(No Model.) 3 Sheets—Sheet 1.

E. W. BLACKHALL & R. ANDERSON.

DEVICE FOR GUMMING ENVELOPES.

No. 418,348. Patented Dec. 31, 1889.

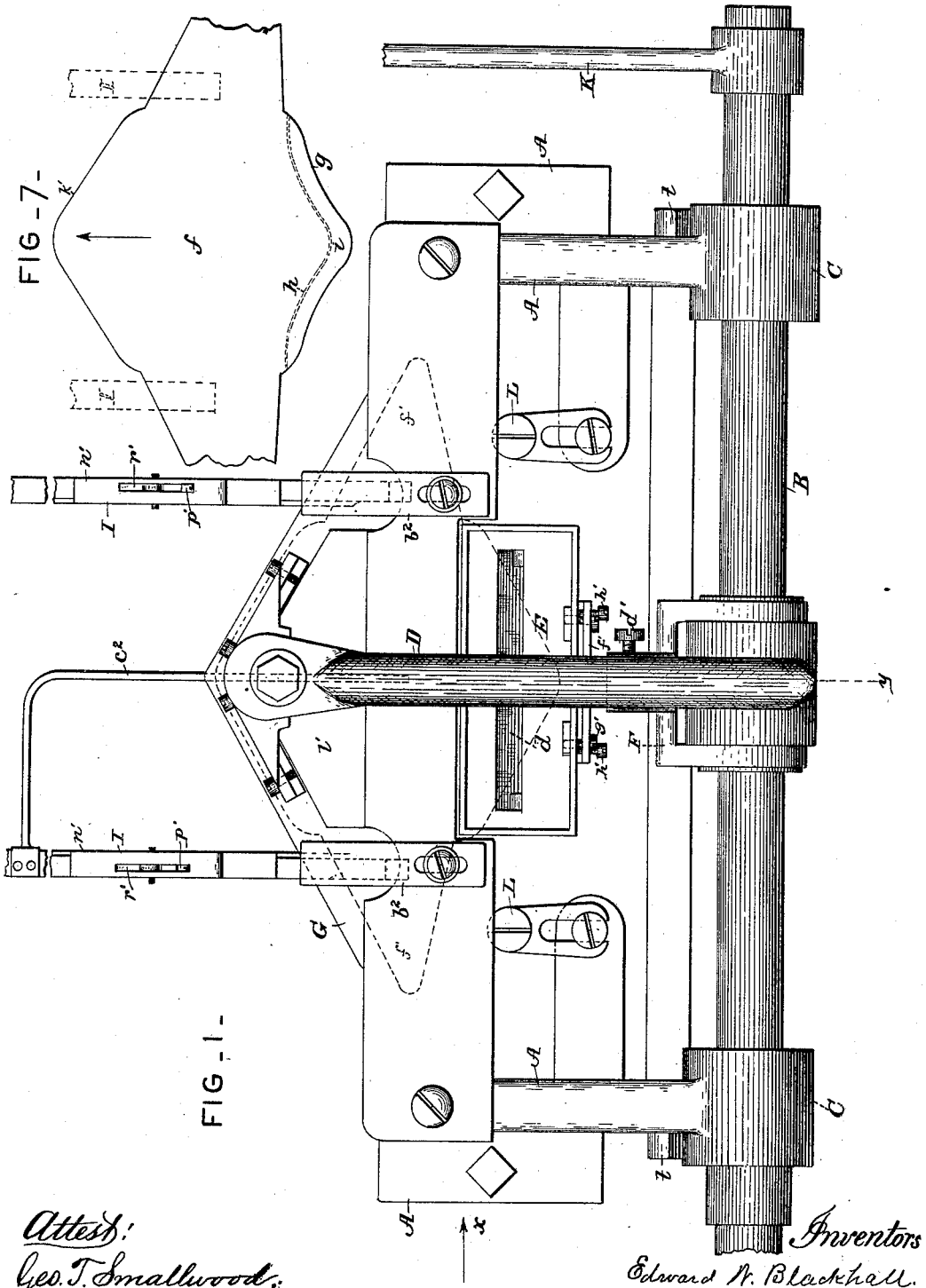

FIG-7-

FIG-1-

Attest:
Geo. T. Smallwood.
Jas. K. McGathman

Inventors
Edward W. Blackhall.
Robert Anderson
By E. B. Whitmore atty.

