June 27, 1939. A. B. CROSBY 2,163,572

ENVELOPE-STUFFING MACHINE

Filed Nov. 16, 1937 3 Sheets-Sheet 1

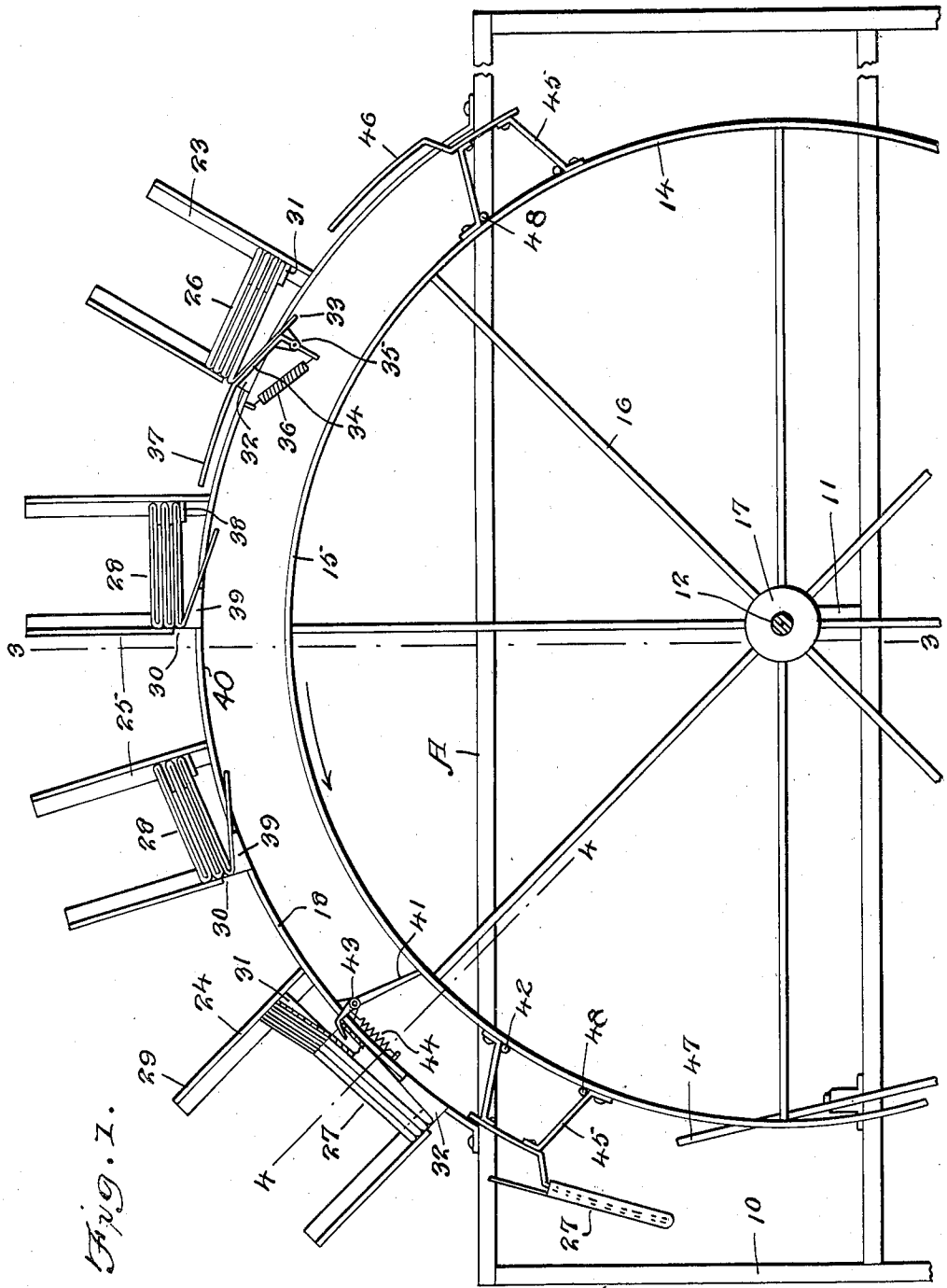


Fig. 1.

