(No Model.) 2 Sheets—Sheet 1.

A. A. RHEUTAN.

GUMMING MECHANISM FOR ENVELOPE MACHINES.

No. 504,136. Patented Aug. 29, 1893.

Fig. 1.

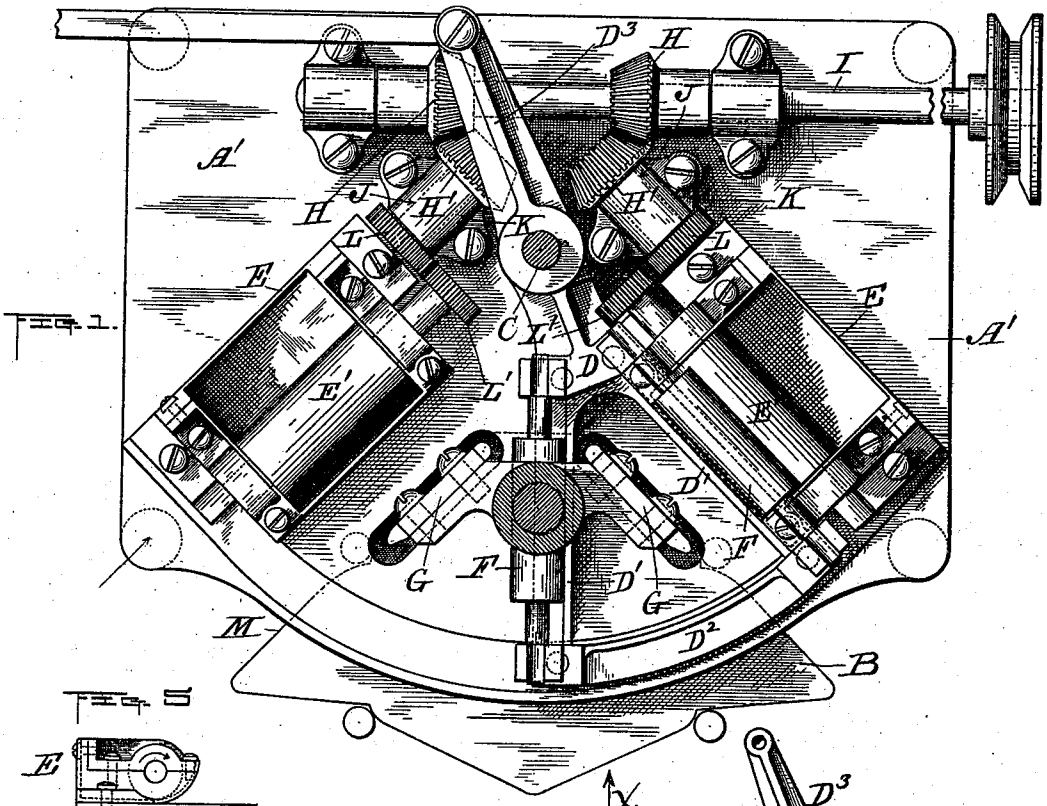


Fig. 5

Fig. 2.

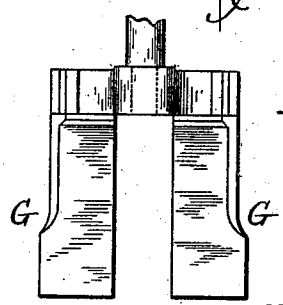


Fig. 4.

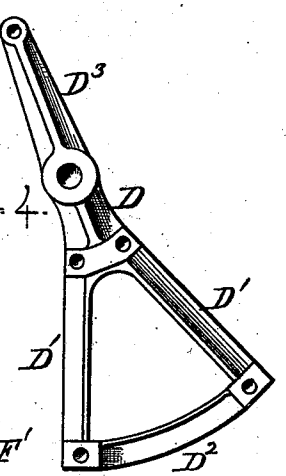
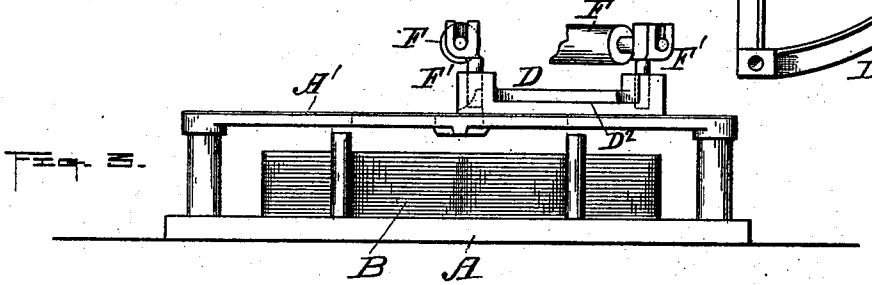


Fig. 3.



