

(No Model.)

3 Sheets—Sheet 1.

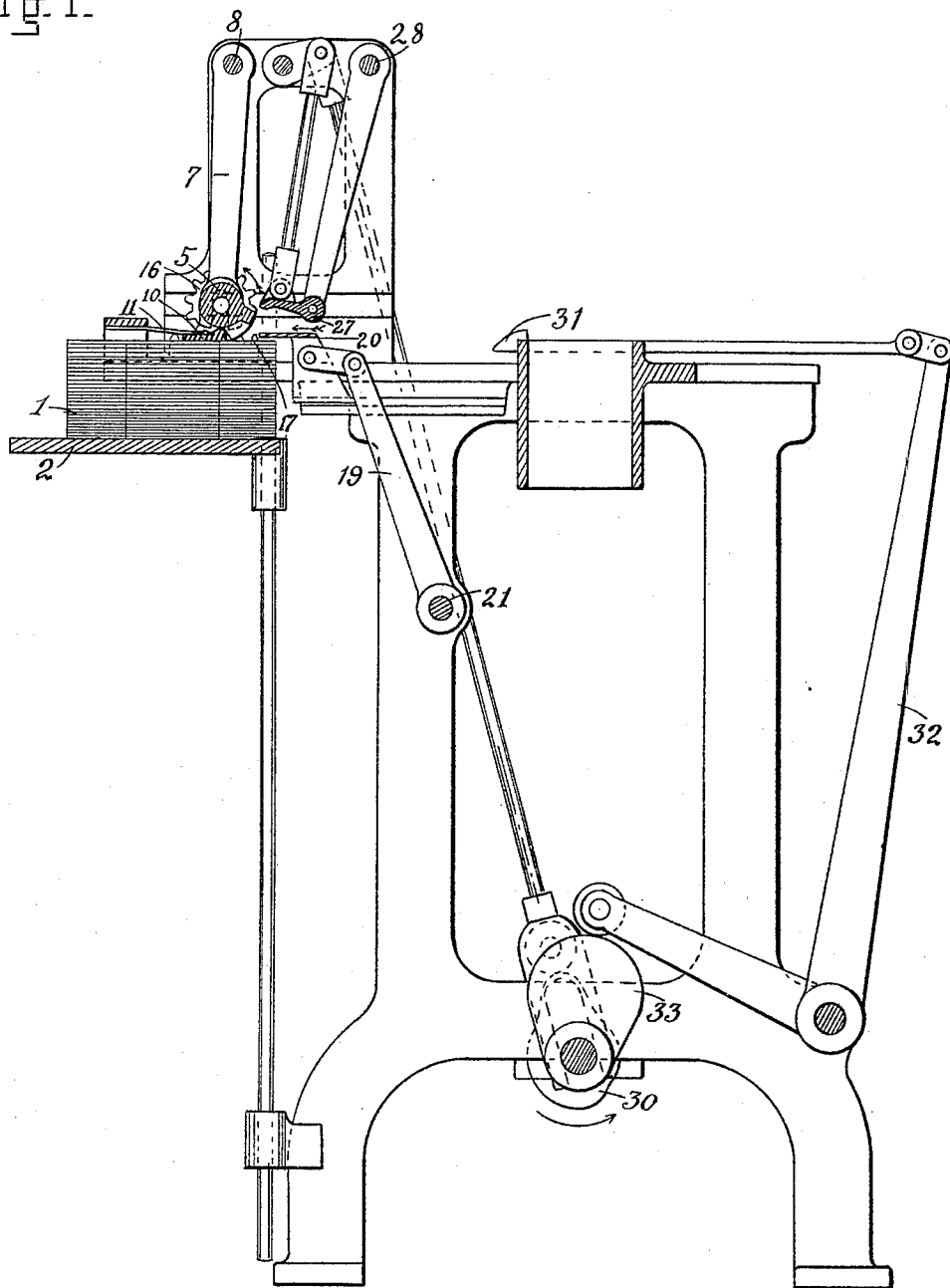
S. W. BALCH.

