

Sept. 24, 1929.

E. P. RODDY

1,729,521

AUTOMATIC POSITIONING DEVICE FOR CANCELING POSTAGE STAMPS ON MAIL

Filed Aug. 28, 1928

3 Sheets-Sheet 1

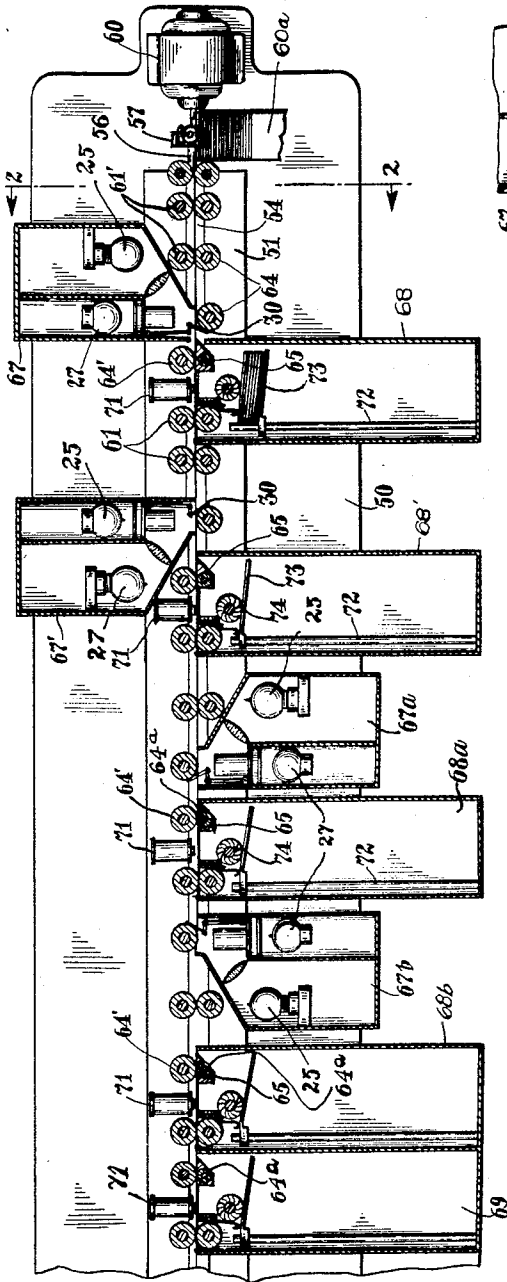


Fig. 1.

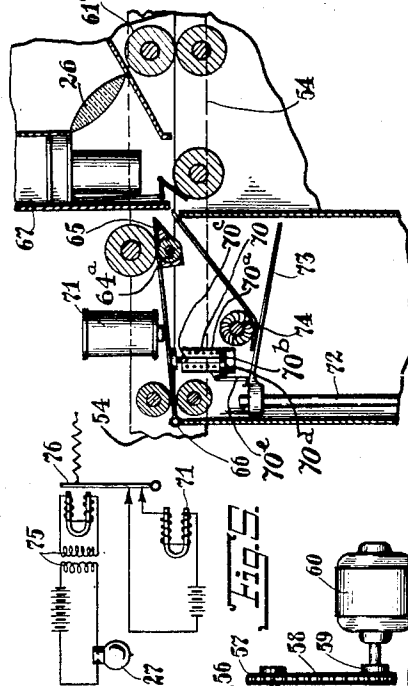


Fig. 2.

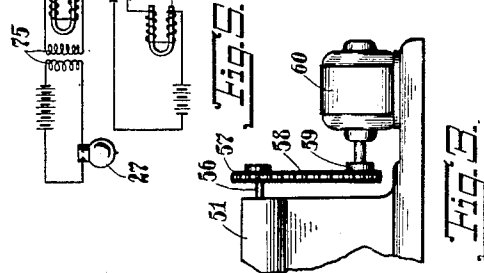


Fig. 3.

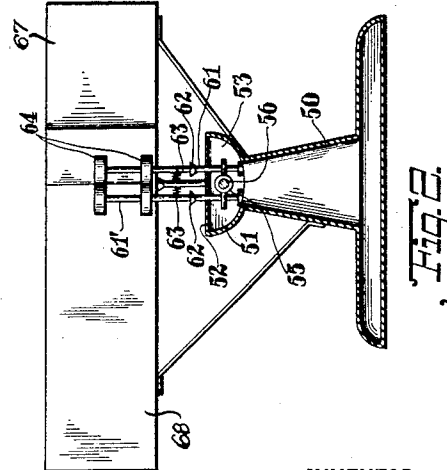


Fig. 4.