(No Model.) 3 Sheets—Sheet 2.

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FIG. 2.

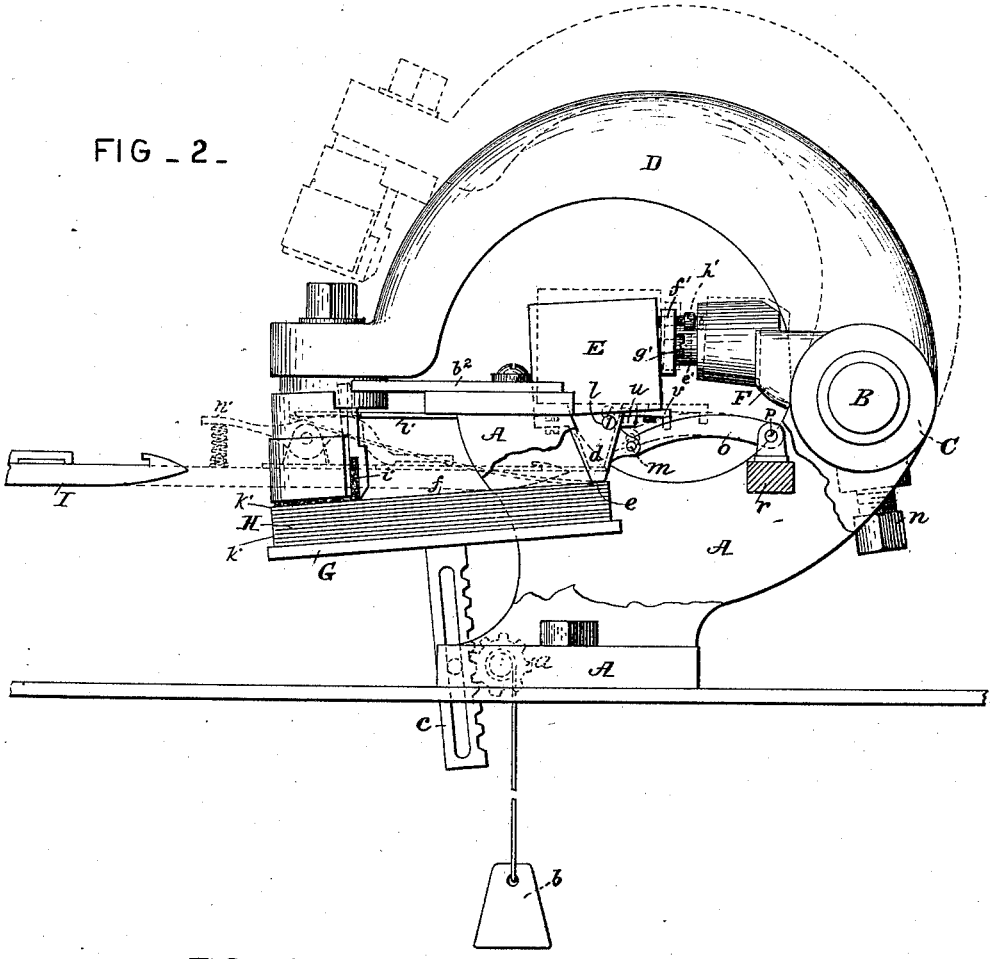
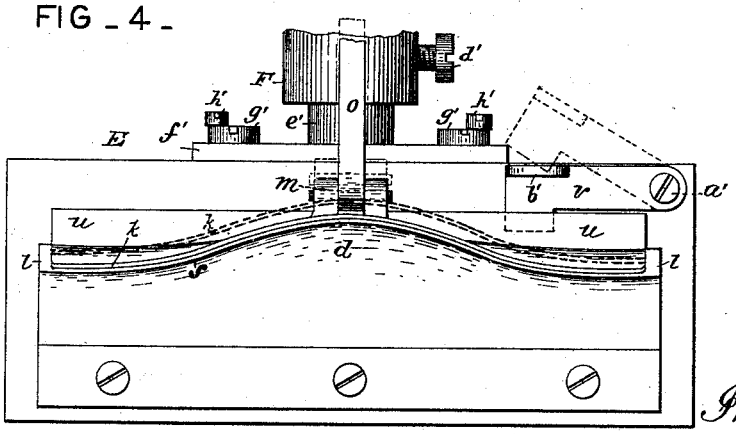


FIG. 4.



