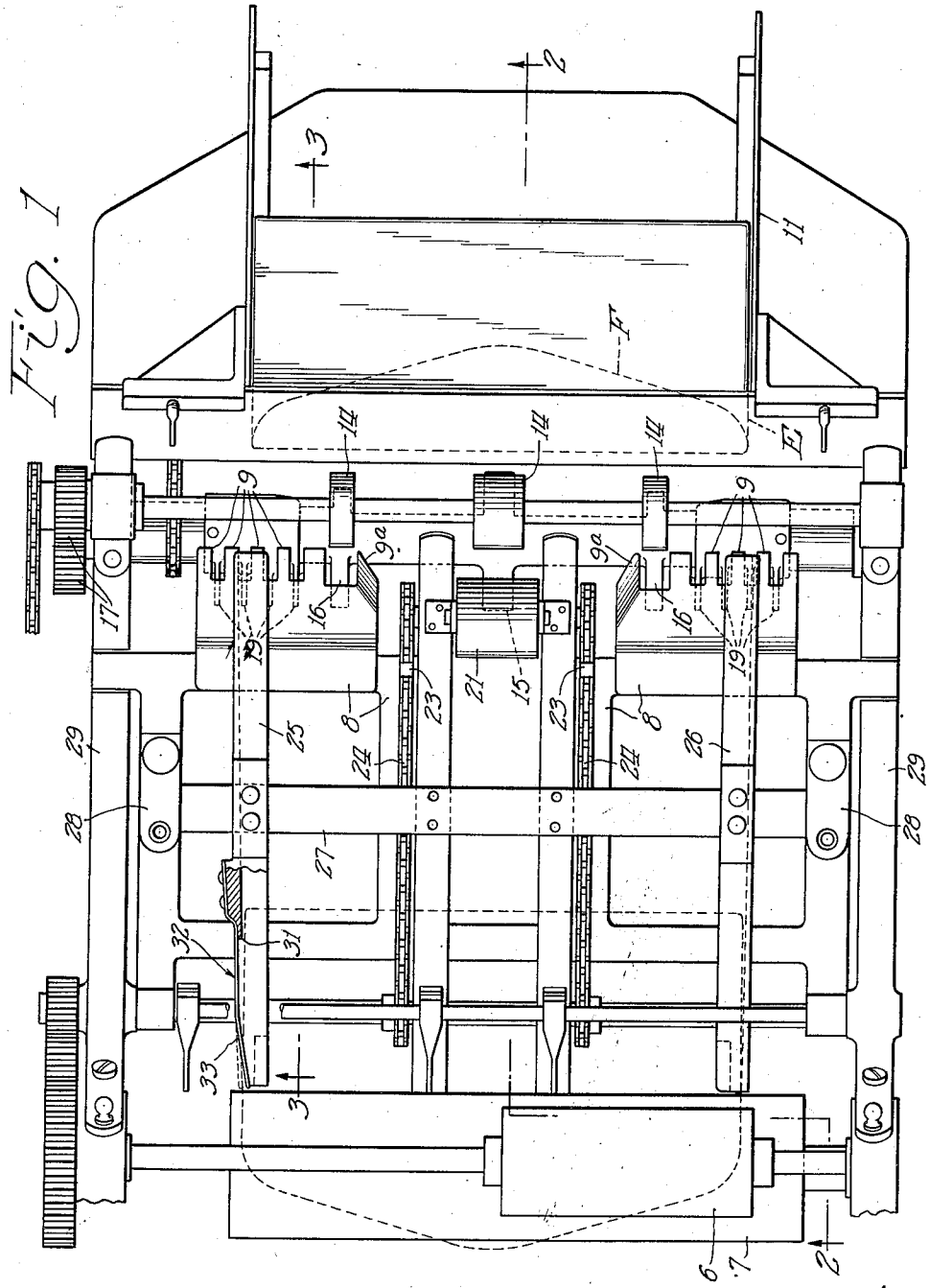
Aug. 4, 1936. C. L. POST 2,049,513

FEEDING MECHANISM

Filed July 23, 1934 3 Sheets-Sheet 1

Fig. 1