MACHINE FOR GUMMING AND FEEDING ENVELOPE BLANKS.

No. 460,065.

Patented Sept. 22, 1891.

Fig. 1.



Witnesses:

Emanuel Rau

H. Alban Reeves.

Inventor.

Samuel W. Balch

(No Model.)

3 Sheets—Sheet 2.

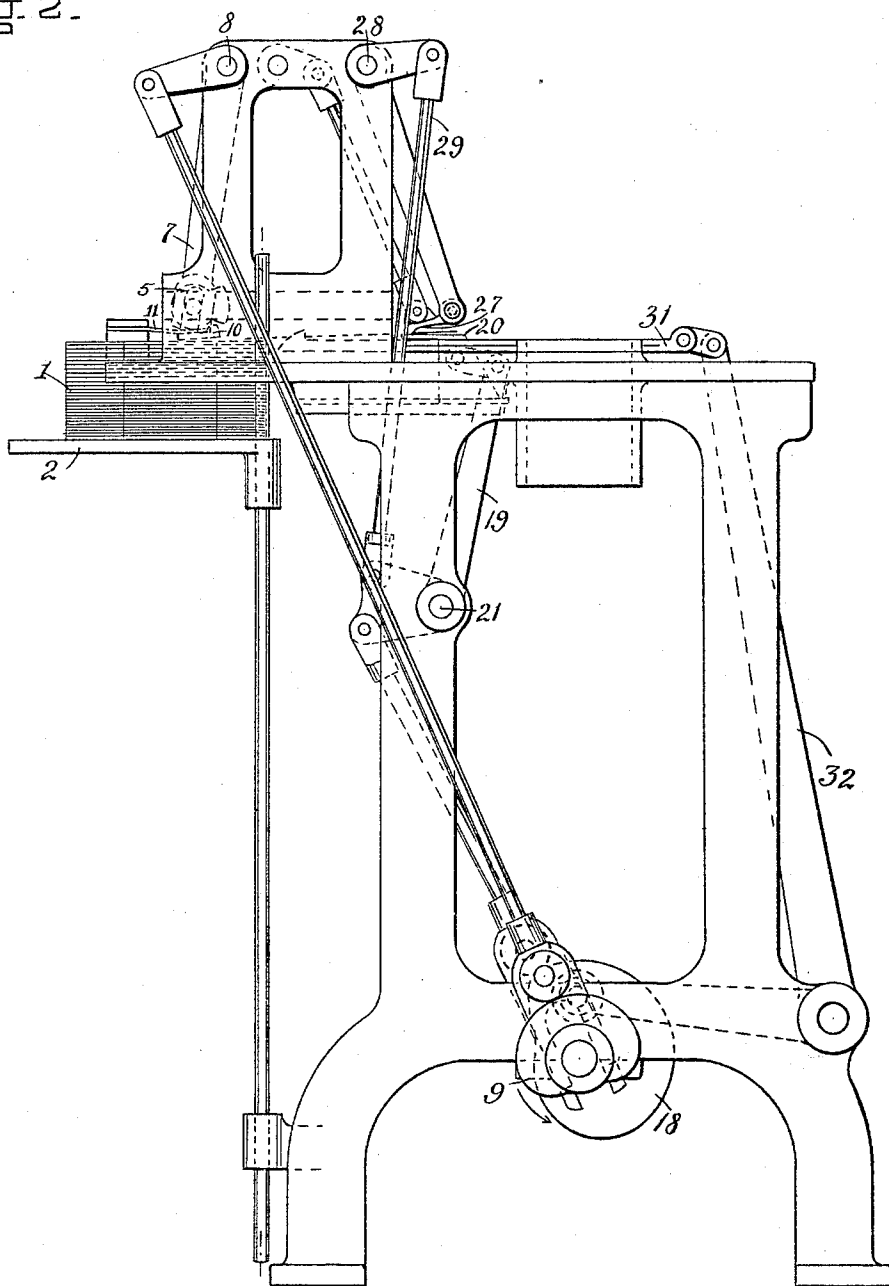
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Fig. 2.



