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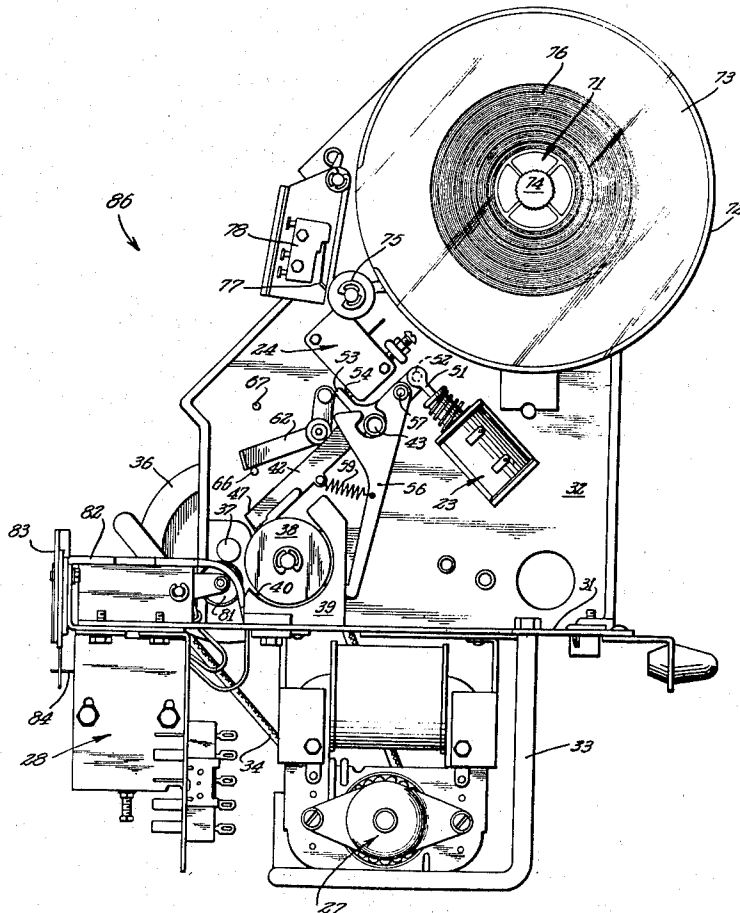
[56] **References Cited**
UNITED STATES PATENTS
2,176,966 10/1939 Helsel..... 83/242X
2,400,793 5/1946 Tuska..... 83/203X
3,212,692 10/1965 Arp 83/243X

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[54] **STAMP VENDING MACHINE**
13 Claims, 8 Drawing Figs.

[52] U.S. Cl. **83/205,**
83/147, 83/242, 83/649; 226/134
[51] Int. Cl. **B26d 5/24**
[50] Field of Search..... 83/203,
205, 242, 243, 147, 649; 226/134

ABSTRACT: A new and improved stamp vending machine which utilizes an initiating pulse which raises a pawl from a tooth counting wheel and the pawl in turn closes a switch which energizes a driving motor and a cutter solenoid which frees the stamps so that they may be delivered by a machine. An antijack-potting pawl also is in operative combination with the main timing pawl so as to prevent the machine from delivering more stamps than ordered.



