Jan. 2, 1962 M. M. DIETZ ETAL 3,015,426

APPARATUS FOR DISPENSING STAMPS

Filed July 15, 1958 3 Sheets-Sheet 1

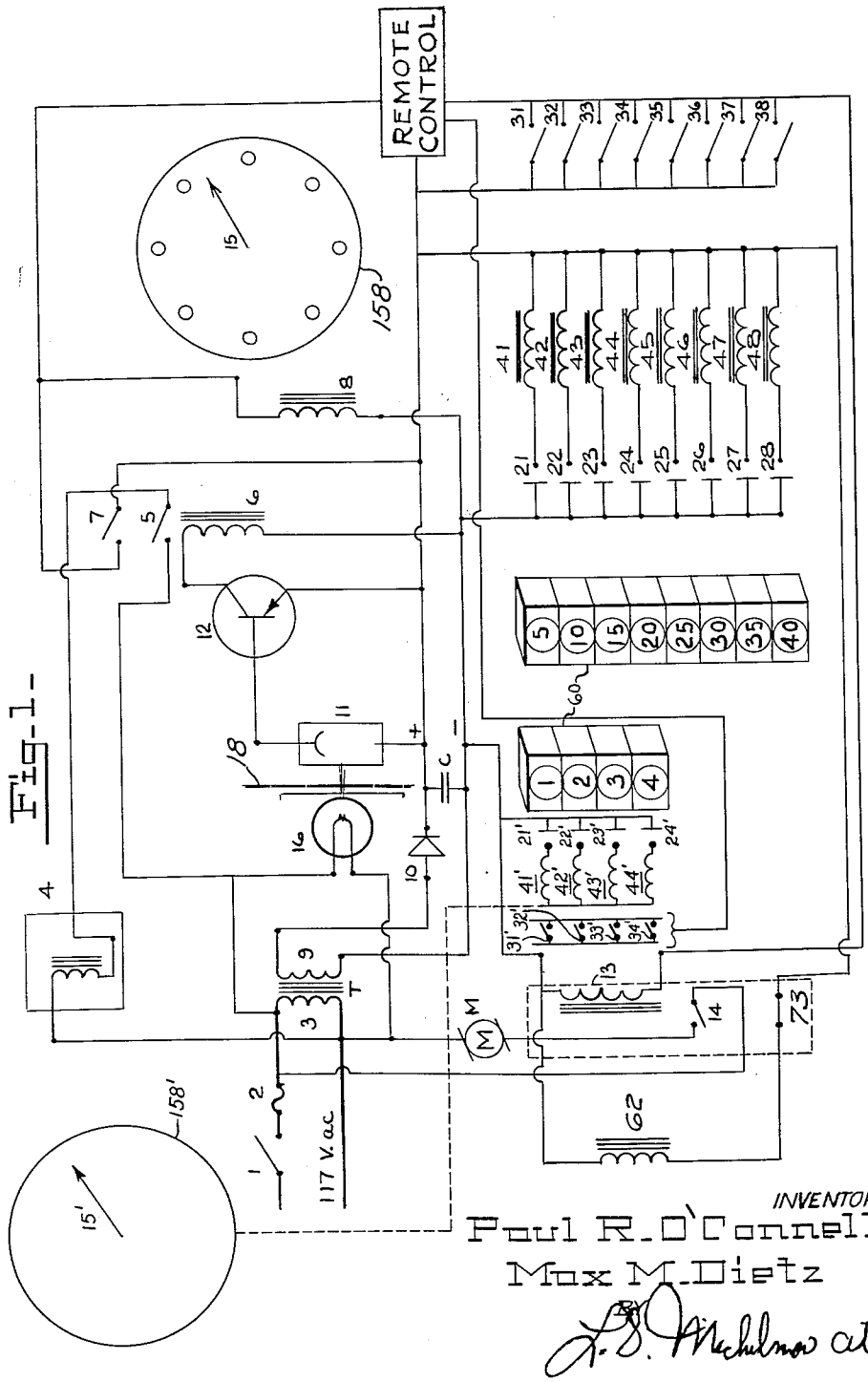


Fig-1-

INVENTORS.
Paul R. O'Connell
Max M. Dietz
BY
J. S. Nicholson atty

Jan. 2, 1962 M. M. DIETZ ETAL 3,015,426

APPARATUS FOR DISPENSING STAMPS

Filed July 15, 1958 3 Sheets-Sheet 2

Fig. 2.

