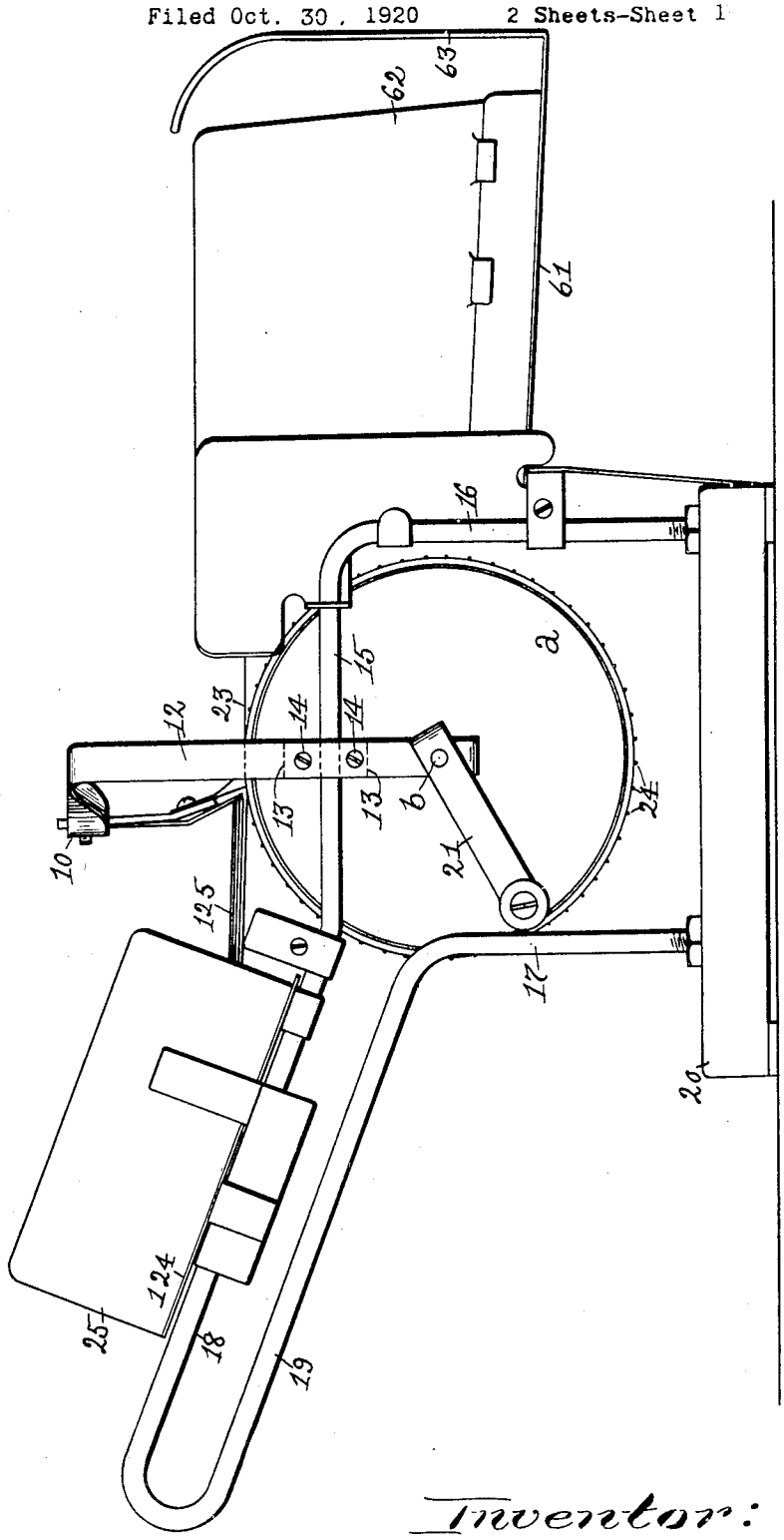
Aug. 26, 1924. 1,506,423

E. E. GRAY

FEED MECHANISM FOR ENVELOPES AND THE LIKE

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Fig. 1.




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Fig. 2.