Attest:
Geo. T. Smallwood.
Jas. K. McCathran

Inventors:
Edward W. Blackhall.
Robert Anderson.
By E. B. Whitmore, atty.

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DEVICE FOR GUMMING ENVELOPES.

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FIG _ 3 _

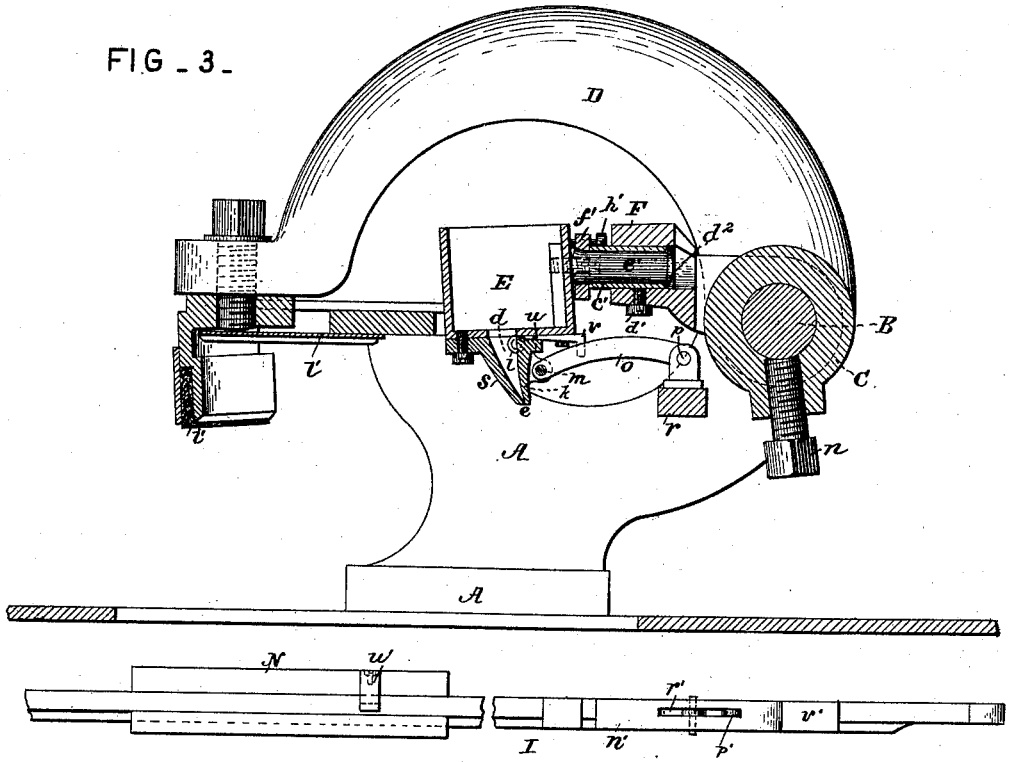


FIG _ 5 _

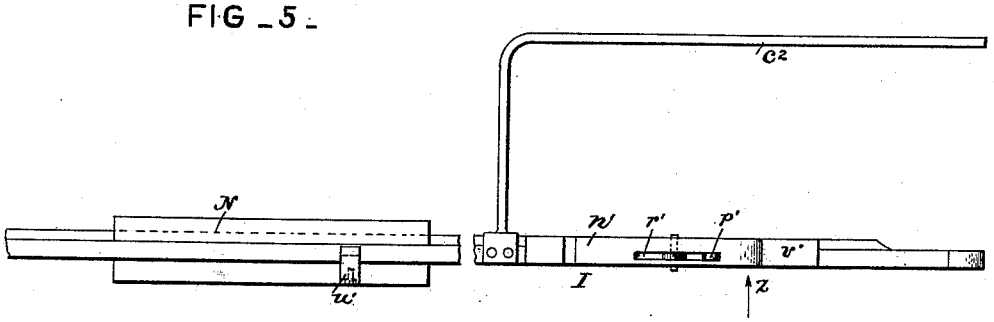
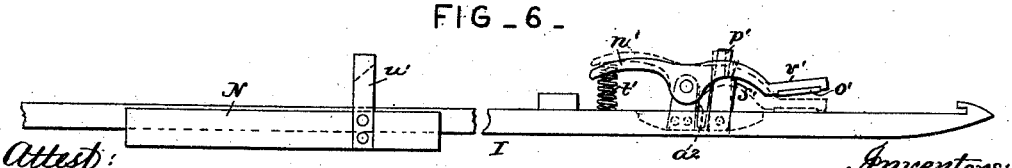