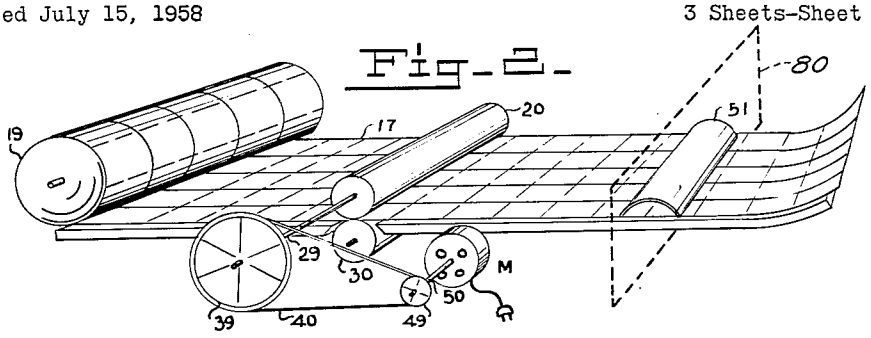


Fig. 3.

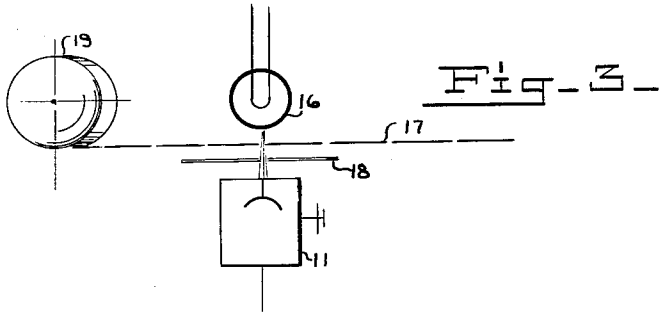
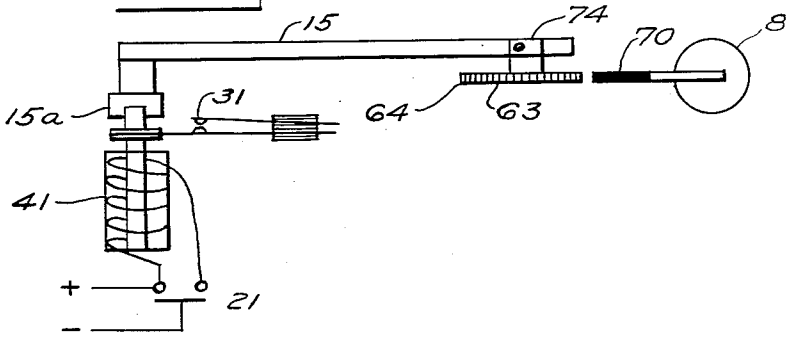


Fig. 4.