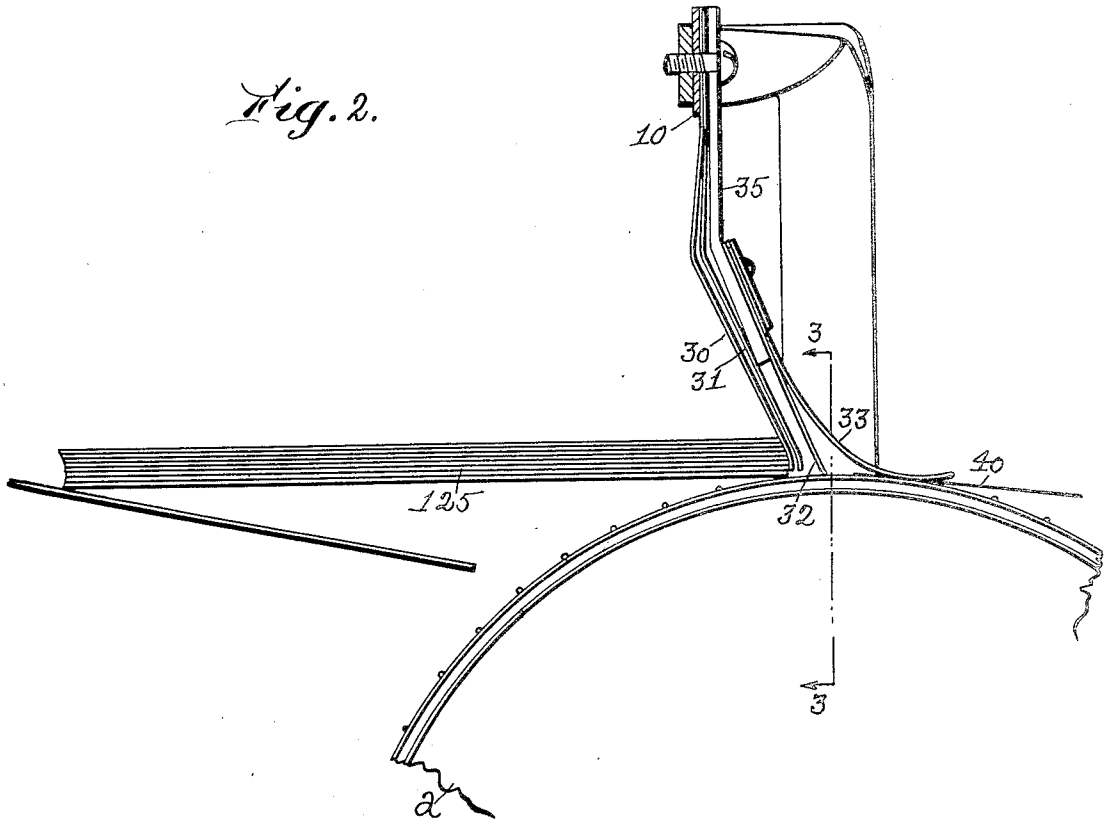



Fig. 3.

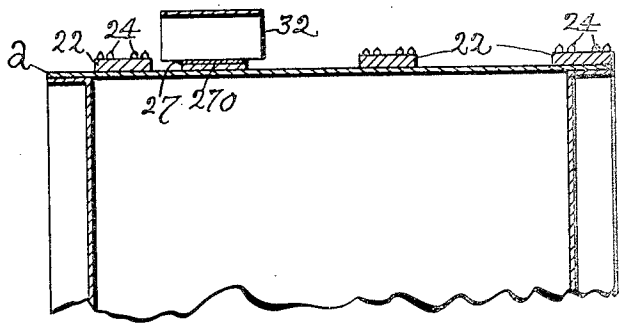
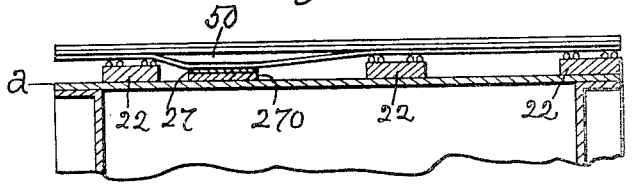



Fig. 4.




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Patented Aug. 26, 1924. 1,506,423

# UNITED STATES PATENT OFFICE.

ELMER E. GRAY, OF CLIFTONDALE, MASSACHUSETTS.

