

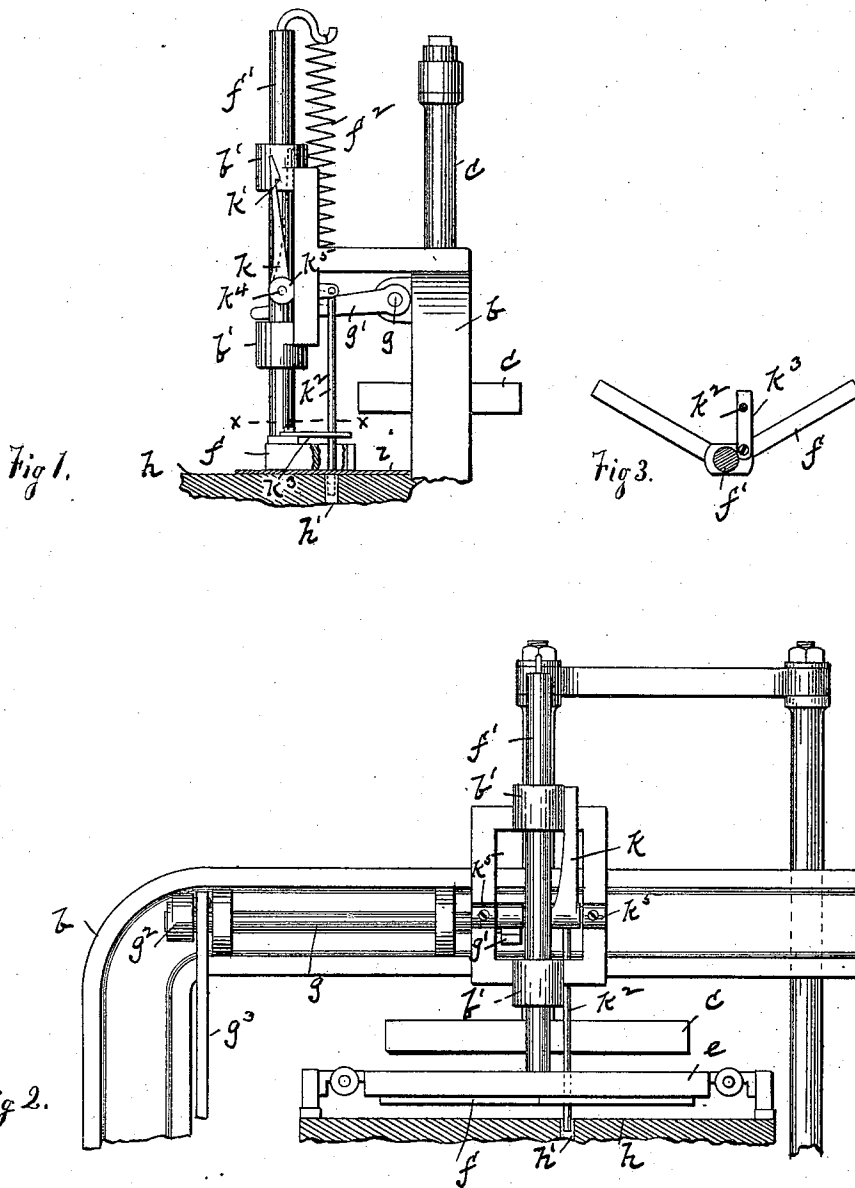
(No Model.)

3 Sheets—Sheet 1.

J. BALL.
ENVELOPE GUMMING MECHANISM.

No. 468,925.

Patented Feb. 16, 1892.



Witnesses:
Francis W. Rice
J. E. Chapman

Inventor:
James Ball
per James Chapman
Attorneys.