FIG _ 6 _



Attest:
Geo. T. Smallwood,
Jas. K. McCathran

Inventors:
Edward W. Blackhall.
Robert Anderson.
By E. B. Whitmore, atty.

UNITED STATES PATENT OFFICE.

EDWARD W. BLACKHALL AND ROBERT ANDERSON, OF TORONTO, ONTARIO, CANADA.

DEVICE FOR GUMMING ENVELOPES.

SPECIFICATION forming part of Letters Patent No. 418,348, dated December 31, 1889.

Application filed October 11, 1888. Serial No. 287,786. (No model.)

To all whom it may concern:

Be it known that we, EDWARD W. BLACKHALL and ROBERT ANDERSON, of Toronto, in the county of York, Ontario, Canada, have invented a new and useful Improvement in Devices for Gumming Envelopes, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

Our invention relates to devices for supplying or feeding gum or an adhesive substance to sheets of paper to be folded and stuck together—such as, for instance, paper bags or similar articles of manufacture—the invention being herein shown and described, however, as being applied particularly to the manufacture of envelopes.

The object of our invention is mainly to simplify and cheapen the construction of the parts of envelope-machines as compared with those in common use, the functions of which parts being to supply the gum to the blanks, and thus to enable the machines to be run more rapidly.

Our object is also to produce other improvements, all of which are hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan view of our improved device for an envelope-machine, parts being broken away; Fig. 2, an end elevation of the same, seen as indicated by arrow *x* in Fig. 1, parts being broken away and other parts shown in two positions by full and dotted lines; Fig. 3, a view of the parts, seen in the same direction in which Fig. 2 is seen, the gum-dish and other parts being sectioned, as on the dotted line *y* in Fig. 1; Fig. 4, drawn to a larger scale, a view of the under side of the gum dish or holder, the latter being inverted, parts being shown in two positions by full and dotted lines. Fig. 5 shows a plan of parts of the conveyers, seen as in Fig. 1; and Fig. 6, a side elevation of the one nearer the observer, seen as indicated by arrow *z* in Fig. 5. Fig. 7 shows a portion of a blank, drawn to a smaller scale, upon which is shown in dotted lines the form and position of the line of contact between the edge of the gummer and blank.

Referring to the parts of the device, A is a frame carrying the gumming device, and B a horizontal rocking shaft resting in bearings C in the frame holding the lifting-arm D.

E is the holder for the gum, sustained by a bifurcated bracket or holder F, fitted to turn freely upon the shaft B to allow the holder for the gum to move upward or downward.

G is a table or head for holding the pile of blanks H to be formed into envelopes, said table being urged upward by some simple or common means—as, for instance, a rack *c* and pinion *a*, operated by a weight *b* and connecting-cable.

I are the conveyers for the gummed blanks, substantially of common kind and movement, save as to certain novel attachments, hereinafter described.

K is an arm secured to the shaft B, by which the latter is rocked by any common means known in mechanics.

L L are stops or guides for the pile of blanks in common use.

The holder E for the gum is formed with a narrowed part *d* at its under side, terminating in a narrow discharge-opening *e*, having parallel sides, through which the gum flows to the upper blank *f* of the pile, upon which blank the holder E rests. The opening *e* is curved to correspond to the contour of the edge *g* of the sealing-flap of the blank, (see Figs. 4 and 7,) the opening being one-tenth of an inch in width, more or less.

Now, it will be understood that if the holder for the gum rests upon the blank, so that the opening *e* corresponds with the dotted lines *h*, and if then the blank be drawn in the direction indicated by the arrow in Fig. 7, from under the holder by the conveyers I I, the whole of the surface *i* of the blank between the lines *h* and the edge *g* thereof will pass under the opening and receive gum upon it; and, further, that when the blank is thus drawn away the gum-holder will similarly rest upon the next blank beneath, the pile H being carried upward, as herein-above mentioned, at each operation to the amount of the thickness of the blank removed.