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Fig. 3.

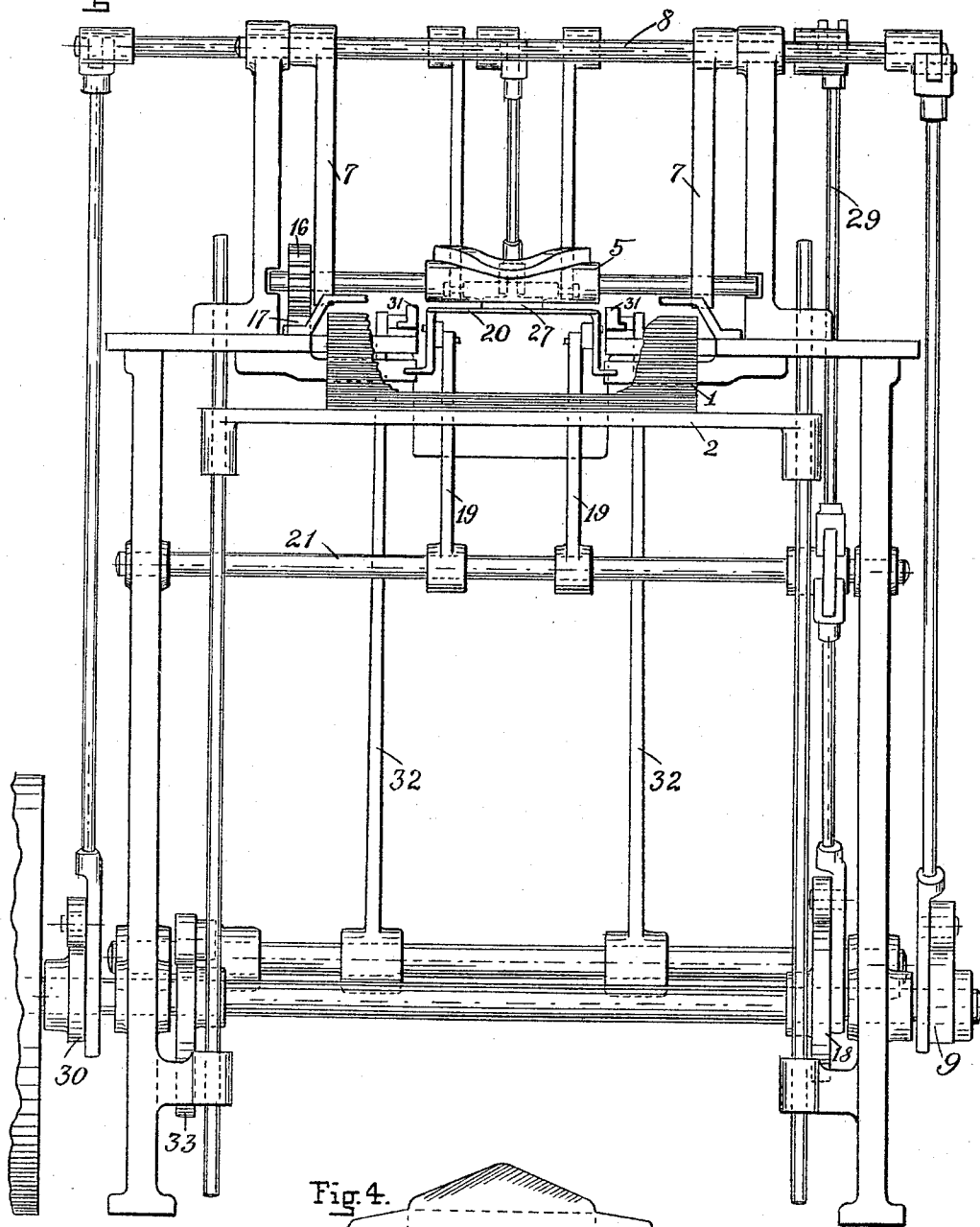
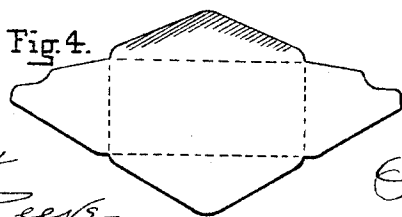


Fig. 4.