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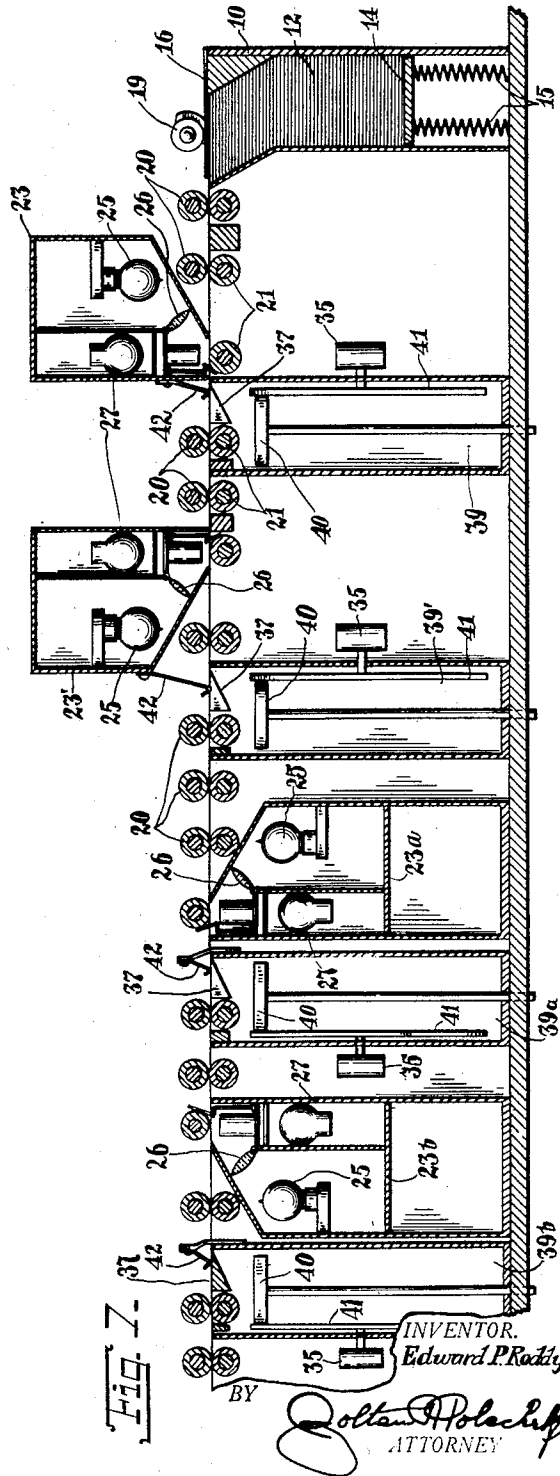
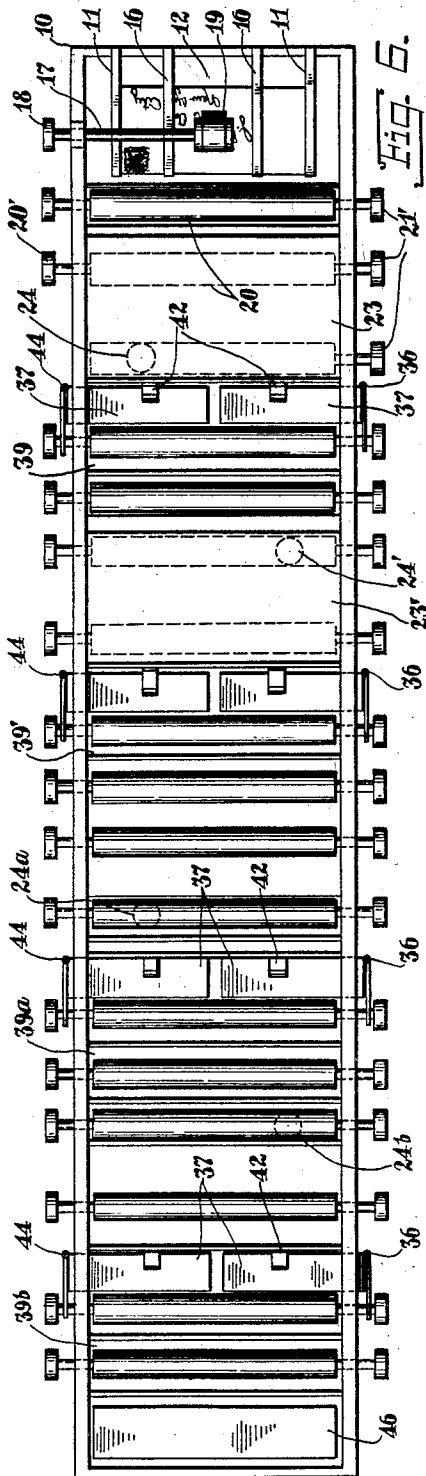
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AUTOMATIC POSITIONING DEVICE FOR CANCELING POSTAGE STAMPS ON MAIL

