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2,765,604

DEVICE FOR FOLDING AND ENVELOPING LETTERS

Filed Sept. 17, 1952

3 Sheets-Sheet 1

Fig. 1

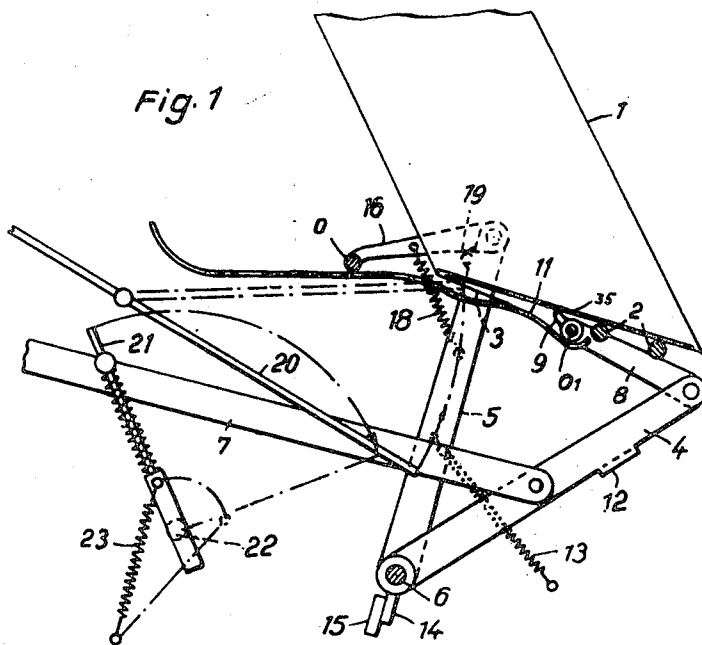
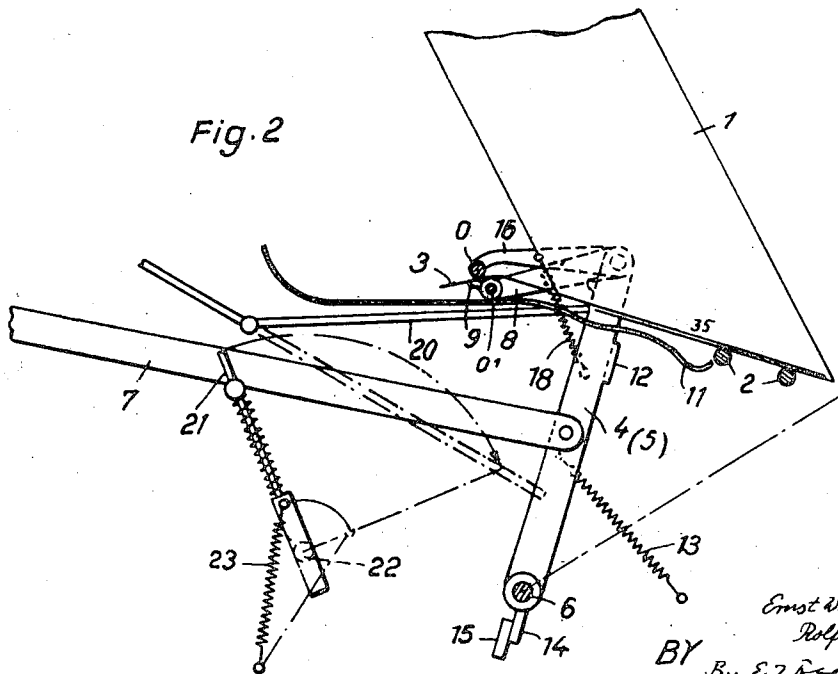