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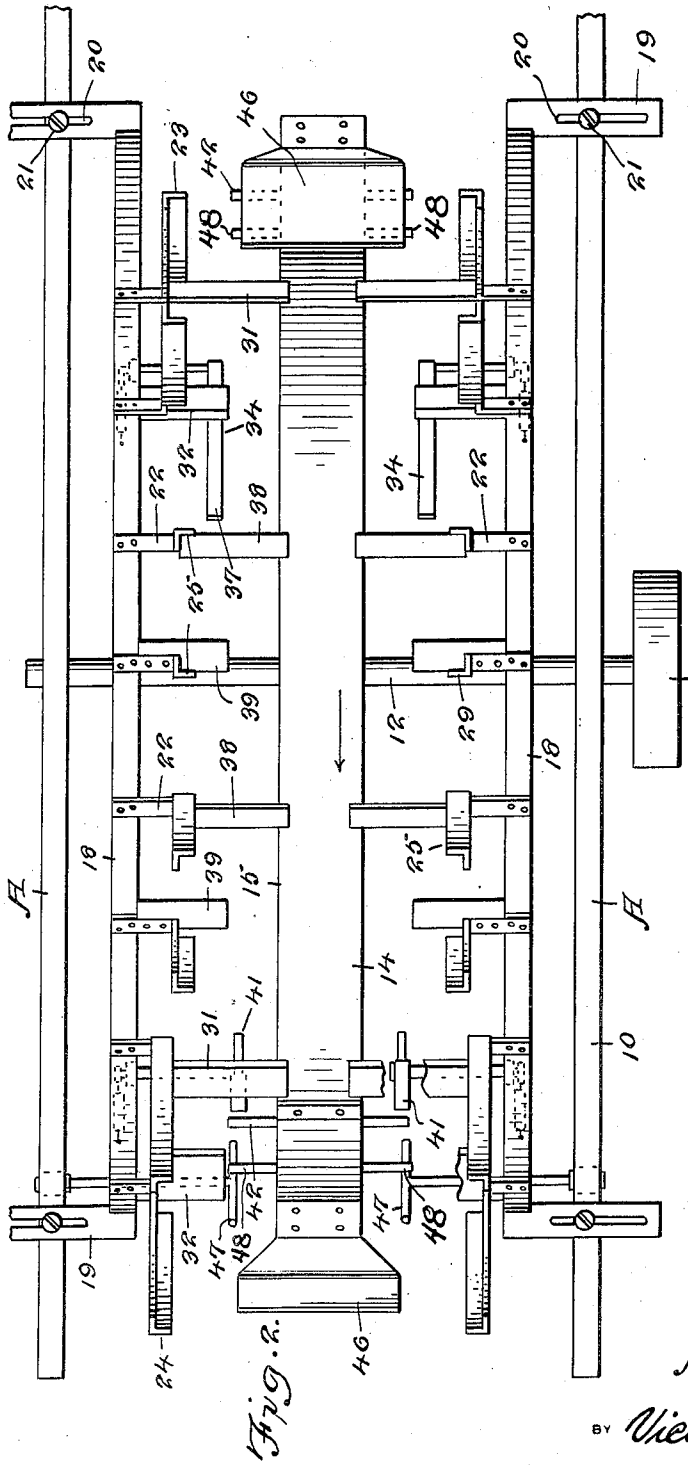


Fig. 2.

