July 19, 1932. A. J. KEISER 1,867,973

LETTER OPENER

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Fig. 1.

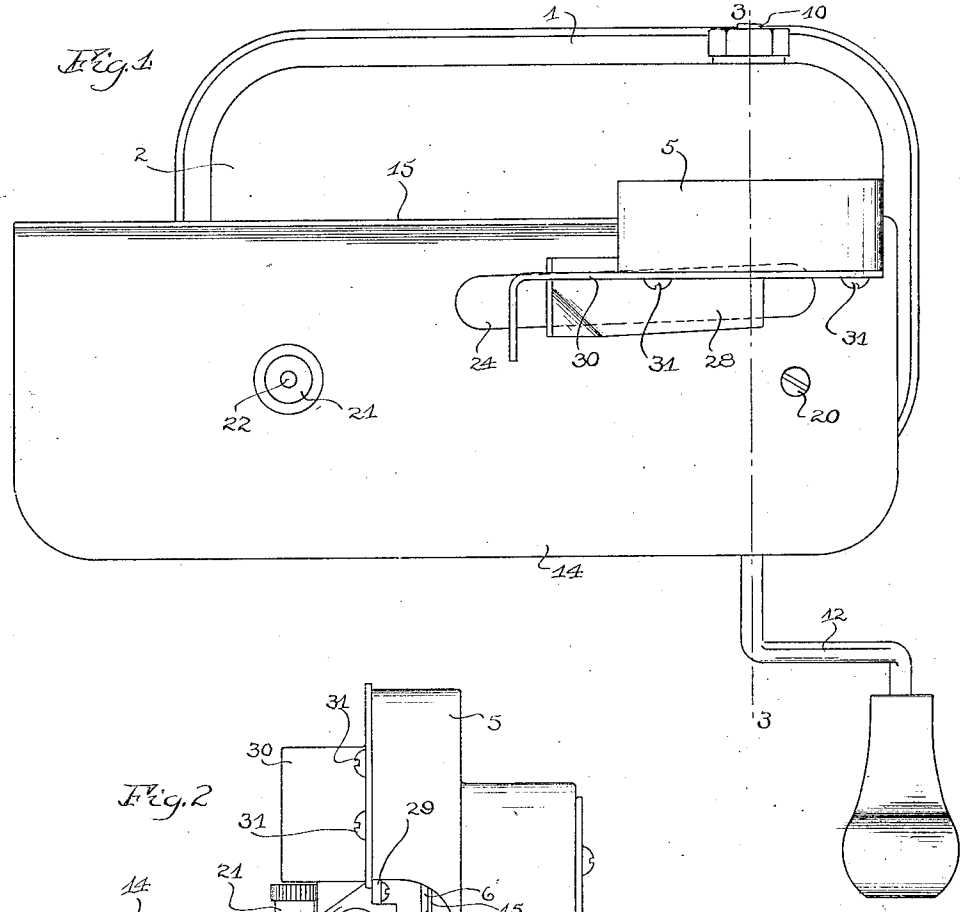
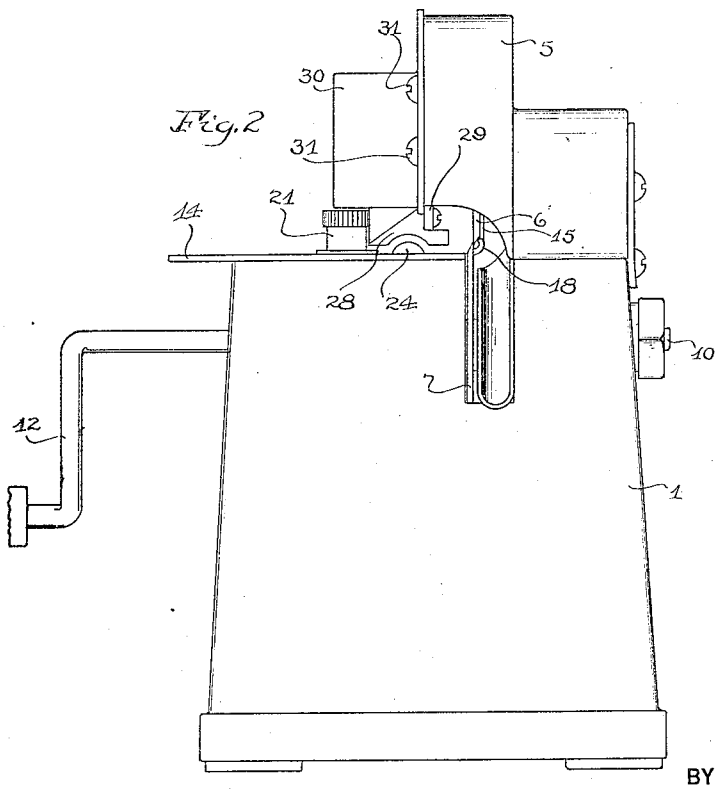


Fig. 2.