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FEEDING MECHANISM

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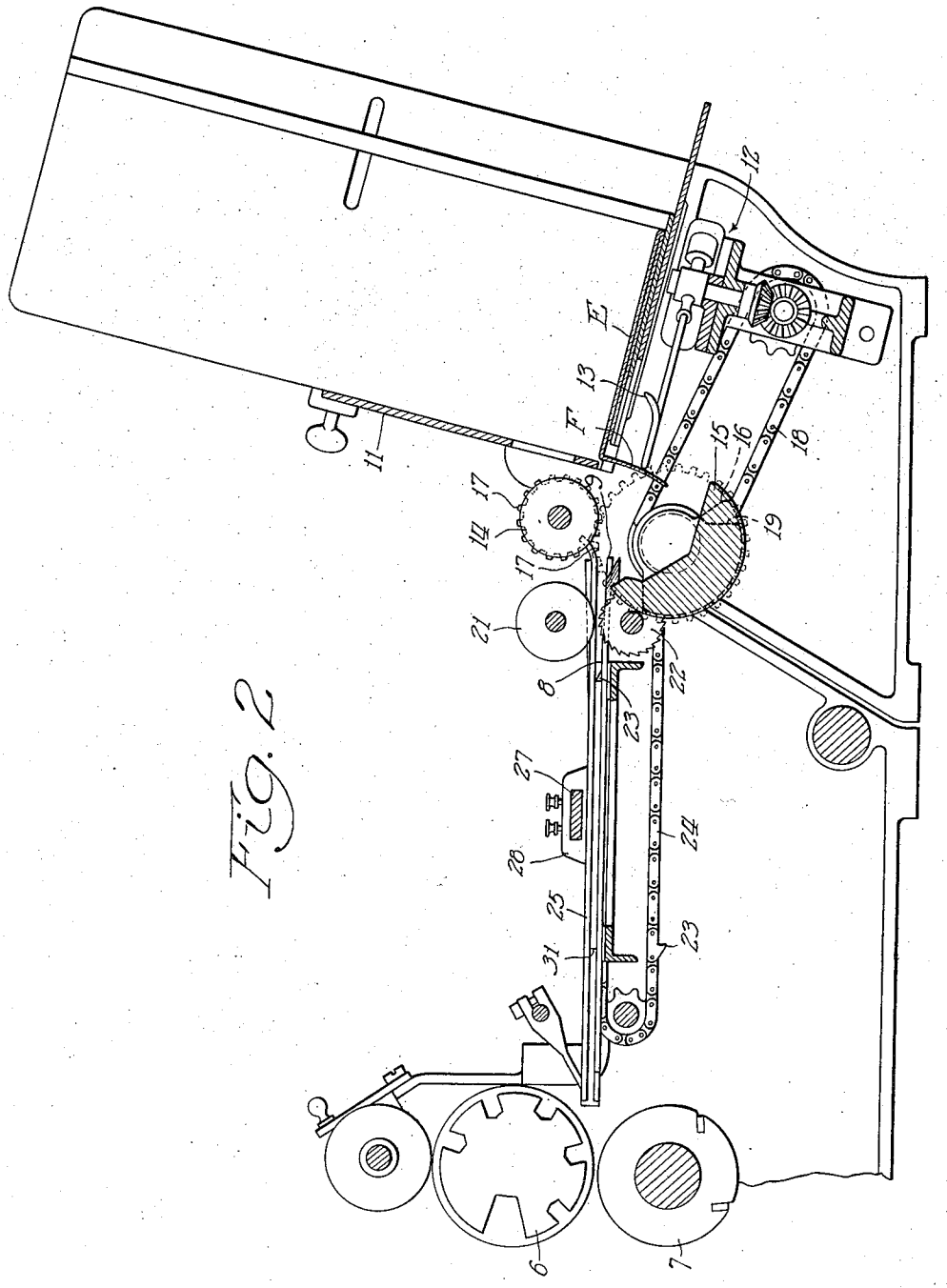