Filed Aug. 28, 1928

3 Sheets-Sheet 2



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AUTOMATIC POSITIONING DEVICE FOR CANCELING POSTAGE STAMPS ON MAIL

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3 Sheets-Sheet 3

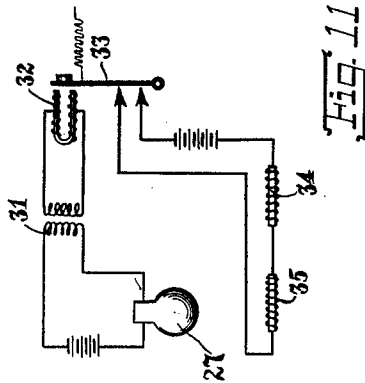


Fig. 11

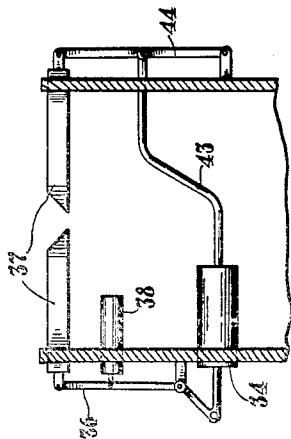


Fig. 9

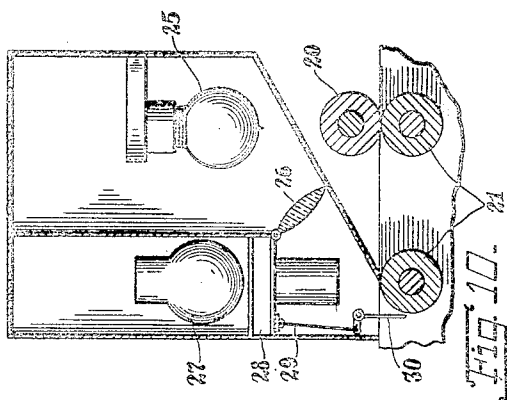


Fig. 10

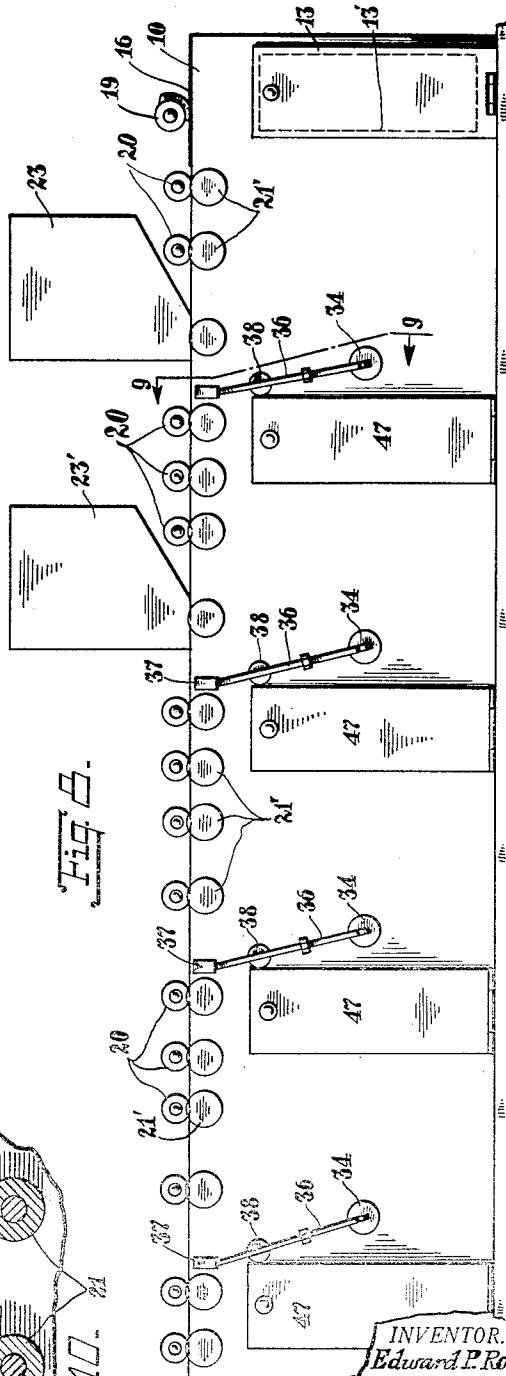


Fig. 8

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UNITED STATES PATENT OFFICE

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AUTOMATIC POSITIONING DEVICE FOR CANCELING POSTAGE STAMPS ON MAIL

Application filed August 28, 1928. Serial No. 302,482.

This invention relates generally to the art of the cancelation of postage stamps on mail, and has more particular reference to a novel automatic positioning device arranged for as-
5 sorting letters according to the position of the stamps thereon.

The invention has for an object the provision of a device of the class mentioned, which is of simple durable construction, desirable and efficient in action and which can
10 be manufactured and sold at a reasonable cost.

When mail matter (letters first class) reaches the post office each piece must be
15 picked up individually and the position of the stamp noted so all the letters may be faced, that is, they must be stacked with the stamps all in one corner and the addresses facing up so the distributors may be able to handle
20 them and also so the canceling machine may cancel the stamps. With the device I have in mind the picking up of each individual piece of mail would be eliminated and in its place the operator of the device would take
25 the letters and straighten them up much the same as a deck of playing cards are handled after they have been gathered up from the table. This stack of letters (straightened up but not faced) would be run through the in-
30 stant device and color sensitive photo electric cells would detect the corners of letters where stamps are located.

Preferably the device should be arranged for passing letters therethru in vertical positions, though this should not be construed
35 as a limitation. A modified form of the device has been described for showing that the letters may also be handled in horizontal positions.

In the preferred form of the device the organization is such that when a letter in vertical position is passing therethru and this letter is facing one way and is right side up
40 with the stamp at the top, then one photo electric cell in a unit #1 would receive the energy from light reflected from the red stamp and automatically momentarily open a door to a compartment #1 for causing the letter to enter this compartment. If the