One side *k*, Figs. 2 and 3, of the discharge-opening *e* is made separate from the other side *s*, and joined to the latter by pivot-pins

l, so that the opening may be varied in width or closed altogether. To the side k is connected by a movable joint m, an arm or closer o for the opening, the part o being also joined by a movable joint p to a holder r, secured to the frame A by pivot-screws t t. It will be observed that the vertical motions of the holder E for the gum are made from the axis of the shaft B, while the motions of the side k are controlled by the arm o, moving from the center p. Now, the axes of B and p being eccentric, the wall k will be drawn away from the opposing side s when the gum-holder is raised, and pushed toward and against said side s when the said holder is lowered. The holder r may be turned on its axis to bring the joint p toward or from the part k, which will cause the opening e to be closed earlier or later in the downward motion of the holder for the gum. When the pile of blanks is exhausted and the table lowered to receive a new supply, the gum-holder will fall from its own weight, causing the closer o to crowd the side k against the side s and effectually close the opening e; and this action of the parts also constitutes a stop for the further descent of the gum-holder. Provision is also made for closing the opening e, by hand, should necessity require. A lip u projects horizontally from the side k, and a wedge v is pivoted at a' to the bottom of the holder E for the gum in position to be crowded between the said lip and holder E. A part or handle b', projecting from the wedge, assists the operator to work the wedge, which latter acts to press the side k against the side s at their lower or meeting edges and close the opening.

The gum dish or holder E is connected with the bracket F, so as to be adjusted toward or from the shaft B and to be adjusted as to its inclination or be tilted, and also to swing in substantially a vertical plane upon a horizontal axis. The forward or back adjustment determines the width of the band of gum deposited upon the blank. The tilting of the dish causes the sides k and s to press relatively more or less heavily upon the blank, and the swinging motion admits of the parts k and s adjusting themselves to bear upon the blank at both ends alike, so that the gum may be communicated to the blank alike at both ends of the discharge-opening. To effect these adjustments and the swinging motion, we provide a sleeve c', fitted in the circular cavity d^2 in the part F, fixed when in position by a set-screw d'.

f' is a T-shaped piece, formed with a stem e', held to turn in the sleeve, the stem being headed at its inner end to prevent it from pulling out of the sleeve. The T or holder f' is secured to the dish E by screws g' g', passing freely through the piece f', and h' h' are tilting or adjusting screws threaded in the piece f' near its upper edge, which tilting-screws, bearing at their points against the side of the gum-holder, tend to push the latter away from the piece f'. By loosening the screws g' g' and tightening the screws h' h' the gum-holder will be turned toward the left, (see Fig. 3,) causing the part s to bear more heavily upon the blank. By loosening the screws h' h' and tightening the screws g' g' the part k will be caused to bear more heavily upon the blank. When the part s bears upon the blank, less gum will be left thereon, as the gum will be more cleanly scraped off the blank by said part when the former is pulled from the gum-holder. When, by adjusting the position of the gum-holder, the side k sustains the weight of the holder, more gum is allowed to escape under the side s and remain upon the blank.

The arm D is secured to the shaft by a set-screw n, by which it may be adjusted as to the matter of its meeting the blank. This arm carries at its outer free end a gummed surface or gummer i', for the double purpose of supplying gum to the outer edge k' of the blank and to enable it to lift the edge of the blank from the pile for the purpose of being caught by seizers. The part i' may be a mass of fine wire-gauze or a fibrous material or other body having interstices in which to receive and hold the liquid gum. When the arm is brought down upon the blank and then raised, the blank will be both supplied with gum and lifted to be caught by the conveyers. A stripper l' clears the arm of the blank, while the dead-weight of the heavy gum-holder serves to hold the blank securely in place until forced from under it by the seizing-conveyers.

