and to be operated thereby.

A stack of envelops placed upon the bed b is operated upon by the feeder consisting of the rolls G and G' to forward the envelops successively over the upper surface
30 of the plate B . The feed of more than one envelop at a time is precluded by a paper stop G^3 comprising two members holding between them tongues or fingers G^4 the ends of which extend in proximity to a wall constituting the side of the unsealed envelop receptacle, as shown in Fig. 3.

Pivotally mounted at h upon the rear side of the paper stop G^3 is a bracket h' carrying a roll H preferably covered with rubber and having a spring h^2 arranged to press
40 thereon as shown. Coöperating with the roll H is a roll I (Fig. 3) and both of these rolls are recessed intermediate their ends for the reception of the detent of a trip mechanism. This detent consists of a bifurcated plate i' carried by a hub i^2 which is loose on the shaft i of the roll I . A rearwardly extending arm i^3 on the detent is connected by means of a rod i^4 with the upper end of
50 a lever d^7 (Figs. 1 and 4) the lower end of which is secured upon the rock shaft d^8 . It will be seen that the end of the detent i' lies in the path of movement of an envelop advanced by the feed rolls G , G' past the end of the fingers G^4 and between the rolls H and I so that each time an envelop is fed forward thus it engages and rocks the detent i' and by doing so operates the clutch g^4 to disconnect the feed rollers G , G' from the
60 power shaft. A horizontally disposed bar d^6 (Fig. 4) is secured at one end to the shaft d^8 . The free end of bar d^6 is adapted to operate a clutch mechanism between the power-shaft of the machine and the stamp-
65 affixing mechanism, so that the feeding of

an envelop also automatically controls the feeding and affixing of a stamp to that envelop, the purpose of this detent and clutch mechanism being to preclude the feeding of more than one stamp for each envelop and thus to guard against the loss of stamps. In order to insure the operation of the detent i' a tongue i^5 is provided on the bracket h' , its end passing between the bifurcated portions of the detent i' and being beveled off as shown in Fig. 3.

In Figs. 1 and 4, it will be seen that the roll I is mounted upon the same shaft as the pinion i^6 and that a clutch i^8 is provided between pinion i^6 and roll I in order to permit roll I and its shaft to rotate free from its actuating mechanism so that an envelop may be moved along in the direction of travel at a greater rate of speed than the surface speed of the roll I .

The shaft J on which the pinion j is mounted is extended upwardly through a bearing in the plate B , and carries a roll J' . This roll coacts with a similar roll J^2 whose shaft is carried by arms pivoted upon a shaft j^1 supported in ears j^2 forming part of the moistener frame j^3 hereinafter described, the roll J^2 being pressed toward the roll J' by a suitable spring.

The shaft C^0 above referred to passes upward through the plate B and carries a roll C^s of considerable diameter, the periphery of this roll being preferably rubber covered. The roll C^s travels at a surface speed substantially higher than that of the other rolls thereby feeding the envelops from the machine faster than the same are introduced to or fed through the machine. Mounted opposite to and coacting with the roll C^s is a roll K mounted in a hinged bracket k and hinged at k' to the ears j^2 of the moistener frame. This bracket is spring-pressed by means of leaf-spring k^2 and has an extension or tail-piece k^3 which serves to guide the envelops passing between the rolls C^s and K and permits them to fall in proper position between the belts or aprons E^2 , E^4 .

The moistening device comprises a water supply, the moistener proper supplied thereby and milled or knurled roll supporting the envelop flap in its passage between same and the moistener proper.

L designates the water cup which may be of any suitable construction; it practically overlies the receptacle in which is preferably placed a pad of felt or other absorbent material l' . Preferably a detachable weight l^2 will bear by its own gravity upon the pad and this has a hole l^1 in it to permit the drip from the cup L to pass through. Directly beneath the receptacle l and the moistening pad l' the plate B is cut away and within this cut away portion operating in a plane coincident with the upper surface of plate B lies a milled or knurled roll l^3 , suit-

ably supported in bearings beneath the plate B. Normally and when any envelopes are passing through the machine, the weight of the moistener pad l' is borne by the roll l^3 . As the envelop is passed into the machine the flap being first opened at an angle to the body such flap passes over the roll l^3 and under moistener l' whereby the adhesive substance on the flap is sufficiently moistened to seal the envelop after the latter has passed beyond the moistening device and pressure is applied to the flap.