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Fig. 7

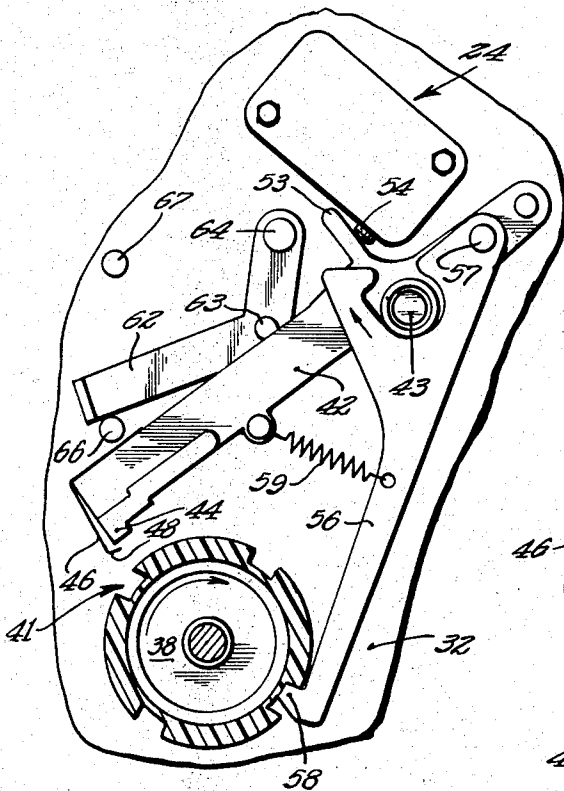


Fig. 8

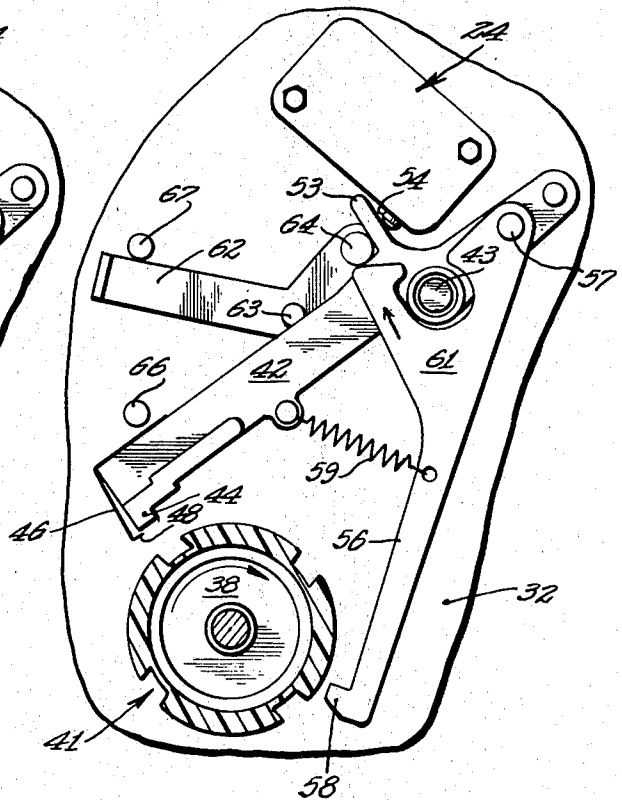


Fig. 1

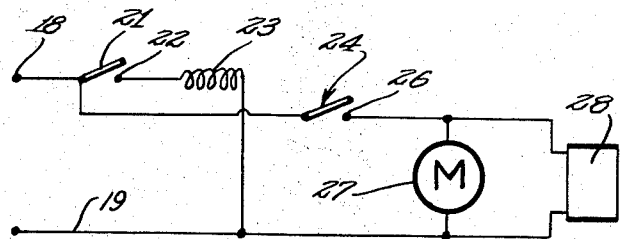
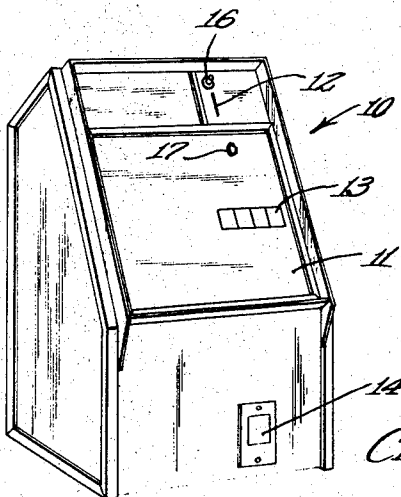