45 letter was facing in the same direction but

up-side-down with the stamp therefor at the bottom and opposite end, then the photo electric cell in unit #1 would not receive any energy and the letter would pass on to unit
55 #2 and a second photo electric cell is arranged for directing the letter to enter this unit.

A third unit should similarly be arranged for receiving letters facing the other way and right side up. A fourth unit should be similarly arranged for receiving letters facing in
60 the second mentioned direction but up-side-down, and a fifth unit should be arranged for receiving letters having other than red postage stamps, and letters with stamps im-
65 properly placed.

In the modified form, if a letter was facing downwards with its stamp in upper right hand corner then one photo electric cell in unit #1 would receive the energy from light
70 reflected from the red stamp and automatically open a door to a compartment #1. After the letter enters this compartment the door will close. If a letter was facing downwards and has its stamp on its lower right
75 hand corner (letter upside-down) then the photo electric cell in unit #1 would not receive any energy and the letter would pass on to unit #2 and a second photo electric cell is arranged for directing the letter to enter this
80 unit.

A third unit should be similarly arranged for receiving letters facing upwards and with stamps in an upper right hand corner. A
85 fourth unit should be similarly arranged for receiving letters facing upwards with stamps on a lower left hand corner, and a fifth unit should be arranged for receiving letters having other than red postage stamps, and letters
90 with stamps improperly placed.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and
95 to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing, forming a material part of this disclosure;
100

Fig. 1 is a sectional plan view of a device constructed according to this invention.

Fig. 2 is a vertical sectional view thereof, taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary side elevational view of one end of the device.

Fig. 4 is a fragmentary view of a portion of Fig. 1, but showing the door of one unit open.

Fig. 5 is a schematic wiring diagram of one unit.

Fig. 6 is a plan view of a device constructed according to a modified form of the invention.

Fig. 7 is a longitudinal central vertical sectional view thereof.

Fig. 8 is a side elevational view thereof.

Fig. 9 is a fragmentary vertical sectional view, taken on the line 9—9 of Fig. 8.

Fig. 10 is an enlarged detail view of a portion of the device as seen in Fig. 7.

Fig. 11 is a schematic wiring diagram of one of the units of the device.