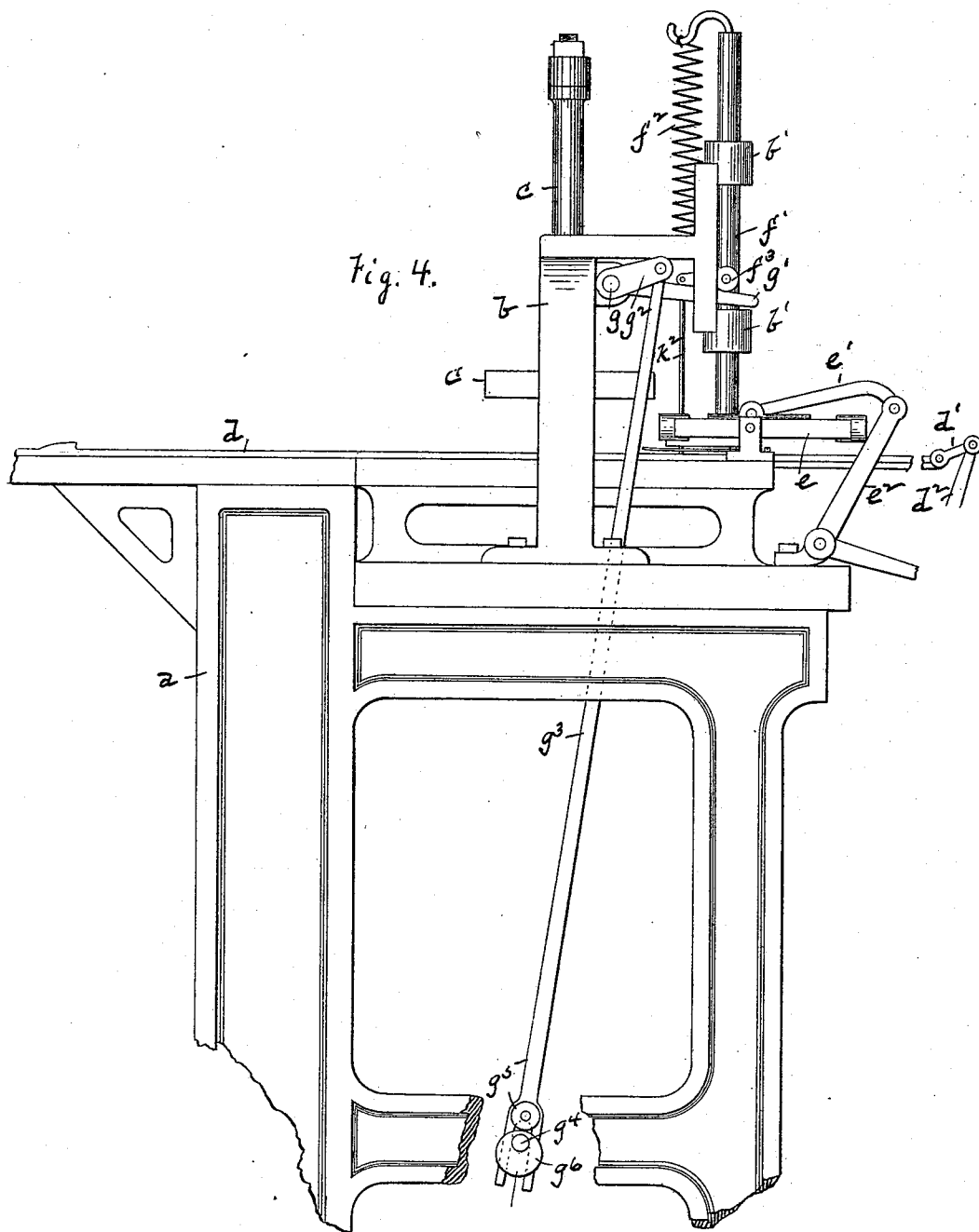
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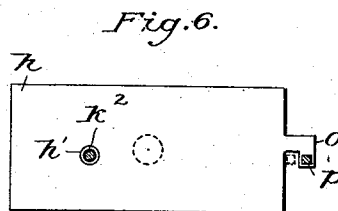
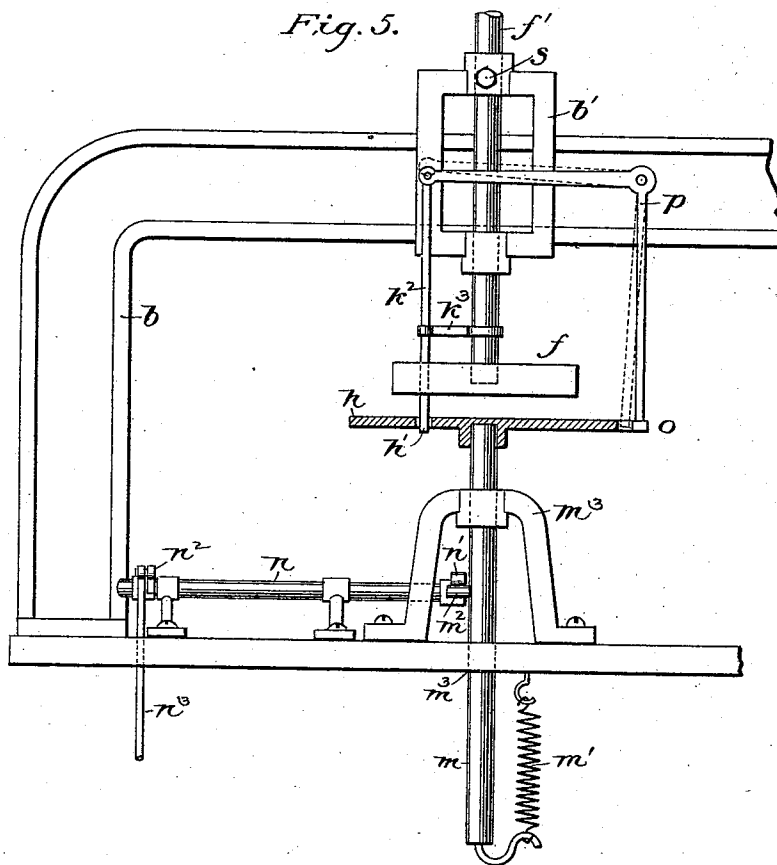
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3 Sheets—Sheet 3.