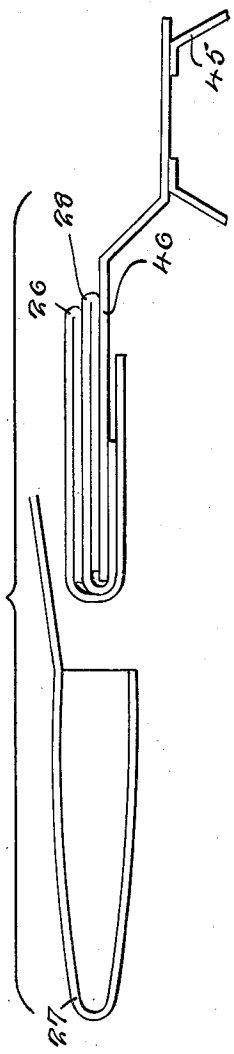


Fig. 9.

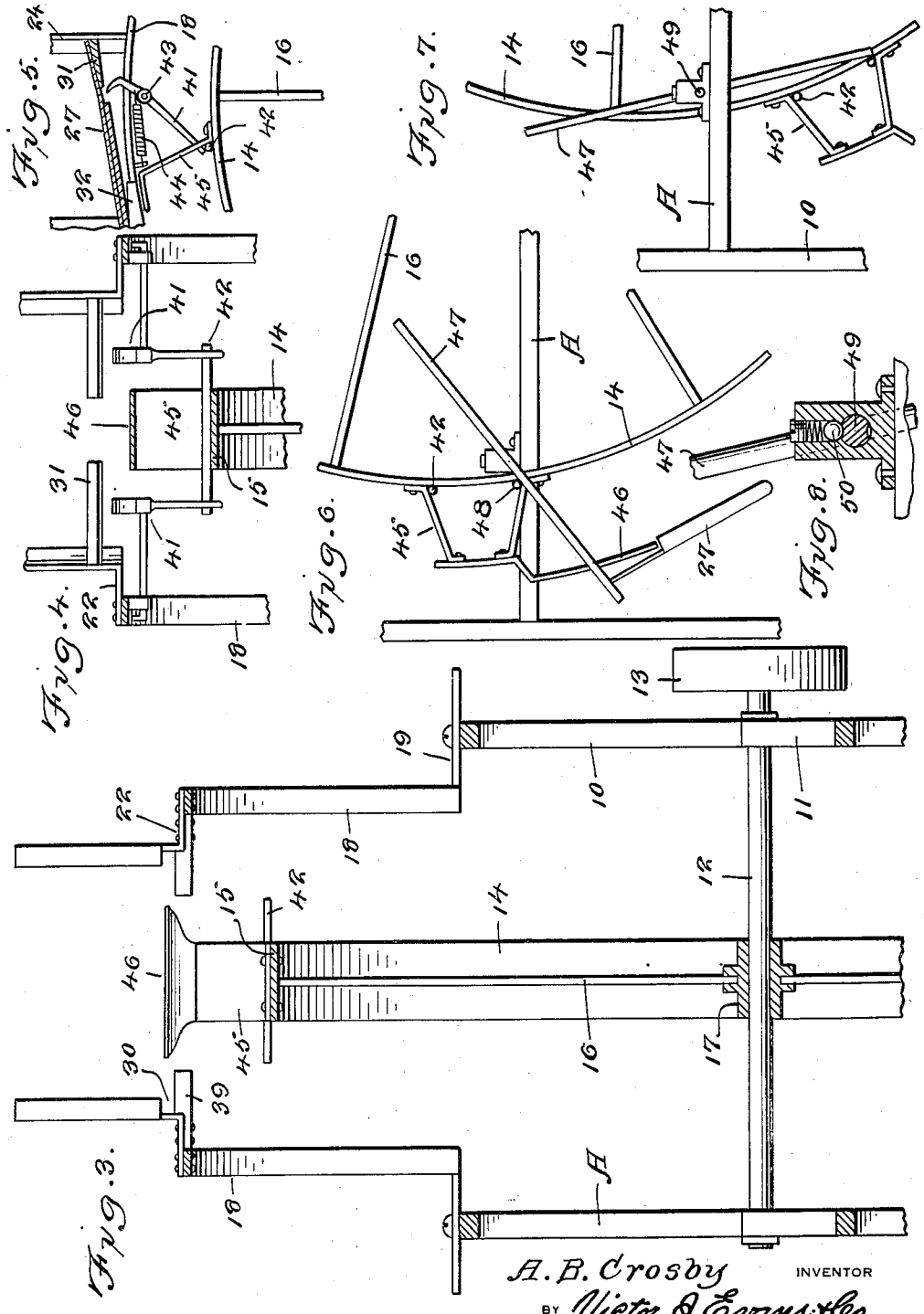
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ENVELOPE-STUFFING MACHINE