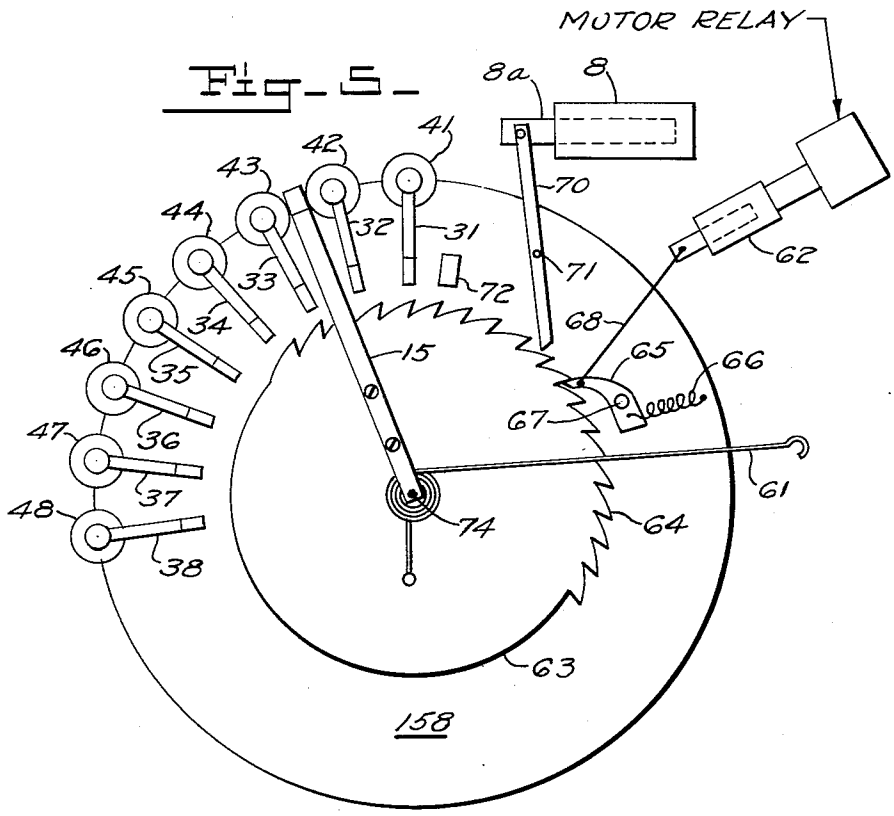
INVENTORS.
PAUL E. O'CONNELL
MAX M. DIETZ
BY

Jan. 2, 1962 M. M. DIETZ ETAL 3,015,426

APPARATUS FOR DISPENSING STAMPS

Filed July 15, 1958 3 Sheets-Sheet 3

Fig. 5



INVENTORS.
Paul R. O'Connell
Max M. Dietz
BY
L. S. Michelson Atty

United States Patent Office 3,015,426 Patented Jan. 2, 1962

3,015,426

APPARATUS FOR DISPENSING STAMPS

Max M. Dietz, 99 Draper St., Springfield, Mass., and Paul R. O'Connell, 190 Elm St., East Longmeadow, Mass.

Filed July 15, 1958, Ser. No. 748,760
6 Claims. (Cl. 226—109)

This invention is concerned with a simple apparatus or machine for counting and delivering a selected number of the trading or profit sharing type stamps by the simple operation of a preselected button, or the like.

There has come into existence the use of premium stamps, prevalent mostly in retail stores and supermarkets, and given out at the check-out station or cash register. The counting of the stamps slows down the checking out of the customers and also, many mistakes are made by the cashiers in counting the stamps. These stamps are expensive to the store owners.

It is therefore a primary object of the within invention to provide an inexpensive machine for automatically counting and issuing stamps.

It is an additional object of the within invention to provide a machine that keeps an inventory count of the number of stamps delivered from the machine.

It is a further object of the within invention to provide a machine that issues stamps rapidly and efficiently.

It is yet another object of the within invention to provide a machine that is simple to operate and control.

It is still another object of the within invention to provide a machine that is inexpensive to manufacture, simple in construction, and easily serviced.

It is yet another object of this invention to provide means whereby the machine may be controlled, not only at its own position, but at a remote location and by a remote device.

These and other objects are obtained by the use of a simple electronic circuit and a push button arrangement. The electronic circuit operates the motor which feeds the stamps until the preselected number of stamps are delivered from the machine. The motor, operated by the control circuit, actually moves the stamps from within the machine to the outside. There are a plurality of push buttons which control the operation of the machine.