Fig. 2



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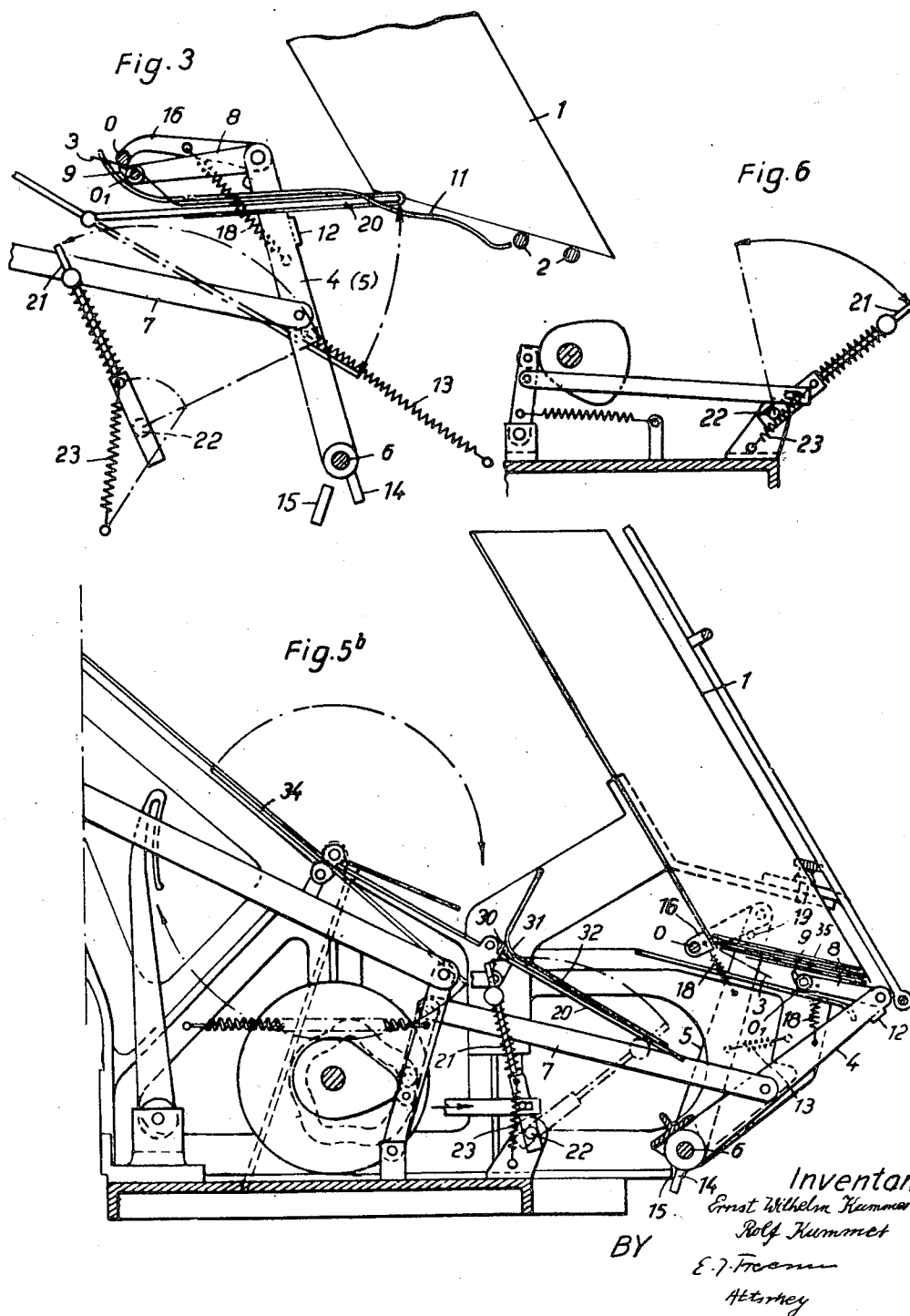
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