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ENVELOPE GUMMING MECHANISM.

No. 468,925.

Patented Feb. 16, 1892.



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UNITED STATES PATENT OFFICE.

JAMES BALL, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO THE HOLYOKE ENVELOPE COMPANY, OF SAME PLACE.

ENVELOPE-GUMMING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 468,925, dated February 16, 1892.

Application filed June 5, 1890. Serial No. 354,323. (No model.)

To all whom it may concern:

Be it known that I, JAMES BALL, of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Envelope-Gumming Mechanism, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to mechanism for gumming one or more of the flaps of an envelope-blank either in connection with an envelope-machine or independently thereof, and has especial reference to gumming mechanism in which a gumming-die is brought into contact with a blank superposed upon a suitable bed or other support either by a movement of said die alone or the bed alone or by the combined movement of both said die and bed, each of said three movements to bring the gummer and bed into contact with each other, being common in the art to which my invention relates.

The object of the invention is to provide means whereby the completion of the movement of the gummer or bed, or both, to bring them into contact with each other shall be made to depend upon the presence of a blank upon said bed in position to be gummed, to the end that in the absence of a blank upon said bed the gummer and bed will be prevented from being brought into contact and the smearing of the surface of said bed with gum will be rendered impossible.

To this end my invention consists in the envelope-gumming mechanism comprising a gummer, a bed for supporting an envelope-blank, either or both of which is or are movable to bring them into contact, and means for limiting such movement in the absence of a blank upon said bed, as hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a side elevation of the gummer and a portion of the frame and bed of a common form of envelope-machine having my invention applied thereto. Fig. 2 is a front elevation thereof. Fig. 3 is a partial horizontal section taken upon line *xx* of Fig. 1. Fig. 4 is a side elevation of so much of

the entire machine as is necessary to be shown for a full understanding of the invention. Fig. 5 is a front elevation of the upper part of the machine, showing a modified form of the invention. Fig. 6 is a plan view of the bed shown in Fig. 5 and a cross-section of the device for limiting its upward movement.

Referring to Figs. 1 to 4, inclusive, the letter *a* designates a portion of the frame; *b*, the upright arm or bracket thereof; *c*, the plunger, which co-operates with the folders (not shown) to form the envelope from the blank; *d*, the blank-carrier, connected by link *d'* with its operating-lever *d''*, and *e* the reciprocating gum-box, connected by link *e'* with its operating-lever *e''* of a well-known form of envelope-machine, the construction and operation of which will be understood by persons skilled in the art without further illustration or description.