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UNITED STATES PATENT OFFICE

2,163,572

ENVELOPE-STUFFING MACHINE

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Application November 16, 1937, Serial No. 174,875

7 Claims. (Cl. 93—6)

The invention relates to a stuffing machine and more especially to an envelope stuffing machine or an envelope filling apparatus.

The primary object of the invention is the provision of a machine or apparatus of this character, wherein during the operation of said machine or apparatus envelopes stacked and sheets of material will be acted upon so that the envelopes will be singly filled with the sheets of a determined number and also a return envelope will be stuffed into the envelope being filled and subsequently the filled envelopes ejected from the machine thus in this manner envelopes can be successively stuffed or filled in single order automatically and in this manner relieving hand labor for such purpose.

Another object of the invention is the provision of a machine or apparatus of this character, wherein the envelopes and the sheet material are held in a novel manner so that the sheets to be stuffed in an envelope will be picked up and carried within the envelope for the filling thereof prior to the ejecting of the envelope from the machine or apparatus and in this manner mass stuffing of envelopes automatically can be effected without manual handling of the envelopes and the sheet material.

A further object of the invention is the provision of a machine or apparatus of this character, wherein the construction of the same is novel in its entirety and the operation can be continuous for the handling of large quantities of envelopes and sheet material.

A further object of the invention is the provision of a machine or apparatus of this character, which is simple in its construction, thoroughly reliable and efficacious in operation, automatic in the working thereof and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a fragmentary side elevation partly in section of a machine constructed in accordance with the invention.

Figure 2 is a top plan view.

Figure 3 is a vertical transverse sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view on the line 4—4 of Figure 1.

Figure 5 is a detail fragmentary vertical sectional view through an envelope rack showing the action of the opener for an envelope therein.

Figure 6 is a fragmentary side elevation showing in detail the manner of ejecting a stuffed envelope from the machine or apparatus.

Figure 7 is a view similar to Figure 6 showing certain of the parts in a different position.

Figure 8 is an enlarged fragmentary detail vertical sectional view showing the manner of frictionally latching the ejector for discharging the filled envelope from the machine or apparatus.

Figure 9 is an enlarged side elevation in detail showing the position of an open envelope and the materials to be stuffed therein, the latter being in a position for introduction into the envelope.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the machine or apparatus constituting the present invention, being an envelope stuffing or filling machine or apparatus, involves a main supporting frame A having the spaced parallel upstanding sides 10, these being fixedly joined in their spaced relation to each other in any desirable manner and have built therein bearings 11 for a transverse shaft 12 disposed crosswise of the frame A between the sides 10 and this shaft is equipped with a power pulley 13 receiving power from any suitable source for the rotation of said shaft. Fixed centrally on the shaft 12 for rotation therewith is a rotor 14 in the form of a spoked wheel having a relatively broad circular rim 15, the spokes and the hub of this wheel being indicated at 16 and 17, respectively.

At the top of the sides 10 of the frame A are arranged laterally adjustable spaced upwardly arched bow members 18, which at the ends thereof have the out-turned laterally directed slotted ears 19, the slots 20 therein accommodating set screws 21 engaged in the sides 10 and in this manner the bow members are adjustably fastened superimposed upon the sides 10 of the frame A so that they can be moved toward and away from each other consistently with the character of the envelope and sheet material to be handled by the machine or apparatus.