For a more detailed description of the machine and its operation, reference is made to the drawings, in which:

FIGURE 1 is a schematic diagram of the control circuit of the machine.

FIGURE 2 is a diagrammatic sketch of the operating mechanisms of the machine.

FIGURE 3 is a side elevational diagrammatic view of the photocell arrangement of the machine.

FIGURE 4 is a side elevational view of the rotary switch 15 operated by the solenoid 8 in one position.

FIGURE 5 is a top diagrammatic view of the rotary switch assembly.

It is contemplated that the trading stamps 17 will be in rolls and that for the purposes of this embodiment will be five abreast, although it is contemplated that they could be divided in a different numerical arrangement.

The stamps 17 are mounted on a roller 19. A drive roller 20 is interconnected with a pulley 39 so that when pulley 39 moves, roller 20 will move. The stamps 17 from the roll 19 pass beneath the drive roller 20. Beneath the stamps 17 and beneath the drive roller 20 is an idler roller 30. The stamps pass out a predetermined distance to a blade and termination member 51. The pulley 39 is connected by the belt 40 to a pulley 49, which said pulley 49 is mounted on a drive shaft 50, which is the main shaft from the motor M. The motor M is of the electrical type, although any reasonable and inexpensive motor source could be employed.

The basic idea of this invention is simplicity and to control the number of stamps which are transmitted from roll 19 to the outside edge of the blade 51. The blade 51 extends outside from within the casing 80 of the machine. In other words, when the operator desires five stamps, the motor M will operate so that the drive roller 20 will roll out one row of five stamps beyond the blade 51, and at this point the machine will stop and the operator will tear off a row of five stamps. In order to get the machine to operate in such a manner the simple and inexpensive motor control circuit, which is shown in FIG. 1, was invented.

There should be available to the machine a source of alternating current of 117 volts. A switch 1 of the conventional type will close or open the circuit and pass current from this 117 volt source through a fuse 2 and through the primary winding 3 of the transformer T. Also connected to the 117 volt source is the contact 5 on the relay 6, which passes through the inventory register or counter 4. Also connected to the 117 volt source is the circuit of the motor M and the circuit of the electrical lamp 16.

The secondary winding 9 of the transformer T passes through a rectifier 10 of the common type and connects into a photocell sun battery 11. The condenser C, which is connected between the photocell and the rectifier to the negative side of the winding 9, acts as a filter of the pulsing direct current passing through the rectifier 10, and therefore a direct current is applied to the photocell 11. When the lamp 16 is in operation and the photocell is operating, a current will be caused to flow in the transistor 12. The transistor 12 will pass an amplified current through the solenoid relay 6. When current passes through the solenoid relay 6, the solenoid relay 6 will become energized and an electromagnetic field will come into existence, causing the contacts 5 and 7 to close. The contact 5 will permit current from the 117 volt source to pass through the inventory or stamp counter 4. The counter 4 is arranged to count the number of stamps that are being transmitted from the machine, which will be explained hereinafter.

The contact 7 of the solenoid 6, when closed, passes the rectified current through the solenoid relay 8. Switch 158 is a rotary type stepper switch and when solenoid relay 8 is energized, a movable arm, indicated by the arrow at 15, will rotate one position and disengage any one of the switches which are indicated by the numbers 31 through 38. (See FIGURE 5).

There are in the drawings, indicated by the numeral 60, push buttons which are shown as cubical boxes with numbers upon them from 5 to 40 and from 1 to 4. Actually the push button with the number 5 upon it, when pushed, will deliver 5 stamps. It will close contact 21, which will permit rectified current to pass through the solenoid relay 41. When the solenoid relay 41 is energized, as a result of this current passing through it, contact 31 on rotary switch 158 will close and permit rectified current to pass through 31 and through the motor relay 13. When motor relay 13 is energized by this current flow, its contact 14 will close and the motor M will be energized, operating the mechanism previously described and shown in FIGURE 2. This latter operation is similar for any one of the push buttons 5 through 40, and its corresponding contact 21 through 28 and the corresponding contacts on relays 41 through 48, which contacts are 31 through 38. Contact 21 through 28 are of the type that are spring controlled and return to a disengaged position after making contact. Contacts 31 through 38 remain in an engaged position until arm 15 disengages them.