## FEED MECHANISM FOR ENVELOPES AND THE LIKE.

Application filed October 30, 1920. Serial No. 420,639.

*To all whom it may concern:*

Be it known that I, ELMER E. GRAY, a citizen of the United States, residing in Cliftondale, in the county of Essex and State of Massachusetts, have invented an Improvement in Feed Mechanism for Envelopes and the like, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a feed mechanism for envelopes, cards and the like and has for its object to provide a superior mechanism with which the envelopes and the like may be fed individually from a pile or stack of the same at a relatively high speed and without liability of more than one envelope being fed at a time.

The particular features of this invention will be pointed out in the claims at the end of this specification.

Fig. 1 is a side elevation of feed mechanism embodying this invention.

Fig. 2, a detail on an enlarged scale of a portion of the feed mechanism shown in Fig. 1.

Fig. 3, a vertical section on the line 3—3, Fig. 2, and

Fig. 4, a detail on an enlarged scale to be referred to.

The feed mechanism herein shown as embodying this invention is provided with a rotatable member, preferably a hollow drum *a* having its shaft *b* mounted to revolve in a suitable framework, which may be the same as that shown in the patent referred to and consists of a cross bar 10 having depending arms 12 which are secured as by clamps 13 and screws 14 to horizontal portions 15 of side frames, preferably made of metal rods, each of which is bent to form upright portions 16, 17, the horizontal portion 15 and upwardy inclined portions 18, 19. The side frames referred to are suitably erected upon a base 20 at opposite sides of the drum *a*, which latter may be rotated in any suitable manner, and in the present instance a crank or handle 21 fast on the shaft *b* is provided for this purpose.

The drum *a* is provided on its periphery with a friction member, preferably in the form of a plurality of rubber bands 22, which are spaced apart and separated by spaces of less width than the width of the envelopes 23 to be fed by the same, and said rubber bands are preferably provided with tits or projections 24, which are arranged about the circumference of the drum and located in substantially close proximity to one another and are yielding so that as the drum is revolved, the tits or projections are bent backward when engaged with the bottom envelope of a pile or stack 125, so as to increase or lengthen the grip of the tit or projection upon the envelope and thereby ensure the withdrawal of the bottom envelope from the pile and the proper feed of the same with the drum revolving at a relatively high speed.

The drum *a* is also preferably provided with a band 27, which is plain or smooth, with which co-operates a stripper, preferably made as herein shown and comprising a plurality of yielding members, preferably spring metal strips or pieces and herein shown as four in number and marked 30, 31, 32, 33, which are arranged in the same vertical plane and are arranged with relation to the drum *a*, so that their lower or free ends have certain relations to the drum to effectively co-operate therewith and ensure the feed of the envelopes individually. To this end the stripper members 30, 31, which are attached at their upper ends to the cross bar 10 have their lower ends in proximity to the drum *a* but removed therefrom a distance sufficient to permit the passage of the bottom or lower envelope of the stack or pile 125.

The stripper members 30, 31, are arranged to be engaged by one or more envelopes next above the lowermost or bottom envelope so as to act as a stop for the envelopes of the pile or stack lying above the bottom envelope.

I prefer to employ two stripper members 30, 31, instead of a single stripper member, as each of the members 30, 31, can be made of thinner metal and offer less resistance to the movement of the bottom envelope with whose upper surface they engage.

The member 32 is separated from the member 31 a material space so that a sufficient length of the bottom envelope may engage the drum *a* to ensure its being carried forward by the drum, and said member 32 is secured to an arm 35 depending from the cross bar 10 on the front side thereof and has its lower or free end brought substantially into engagement with the

drum and into the path of the bottom envelope to engage the latter and help hold the bottom envelope in contact with the drum and at the same time the member 32 is in position to act as a stop for the next to the bottom envelope, if the two envelopes should pass by the members 30, 31.

The stripper member 32 acts as a stop for the envelope which overlaps the bottom envelope until the bottom envelope has passed by the member 32, whereupon the second envelope can drop down and be fed forward under or by the stripper member 32.

The stripper member 33, which is secured to the arm 35 is made of greater length than the member 32 and sufficiently long to have a material length thereof engaged with the upper surface of the envelope marked 40 and to act as a presser, which holds the envelope in such firm engagement with the drum as to ensure that the envelope will be fed forward in a substantially straight path tangential to the drum.