Witnesses:

Emanuel Rau

H. Alban Reeves.

Inventor.

Samuel W. Balch

UNITED STATES PATENT OFFICE.

SAMUEL W. BALCH, OF YONKERS, ASSIGNOR TO THE EMANUEL RAU
MANUFACTURING COMPANY, OF NEW YORK, N. Y.

MACHINE FOR GUMMING AND FEEDING ENVELOPE-BLANKS.

SPECIFICATION forming part of Letters Patent No. 460,065, dated September 22, 1891.

Application filed December 31, 1890. Serial No. 376,318. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. BALCH, a citizen of the United States of America, residing at Yonkers, Westchester county, New York, have invented certain new and useful Improvements in Machines for Gumming Envelope-Blanks, of which the following is a specification.

My improvements, hereinafter more fully described and claimed, are designed to effect the removal of the envelope-blanks from the pile after they are gummed more rapidly than has heretofore been possible. In accomplishing this result I employ, first, a gripping mechanism that takes hold of the edge of the blank lifted in the operation of gumming and withdraws it edgewise from the top of the pile, and, second, a conveying mechanism that takes the envelope-blank from the gripping mechanism and continues its motion in the direction in which it was moving when received. By thus supplementing the gripping mechanism, so that it is not required to convey the blank over the entire distance necessary in order to remove it completely from the pile, it becomes possible to return this gripping mechanism sooner for the next blank, and so hasten the speed of the machine over what it would be if this mechanism conveyed the blank over the entire distance.

In starting blanks which are thin and easily crumpled from a position of rest and undertaking to carry them with great rapidity it is obvious that they should be drawn or pulled off by jaws that take hold of their advancing edges instead of attempting to push them from behind. Furthermore, in conveying the blanks by the second mechanism, which does not possess the above advantages, I have so arranged it in co-operation with the first that it takes these blanks while they are still being carried by the gripping-jaws and continues them in their motion instead of starting them again from a condition of rest. This latter feature, in combination with the jaws and conveyers, comprises the novel elements of my invention, as hereinafter claimed.

The mechanism herein shown for gumming and picking up the blanks is described in detail in Letters Patent No. 439,039, granted to

Emanuel Rau October 21, 1890, and is therefore only briefly described herein and not claimed.

In the accompanying three sheets of drawings, Figure 1 represents a section of my machine viewed from the side. This view shows the gumming-roll in the position occupied after it has gummed and lifted the edge of the top blank and the jaws are approaching to take hold of this edge. Fig. 2 is a side view showing the cams and connections that are removed in the preceding sectional view. The moving parts in this figure are drawn in the position which they assume after the cam-shaft has been revolved one-third of a revolution forward from the position in which it is shown in the preceding figure. Fig. 3 is a front view of the machine, the moving parts being taken in the same position as in Fig. 2. Fig. 4 shows the form of the blank that the machine is designed to gum. The shaded portion in this view indicates the part gummed by the machine when constructed as shown.