The rotary switch 158 actually has in vertical positions the relays 41 through 48. Beneath these relays are the contacts 31 through 38. As the arm 15 moves under control of the solenoid relay 8, any one of the contacts

31 through 38 which have been closed by their respective relays 41 through 48, is disengaged and returned to the open position as the result of the movement of the arm 15, as will be explained hereafter.

FIGURE 5 is a diagrammatic view of the switch assembly. The arm 15 is mounted under the bias of a spring 61. As the arm 15 rotates, the spring 61 tightens in the conventional manner. The arm 15 moves with the movement of the center disc 63, since center disc 63 is integral therewith. Around the center disc 63 are the teeth 64. A pawl 65 is mounted proximate the teeth so as to engage them. At one end of the pawl, furthest from the teeth, is a bias spring for maintaining the pawl in locked position. The pawl 65 is mounted on a pivot pin 67. Connected to the pawl is a control rod 68. The control rod 68 operates the pawl against the tension of spring 66 since it is connected to the armature on the reset relay 62.

The relay 8 has connected to its armature 8*a* a control cam rod 70, as shown in FIGURE 5. The cam rod 70 is mounted on a pin 71 which acts as a pivot, enabling the rod 70 to push against the surface of the teeth 64. A stroke of the armature 8*a* will push the center disc 63 and the arm 15 a full position on a tooth 64.

The motor relay 62 is connected to the direct current source on the + and — sides of the rectifier 10 through contacts 73. Contacts 73 are normally closed, and are opened to break the circuit to relay 62 when relay 13 is energized.

The arm 15 is mounted in the shaft 74 which is integral with the center disc 63. At the end of the arm 15 is a smooth beveled portion 15*a* having a slope sufficient to slide the armatures on the relays 41 through 48 back into position. Connected to each of these armatures is one of the contacts of the switches 31 through 38. When the armatures of 41 through 48 are in open position, each of the contacts of 31 through 38 will be engaged. For example, when the armature of 41, as shown in FIGURE 4 is open, it will cause the contacts of 31 to be engaged. Conversely, when the armature is closed or down in relay 41, then the contacts of 31 will be out of engagement. This is true of the series of armatures 42 through 48 and their respective contacts 32 through 38.

Reference is made to the view of FIGURE 3 which is a side elevational view of the arrangement of FIGURE 2 with emphasis upon the photocell arrangement. It is to be noted that the lamp 16 is above the trading stamps 17 which are above a plate 18 upon which the stamps ride until they reach the opposite side of the blade 51. Beneath the plate 18 is the photocell 11. In the plate 18 is a minute hole or opening for passing the light from lamp 16 to the photocell. Only when the lighted lamp 16 is passing light through the opening in plate 18 and the perforations in the stamps 17 will the photocell emit energy to the transistor 12 to operate the relay 6. In other words, if the photocell 11 does not receive any light from the lamp 16, even through the switch 1 may be on, the transistor 12 will not pass a current to the solenoid relay 6 which is sufficient in magnitude or amplitude to operate relay 6. This also is a safety feature to control the precise operation of the machine. In other words, it is a prerequisite to the operation that the light pass through the perforations in the stamps and enter through the opening in the plate 18 to energize the photocell. Acually the light will pulse through to the photocell, because as each row of stamps passes over the plate 18, the perforations in the stamps will permit the light from lamp 16 to pass through the opening in the plate 18 to energize the photocell. In the event that the stamps become out of time or out of physical alignment, then the machine would automatically cease to operate until the situation is corrected.

