March 11, 1930. A. WEISS 1,750,338

ENVELOPE OPENING MACHINE

Filed Nov. 13, 1928

Fig. 1

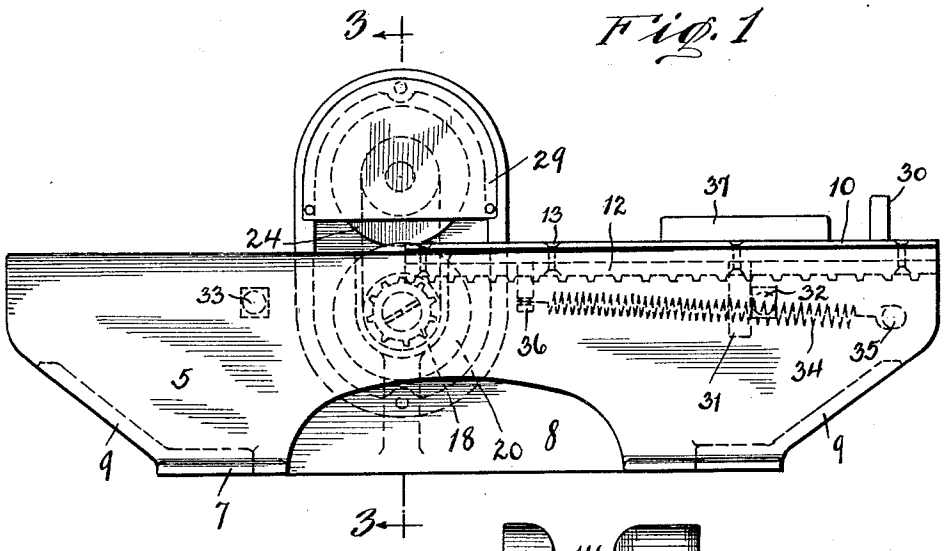


Fig. 2

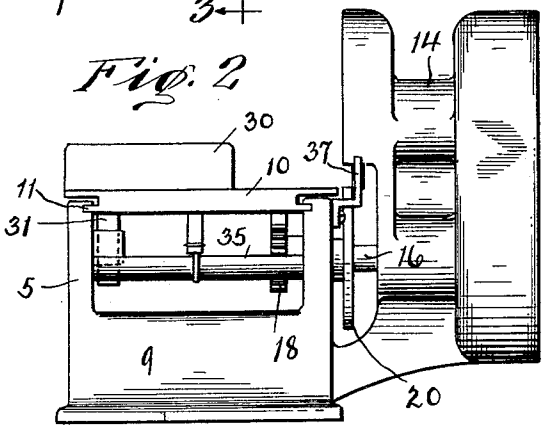


Fig. 3

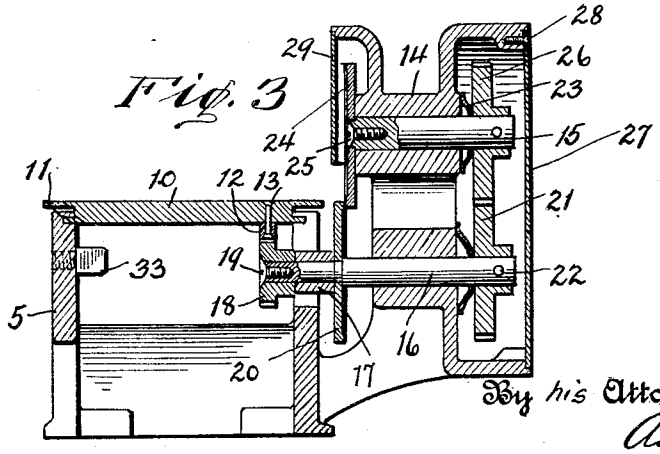
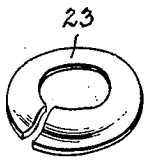


Fig. 4.



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Patented Mar. 11, 1930 1,750,338

UNITED STATES PATENT OFFICE

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ENVELOPE-OPENING MACHINE

Application filed November 13, 1928. Serial No. 319,131.

This invention relates to sealed envelope opening machines and more particularly to a novel and improved manually operable device for facilitating the opening of letters and mail in general.

One of the objects of my invention is to provide a machine having a sliding carriage constructed and arranged for cooperation relative to a pair of superposed cutting disks or knives for trimming the edge or margin of a sealed envelope.

Another object of my invention is to provide a simple machine for cutting or trimming the end or longitudinal edge of a sealed envelope including a novel and improved arrangement of cutting disks or knives and gearing manually operable by a sliding carriage on which the envelope to be opened, is positioned.

To enable others skilled in the art to more fully comprehend the underlying features of my invention reference is had to the accompanying drawing forming a part of this specification in which

Fig. 1 is a side view of the machine.

Fig. 2 is an end view.

Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Fig. 4 is a detail of a spring washer employed.

Referring now to the drawings wherein like reference characters designate corresponding parts throughout the several views, 5, 6 designate the side walls of a substantially rectangular body or support having a suitable base 7. The body or support may preferably be of metal and is adapted to be secured in an immovable position. To reduce the weight of the machine, the side walls are preferably cut out as indicated at 8. The walls 5, 6 are connected by a cross webbing 9 thus providing a rigid structure. The open top of the machine is equipped with a sliding carriage 10 having side flanges 11 slidable in longitudinal grooves formed on the inner sides of the respective walls 5, 6. The bottom of the carriage 10 is equipped with a gear rack 12 fastened thereto by rivets 13.