The seizers shown in Figs. 5 and 6 are attached to the conveyers or bars I I. These seizers consist of spring-snaps n', pivoted to the bars I I, respectively, each being urged by a spring t'. The forward ends v' of the seizers are provided with friction-pads o', of india-rubber, felt, or similar material, to cause the seizers to hold more firmly to the blanks. Similar pads o' are provided for the bars I I to meet the pads of the seizers. p' is a prop or detent for the snap extending through a slot r' in the latter and formed with a shoulder at s' to resist the action of the spring. When the conveyers are moved to the left, the end of each snap is brought under a depressor w', fixed in a rigid part N of the machine, which opens the snap and allows the detent p' to have its shoulder s' urged under the snap by a slender spring a^2. The snaps are then in readiness to seize the blank. A forward movement of the conveyers brings the respective detents against rigid trips b^2, Figs. 1 and 2, which release the snaps to allow them to seize the blank and pull it from the gum-dish, as stated.

One of the conveyers is provided with a support c^2, to prevent the sagging of the blank as it is being carried to the former. This support is preferably a slender wire or strip of metal reaching in under the middle of the blank, and there may be one extending from each of the conveyers I I.

The fact that the holder for the gum rests upon the blanks is of itself of much importance, for it thus not only holds the pile of blanks in place, but each separate blank, as it comes to the top of the pile, is held steadily at one edge, while the lifter raises the other edge and delivers it truly to the seizers.

The firm grasp of the seizers not only enables them to pull the blanks from the gum-holder, but on account of it they are enabled to carry the blanks with positive action, thus insuring their accurate delivery to the former, so as to receive an even fold.

We incline the table G, as shown in Fig. 2, so that the surface of the blank will be squarely met by the gumming-arm D as the latter moves down on the curve of a circle, and also to give the points of the conveyers a better chance to pass in under the raised blank without encountering the edge of the blank beneath them. We also believe it to be an advantage of construction to place the common center of motion—the shaft B—of the arm D and gum-holder E at one side of the pile of blanks and extend said arm and gum-holder at different distances from said center of motion. This arrangement of parts, among other things, brings the gum-holder between the shaft B and the operative end of the arm, rendering the machine more compact.

What we claim as our invention is—

1. In a machine for gumming envelopes, a holder for the gum resting upon the blanks, in combination with seizers for carrying away the blanks, said holder being held to move bodily toward or from the edge of the blank, substantially as and for the purpose set forth.

2. In a machine for gumming envelopes, a holder for the gum formed with a discharge-opening in contact with the blanks, said opening having a movable side, in combination with a closer *o* for the movable side and an adjustable rest or holder *r* for said closer for the movable side, substantially as shown and described.

3. In a machine for gumming envelopes, a holder for the gum held to move upward or downward and having an opening formed with a movable side, in combination with a closer for the movable side, also held to move upward or downward, the axes of motions of said holder for the gum and said closer for the side being eccentric, substantially as shown.

4. The holder for the gum of an envelope-machine having a discharge-opening formed with a movable side, the latter being provided with a lip *u*, in combination with a wedge to separate said part *u* and the body of said holder for the gum, as shown.

5. The gum-dish of an envelope-machine supported by a T-shaped piece or holder *f'*, provided with retaining-screws to secure it to said gum-dish, and tilting-screws for adjusting the said gum-dish, as shown.

6. The combination, in a gumming device for an envelope-machine, of a dish to hold the gum, a holder for the dish formed with a stem, a sleeve to receive the stem, and a hollow bracket to receive the sleeve, substantially as set forth.

7. The combination, in a machine for gumming envelopes, of an arm carried by a rocking shaft and provided with a body or mass having interstices to hold the gum, a weight to hold the blanks, and seizers to carry the blanks from under said weight, said arm being held to be adjusted upon said shaft, as set forth.

8. In a machine for gumming envelopes, a shaft, in combination with a gum-supplying arm held by the shaft, a bracket on the shaft, and a gum-dish held by the bracket, said gum-supplying arm and said dish having a common axis of motion, substantially as described.

9. In an envelope-gumming machine, a shaft, in combination with a gum-supplying arm held by the shaft, a bracket on the shaft, and a gum-dish held by the bracket, said gum-supplying arm and gum-dish having the same axis of motion, and the dish being between the operative end of the arm and the shaft, substantially as shown.

EDWARD W. BLACKHALL.
ROBERT ANDERSON.

Witnesses to the signature of Edward W. Blackhall:

ENOS B. WHITMORE,
GEO. T. SMALLWOOD.

Witnesses to the signature of Robert Anderson:

JNO. DAVIDSON,
E. W. BLACKHALL.