Fig. 2

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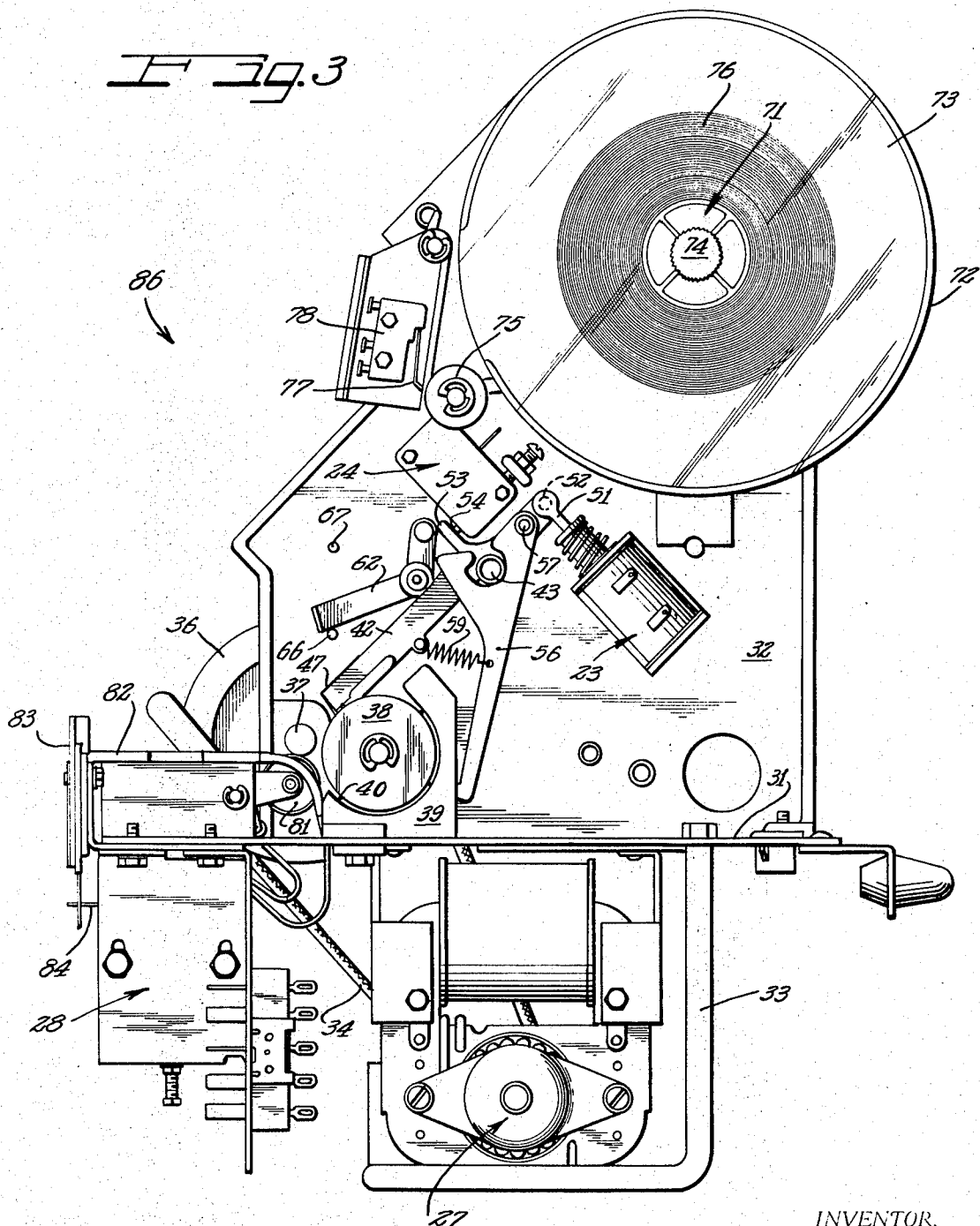
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Patented Nov. 10, 1970