In operation it is necessary to immediately turn the machine on. The operator will engage the switch 1. The operator will then select the number of stamps desired. If the operator desires five stamps, he will push down a push button 5 which will close the contact at 21. The contact

at 21 will do the following: Close a circuit from the transformer T through the transformer T's secondary winding 9 through the rectifier 10, which will pass a direct current as a result of the action of the filter condenser C to the solenoid 41, which current is returned to the secondary winding 9 through the contact 21. When the solenoid 41 is energized, it will set up a magnetic field and close its contact 31. When contact 31 is closed once again the rectified current from the secondary winding 9 of the transformer T will pass through contact 31 to a motor relay 13 back to secondary winding 9. Motor relay 13 will of course be energized and set up a magnetic field, causing its contact 14 to close, passing a current from the 117 volt source to the motor M, which will then operate. Shaft 50 will rotate causing pulley 49 to rotate, causing belt 40 to rotate, causing pulley 39 to rotate, causing shaft 29 to rotate, causing drive roll 20 to rotate. Since roll 19 is freely mounted on ball bearings or the like, drive roll 20 will pull the stamps 17 from the roll 19 along the smooth plate 18 between itself and the idler 30 and push the stamps further along the plate 18 to beyond the blade 51.

While contact 31 is closed, the stamps 17 are being pulled over the opening in the plate 18. When the first row of stamps and perforations pass over the opening in the plate, light from lamp 16 will gain admittance to the photocell 11. Immediately the transistor will operate relay 6. As before-mentioned, counter 4 will inventory the number of stamps, since contact 5 on relay 6 will close and then open, sending a pulse of current into the counter 4. Contacts 7 will close also and operate relay 8. Relay 8 will push arm 15 one position. Arm 15 will disengage contact 31, opening the circuit to relay 13 and turning off the motor M.

If the operator wanted 40 stamps, he would push down on button 40, closing contact 28, which would operate relay 48, similarly as 41, and close contacts 38 similarly as 31. Eight rows of perforations in the stamps 17 would have to pass between the lamp 16 and the photocell 11 before arm 15, being operated by solenoid relay 8, would disengage contact 38.

Since the rotary switch 15 is of the type that resets, arm 15 will always reset after the breaking of the last contacts.

The rotary switch assembly of FIGURE 5 operates in the following manner:

Relay 62 is normally energized and its armature is in the open position not shown in FIGURE 5. When relay 13 is energized, contacts 73 are opened and relay 62 is de-energized, being in the position shown in FIGURE 5. The pawl 65 prevents the arm 15 from returning under the tension of spring 61. When the relay 13 is de-energized, then contacts 73 are closed and the pawl 65 is pulled away from the teeth 64, permitting the arm 15 to return to the position at 72 under the pull of the spring 61.

The cam rod 70 operated by the armature 8*a* of the relay 8 pushes against the teeth 64, pushing the arm 15 one position. The position is always between the respective contacts 31 through 38, never within them. In the home position of 72 the arm 15 is just in front of the contacts 31.

From the foregoing it can be summarized that while relay 13 is energized, the motor M is running and the stamps 17 are being delivered. When the arm 15 breaks the contact of the preselected number of stamps, for example, contact 38 which is to deliver 40 stamps, then relay 13 is de-energized, closing its contacts 73 and energizing relay 62, which pulls the pawl 65 away from the teeth 64, permitting arm 15 to return to starting position for the next operation.

There are push buttons 60 which have the numbers 1 through 4 thereupon. The circuit for these have not been shown, other than schematically with the circuit components bearing similar numbers primed to those previ-

ously described, in order to make the explanation herein simple. As is believed evident, these buttons numbered 1 to 4 selectively control the feeding of one to four stamps from a single row roll of stamps. In addition to having the roll of stamps with five abreast, and the single row roll, it is contemplated that there be four additional rolls of one only, two stamps abreast, three stamps abreast, and four stamps abreast of each other. The pushbutton 1 will operate a roll of single stamps; the pushbutton 2 will operate the roll of two stamps abreast, and so on. The function and apparatus would be similar for these 1 through 4 pushbuttons as for the 5 through 4 push buttons. It is contemplated that the machine will deliver any number of stamps in excess of 40 by adding additional positions on the switch assembly of 15 and relays in the 41 through 48 series and their contacts.