The stamp-affixing mechanism need not be described in detail, but referring to Fig. 3, it will be seen that a magazine for strips of stamps is shown at S and that two rows of rollers are provided between which these strips of stamps are fed successively. The rollers of one row are indicated by the references s^{13} , S^4 , S^{21} and J' , while the rollers of the other row are indicated by the references s^5 and s^8 on which a belt s^7 runs, S^{20} and S^{12} . The roller S^{12} is a moistening, as well as a stamp-forwarding roller. The mechanism for rotating these rollers is such that one pair operates at a somewhat higher speed than the next preceding pair, so that the stamps of a strip will be thereby severed. The operation of these rollers is such that a stamp is fed from the magazine down to the roller J' and its gummed surface moistened just as the envelop forwarded through the machine reaches the rollers J' , J^2 , so that the stamp is rolled upon the envelop and affixed thereto while the latter is passing through the machine.

As thus constructed, when the power shaft is operated the rolls G, G' together with the rolls for forwarding the envelopes through the machine are rotated. A stack of envelopes is placed upon the plate b with their flaps lowermost and arranged at a right angle to the body portions thereof. The rolls G, G' move the envelopes forwardly and cause the end one of the stack to pass beyond the ends of the fingers G^4 . Immediately thereafter the edge of this envelop comes into contact with the detent i' and rocks the latter. This rocking of the detent operates through the link i^4 and lever d^7 to rock shaft d^8 thereby operating the clutch q^4 so as to bring shaft q^2 and rolls G and G' to rest. The edge of the envelop, however, is gripped between the forwarding rolls H and I and as these are positively driven the envelop is forwarded in a horizontal path over the surface of the plate B, it being carried along in its movement by the rolls J' , J^2 , C^8 , K. After the envelop passes beyond the detent i' the latter is actuated by gravity, to return to its initial position thus operating clutch q^4 to connect the power shaft in driving relation to the shaft q^2 whereupon the rolls G, G' will be again rotated to feed another envelop forward. When the en-

velop first forwarded passes beyond rolls H and I the flap thereof passes under the moistener l' and its frame j^3 and the gum thereof is moistened by contact with the moistener l' . Then the envelop reaches the rolls C^8 and K which catch it and move it along at a considerably higher rate of speed than when acted upon only by the rolls H and I so that the envelop is quickly carried out of the way of the next succeeding envelop. After passing beyond the rolls C^8 and K the envelop, guided by the arm k^2 drops between the aprons E^2 , E^4 . These aprons are slowly rotated by the gearing above described, and as the envelopes pass down between them the flaps thereof are pressed against the body portions so as to effectually seat them.

The machine thus constructed can be operated at high speed and the sealing of all of the envelopes will be reliably effected. This high speed is due to a large extent to the fact that an automatic feeder is employed for feeding the envelopes successively from a stack and forwarding them in a single plane through the machine until they reach the sealing device. By causing the envelop in the latter part of this movement to be carried along at higher speed, greater reliability of operation is secured, since in this way there can be no interference between an envelop and the succeeding envelop to be passed through the machine.

The detent mechanism above described, when used in a machine for sealing envelopes only, precludes the feed of one envelop through the machine until the preceding envelop has passed far enough along to guard against interference between them. In a machine for both sealing envelopes and affixing stamps thereto, this detent mechanism whereby the feed rolls are thrown into and out of operation is of even greater importance for then its action may also depend upon the presence of a stamp in position for affixing an envelop. It will be seen that this detent device is operated by the advancing envelop and determines when the feed rolls will again operate to feed another envelop into the machine.

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

1. The combination with a bed adapted to support a plurality of envelopes, of a feed-roll coacting simultaneously with the edges of said envelopes for feeding said envelopes forward successively, means for automatically throwing said feed-roll into and out of operation, and mechanism for moistening the flaps of the envelopes fed forward by said roll and fixing said flaps in position, substantially as set forth.