The letter *f* designates the gummer, which is of the usual angular form and is provided with the usual stem *f'*, which is vertically movable within bearings *b'* on the arm or bracket *b*. I have shown as a means for imparting a positive upward movement to said gummer a rock-shaft *g*, journaled in bearings in the frame, said shaft having an arm *g'*, which bears against a roll *f''* on stem *f'* of the gummer, and an arm *g''*, to which is connected a rod *g'''*, carrying at its lower end a roll *g''''*, against which bears a cam *g'''''* on a shaft *g''''''*, and have shown as the means for imparting downward movement to said gummer a spring *f'''*, connected at one end to stem *f'* and at its opposite end to the frame; but it will be understood that any of the means usually employed for imparting a positive upward movement to the gummer can be utilized, and that the downward movement thereof can be caused by gravity alone, if desired.

The letter *h* designates a bed for supporting the envelope-blank beneath the gummer, which bed is stationary and may be the usual bed of the machine or a suitable support connected to said bed. In the practice of my invention I provide the upper plane surface of said bed *h* with a hole, depression, or recess located within the plane occupied by the blank when the latter is in position to be gummed;

and in connection therewith I provide means for limiting the movement of the gummer toward said bed, or in case of a movable bed for limiting the movement thereof toward the gummer, said means in either case being controlled by an actuating device adapted to enter said hole, depression, or recess in the bed in the absence of a blank upon the latter and prevent the gummer and bed from coming into contact with each other, and when prevented from entering said hole, depression, or recess by the presence of a blank upon said bed to permit the gummer to descend upon said blank. There are obviously many ways in which this function can be secured, and as one example thereof I have herein shown, in connection with the movable gummer and stationary bed, a very simple form of means for controlling the movement of the former in the manner stated, which means are as follows: Pivotally mounted upon stem f' of gummer f is a latch device k , composed of an upright arm provided with a notch or shoulder k' , and a horizontally-disposed arm having pivotally connected thereto the depending rod k^2 , which constitutes the actuating device for said latch. As shown, the connection between said latch and stem f' is made by means of a stud k^4 , seated in the latter, the latch being pivotally mounted upon said stud upon one side of the stem, and the roll f^3 , against which bears the arm g' of rock-shaft g , being mounted thereon upon the opposite side of the stem, suitable washers k^5 , secured upon the ends of the stud, serving to prevent lateral movement of said latch and roll. Any suitable means for connecting the latch to the stem, however, can be employed. The weight of the rod k^2 normally holds latch k in the position shown by broken lines in Fig. 1, and in this position of the latch the lower end of said rod projects slightly below the plane of the gumming-surface of the gummer, a guide-plate k^3 , secured to the gummer and having therein a hole through which the rod passes, being preferably provided to steady the movement of the latter. In such normal position of the latch its notch or shoulder k' is adapted to be brought into contact with a stationary stop—in the present instance the upper surface of arm b of the frame—whereby further downward movement of the gummer is prevented, and the parts are so proportioned that such stoppage of the movement thereof will occur before the gummer and bed come into contact with each other if said latch be undisturbed.

Within the upper plane surface of bed h is made the hole or recess h' , located within the plane occupied by the blank i when the latter is in position to be gummed, into which hole or recess the lower end of rod k^2 is adapted to enter in the absence of a blank upon said bed, as shown in Fig. 2. Whenever a blank rests upon said bed in position to be gummed, it covers said hole or recess h' , and by preventing rod k^2 from entering the latter as the gum-

mer and bed approach each other causes said rod to rock latch k upon its pivot in such manner as to withdraw its notch or shoulder from the plane of the stationary stop, as shown by full lines in Fig. 1, and the gummer is thereby permitted to descend upon said blank. The latch device k and its actuating device k^2 are thus adapted to automatically control the action of the gummer to prevent it and the bed from coming into contact with each other in the absence of a blank upon the latter and thus prevent said bed from being smeared with gum.