In FIGURE 1 there are shown separate conductors with the notation that they are for a remote control station. It is contemplated that the within apparatus may have hooked up, parallel with the appropriate push buttons and their respective relays, a remote control circuit which could be located, for example, inside a cash register and be arranged to operate synchronously with various of the push buttons on the cash register. However, this particular arrangement in the cash register is not intended to be a part of the within invention, it being intended only to state that such an arrangement could be employed with the apparatus herein disclosed.

Various dimensions of the drawings have been exaggerated for the purpose of teaching more clearly the disclosures of this invention. It is intended that the basic idea be taught by the one embodiment disclosed, but it is understood that there are equivalent components that could be substituted without departing from the spirit and scope of this invention.

In consideration of the foregoing:

We claim:

1. An apparatus for delivering a preselected number of stamps of the perforated type comprising a strip of stamps leading to a delivery area, a motor, means for imparting action from said motor to said strip of stamps, a motor relay having contacts that energize said motor, a plurality of fixed switches displaced from one another and selectively actuable for energizing said motor relay and turning on said motor, a pulsing circuit generating pulses in accordance with said preselected number of stamps consisting of a photocell, lamp, transistor, and pulsing relay, said pulsing relay having contacts, a stepping actuator energized by said relay contacts and having a movable member for traversing each of said fixed switches sequentially in response to successive pulses applied to said pulsing relay, said movable member deactuating any of said previously actuated fixed switches upon traversing that switch, whereby said motor is turned off after a predetermined number of pulses, and after said preselected number of stamps have been delivered to the delivery area.

2. In the apparatus of claim 1, means to reset the stepping actuator to an initial position when said motor is turned off.

3. In the apparatus of claim 1, a counter controlled by said pulsing circuit for totaling the stamps delivered to said delivery area.

4. In the apparatus of claim 1, said strip of stamps comprising multiple rows of interconnected stamps whereby there is simultaneously delivered to said delivery area a group of stamps equal to the number of rows on the strip, a second strip of stamps in a single row leading to said delivery area, and means for delivering a preselected number of stamps from said second strip to said delivery area, whereby said stamps may be delivered to said area in a single row from said second strip and in a group from said multiple row strip of stamps.

5. An apparatus for delivering a preselected number of stamps of the perforated type from a strip leading to a delivery area, a motor, means for imparting action from said motor to said strip of stamps, a motor relay having contacts that energize said motor, a plurality of fixed switches displaced from one another and selectively actuable for energizing said motor relay and turning on said motor, a pulsing circuit consisting of a pulsing relay and means responsive to the passage of a given number of stamps to said delivery area to pulse said relay a given number of times, said pulsing relay having contacts, a stepping actuator energized by said relay contacts and having a movable member for traversing each of said fixed switches sequentially in response to successive pulses applied to said pulsing relay, said movable member deactuating any of said previously actuated fixed switches upon traversing that switch, whereby said motor is turned off after a predetermined number of pulses, and after said preselected number of stamps have been delivered to the delivery area.

6. In the apparatus of claim 5, said strip of stamps comprising multiple rows of interconnected stamps whereby there is simultaneously delivered to said area a group of stamps equal to the number of rows on the strip, a second strip of stamps in a single row leading to said delivery area, and means for delivering a preselected number of stamps from said second strip to said area, whereby said stamps may be delivered to said area singly from said second strip and in a group from said multiple row strip of stamps.

References Cited in the file of this patent

UNITED STATES PATENTS

1,996,665	Walker	Apr. 2, 1935
2,264,647	Stearns	Dec. 2, 1941
2,269,117	London	Jan. 6, 1942
2,482,242	Brustman	Sept. 20, 1949
2,755,084	Dedegge	July 17, 1956
2,767,981	Hempel	Oct. 23, 1956