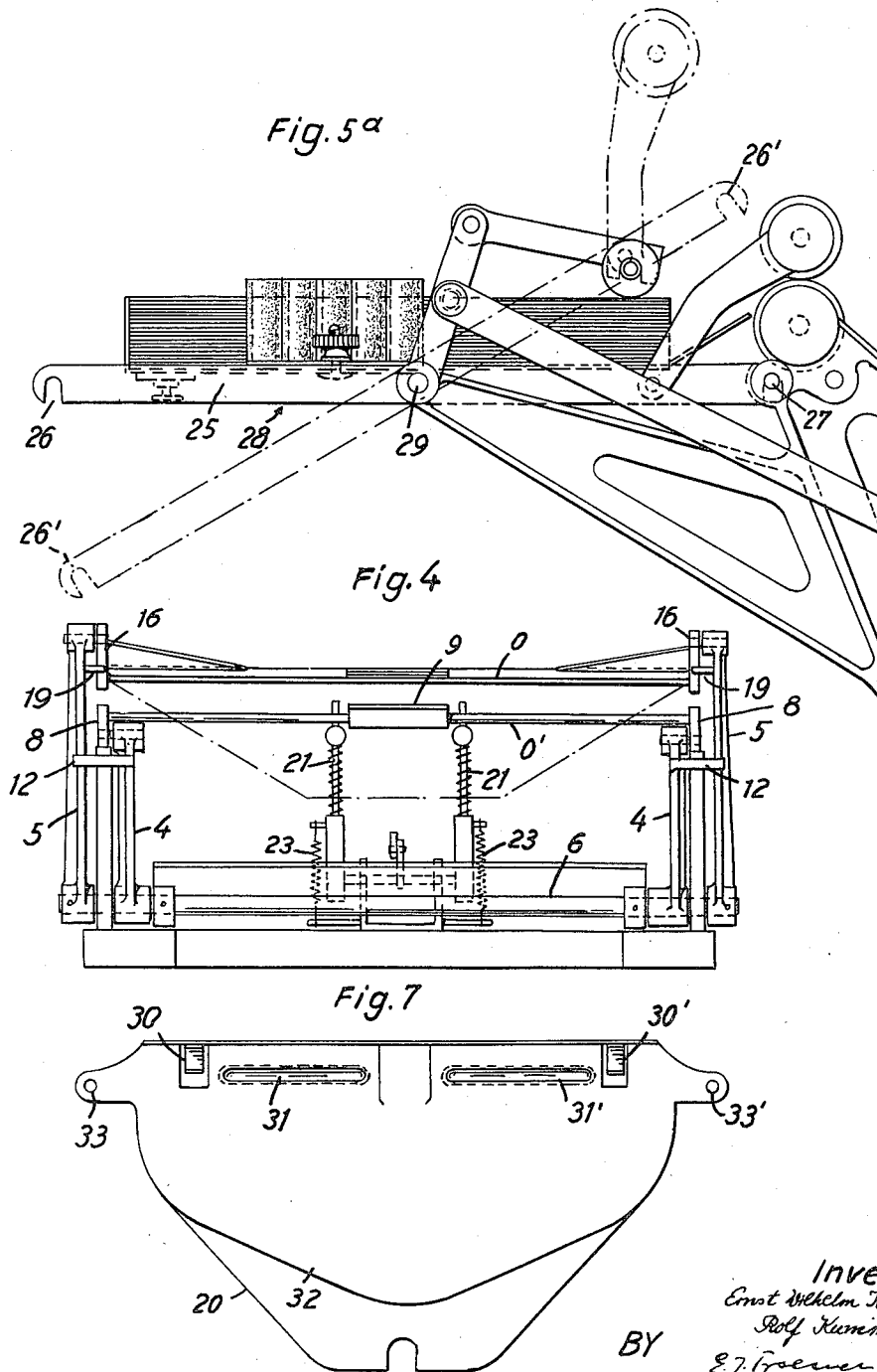
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DEVICE FOR FOLDING AND ENVELOPING LETTERS