Particular attention is directed to the location of the hole or recess h' in the bed—viz., within the plane occupied by a blank after the latter has arrived beneath the gummer—thereby distinguishing my present invention from that covered by Letters Patent of the United States, No. 263,838, issued to me September 5, 1882, wherein a slot in the bed to receive the actuating device of a stop-motion mechanism is located in the path of movement of a blank to the gummer. By such change in the location of said hole or recess I secure important results. In the first place in such a construction as that shown in my said patent, the blank on its way to the gummer must make a sliding contact with the actuating device of the stop-motion mechanism to prevent the latter from entering the opening in the bed, and should the edge of the blank be bent or curled the inaccuracy of its engagement with said actuating device is liable to interfere with the proper and accurate operation of the latter, whereas by locating the depression in the bed at the point herein shown and described the actuating device engages the blank when the latter is stationary and wholly within the edges of the blank, thereby insuring perfect accuracy in its operation at all times. Again, by locating the depression or opening in the bed at the point herein shown I am enabled to utilize means which directly control the movement of the gummer or bed, as the case may be, without affecting or depending upon the operation of any of the other moving parts of the machine, thereby not only greatly simplifying the mechanism necessary to be employed, but still further assuring the accuracy of operation thereof.

So far as the broader feature of my invention is concerned, it is immaterial whether the hole or depression in the bed be employed in connection with means for limiting the movement of a gummer or of a movable bed, as the same result would be secured in substantially the same manner in either case—viz., to automatically prevent the gummer and bed from coming into contact with each other in the absence of a blank upon the latter, both of said movements, as before stated, being common in the art.

In Figs. 5 and 6 I have illustrated one manner of thus applying the invention to a machine having a stationary gummer and a ver-

tically-movable blank-supporting bed, in which the gummer *f* is mounted by its stem *f'* in the bearings *b'* of the arm or bracket *b*, as before, the same being held from vertical movement, however, by a screw *s*, passing through said bearing and against said stem. The bed *h* is in this instance rigidly secured to the upper end of a stem *m*, which stem is capable of free vertical movement within bearings *m*³ on the frame. A spring *m'*, connected at one end to the frame and at its opposite end to the lower end of said stem *m*, serves to impart upward movement to the bed, and a rock-shaft *n*, having an arm *n'*, which bears against a stud *m*² on the stem, and an arm *n*², which has connected thereto a cam-actuated rod *n*³, corresponding to the rod *g*³, before described, serve to impart downward movement to the bed. The bed contains the same depression or recess *h'*, located within the plane occupied by a blank when in position to be gummed, and at one end thereof is provided with the L-shaped extension *o*. (See Fig. 6.) The rod *k*² is guided by the plate *k*³ on the stem of the gummer in the same manner as before described, but in this instance has its upper end pivotally connected to the horizontal arm of an elbow-lever *p*, which lever is pivoted to the side of the arm or bracket *b*. The vertical arm of said elbow-lever projects downwardly to a point below the plane of the lower face of the gummer, whereby it is adapted when the bed *h* is moved into contact with its lower end to check the upward movement of said bed and prevent it from making contact with the gummer. In the absence of a blank upon the bed the weight of the rod *k*² retains said elbow-lever in the position shown by full lines in Fig. 5, in which position its vertical arm is in vertical alignment with the L-shaped extension *o* on the bed, and as the bed rises toward the gummer, said arm by engaging said extension stops the movement of said bed before it engages the gummer, the lower end of rod *k*² entering the depression or recess *h'*, as shown in said figure. On the other hand, whenever a blank lies upon the bed and covers the recess *h'*, the rod is prevented from entering the latter and is moved vertically by the blank a sufficient distance to rock the elbow-lever to the position shown by broken lines, in which its vertical arm clears the extension *o* on the bed, and the latter is permitted to complete its upward movement and carry the blank against the gummer.

It will be seen that in both forms of the invention herein shown the same result is secured in substantially the same manner.