Fig. 2

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FEEDING MECHANISM

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Fig. 3

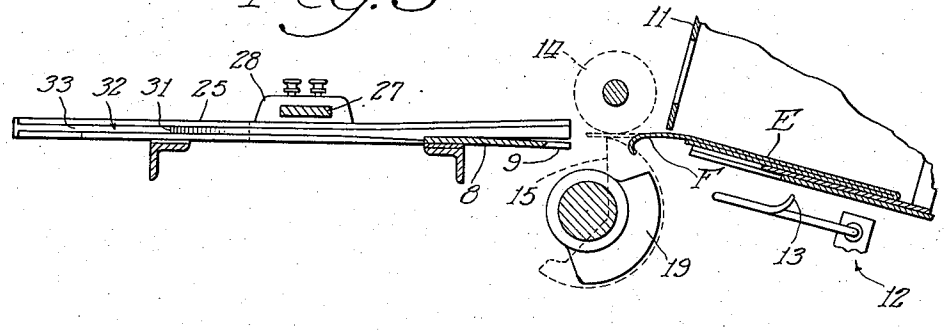


Fig. 5

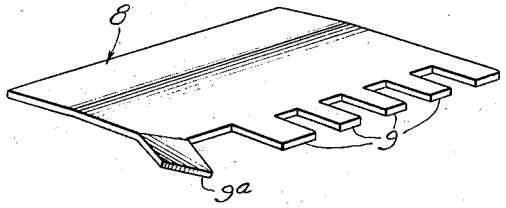
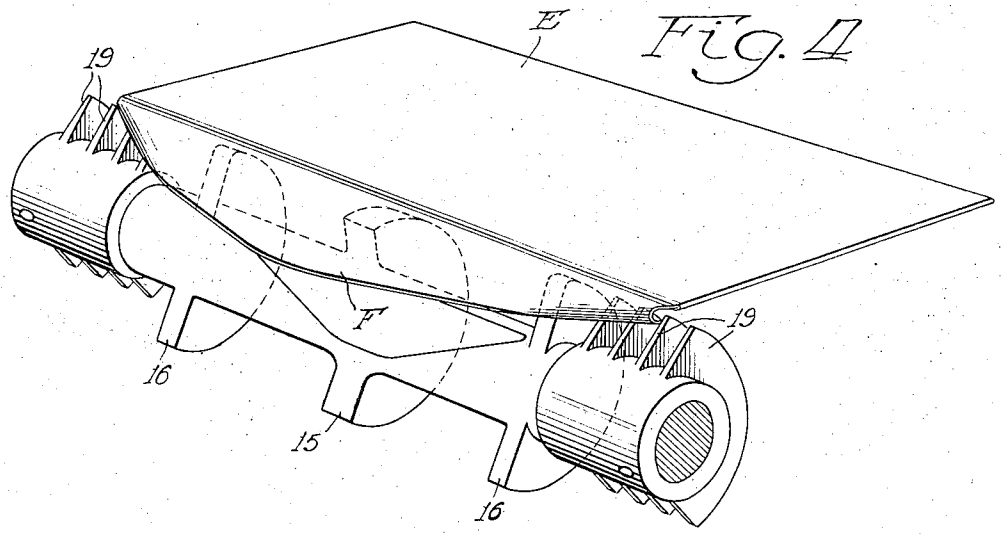


Fig. 4



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UNITED STATES PATENT OFFICE

2,049,513

FEEDING MECHANISM

Claude L. Post, Chicago, Ill.

Application July 23, 1934, Serial No. 736,537

7 Claims. (Cl. 271—44)

This invention relates to feeding mechanism, and particularly to a device for feeding envelopes to a printing machine or the like.

Heretofore, considerable difficulty has been experienced in feeding envelopes to a printing machine, for example, when the flaps of the envelopes have become warped or curled, particularly adjacent their ends, due to the action of the adhesive applied to the flaps, or due to the action of atmospheric conditions on the adhesive. When the flaps are in such condition, the curl must be removed or smoothed out, and, unless extreme care is exercised, the curled portions of the flaps may be folded still further under or against the body of the flap, thus producing an undesirable condition of the envelope for passage through a printing machine or the like.

One of the objects, therefore, of the present invention is to provide a feeding mechanism having suitable means associated therewith for removing from the flaps any curl which may have developed therein.

Another object of the invention is to provide novel means for directing the end portions of the flaps onto the feed table of the machine and into the end guides by which the envelopes are guided to a printing roller, for example, in proper relation thereto.