Witnesses,
W. B. Nourse.
Fred E. Buss.

Inventor,
Abram A. Rheutan.
By A. A. Barker. Atty

(No Model.)

2 Sheets—Sheet 2

A. A. RHEUTAN.

GUMMING MECHANISM FOR ENVELOPE MACHINES.

No. 504,136. Patented Aug. 29, 1893.

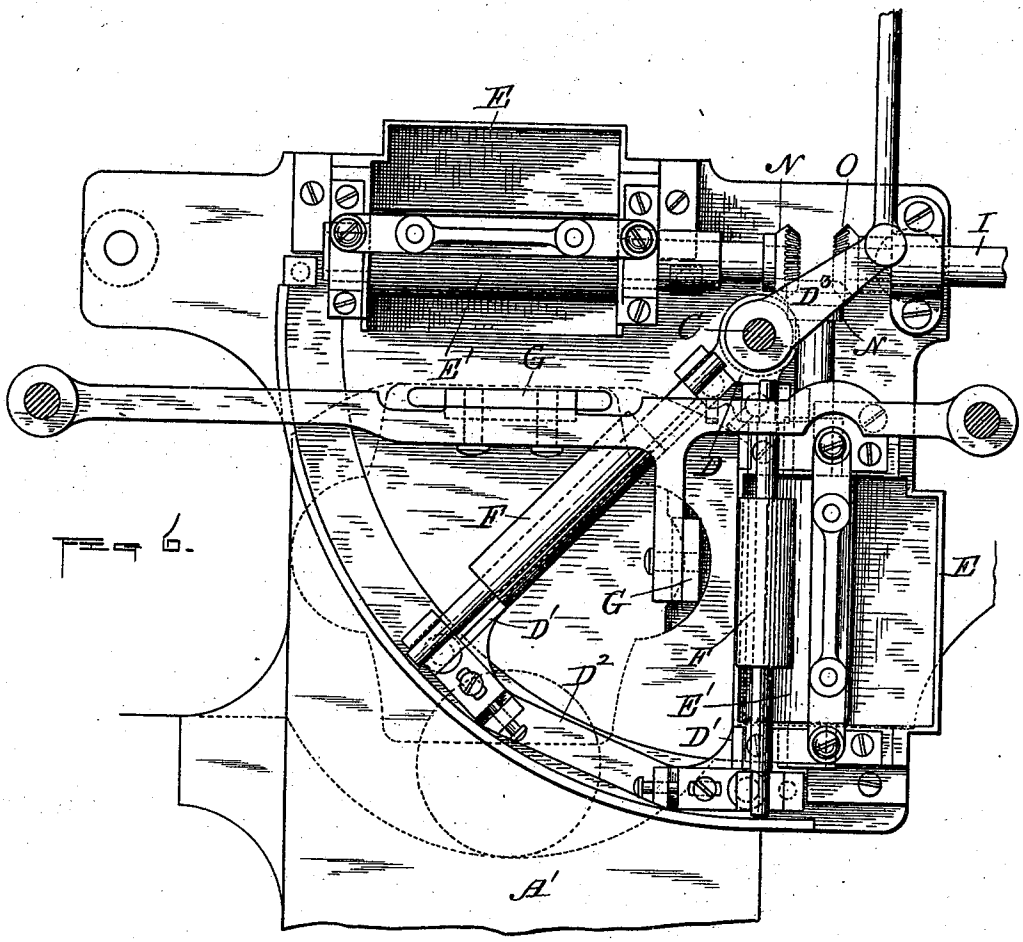


Fig 6.

Witnesses;
W. B. Nourse.
Fred E. Buss

Inventor,
Abram A. Rheutan.
By A. A. Barker. Att'y.

UNITED STATES PATENT OFFICE.

ABRAM A. RHEUTAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO THE W. H. HILL ENVELOPE COMPANY, OF SAME PLACE.

GUMMING MECHANISM FOR ENVELOPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 504,136, dated August 29, 1893.

Application filed June 27, 1892. Serial No. 438,080. (No model.)