With regard to the particular mechanism shown in Figs. 1 to 4, inclusive, it will be observed that the latch device and its actuating device partake of the movement of the gummer and operate to control the movement thereof wholly independently of any of the other movable parts of the machine, and that said mechanism is thereby adapted to be read-

ily attached to the envelope-gummers generally without disturbing the remaining parts of the machine in which the gummers are found. It will be observed, furthermore, that said mechanism is not only simple and inexpensive in construction, but sure and positive in its operation.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an envelope-gumming mechanism, a gummer and a blank-supporting bed adapted to be moved into and out of contact with each other, said bed having therein a depression or recess located within the plane occupied by a blank when the latter is in position to be gummed, means, substantially as described, for imparting movement to one of said parts, mechanism, substantially as described, for varying the movement of said part, and an actuating device, substantially as described, for said mechanism adapted to enter the depression or recess in said bed in the absence of a blank upon said bed, combined and operating substantially as and for the purpose described.

2. In an envelope-gumming mechanism, a gummer and a blank-supporting bed movable toward and away from each other, said bed having therein a depression or recess located within the plane occupied by the blank when the latter is being gummed, means, substantially as described, for causing said gummer and bed to approach and recede from each other, a latch device, substantially as described, adapted in its normal position to prevent said gummer and bed from coming in contact with each other, and an actuating device, substantially as described, connected with said latch, said actuating device being adapted to enter the depression or recess in said bed in the absence of a blank upon the latter and thereby permit the latch to remain in its normal position and when prevented by a blank from entering said depression or recess to move the latch from its normal position and permit the gummer to come in contact with said blank, combined and operating substantially as and for the purpose described.

3. In an envelope-gumming mechanism, a gummer and a blank-supporting bed movable toward and away from each other, said bed having therein a depression or recess located within the plane occupied by a blank when the latter is in position to be gummed, and a movement-controlling device adapted to enter the depression or recess in the bed in the absence of a blank upon the latter and when in such position to prevent the gummer and bed from being brought into contact with each other, combined and operating substantially in the manner set forth.

4. In an envelope-gumming mechanism, the combination, with a gummer and a blank-supporting bed and means for causing them to approach and recede from each other, said

bed having a depression so located therein as to be covered by the blank when the latter is in position to be gummed, of a pivoted latch partaking of the movement of one of said parts and adapted in one of its positions to prevent said parts from coming into contact with each other, and an actuating device, substantially as described, for said latch adapted to enter said depression or recess in the bed in the absence of a blank upon the latter and to thereby cause said latch to limit the movement of one of said parts toward the other part, arranged and operating substantially as set forth.

5. In an envelope-gumming mechanism, a bed for supporting an envelope-blank, a gummer movable in a plane perpendicular to said bed, an engaging device, substantially as described, connected to and movable with said gummer, and a fixed stop with which said engaging device is adapted to be brought into contact for preventing the descent of the gummer upon said bed in the absence of a blank upon the latter, combined and operating substantially as described.

6. In an envelope-gumming mechanism, a bed for supporting an envelope-blank and having an opening or depression located therein within the plane occupied by the blank when the latter is in position to be gummed, a gummer movable in a plane perpendicular to said bed, a latch pivotally connected to said gummer, a stationary stop with which said latch is adapted to engage to limit the descent of the gummer, and an actuating device, sub-

stantially as described, connected with said latch, said actuating device being adapted to enter the opening or depression in said bed in the absence of a blank upon the latter and by its engagement with a blank upon said bed to move said latch out of the plane of said top, combined and operating substantially as set forth.

7. In an envelope-gumming mechanism, a blank-supporting bed having an opening or depression so located therein as to be covered by a blank held thereon in position to be gummed, a gummer movable in a plane perpendicular to said bed, a latch pivotally secured to said gummer, a stationary stop with which said latch is adapted to engage to limit the descent of the gummer, and a rod connected to said latch, the lower end of said rod normally projecting below the plane of the gumming-surface of the gummer and in line of the opening or depression in said bed, combined and operating substantially as and for the purpose described.

8. In an envelope-gumming mechanism, the combination, with the gummer having the pivoted latch mounted upon the stem thereof and the rod depending from said latch, of a guide for the lower end of said rod, secured to said gummer, substantially as and for the purpose described.

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Witnesses:

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