A further object of the invention is to provide a feeding device wherein one of the end portions of the envelopes is yieldingly urged toward one of the envelope end guides to insure proper positioning of the envelope with relation to a printing roller or the like.

A still further object of the invention is to improve devices of the character described in sundry details hereinafter referred to and particularly pointed out in the appended claims.

One embodiment of the present invention is shown for illustrative purposes in the accompanying drawings, in which

Fig. 1 is a plan view of an envelope feeding mechanism shown in relation to a portion of a printing machine, and illustrating my improved feeding and curl removing devices applied thereto;

Fig. 2 is a longitudinal sectional elevational view of the structure illustrated in Fig. 1, and taken substantially as indicated by the line 2—2 thereof;

Fig. 3 is a fragmentary sectional elevational view taken on the line 3—3 of Fig. 1, illustrating a portion of the structure shown in Figs. 1 and 2, and illustrating the action of my improved feeding and curl removing device in relation to an envelope being fed thereby;

Fig. 4 is a perspective view of my improved feeding and uncurling mechanism shown in relation to the flap of an envelope and illustrating the manner of removing the curl therefrom; and

Fig. 5 is a perspective view of a portion of the front edge of the feed table illustrated in Figs. 1, 2, and 3.

In Figs. 1 and 2 of the drawings, the present invention is shown in relation to a fragment of a printing press having a type roller 6 and platen 7, the printing press of the character shown being more fully described in Patent Number 1,758,536 issued to me May 13, 1930, and having a feed table indicated as a whole by the numeral 8 associated therewith, the feed table 8 being provided on its receiving edge with a plurality of series of spaced fingers 9 positioned preferably adjacent the side portions of the table, the adjacent fingers 9a of the table being inclined inwardly and away from the body of the table, or toward a magazine 11 adapted to contain a plurality of superposed envelopes E to be fed to the table 8 and thence to the printing machine.

Positioned below the magazine 11, is a feeding mechanism indicated as a whole by the numeral 12, the specific details and operation of which are fully described in Patent Number 1,730,477 issued to me October 8, 1929. Briefly, the mechanism 12 includes a rotatable finger 13 adapted to engage the flap F of the lowermost envelope E positioned in the magazine in a manner to unfold the flap thereof and move it outwardly into substantial alignment with the body of the envelope and into a position between upper feed rollers 14 and lower feed segments 15 and 16, by which the flap is engaged in a manner to feed the envelope from the magazine 11 onto the feed table 8, the feed rollers 14, segments 15 and 16 and the finger 13 being operated in proper synchronism by means of gearing 17 (Figs. 1 and 2) and a drive chain 18, shown in Fig. 2, and as clearly described in said Patent Number 1,730,477.

As previously stated, the flaps of envelopes frequently become warped or curled adjacent their end portions due to the action of the adhesive applied to the flaps, or due to the action of atmospheric conditions on the adhesive, in which case, considerable difficulty has been experienced in feeding envelopes to a printing machine or the like, and to overcome this condition, the present invention contemplates a plurality of spaced

mutilated annular fins 19 positioned at the outer sides of the outer feed segments 16 and in the path of the outer end portions of the envelope flaps F in their passage from the magazine 11 to the feed table 8 in a manner to engage the curled portion of the flap and remove the curl therefrom.

By reference to Fig. 3, it will be noted that the finger 13 has moved the flap into position between the feed roller 14 and feed segment 15, and that the envelope E is being withdrawn from the magazine 11, and it will be observed also that the leading edge of the feed segment 15 is somewhat in advance of the leading edge of the fins 19, the lead being sufficient to move the envelope and flap in a forward direction far enough to permit the fins 19 to engage the under side of the flap adjacent its end portions where the curl or warping of the flap usually occurs, thus enabling the fins 19 to lift the curled portion of the flap and remove the curl therefrom and to lift the flap onto the feed table 8 at its receiving edge as the fins pass between the fingers 9 thereof, the inclination of the adjacent fingers 9a insuring the lifting of the flap adjacent its central portion onto the upper surface of the feed table.