The smooth member is preferably made as a thin metal band 27 resting on a thin rubber band 270, and said bands are made sufficiently thin to enable the outer surface of the metal band to be within the circle in which the outer ends of the tits or projections 24 are located, so that when the bottom envelope engages the tits or projections 24 on opposite sides of the smooth band 27, opportunity is offered for the portion of the bottom envelope above the smooth band 27 to buckle or curve away from the next envelope of the stack and toward the smooth band, as shown on an enlarged scale in Fig. 4, so as to leave a space 50 between the portion of the bottom envelope which co-operates with the smooth band and the envelope next to the bottom envelope. The buckling or curving of the bottom envelope enables the latter to pass freely under or by the stripper members 30, 31, and permits the latter to move or spring toward the stack so as to bring the free end of the member 30, 31, below the envelope next above the bottom envelope and thereby ensure the latter being arrested or stopped by the member 30, 31, under normal conditions of use, until the bottom envelope has been fed forward from the stack or pile, whereupon the arrested envelope, which now becomes the bottom envelope of the pile or stack drops to the drum and buckling or curving as described clears the stop member 30, 31, and is fed forward.

It will thus be seen that the stripper is composed of a plurality of members, two of which, to wit: 30, 31, co-operate as one member to hold back the pile or stack, another member, to wit: 32, acts to hold back a second envelope resting on the bottom envelope and which may have passed the members 30, 31, and another member 33 which acts as a presser for the envelope fed under the member 32.

The rotatable drum *a* and the stripper herein shown may be embodied in a machine in which the stack or pile of envelopes has its rear end resting on a holder 124, 25, supported by the inclined portions 18, 19, of the side frames and in which the moistened and sealed envelopes are fed to a receiver 61, 62, 63, both of which are and may be of the constructions shown in said patent, but it is not desired to limit the invention in this respect.

While it is preferred to employ the drum having the friction members and the smooth member in conjunction with a stripper composed of a plurality of yielding members as described, it is not desired to limit the invention in this respect.

Claims:

1. In a feed mechanism for envelopes and the like, in combination, a drum to support and feed the envelopes, a friction member on the periphery of said drum to rotate therewith and increase the frictional engagement of said drum with said envelope, a smooth member fast on and projecting beyond the periphery of said drum with which the envelopes engage, and a stripper co-operating with said smooth member to press an envelope thereon.

2. In a feed mechanism for envelopes and the like, in combination, a drum to feed the envelopes provided on its periphery with a friction member having yielding projections on a part of its periphery and having another part without projections extending beyond the periphery of the drum and upon which the envelope bears, and a stripper co-operating with the part of the periphery without said projections to press the envelope thereon.

3. In a feed mechanism for envelopes and the like, in combination, a rotatable device provided with a plurality of friction members spaced apart, a non-feeding member between said friction members having a smooth external surface and of smaller diameter than said friction members, and a stripper composed of a plurality of yielding metallic members co-operating with said non-feeding member and arranged in substantially longitudinal alignment to successively engage an envelope fed by said device between the stripper and said friction members.

4. In a feed mechanism for envelopes and the like, in combination, a rotatable device to engage and feed the envelopes and the like, and a stripper co-operating with said rotatable device and having a yielding member arranged with relation to said rotatable device to act as a stop for a plurality of envelopes, and having a second yielding member to act as a stop for an envelope fed be-

yond the first-mentioned yielding member while said envelope contacts with a third envelope which is engaged with and is being fed by said rotatable device beyond the second-mentioned yielding member.

5. In a feed mechanism for envelopes and the like, in combination, a rotatable device to engage and feed the envelopes and the like, and a stripper co-operating with said rotatable device and having a yielding member arranged with relation to said rotatable device to act as a stop for a plurality of envelopes, and having a second yielding member to act as a stop for an envelope fed beyond the first-mentioned yielding member while said envelope contacts with a third envelope which is engaged with and is being fed by said rotatable device beyond the second-mentioned yielding member, and having a third yielding member to engage said third envelope and hold it in engagement with said rotatable device after it has passed said second-mentioned yielding member.

In testimony whereof, I have signed my name to this specification.

ELMER E. GRAY.