To all whom it may concern:

Be it known that I, ABRAM A. RHEUTAN, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Gumming Mechanism for Envelope-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a plan, partly in section, of so much of an envelope machine as is necessary to illustrate my improvements. Fig. 2 is a side view, upon a smaller scale, of the back flap gumming and "pick-up" fingers, the head in which they are held, and part of the shaft that supports the same, the following figures, (except Fig. 6) also being upon a reduced scale. Fig. 3 is a front view of part of the frame-work and mechanism shown in Fig. 1, looking in the direction indicated by arrow *x*, same figure. Fig. 4 is a detached plan of the pivoted, reciprocating frame upon which are mounted the gum-distributing rolls, as will be hereinafter more fully described. Fig. 5 is an end view of one of the gum-boxes and its roll, and Fig. 6 is a plan similar to Fig. 1 upon the same scale as said figure, showing a modification in the construction which will also be hereinafter described.

My invention is designed more especially for large, official, and open-end envelopes, but may be adapted to other sizes and styles of envelopes.

It consists in combining with the usual gum-box, rolls and back-flap gumming and "pick-up" fingers, of an envelope machine, two gum distributing rolls, both mounted on a pivoted frame, having circular, reciprocating movements imparted thereto by suitable operating mechanism connected therewith, whereby each of said gum-distributing rolls may be carried forward and back, under, and in contact with its respective finger so as to twice gum the bottom surface thereof between each operation of supplying the same with fresh gum from the gum-box roll, as will be hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

In the drawings, A represents the bed or table which supports the pile of envelope blanks B, and which, in practice, is made movable, as well as provided with means for automatically feeding the same up to keep the top blanks at a proper level for the back-flap gumming or "pick-up" fingers to act upon them in the usual way, but as said mechanism does not constitute a part of my present invention, it is unnecessary to illustrate or describe the same. Above bed A, is supported another bed or table, A′, upon which, are in turn supported the gum-boxes and my improved back-flap gumming mechanism. Said mechanism is constructed and arranged to operate as follows: To an upright stud C is pivoted the horizontal, reciprocating frame D, previously alluded to, which is made with two radial arms D′ D′ (preferably connected at their outer ends by the segment piece D^2,) and with an arm or lever D^3 projecting in the opposite direction, whereby said frame may be operated with circular, reciprocating movements on its pivot, by connection with suitable operating mechanism, as and for the purpose hereinafter described. An ordinary gum-box E, provided with the usual gumming-roll E′, is arranged at each side of frame D, radially to the pivot C, so that when said frame is swung back and forth laterally, first one and then the other of its arms D′ will be alternately brought in alignment with its respective gum-roll E′. A gum-roll F, corresponding to the usual distributing gum roll of an envelope machine, is mounted on each arm D′, both of said distributing rolls being arranged above said arms D′ in alignment therewith, and fitted to turn in suitable bearings F′ F′ at each end of the arms, as is shown in Fig. 1 of the drawings; said rolls are in practice arranged at the proper level to impinge against the surface of the gum-box rolls when the frame D is swung around as previously described, and thus supplies them with a fresh coat of gum in the usual way, preparatory to gumming the bottoms of the "pick-up" fingers G G. Said "pick-up" fingers are in practice, operated vertically to

gum the back flaps and pick up the envelope blanks, in like manner to other machines, and it is therefore unnecessary to illustrate or describe said operating mechanism. In this instance the "pick-up" device is arranged centrally between the two gum-boxes E with the fingers G. G, located one at each side of, and equi-distant from the center, and at or about right angles to each other so as to bring them parallel to the gum-boxes and their rolls as is shown in Fig. 1. By the above construction and arrangement it will be observed, by reference to the above figure of the drawings that the gum-box rolls E', distributing rolls F F and fingers G. G all come centrally in line with a circle struck from the pivot of frame D, and are also all parallel to said distributing rolls when the latter are swung around against the same. The various parts are constructed and arranged to bring one of the distributing rolls on frame D centrally between the gum-box rolls and fingers, when the other distributing roll is in contact with one of said gum-box rolls, and the frame is operated at each circular movement one-half the distance between the gum-box rolls, being in practice operated continuously with reciprocating movements from one side to the other, and thus bringing the distributing rolls alternately against first one and then the other of the gum-box rolls to supply the same with fresh gum preparatory to passing under the "pick-up" fingers, the gum-box roll and distributing roll upon one side supplying the gum to one "pick-up" finger, and those upon the other side gumming the other finger. Being thus arranged and operated, that is, each distributing roll carried from one of the gum-box rolls to the center and back, it is obvious that each distributing roll passes under and gums the "pick-up" finger upon the same side of the center as said roll, twice after receiving its new supply of gum from the gum-box roll. The frame D on which the distributing rolls are mounted is moved with quick, reciprocating movements, and therefore when said rolls come in contact with the bottoms of the fingers and pass by the same, sufficient circular momentum is imparted thereto by said frictional contact to turn the rolls a partial revolution in their bearings. Consequently when said distributing rolls return from the center portions thereof not before touched by the fingers, are brought in contact therewith, and are gummed as perfectly as by their first contact after leaving the gum-box rolls. The advantages of thus constructing and arranging the back flap gumming and "pick-up" mechanism will at once be apparent to those skilled in the art to which my invention appertains. By employing two gum-distributing rolls, one for each finger, and arranging the same to come nearly parallel to said fingers when passing under the same, so that they will come in contact lengthwise therewith, very small rolls may be used, as only a small portion of the circumferential surface is required to cover the width of the bottom of the fingers in passing under the same. Therefore the length of the vertical movements of the fingers may be correspondingly shortened and this portion of the envelope machine built in more compact form than ordinarily, which result is also facilitated by the decreased length of movements of the distributing rolls in gumming the fingers.