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Claims priority, application Germany
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1 Claim. (Cl. 53—136)

This invention relates to a device for folding and enveloping letters.

The manufacture and the commercial distribution of these devices is greatly handicapped by the fact that the size and the shape of the letters and of the envelopes as well as the folding schemes greatly vary within the individual countries and their economical spheres.

It is the main object of the invention to provide a device for folding and enveloping letters which can be easily adapted to variations of their type and size.

It is another object of the invention to design a machine of the above referred-to type which will automatically effect the supply of the envelopes and letters, fold the same, close the envelopes and discharge them.

With these objects in view the invention will now be described in detail and with reference to the accompanying drawings illustrating a preferred embodiment thereof but without restricting the invention to the same.

In the drawings,

Figures 1, 2 and 3 show schematic side views of the device in three operating positions,

Figure 4 is a partial longitudinal top view of the same,

Figure 5a is a side view of an embodiment of the invention for use with multipliers,

Figure 5b is a side elevational view of a preferred embodiment of the invention,

Figure 6 shows a constructional detail and

Figure 7 is a side view of a box for the accommodation of letters used in conformity with the invention.

The device shown in Figures 1 to 3 comprises an inclined container 1 for envelopes 35, see Figure 5b. The envelopes are stacked in such a manner that the flap 3 of the lowermost envelope projects from the container at its lower side. Rods 2, which are preferably rotatable, are provided to hold the stacked envelopes.

The first step in the operation of the device is to rotate the flap 3 from the position shown in Figure 1 into that of Figure 2. This aim is achieved by two pairs of levers 4, 5, which are swingably supported upon a shaft 6, supported in the machine frame 46, Figure 5b. The levers 4, which lift the flap 3, are actuated by the rod 7. The levers 4 carry at their upper ends swingable arms 8. The ends of the levers are connected by a rod 0'; the rod carries at least one wedge-shaped projection 9. The preferably rotatable rod 0' is moved over one or several guide tracks 11. The levers 4, arms 8 connected therewith, levers 5 and 16 connected to the levers 5 are provided on both opposite sides of the container 1, Figure 4. The projection 9 acting as flap opener is located in the center portion of rod 0'.

If the levers 8 are swung from the position shown in Figure 1 in a forward direction and into the position shown in Figure 2 and are forwardly moved, the projection 9 pushes the flap 3 into the open position of the envelope. In order to secure a reliable grip of the flap 3 by the projection 9 and to provide sufficient space for its rotation the track 11 is undulated and has wave-shaped crests and troughs, as apparent from Figures 1 to 3.

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Levers 4 carry abutment members 12. If the levers 4 are forwardly moved from the position shown in Figure 1 the abutment members 12 hit upon levers 5, which are the so-called pressure levers. These pressure levers 5 are influenced by springs 13, which are secured to the machine frame; the springs 13 fastened to the machine frame press the stops 14 on lever 5 onto the frame stops 15, the clockwise spring biased rotation of the levers 5 being limited accordingly. Pivotal arms 16 are connected to the upper ends of levers 5; these arms 16 carry a cross rod 0, see also Figure 4. Arms 16 are by springs 18 pressed against the stops 19 secured to levers 5 as shown in Figures 1, 5b and 7.

As soon as the levers 4 have reached the position shown in Figure 2, where the abutment members 12 contact levers 5, rod 0' on levers 8 is conducted along tracks 11 causing projection 9 to lift the flap 3; at the same time levers 16 are lifted by the lateral edges of member 9 against the action of springs 18, Figure 2. Springs 18 are tensioned accordingly. Arms 16 exert a pressure onto the flap 3, whereby the same is tightly held between the levers 8 and 16. The swing levers 4, 5 pull the envelope 35 from container 1 into the position shown in Figure 3.

Levers 4 rotated by the cam actuated lever 7 take along levers 5 by means of the abutment members 12; stops 14 are separated from stops 15 and springs 13 are tensioned as shown in Figure 3.