Upon reaching the feed table, the envelope is engaged by a pair of supplemental feed rollers 21 and 22 by which it is moved forwardly and longitudinally of the table 8 until the rear or following edge of the envelope is advanced sufficiently far to be engaged by lugs 23 on feed chains 24 by which the envelope is advanced to the type roller 6 and platen 7.

For guiding the envelope in its passage to the type roller while being advanced by the lugs 23 on the chains 24, a plurality of end guides 25 and 26 (Figs. 1, 2, and 3) are adjustably mounted on a cross-bar 27 positioned above the feed table and supported in brackets 28 mounted on the side frames 29 of the machine.

The end guides 25 and 26 are of substantially channel or U-shaped cross-section having their open sides adjacent each other and having their receiving ends adjacent the receiving edge of the table 8, and having their discharge ends adjacent the type roller 6 and platen 7.

For insuring proper positioning of the envelope E with respect to the type roller 6, the end guide 25 has a portion of its channel bottom cut away as indicated at 31, and a resilient spring finger 32 mounted therein and extending longitudinally of the guide 25 toward the delivery end thereof, the outer or free end portion of the finger 32 being inclined inwardly toward the guide 26, as indicated at 33, and adapted to engage one end of an envelope in a manner to urge the opposite end thereof against the channel bottom of the U-shaped guide 26, thereby providing for the proper positioning of an envelope with relation to the type roller, notwithstanding slight variations which may occur from time to time in a batch of envelopes intended to be of substantially uniform length.

It will be noted by reference to Fig. 3, that the fins 19 in addition to removing the curl from the flap and lifting it onto the feed tables 8, also direct the outer end portions of the flap into the end guides 25 and 26 in a flattened condition to facilitate their passage therethrough, in which condition the flaps are maintained by reason of the channelled or U-shaped formation of the guides, and presented between the type roller 6 and platen 7 in proper condition for printing.

It will be observed from the foregoing description that the present invention provides novel means for removing any curl which may occur in the envelope flap and also serves to direct the end portions of the flaps in uncurled or flattened condition onto the feed table 8 and into the end guides 25 and 26, and that by reason of the resilient finger 32 associated with the guide 25, an envelope is properly positioned with relation to the type roller for engagement thereby.

Obviously, the present invention is not limited to the precise construction and arrangement shown and described, as the same may be variously modified. Moreover, all the features of the invention need not be used conjointly, as the same may be used to advantage in variously different combinations and subcombinations.

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

1. In a device for feeding envelopes, the combination of a magazine for containing a plurality of superposed envelopes, a plurality of rotatable cooperating feed rollers and feed segments adjacent said magazine, means for engaging the flap of an envelope in said magazine to unfold and move said flap into a position between said rollers and segments to be engaged and fed thereby, and means outside said segments rotatable therewith and spaced circumferentially and rearwardly with respect thereto and engageable with said flap for lifting the extreme outer end portions thereof.

2. In a device for feeding envelopes, the combination of a magazine for containing a plurality of superposed envelopes, a plurality of rotatable cooperating feed rollers and inner and outer feed segments adjacent the lower end of said magazine and at one side thereof, the leading edge of said inner segment being in advance of the leading edge of said outer segments, means for engaging the flap of the lowermost envelope in said magazine to unfold and move said flap into substantial alignment with the body of the envelope and into a position between said rollers and segments to be engaged thereby and drawn from said magazine, and means outside the outer segments and rotatable therewith for engaging the extreme outer end portions of said flap in a manner to lift the end portions thereof.

3. In a device for feeding envelopes, the combination of a magazine for containing a plurality of superposed envelopes, a plurality of rotatable cooperating feed rollers and feed segments adjacent the lower end of said magazine and at one side thereof, means for engaging the flap of the lowermost envelope in said magazine for unfolding and moving said flap into substantial alignment with the body of said envelope and into a position between said rollers and segments to be engaged thereby and drawn from said magazine, and a series of spaced fins outside the respective outer segments and rotatable therewith, said fins being circumferentially disposed with respect to said segments to later engage the extreme outer end portions of said flap in a manner to lift the end portions thereof and remove any curl therefrom.

4. In a device for feeding envelopes, the combination of a magazine for containing a plurality of superposed envelopes, a feed table having its receiving edge adjacent said magazine, a plurality of rotatable cooperating feed rollers and feed