The reference numeral 50 indicates generally a base supporting a casing 51 having a cover 52, and containing oil 53. A letter rest member 54 is secured on the casing and extends its full length. A worm 55 is rotatively mounted within the casing and extends its full length and is fixed on a shaft 56 provided with a sprocket wheel 57 connected by chain 58 to a pinion 59 on the shaft of a motor 60 secured on the base 50. A plurality of vertical shafts 61 are rotatively mounted in the casing 51, and are positioned on opposite sides of the letter rest member 54 and extend out of the casing thru the cover 52.

The vertical shafts 61 have top sections 61' connected by universal joints 62. Spring 63 urges the sections 61' towards the letter rest member 54, and rollers 64 are fixed on the shafts in pairs so as to be urged together by the actions of the spring 63. There are certain single rollers 64' which are urged against idlers 64^a on doors 65 having wedge shaped front ends and hingedly mounted at their rear ends as at 66.

A cell unit 67 has a detecting cell 27 directed for detecting stamps in one of the before mentioned positions, cell unit 67' has a detecting cell directed for detecting stamps at another of the before mentioned positions, cell unit 67^a has a cell directed for detecting stamps at a third position as before mentioned, and unit 67^b has a cell directed for detecting stamps at a fourth position as before mentioned.

A letter chamber 68 is arranged for receiving letters as determined by cell unit 67 and a second chamber 68', a third 68^a and a fourth 68^b are arranged for receiving letters as determined by cell units 67', 67^a and 67^b respectively. A fifth chamber 69 is arranged for receiving all letters which pass the said four chambers. The said four chambers are provided with the doors 65 and these doors are normally held in closed positions by springs

70 within a casing 70^a. The said springs urge outwards pistons 70^b connected by a rod 70^c with the door. A spring actuated catch 70^d normally holds the piston with the door 65 open and when a letter is completely within the compartment it abuts lever 70^e connected to move the catch and allow the spring 70 to close the door. Electromagnets 71 are connected with the various cell units and arranged for opening the doors upon being operated.

Each of the letter chambers is provided with a bar 72 extending to the rear of the chamber on which a slide 73 is mounted for moving rearwards as letters enter the chamber. Rollers 74 are arranged for forcing letters entering the chambers against the slides 73. As shown in Fig. 5 the photo electric cell of each unit is individually connected in a circuit with a transformer 75 and a relay 76 arranged for controlling a circuit containing the electromagnet 71.

In operation of the device, motor 60 drives worm 55 which drives all the rollers 64. Letters to be arranged are individually fed by a feeding device 60^a into the device between the rollers 64 at the motor end of the device. As the letters pass the first cell unit 67, a trip 30 of the unit hereinafter more fully described is engaged for operating the unit. If the stamp is detected by this unit the electromagnet 71 will be energized for opening the door 65 to a position as shown in Fig. 4 so that the letter enters chamber 68. If a stamp is not detected the letter passes on to unit 67'. If none of the units detect the stamps the letters pass into the fifth chamber 69.

It is pointed out that the trips 30 of units 67 and 67^a should be arranged for operating the units the instant a letter strikes the trips, and the trips of units 67' and 67^b should be arranged for operating the units the instant a letter leaves the trips.

The functioning of the cell units may be understood by the detail description hereinafter given in the description of the modified form of the device, and a more detailed operation may also be gathered by the description of the modified form.

On the modified form the reference numeral 10 indicates generally a box-like body having an open top. At one end this body has partitions 11 forming a holding chamber for a pile of letters straightened out but not faced. Numeral 12 indicates these letters, and a door 13 is formed in the side of the body in line with a door 13' formed in the side of the first mentioned letter chamber for permitting the insertion of letters into the chamber. A block 14 is urged upwards by springs 15 for feeding the letters 12 upwards. Stop bars 16 are horizontally extended from the top edge of the body directly over the letters

12 holding the letters against further upward motion.

A shaft 17 is rotatively supported on the body 10 and has a driver wheel 18 on its outer end and on its other end a cam wheel 19 arranged for periodically moving the topmost letter 12 forward between the rollers 20 and the rollers 21, the rollers 20 being provided with driver wheels 20' and rollers 21 with driver wheels 21'. The photo electric cell device 23 is formed with an opening indicated by numeral 24 arranged for receiving the reflection of a red postage stamp on the upper right hand corner of the envelope.