The bow members 18 at intervals thereof have fixed to the same the brackets 22 of open racks, the outside ones being indicated at 23 and 24, respectively, while the intermediate at 25, the latter preferably including a pair or two racks.

The rack 23 is adapted to accommodate envelopes 26 known as "return envelopes", the rack 24, envelopes 27 to be stuffed while the racks 25 are for folded sheet material 28 which with the envelopes 26 are to be stuffed in the envelopes 27 for the filling thereof automatically in the working of the machine or apparatus as will be hereinafter described.

The racks 23, 24 and 25 extend outwardly radially from the bow members 18 and each involves the separated channeled corner posts or bars 29, there being two to each rack at opposite sides of the longitudinal center of the machine or apparatus and these bars at one side of each rack are cut away at 30 to provide delivery openings or discharge ways to the respective racks.

Within the racks 23 and 24 and projecting inwardly from opposite sides thereof are rest ledges 31 and 32, respectively, one of each being common to a single rack and these ledges cooperate in the rack 23 to hold the envelopes 26 therein stacked superimposed one upon the other while the lowermost envelope of the stack has its sealing flap 33 lowered onto a support 34 vertically swingable on a pivot 35 and tensioned for upward swing into a tilting position by a spring 36, the support 34 being provided with a directing extension 37 for the envelopes 26 singly gathered from the rack 23, the gathering operation being had in a manner hereinbefore described. By the dropping of the flap 33 on the support 34 a single envelope can be carried or conveyed into the rack 25 next thereto for tucking it into a folder 28 lowermost therein. These racks 25 carry the rest ledges 38 and 39, respectively. The rests 39 limit a partial unfolding of the folders 28 lowermost of the stacks within the said racks 25. This partial unfolding of the folders 28 allows the tucking of the envelope 26 within the folder lowermost in the rack 25 next to the rack 23 and also the tucking of one folder 28 into another as contained within the racks 25 next to each other, there being a guide 40 between adjacent racks 25 so that the folder 28 being tucked into another of the said folders will be brought to a complete folded position when subjected to a tucking action.

The envelopes 27 to be stuffed rest upon the ledges 31 and 32, respectively, and the lowermost envelope of the stack within the rack 24 is automatically acted upon by a body opener 41 controlled through strikers 42 on the rotor 14 and extended into the path of the same, there being two openers 41 related to the rack 24 and swinging upon pivots 43 and tensioned by springs 44, respectively. These springs 44 function to hold the openers 41 in engaging position with the envelope for the spreading of the body or the opening of the latter whereby the folders 28 with the envelopes 26 can be stuffed therein.

Peripherally of the rotor 14 and supported upon supports 45 carried by the rim 15 at intervals apart are combined stuffing and tucking blades 46 which successively on the rotation of the rotor in the direction of the arrows shown in Figure 1 of the drawings singly tuck the return envelope 26 in the folder 28 next thereto thence these are tucked into another folder 28 provided there are several stacks of folders within the two racks 25 whence these are stuffed into the envelopes 27 and such stuffed envelopes carried to a position by the rotor 14 to an ejecting point for ejectment by the swinging ejector arms 47, they through the strikers 48 being automatically actuated for ejecting purposes in removing the filled envelope from the blade 46 carrying the same. The axle 49 of each ejecting arm 47 is temporarily latched in two positions by a friction latch 50, one position being normally inactive or out of ejecting position and the other position the ejecting position, these being shown in Figures 6 and 7 of the drawings.

When the racks 23, 24 and 25 are filled with material, envelopes and sheet folders, on the rotation of the rotor a return envelope 26 together with one or several folders 28 will be automatically tucked or stuffed into the envelope 27 and the latter when filled subsequently ejected from the machine or apparatus. Of course, if only one rack 25 is filled, then but a single folder will be introduced into the envelope to be stuffed in conjunction with the return envelope 26.