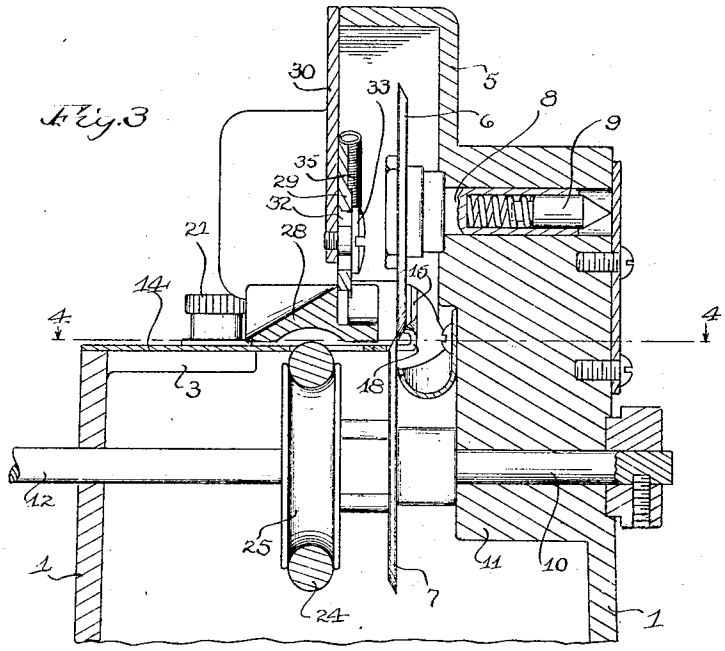
INVENTOR
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BY J. H. Timmo
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July 19, 1932. A. J. KEISER 1,867,973

LETTER OPENER

Filed Dec. 5, 1930 3 Sheets-Sheet 2

Fig. 3



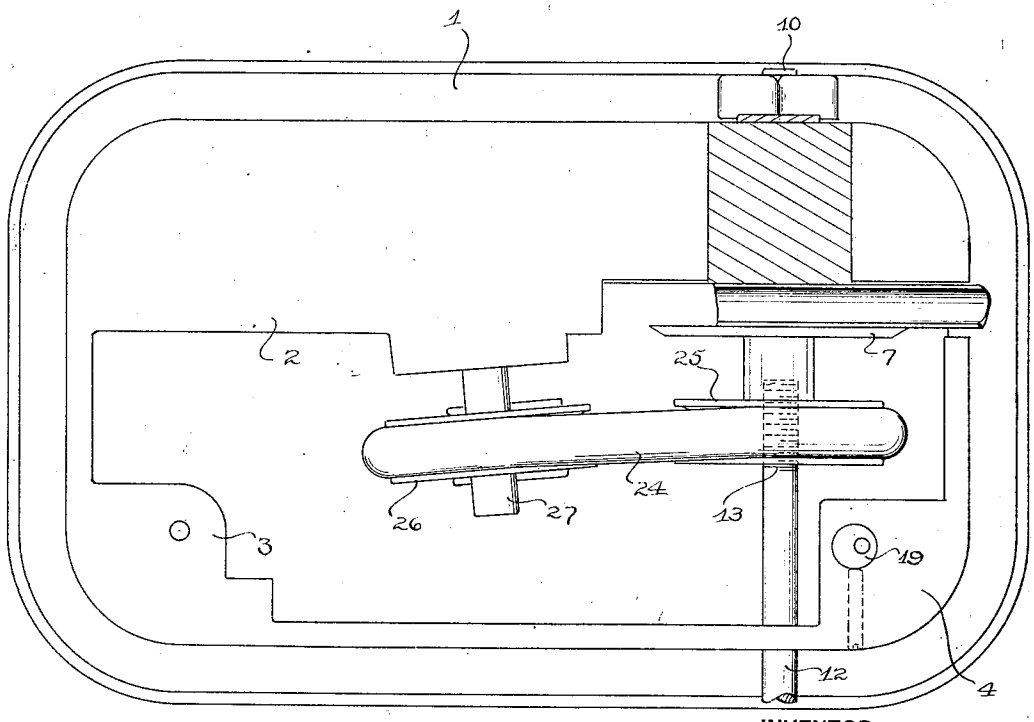


Fig. 4

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July 19, 1932. A. J. KEISER 1,867,973