During the displacement of the lever pairs 4, 5 for the opening of flap 3 the envelope mounting funnel or box 20 has been moved from the position shown in full lines in Figure 1 to the one shown in full lines in Figure 2. This funnel 20 is maintained in that position until the pairs of levers 4, 5 have by means of circular rod clamp 0, 0' pulled the envelope 35 from the container 1 onto said funnel as shown in Figure 3. The funnel 20 is then lowered in order to enable the filling of the envelope with sheets folded on platform 34 and thrust into funnel 20 as by the mechanism shown in the copending application of Ernst W. Kummer Serial No. 477,872, filed December 27, 1954 which is a continuation in part of application Serial No. 161,357, filed May 11, 1950, now abandoned, to which reference is made for further disclosure.

During the return of the funnel into its initial position the levers 5 remain by the coaction of the stops 14, 15 in the position of Figure 2, whereas the levers 4 return in the initial position of Figure 1, the projection 9 being again stationed to the rear of flap 3 of the bottom envelope in container 1. The above described operational cycle may now be repeated.

Funnel 20 is pivoted at its end remote from container 1 and its above described pivotal movement between the full line positions of Figures 1 and 2 is effected by suitable cam and lever control from the same shaft that controls lever 7 in timed relation with the other operations, and reference is made to said applications for a disclosure of such cam and lever mechanism in detail.

In order to strip the filled envelope 35 from the funnel 20 and to complete its closure by means of heated rollers a discharge device 21 is provided which is swingable about axis 22. A tiltable spring 23, fastened with the lower end to the machine frame reinforces the advance and return movement of this discharging device which is cam driven as shown in Figure 6; the device 21 consists of rods the upper ends of which pass through corresponding suitable slots (not shown) of the funnel 20.

Asymmetrically disposed longitudinal slots, ridges and recesses may be provided in other parts of the device in order to reduce the vibration of these parts and to reinforce the faces.

The upper part of funnel 20 is provided with two leaf

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springs 30, 30' and ridges 31, 31', Figures 5b, 7. The lateral holder flaps 33, 33' limit sliding of envelopes onto the funnel 20, which might interfere with the proper filling of the envelope on funnel 20.

If the invention is used in combination with a lay-out table for printed matter, which is often the case with such devices, the lay-out table is so located that it may be rotated and secured in order to utilize the lower free table plate as a support for daily mail; it may be fitted to be manually operated if the mechanically operated lay-out table is not used and is disengaged.

This device is shown in Figure 5a.

The table 25, which is rotatably adjustable about an axis 29, is provided at both ends with hooks 26; a screw 27 is provided to secure the table in its operative normal full line position of Figure 5a.

The container 1 may be constructed to accommodate different types of envelopes.

Since certain changes may be made in the above device and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, what we claim as new and desire to be secured by Letters Patent, is as follows:

In an envelope filling apparatus of the type characterized by a platform upon which sheets to be inserted into envelopes are folded and thrust into an envelope mounting funnel, the provision of a receptacle for holding a stack of envelopes with the flap of the bottom envelope

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being accessible at the bottom of the receptacle, an open ended envelope receiving funnel having an end adjacent said platform and its other end adjacent the bottom of said stack, and means for removing an envelope from the bottom of said stack and mounting it on said funnel comprising means for outwardly swinging the flap of said bottom envelope, and means for sequentially tightly gripping said outwardly swung flap and pulling the envelope out of said stack and feeding it onto said funnel comprising two coacting lever systems, one of said systems comprising a first lever pivoted at its one end and a first arm pivoted on its other end, the other of said systems comprising a second lever pivoted at its one end on the same axis as said first lever and a second arm pivoted on its other end, means for swinging said levers toward said funnel, and cooperating guide track means for one of said arms and means resiliently biasing the other of said arms effective during said swing of said levers for clamping the extended flap between the free ends of said arms during an initial part of said lever swinging movement so that continued swinging of said levers will move the envelope from the stack onto the funnel.

References Cited in the file of this patent

UNITED STATES PATENTS

1,925,653	Byerley	Sept. 5, 1933
2,001,009	Baker	May 14, 1935

FOREIGN PATENTS

83,527	Sweden	May 28, 1935
514,068	Great Britain	Oct. 30, 1939
548,075	Great Britain	Sept. 24, 1942