Other advantages of the above construction and arrangement are, that large envelopes may be gummed without materially increasing the diametrical size of the distributing rolls, and the length of strokes of both the fingers and distributing rolls being reduced to a minimum, admits of an economical construction, and the least possible waste of time in the operation of the parts; consequently an increased production may be obtained by a machine thus made, without increasing the speed of the distributing rolls, owing to the saving in the length of movements above noted. Furthermore, one of the most objectionable features of the usual long stroke distributing rolls, viz: throwing the gum about therefrom, by the rapid movements required, is practically obviated.

Any suitable and convenient mechanism may be employed for turning the gum-box rolls, and for swinging the frame on which the distributing rolls are mounted, and if desired, the outer end of said frame may of course be made solid, instead of in skeleton form as previously described.

In Fig. 1 I have shown the gum-box rolls as being driven from two bevel gears H. H on drive-shaft I, said gears engaging with corresponding gears H' H', on journals J. J fitted to turn in stationary bearings K K, to the inner ends of said journals being also secured spur-gears L L, which engage with similar gears L' L' on the ends of the gum-box rolls. This construction it is obvious, necessitates the arrangement of the gum-box rolls at an oblique angle to the drive-shaft I, which is desirable in gumming envelopes of the style shown in said Fig. 1 required to be gummed on both edges of one of its flaps.

In Fig. 6 the construction is substantially the same except that one gum-box roll is arranged at right angles to shaft I, and the other in line therewith, the power from said shaft being transmitted direct to the gum-box roll-shaft arranged at right angles thereto, and thence to the other gum-box roll-shaft, by means of the miter gears O, N. N. The last described construction and arrangement is desirable in gumming envelopes of the style shown in said Fig. 6, wherein an envelope is shown requiring two of its flaps (the end and one of its side flaps) to be gummed, the "pick-up" fingers and their supporting head being constructed and arranged to conform to said modification.

Other modifications in the construction may also be made if desired, without departing from the principle of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an envelope machine, two gumming and "pick-up" fingers arranged at an angle to each other, and two gum-boxes and their rolls at each side thereof, also arranged at an angle to each other and operated as described, in combination with a pivoted frame having lateral, circular, reciprocating movements between the gum-boxes and their rolls, and two gum-distributing rolls mounted thereon at an angle to each other corresponding substantially to the angle of the "pick-up" fingers and said gum-boxes and their rolls, each adapted to engage with one of the gum-box rolls and one of the fingers, to gum said fingers twice, after each application of fresh gum thereto from its respective gum-box roll, substantially as set forth.

2. In an envelope machine, two stationary gum-boxes and their rolls arranged at an angle to each other; a pivoted frame having lateral, circular, reciprocating movements between said gum-boxes and their rolls, two gum-distributing rolls mounted on said frame, at an angle to each other corresponding substantially to the angle of the gum-box rolls, and two gumming and pick-up fingers adapted to engage with said gum-distributing rolls, when the latter are moved forward and back under the same; in combination with gears on the gum-box rolls, the main drive-shaft, and suitable gearing interposed between said drive-shaft and the gears on the gum-box rolls, substantially as and for the purpose set forth.

3. In an envelope machine, two gumming and "pick-up" fingers arranged at an angle to each other between a pair of gum-boxes and their rolls, in combination with two laterally reciprocating distributing rolls arranged at an angle to each other to bring them substantially parallel with said gumming and "pick-up" fingers when they pass under the same, and each traveling from its respective gum-box roll to a point between the fingers, or vice versa, at each reciprocating movement, substantially as and for the purpose set forth.

ABRAM A. RHEUTAN.

Witnesses:
A. A. BARKER,
C. FORREST WESSON.