LETTER OPENER

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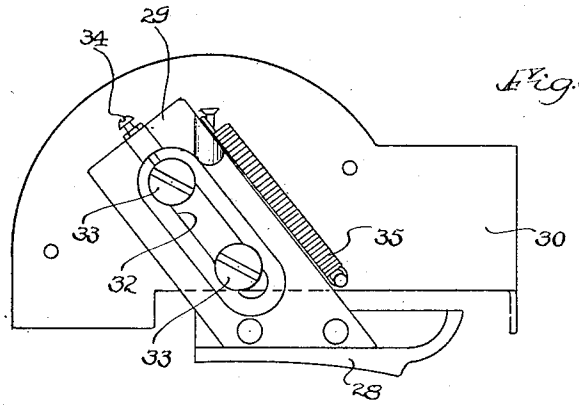


Fig. 5

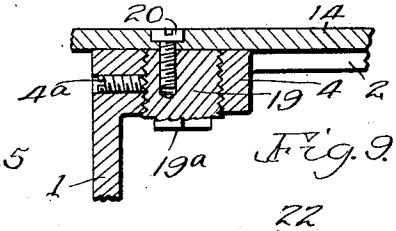


Fig. 9

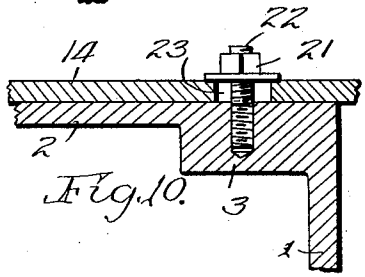


Fig. 10.

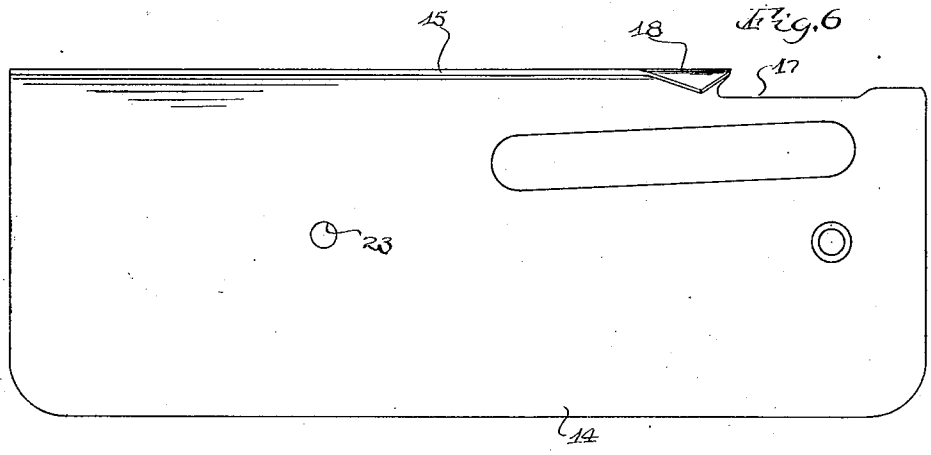


Fig. 6

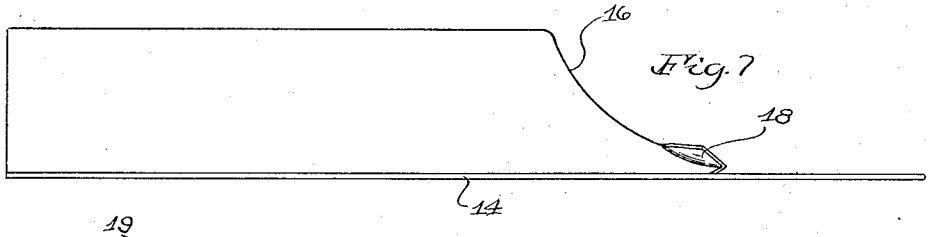


Fig. 7

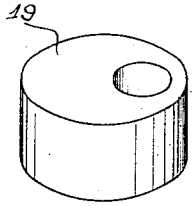


Fig. 8

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Patented July 19, 1932 1,867,973

UNITED STATES PATENT OFFICE

ARTHUR J. KEISER, OF ROCHESTER, NEW YORK, ASSIGNOR TO BIRCHER COMPANY, INC., OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK

LETTER OPENER

Application filed December 5, 1930. Serial No. 500,323.