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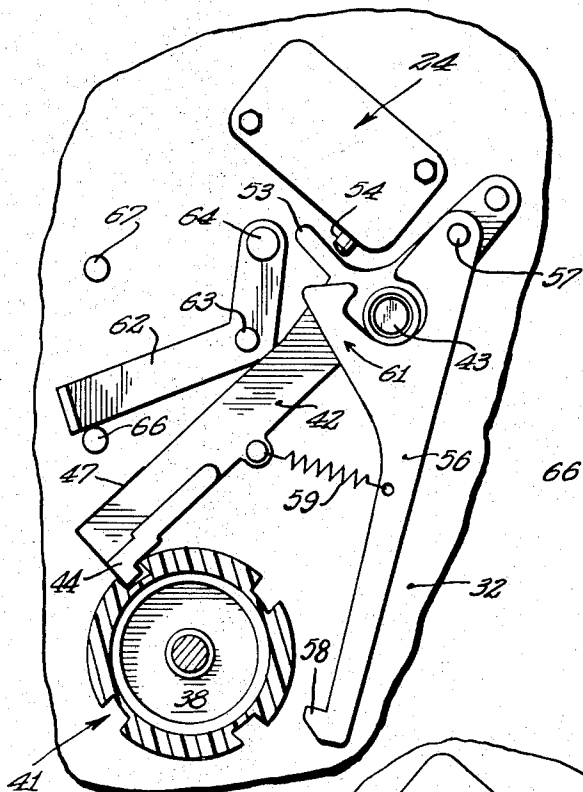


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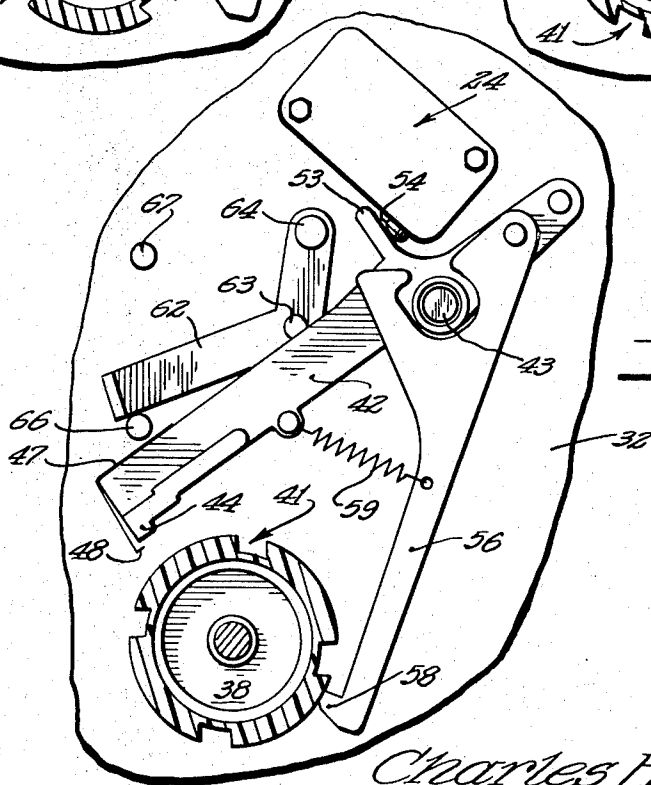
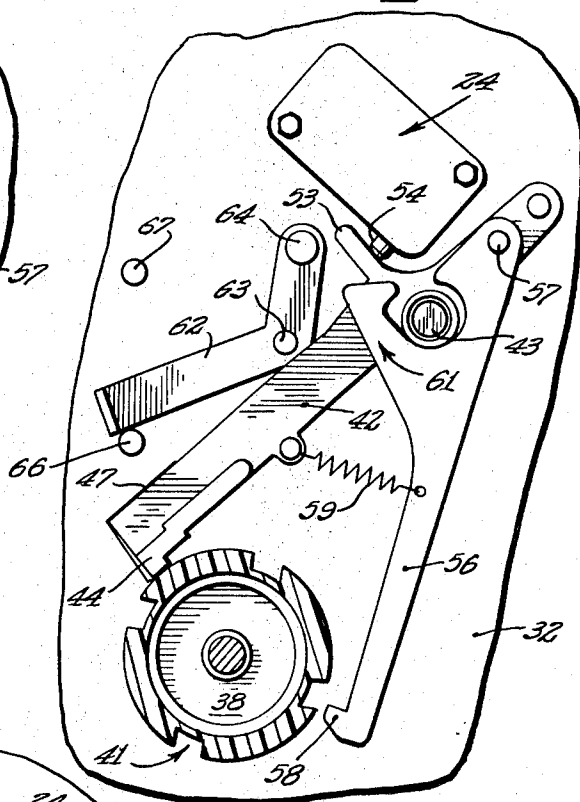
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STAMP VENDING MACHINE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to stamp dispensing machines of the type, for example, used by post offices or alternatively may be used to dispense trading stamps or stamps of any type. Prior machines have been relatively complicated and expensive. It is advantageous to make postage stamps available at many locations and therefore a machine which is simple, reliable and inexpensive but which still is accurate and will not make errors is a very desirable machine.