The cell device 23 consists of a lamp 25 showing thru a red lense 26 thru the opening 24 upon which photo electric cell 27 is directed interposed by a shutter structure 28 operable rapidly by opening and closing, by levers 29 and 30 when lever 30 is initially moved by the said letter engaging against its lower end. The cell 27 is in a circuit including the primary 31 of a transformer whose secondary connects with an electromagnet 32 for operating a relay 33 controlling a second circuit having solenoids 34 and 35.

The solenoid 34 connects with a lever 36 arranged for withdrawing a slide 37 very rapidly and then slowly returning the slide against the action of dash pot 38. In position the slide closes a letter chamber 39 provided with a block 40 arranged for descending. The solenoid 35 connects with a holding rod 41 for momentarily removing the rod to allow the block 40 to slightly descend. A spring 42 rests on the slide 37 for directing a passing letter downwards into the chamber 39 when the slide is drawn out. The slide 37 is made of separate sections arranged for moving in opposite directions. The solenoid 34 is connected to the second of the said sections by a rod 43 and another rod 44.

It is pointed out that if the letter being passed forward by the roller 22 has its stamp (red) at its upper right hand corner and facing upwards the cell 27 will change its electrical resistance for operating the solenoids 34 and 35 for withdrawing the slide 37 and very slightly lowering the block 40. Then spring 42 directs the letter into letter chamber 39 and upon the block 40 which descends as the letters are stacked one upon the other. But if the stamp is not at the place mentioned the cell 27 remains unaffected and rollers 20 and 21 pass the letter on to the next photo electric cell device 23' which has its opening as indicated by numeral 24' for permitting the detection of stamps at the lower left hand corners of letters facing upwards, and these letters will be passed into the letter chamber 39'.

If the stamps are not at either of the positions just mentioned the letters will be passed forward by the rollers 20 and 21 for detection by the photo electric device 23^a having an

opening 24^a arranged for aligning with stamps on the upper right hand corner of envelopes turned up-side-down.

If the stamps are not positioned at the three places thus far covered, the letters will be passed forward by the rollers 20 and 21 for detection by the photo electric cell device 23^b having an opening 24^b arranged for aligning with stamps on the lower left hand corner of letters turned up-side-down.

A receiving chamber 39^a is arranged for receiving letters as detected by the photo cell device 23^a, and another receiving chamber 39^b is arranged for receiving letters as detected by the photo cell device 23^b. If the letters do not fall into any of the four receiving chambers mentioned, they will enter a miscellaneous receiving chamber 46. The various receiving chambers are accessible thru doors 47.

The operator of the machine feeds piles of unassorted letters into the chamber 12, and removes piles of assorted letters from the chambers 39, 39', 39^a and 39^b and a small group of unassorted miscellaneous letters from the chamber 46. It is pointed out that the descending blocks 40 should descend at a rate so that the top letters of the piles of letters on the blocks, should be but a small distance from incoming letters upon the piles so as not to permit turning during falling of the letters upon the piles.

The great majority of letters bear red two cent stamps and for this reason red filters 26 are employed in the machine.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. A device of the class described, comprising a plurality of letter receiving chambers arranged for storing letters in positions as received, a plurality of photo electric cells arranged for detecting the positions of the stamps on the letters, and means for directing the letters into the said chambers according to detected positions.

2. A device of the class described, comprising a plurality of letter receiving chambers arranged for storing letters in positions as received, a plurality of photo electric cells arranged for detecting the positions of the stamps on the letters, and means for directing the letter into the said chambers according to detected positions so that each chamber receives and holds letters in assorted positions, and a miscellaneous chamber for receiving letters not intended to be assorted.

3. A device of the class described, com-

prising a plurality of letter receiving chambers arranged for storing letters in positions as received, a plurality of photo electric cells arranged for detecting the positions of the stamps on the letters, and means for directing the letter into the said chambers, according to detected positions so that each chamber receives and holds letters in assorted positions, and a miscellaneous chamber for receiving letters not intended to be assorted, and a system of rollers used to advance the letters.

4. A device of the class described, comprising a plurality of letter receiving chambers arranged for storing letters in positions as received, supporting blocks arranged for moving as letters enter the chambers, a plurality of photo electric cells arranged for detecting the positions of the stamps on the letters, and means for directing the letters into the said chambers according to detected positions.

5. A device of the class described, comprising a plurality of letter receiving chambers arranged for storing letters in positions as received, a plurality of photo electric cells arranged for detecting the positions of the stamps on the letters, and means for directing the letters into the said chambers according to detected positions, including doors for the chambers.

In testimony whereof I have affixed my signature.

EDWARD P. RODDY.