The present invention relates to letter openers and an object thereof is to provide an inexpensive construction in which the envelopes are fed along and against a guide to permit a cutting mechanism to operate on one edge thereof as the envelope travels along the guide. Another object of the invention is to provide a novel means of adjusting the guide with reference to the cutting mechanism to vary the width of the material cut from the envelopes. A further object of the invention is to provide a novel means of supporting a yielding presser foot or member which bears on the upper faces of the envelopes as they are moved along the guide.

To these and other ends, the invention consists of certain parts and combinations of parts, all of which will be hereinafter described: the novel features being pointed out in the appended claims.

In the drawings:

Fig. 1 is a plan view of a machine embodythe present invention;

Fig. 2 is a front elevation;

Fig. 3 is a transverse vertical section on the line 3—3, Fig. 1 through the axes of the cutters;

Fig. 4 is a section on the line 4—4, Fig. 3, with the envelope supporting plate removed;

Fig. 5 is a view of the inner face of the knife hood closure showing the presser foot supported thereon;

Fig. 6 is a plan view of the envelope supporting plate;

Fig. 7 is an edge view thereof;

Fig. 8 is a perspective view of the pintle for adjusting the envelope supporting plate on the frame;

Fig. 9 is an enlarged sectional view of the right end of the base and table as shown in Fig. 1; and

Fig. 10 is an enlarged sectional view of the left end of the base and table as shown in Fig 1.

In the illustrated embodiment of the invention, the frame 1 embodies a hollow base casing having the rear portion of its top closed by a horizontal wall 2 and the front portion open except for two inwardly projecting corner lugs 3 and 4. Projecting upwardly and forwardly from the wall 2 at the forward edge of the latter is an integral knife or cutter hood 5.

Supported by the frame is a cutting mechanism, embodying, in this instance, two disk cutters 6 and 7. The cutter 6 lies within the hood 5 and is secured to a shaft 8 which turns in the vertical wall of the hood, a spring pressed plunger 9 acting against one end of the shaft 8 to press the periphery of the disk 6 against the periphery of the disk 7. An integral post or projection on the rear side of the hood 5 may serve as part of the bearing for the shaft 8. The lower cutter 7 is rigidly secured to a shaft 10 which is journalled in a depending bracket 11 integral with and arranged on the under side of the top wall 2. This shaft is held against axial movement and may be turned in any suitable manner as by a crank member 12 having its crank portion on the outer side of the base casing and extending through the front wall of the casing, connecting with the front end of the shaft 10 by screw threads 13.

With the end in view of guiding the envelopes to the cutters, a guiding means is provided which, in this instance, embodies a table or supporting plate 14 lying over and closing the opening in the forward portion of the top wall and having its rear edge provided with a guide in the form of an integral flange 15 on the plate 14 against which the envelopes are moved toward the cutting mechanism. The forward end of this flange is cut away at 16 to receive the upper cutter 6 and the table is recessed or notched at 17 at the cutaway portion 16 to receive the lower cutter 7. Projecting into the notch formed adjacent the meeting edges of the two cutters is a grooved tongue or lip 18 which is bent slightly toward the front of the machine in order to place pressure on the edges of the envelopes to bulge the same as they approach the cutting mechanism.

With the end in view of positioning this discharging tongue of the guide so as to cut the desired amount from the envelopes, the table, flange and tongue are adjustable in a horizontal plane which is perpendicular to the planes of operation of the cutters about

an axis situated beyond the cutting point and also to one side of the cutting plane and this axis is for the purpose of still further varying the cutting action adjustable in a circular path. To this end a pintle support 19 is rotatable about a vertical axis in the lug 4 of the base frame and carries a removable headed pintle 20 in the form of a screw which passes through the plate 14 to permit the latter to swing. It is apparent that the turning of the pintle support 19 shifts the pintle in a rotary path as the pintle is carried eccentrically by the support. This will shift the lip 18 substantially in a circular path so that said lip may be properly positioned with reference to the cutters. At the same time the lip may be shifted laterally by swinging the plate or table 14 on the pintle. The plate or table with the guide and the lip is held in adjusted position by a nut 21 which operates on a threaded stem 22 projecting upwardly from the lug 3 through an enlarged opening 23 in the table or plate.

This adjustment is designed for proper setting of the table 14 at the factory when assembling the parts and provides means whereby to compensate for variations in the parts without necessitating close adjustments and machine work on other parts. The pintle support 19 is preferably threaded into the lug 4 and is rotatable in any convenient manner, as by means of an angle boss 19^a formed therewith to which a wrench or other tool may be fitted. A binding screw 4^a threaded into a side of the base 1 engages the part 19 and secures it in the desired adjusted position.