Integral with the side walls 6 is a housing 14 extending considerably above the top of the body and support to one side thereof as clearly shown by Fig. 2 of the drawings. The housing 14 is equipped with a top and bottom shaft 15, 16 freely rotatable therein in a manner further to be described. The lower shaft extends through a bushing or bearing 17 on the side wall 6, and one end carries a pinion 18 fastened thereto by a screw 19, said pinion meshing with the gear rack 12. On the shaft 16, and adjacent the side wall, I provide a cutting disk or knife 20 rotatable with the shaft and the pinion 18. On the outer end of the shaft 16 is a gear 21 keyed thereto as at 22, said gear being engaged by a split spring washer 23 on the shaft 16. The upper shaft 15 also carries a cutting disk or knife 24 secured thereto by a spring 25, the bottom and top edges of the knives or cutting disks 24, 20 cooperating to sever or cut the marginal edge of the paper or envelope as it is fed therebetween. The shaft 15 also carries a gear 26 which meshes with the gear 21 on the shaft 16, said gear 26 being also in engagement with a split spring washer 23 as above described. The housing 14 is closed by an outside plate 27 fastened thereto by screws 28. The inner top of the housing 14 is also provided with a protecting plate 29 for the top cutting disk.

The sliding carriage 10 is provided with a finger grip 30 adjacent its outer end whereby the said carriage may be manipulated back and forth on the support or body. The sliding carriage 10 is equipped with a depending lug or extension 31 which is adapted to engage a stop 32 that limits the outer movement of the sliding carriage in one direction, said lug or extension being also adapted to engage a stop 33 fastened to the side wall 5 and which stop limits the inward movement of said sliding carriage. The sliding carriage is under the control of a resistance spring 34, one end of the spring being connected to a pin 35 between the walls of the body or support and the opposite end of the spring 34 is attached to a screw head 36 for instance, under the bottom of the sliding carriage 10.

From the above description, the machine will be readily understood when taken in con-

nection with the accompanying drawing. The spring 34 normally retains the sliding carriage 10 in its inoperative position. By placing a sealed envelope against an angular side guide 37, as the carriage is moved by means of finger grip 30, the marginal edge of the sealed envelope is presented to the cutting action of the disks or knives which are rotated by means of the pinion 18 meshing with the gear rack 12. The rotation of the pinion and the shaft 16 carried thereby necessarily rotates the top shaft 15 and its cutting disk through the mesh gears 21, 26. When the sliding carriage has been advanced its full distance, the lugs or extension 31 engages the stop 33 in which position the spring 34 is expanded. By releasing the grip 30, the sliding carriage 10 automatically returns to its normal position. The sliding carriage may be simply drawn back and forward by one hand and the sealed envelopes fed to the cutting knives by the other hand.

While I have shown and described my invention with some degree of particularity, it will be realized that other modifications and changes may be resorted to under special conditions. I therefore do not wish to be limited and restricted to the exact details shown and described but reserve the right to make such changes and modifications as may fairly fall within the scope of the subject matter now being claimed.

Having shown and described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An envelope opening machine comprising a supporting body and housing, a sliding carriage on said body, a gear rack carried beneath the carriage, a shaft having a pinion meshing with the gear rack, a second shaft within the housing, a pair of cooperating cutting disks mounted on the shafts in proximity to the inner edge of the carriage and meshed gears on said shafts.

2. An envelope opening machine comprising a supporting body and housing, a sliding carriage on said body, a finger grip for manipulating said carriage, a gear rack fastened to the bottom of the said carriage, a shaft having a pinion meshing with said rack, a second shaft supported in said housing, meshed gears on the ends of the shafts, and a pair of superposed cooperating cutting disks on said shafts, the cutting edges of said disks being disposed in proximity to the inner marginal edge of said carriage.

3. An envelope opening machine comprising a supporting body having a housing at one side thereof, a sliding carriage on said body having a finger grip for actuating said carriage, means for limiting the movement of said carriage, a gear rack on the bottom of said carriage, a spring connected at one end to the carriage and at its opposite end to the supporting body, a rotatable shaft having a pinion meshing with the gear rack, a second shaft passing through the housing, meshed gears on the ends of the shafts and cooperating rotary cutting disks on the said shafts in proximity to the inner longitudinal edge of the sliding carriage for trimming the margin of an envelope positioned on said carriage.

4. An envelope opening machine comprising a supporting body having a housing at one side thereof, a sliding carriage operable on the top of the body, stop limiting means for regulating the distance of travel of the carriage, resilient means attached to the carriage and said body, a gear rack on the bottom of the carriage, a shaft having a pinion meshing with the gear rack, a second shaft mounted within the housing, cooperating cutting disks mounted on said shafts in proximity to the marginal edge of the carriage for trimming the margin of an envelope positioned on said carriage and meshed gears on said shafts.

5. An envelope opening machine comprising a supporting body having a housing at one side thereof, a sliding carriage operable in grooves in said body, a finger grip for actuating said carriage, a gear rack on the bottom of said carriage, a depending lug extending below the said carriage, stops on the supporting body to engage the said lug to limit the movement of said carriage, a spring connected at one end to the carriage and at its opposite end to the supporting body, a rotatable shaft having a pinion meshing with the gear rack, a second shaft passing through the housing, meshed gears on the ends of the shafts, and cooperating rotary cutting disks on the said shafts in proximity to the inner longitudinal edge of the sliding carriage for trimming the margin of an envelope positioned on the said carriage.

In testimony whereof I affix my signature.

ALBERT WEISS.