What is claimed is:

1. A machine of the character described comprising a rotor, laterally adjustable spaced upwardly arched bows arranged with respect to said rotor at opposite sides of the same, an envelope rack carried by said bows and variable in size on adjustment of the bows, a sheet paper rack carried by said bows and variable in size on adjustment of said bows, and gathering and tucking means on the rotor and movable into position for gathering sheet paper from said sheet paper rack and tucking the same within an envelope in the envelope rack.

2. A machine of the character described comprising a rotor, laterally adjustable spaced upwardly arched bows arranged with respect to said rotor at opposite sides of the same, an envelope rack carried by said bows and variable in size on adjustment of the bows, a sheet paper rack carried by said bows and variable in size on adjustment of said bows, gathering and tucking means on the rotor and movable into position for gathering sheet paper from said sheet paper rack and tucking the same within an envelope in the envelope rack, and means on the bows and rotor automatically controlled by said rotor for the opening of an envelope in the envelope rack prior to receiving the sheet paper from the sheet paper rack.

3. A machine of the character described comprising a rotor, laterally adjustable spaced upwardly arched bows arranged with respect to said rotor at opposite sides of the same, an envelope rack carried by said bows and variable in size on adjustment of the bows, a sheet paper rack carried by said bows and variable in size on adjustment of said bows, gathering and tucking means on the rotor and movable into position for gathering sheet paper from said sheet paper rack and tucking the same within an envelope in the envelope rack, means on the bows and rotor automatically controlled by the said rotor for the opening of an envelope in the envelope rack prior to receiving the sheet paper from the sheet paper rack, and means pivoted relative to the rotor and indirectly controlled on movement of the latter for ejecting a filled envelope carrying the sheet paper from the gathering and tucking means.

4. In a machine of the character described, the combination of a movable carrier, magazines for supplying inserts in the direction of the carrier and arranged successively in the direction of travel of said carrier, means on the carrier for removing the inserts from the said magazines and tucking said inserts one within the other, means for presenting envelopes into the path of said inserts when in tucked relation to each other, and means for maintaining an envelope open

when in the path of said inserts for receiving the same when in tucked relation to each other.

5. In a machine of the character described, the combination of a movable carrier, magazines for supplying inserts in the direction of the carrier and arranged successively in the direction of travel of said carrier, means on the carrier for removing the inserts from the said magazines and tucking said inserts one within the other, means for presenting envelopes into the path of said inserts when in tucked relation to each other, means for maintaining an envelope open when in the path of said inserts for receiving the same when in tucked relation to each other, and means actuated by the carrier for discharging an envelope when having received the inserts tucked within each other.

6. In a machine of the character described, the combination of a movable carrier, magazines for supplying inserts in the direction of the carrier and arranged successively in the direction of travel of said carrier, means on the carrier for removing the inserts from the said magazines and tucking said inserts one within the other, means for presenting envelopes into the path of said inserts when in tucked relation to each other, means for maintaining an envelope open when in the path of said inserts for receiving the same when in tucked relation to each other, and means actuated by the carrier for discharging an envelope when having received the inserts tucked within each other, the said second-named means being movable with the carrier and forming a support for the envelopes and inserts therein.

7. In a machine of the character described, the combination of a movable carrier, magazines for supplying inserts in the direction of the carrier and arranged successively in the direction of travel of said carrier, means on the carrier for removing the inserts from the said magazines and tucking said inserts one within the other, means for presenting envelopes into the path of said inserts when in tucked relation to each other, means for maintaining an envelope open when in the path of said inserts for receiving the same when in tucked relation to each other, and means for varying the sizes of the magazines and the envelope presenting means, respectively.

ALVIN B. CROSBY.