Feeding of the envelopes over the table, along the guide and past the cutting mechanism may be effected by a feeding mechanism comprising, in this instance, an endless belt 24 which is mounted in the base casing and has the uppermost tip operating through a slot in the plate or table 14 in front of the cutting mechanism. This belt is of circular cross section and is formed as is common to turn as it advances in order to shift the advancing envelopes toward the guide. In this instance, this belt is supported by two pulleys 25 and 26, the former being mounted on the shaft 10 of the lower cutter and the latter being mounted on a shaft 27 whose axis is obliquely arranged with reference to the shaft 10 so that there is a tendency for the belt to travel in a plane at a slight angle to the guide and in this way to shift the envelopes toward the guide during their travel along the guide.

Arranged to cooperate with the upper surfaces of envelopes moving along the guide is a yieldingly mounted presser member 28. This member, in this instance, is in the form of a foot or shoe grooved longitudinally to conform to the belt. In order that this shoe will yield readily to envelopes of different thicknesses it is not only capable of moving away from the belt but is also adapted to move in the direction of travel of the belt. This result is accomplished, in this instance, by guiding the foot for travel upwardly and in the direction of travel of the belt. This guiding means, in this instance, comprises a rigid arm 29 projecting upwardly and toward the discharge of the machine and guided in the same direction on the inner face of a plate 30 which closes the open front portion of the upper cutter hood 5 and is detachably held in position on said hood by screws 31. The arm 29 has a longitudinally extending slot 32 which receives two headed guide bolts 33, the upper one of which acts as an abutment for an adjustable stop 34 carried by the inner face of the upper portion of the arm 29. A spring 35 acts between the cover plate 30 and the arm 29 to hold the shoe or foot 28 with yielding pressure toward the feeding belt. The forward end of the plate 30 may be deflected laterally toward the front of the machine to act as a shield or guard to prevent the envelopes being passed by hand above the presser foot.

From the foregoing it will be seen that there has been provided a simple and inexpensive envelope machine of the type having a cutting mechanism to which envelopes are fed one at a time along a guide. The guide is so mounted that it may be easily and effectively adjusted to cut from the envelopes strips of any desired width. A presser member is so mounted that it offers a minimum resistance to the travel of the envelopes while giving the desired pressure thereon. The mounting for the presser member is hidden from view by being supported on the inner face of the closure for a hood in which the upper cutter is enclosed.

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

1. In a machine for opening envelopes, the combination of a hollow base open at the top, upper and lower disk cutters, a table closing the top of the base and provided with an envelope guide and formed at one end with an opening, a pintle depending from the opposite end of the table, an element rotatably mounted upon an end of the base and having the said pintle in eccentric engagement therewith, a threaded stem projecting from the opposite end of the base through the opening of the table, a nut on the stem for securing the table in adjusted position, and a feeding mechanism housed in the base and operating through an opening formed in the table for advancing the envelopes to the cutting mechanism.

2. In a machine for opening envelopes, the combination of a hollow base open at the top, upper and lower disk cutters, a table closing the top of the base and having an upstanding flange along its rear edge forming an envelope guide, a portion of the table and flange being cut away to provide clear-

ance for the cutters, said flange having a tongue projecting inwardly therefrom adjacent the cut away portion of the table to overhang and exert a pressure on the envelopes and effect a bulging thereof as they approach the cutters, and means for feeding the envelopes over the table.

3. In an envelope opening machine and in combination with the cutting mechanism and means for advancing the envelopes to the cutting mechanism, a presser foot movable away from and in the direction of feed of the envelopes, an arm projecting from the presser foot and formed with an oblique slot, supporting means for said arm, means on the supporting means engaged with the slot of said arm to retain the presser foot in place and direct it in its movements, and a spring yieldably holding the presser foot in contact with the envelopes.

4. An envelope opening machine, comprising a hollow base having the front portion of the top open, a table closing the open portion of the top and adjustably held to the base and provided with an envelope guide, upper and lower disk cutters, a hood receiving the upper cutter and open at the front, a plate closing the front of the hood, a presser foot having an arm in contact with the inner face of the plate and provided with an oblique slot, fastening elements passing through the oblique slot and engaging the plate to retain the presser foot in place and direct it in its reciprocating movements, a spring housed within the hood and coacting with the presser foot, and means for advancing the envelopes to the cutters and beneath the presser foot.

5. In an envelope opening machine, the combination with a base, cutting mechanism, and a plate provided with guide means for the envelopes, of means provided for adjusting the plate to position the envelopes with reference to the cutting mechanism, the same consisting of a pintle depending from the plate, a support rotatably mounted on the base and having the said pintle in eccentric engagement therewith, and means on the base for securing the said support in required adjusted position.

ARTHUR J. KEISER.