2. The combination with a bed adapted to receive a plurality of envelopes, of a feed-

roll coacting with one of the outside envelopes, means actuated under predetermined conditions for throwing the same into and out of operation, and mechanism for moistening the flaps of said envelopes and fixing the same in position, substantially as set forth.

3. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll coacting simultaneously with the edges thereof, another feed-roll coacting with one of the outside envelopes, means for automatically throwing said feed-rolls into and out of operation, and mechanism for moistening the flaps of said envelopes and fixing the same in position, substantially as set forth.

4. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll and means actuated by one of said envelopes for throwing the same out of operation, substantially as set forth.

5. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, means actuated by one of said envelopes for throwing the same out of operation, and mechanism for moistening the flaps of said envelopes and fixing the same in position, substantially as set forth.

6. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, means controlled by the movement of the envelopes for throwing the same out of operation, and a paper-stop coacting with said envelopes, substantially as set forth.

7. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, means for controlling the operation thereof during the passage of an envelop, a paper-stop, a flap-moistening device, and means for pressing the flaps against the bodies of said envelopes, substantially as set forth.

8. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, means for automatically governing the operation thereof during the passage of an envelop, a flap-moistening device, and endless belts for pressing the flaps against the bodies of said envelopes, substantially as set forth.

9. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll for feeding said envelopes forward successively, means dependent upon the passage of an envelop for governing the operation of said roll, a flap-moistening device for moistening the flaps of the envelopes fed forward by said roll, a roll operating at higher surface speed than said feed-roll, and means for fixing the flaps of said envelopes in position, substantially as set forth.

10. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, a tripping mechanism actuated by an envelop fed by said roll to throw said roll

out of operation, a flap-moistening device, and means for fixing the flaps of said envelopes in position, substantially as set forth.

11. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, a clutch mechanism coacting therewith, and a tripping device actuated by the advancing edge of an envelop fed by said feed-roll and coacting with said clutch to throw said feed-roll out of operation, substantially as set forth.

12. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, a clutch mechanism coacting therewith, a tripping device actuated by the advancing edge of an envelop fed by said feed-roll and coacting with said clutch to throw said feed-roll out of operation, a flap-moistener, and means for fixing the flaps in position upon the bodies of said envelopes, substantially as set forth.

13. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, a moistening device and subjacent roll between which the flaps of said envelopes are adapted to pass, means for pressing the flaps against the bodies of said envelopes, and a second roll acting upon the envelopes at a higher speed than said feed-roll, substantially as set forth.

14. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, a moistening device and subjacent roll between which the flaps of said envelopes are adapted to pass, another roll operating at higher surface speed than said feed-roll, means for guiding the envelopes from said last-named roll, and endless belts between which said envelopes are adapted to pass successively, substantially as set forth.

15. The combination with a bed adapted to receive a plurality of envelopes, of a feed-roll, means controlled by the passage of an envelop for throwing the same out of operation, a paper-stopping device for precluding the passage of more than one envelop at a time, a flap-moistener, a roll operating at higher surface speed than said feed-roll, and endless belts adapted to receive envelopes from the roll last named and subject the same to pressure, substantially as set forth.

16. The combination of a bed adapted to receive a stack of envelopes to be sealed, a feeder for feeding the envelopes therefrom, a detent normally projecting into the path of the envelopes and operated by an advancing envelop, mechanism for operating upon an envelop controlled by said detent, forwarding rolls for forwarding the envelopes at a higher speed than that at which they are fed by said feeder, a moistener, and flap-sealing devices, substantially as set forth.

17. The combination of a bed adapted to receive a stack of envelopes to be sealed, a feeder for feeding the envelopes therefrom, a

detent normally projecting into the path of the envelopes and operated by an advancing envelop, mechanism for operating upon an envelop controlled by said detent, flap-sealing devices, means for guiding the envelopes in the same plane from the feeder to the sealing devices, forwarding rolls for forwarding the envelopes from the feeder to the sealing devices at a higher speed than that at

which they are fed by the feeder, and a moistener for the envelop flaps, substantially as set forth.

This specification signed and witnessed this 14th day of March, 1905.

ERNEST J. BRASSEUR.

Witnesses:

M. H. BURKART,

R. R. HARRINGTON.