The pile of envelope-blanks 1 rests on a platform 2. Above this pile is the gumming-roll 5. This is carried by arms 7 7, attached to the rock-shaft 8 and swung back and forth by the action of the cam 9, through the connecting mechanism. The ends of the shaft carrying the gumming-roll slide in horizontal grooves in the sides of the uprights that support the rock-shaft. A presser-foot 10 is attached, through a spring 11, to a bracket from the table of the machine. This presser-foot is held by the spring over the pile of blanks, so that it will have a slight vertical motion. When the arms 7 7 are swung forward, carrying the gumming-roll 5, a gear 16, meshing in a rack 17, revolves the gumming-roll, so that its raised portion, which is coated with gum, is brought down on top of the pile of blanks. During the first part of the return movement of the arms the point of the blank which is last gummed is picked up by the gumming-roll, as shown in Fig. 1. When the edge of the blank is thus picked up, the gumming-roll rests against a projection on the top of the presser-foot and causes it to clamp the blanks, thus preventing the gummed blank from winding further around the gum-

ming-roll and effecting their separation by the continued movement of the latter. After the separation is effected the roll, by being carried past the projection on the top of the presser-foot, releases the gummed blank, so that it may be withdrawn. A cam 18, operating through the connecting mechanism, rocks the levers 19 19 on a rock-shaft 21 toward the edge of the pile of blanks. A jaw 20, guided from the frame-work, is linked to the upper end of these levers and is reciprocated by them. This jaw is slipped under the edge of the blank immediately on its being lifted, as above described, so as to be in position to support it when it subsequently falls away from the gumming-roll. An opposing jaw 27 is swung from arms on a rock-shaft 28. A connecting-rod 29, between levers on the rock-shafts 21 and 28, connects them in their horizontal movements, so that the jaw 27 will follow the jaw 20 in its movements to and from the pile of blanks. The upper jaw 27 is lifted away from and let fall on the lower jaw at the proper time by a cam 30, acting through connecting mechanism consisting of a rock-shaft, arms attached thereto, and connecting-links.

In my accompanying drawings I have shown carriers with hooked ends 31 31, on which the blank is delivered by the jaws. These carriers are reciprocated through levers 32 32 from the cam 33.

In timing the movement of the parts by the cams I find it conducive to the best and most rapid working of the machine to start the carriers forward with the blank before the jaws reach the end of their movement, and while the two movements are thus overlapping to lift the upper jaw, and thus effect the transfer without arresting the progress of the blank.

In the application of the above-described elements, consisting of jaws and their actuating mechanism for the withdrawal of the blank from its position on the top of the pile of blanks, I do not confine myself to the accessory elements, as herein described, for gumming and lifting the blanks from the pile, so that they may be gripped by the jaws. Neither do I confine myself to the employment of carriers, as described, to give additional transportation to the blanks after the jaws have completed their part in their removal, but may also employ any of the well-

known equivalent devices for gumming and carrying envelope-blanks.

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

1. In a machine constructed to carry a pile of envelope-blanks, means, substantially as described, for successively gumming and lifting the top blanks therefrom, in combination with opposing jaws situated one above and one below the plane of the lifted blank, mechanism, substantially as described, for lifting and letting said upper jaw fall and clamp said blanks, carriers, substantially as described, to receive the blanks from said jaws, mechanism, substantially as described, for simultaneously reciprocating said jaws and independently reciprocating said carriers, whereby the motion of the blank is continued by said carriers during the return of said jaws, and a frame-work for the support of said elements, for the purpose set forth.

2. In an envelope-machine, the combination, with opposing jaws, of mechanism, substantially as described, for gumming and depositing the edges of envelope-blanks between said jaws, mechanism, substantially as described, for opening and closing said jaws, carriers, substantially as described, to receive the blanks from said jaws, mechanism, substantially as described, for simultaneously reciprocating said jaws, separating them before the completion of their movement in conveying the blank and commencing the reciprocation of said carriers, whereby the transfer is effected without arresting the progress of the blank, and a supporting frame-work, substantially as described.

3. In an envelope-machine, upper and lower jaws arranged to co-operate in carrying envelope-blanks and to admit the passage of the blanks between them, in combination with carriers, substantially as described, for removing said blanks beyond said jaws, mechanism, substantially as described, for separately and successively actuating said jaws and carriers, whereby the motion of the blank is continued by said carriers during the return of said jaws, and a supporting frame-work, substantially as set forth.

SAMUEL W. BALCH.

Witnesses:

EMANUEL RAU,
H. ALBAN REEVES.