2. Description of the Prior Art

Prior stamp machines have been much more complicated than the present machine. Since the number of parts and steps in the operation of a particular machine is related to its reliability prior machines have been less reliable than the one of the present invention.

SUMMARY OF THE INVENTION

The present invention relates to a stamp machine which has a counting roller over which stamps pass and which is formed with notches into which a master timing pawl is received. The timing pawl is formed with a spring member on one end thereof so that when the pawl is pulsed upwardly by the energizing latch solenoid it cannot drop back into the notch. When the main pawl is out of its notch, it closes a latch switch which starts the driving motor of the stamp machine and raises a cutter bar to allow the stamps to be emitted. An antijack-potting pawl is associated with the main pawl and will engage a notch on the counting roller in the event that for any reason the main pawl does not enter the next notch of the counting roller to turn off the machine. This feature prevents the motor from ejecting all of the stamps contained in the machine. The spacing of the notches on the counting roller determine the number of stamps dispensed each time the machine is energized, and this may be changed by removing the roller and replacing it with another roller with the notches spaced at different locations.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description of certain preferred embodiments thereof taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a stamp machine according to this invention;

FIG. 2 is a schematic wiring diagram of the stamp machine;

FIG. 3 is a side view of the main operating mechanism of the stamp machine;

FIG. 4 is an enlarged detailed view of the main latch-arm pawl and the antijack-potting pawl in operative association with the counting roller when the machine is turned off;

FIG. 5 is an enlarged view of the two pawls and the counting roller when the machine has been energized;

FIG. 6 illustrates a situation wherein the antijack-potting pawl is about to engage a notch in the counting roller to prevent the machine from dispensing more stamps than scheduled;

FIG. 7 illustrates the antijack-potting pawl in a notch of the counting roller so as to stop the machine; and

FIG. 8 illustrates the counting roller and pawls in a stamp loading position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a stamp machine according to this invention which comprises a case 10 formed with a front panel 11 which has a coin slot 12 into which coins may be inserted. Indicia 13 is printed on the face of the plate 11 and indicates the number of stamps of a particular denomination which will be dispensed. For example, if the machine is a quarter machine, four 6-cent stamps might be dispensed through a slot 14. A

coin return button 16 may be depressed by the operator to return his coin in the event that the machine does not dispense stamps. An out-of-stamp light 17 is lighted when the machine is out of stamps so that the user will not deposit his coin. In the event that he does deposit the coin, the coin will return automatically through the slot 14.

FIG. 2 illustrates the electrical schematic of the machine and includes a pair of power leads 18 and 19 which are connected to a suitable power supply. A coin switch 21 is connected in circuit with the lead 18. The coin switch 21 may be of a conventional type as, for example, the type manufactured by the National Rejectors Incorporated and which will close switch 21 only if the coin received into the machine through the slot 12 passes various tests which indicate that it is a good coin and of the proper denomination. Under these circumstances, the switch 21 will be closed. When switch 21 closes it connects power to a fixed contact 22 which is connected to a latch solenoid 23. The other side of the latch solenoid is connected to terminal 19. The latch solenoid 23 is mechanically connected to a latch switch 24 and closes when the solenoid 23 is energized. The switch 24 makes electrical contact between terminal 18 and a fixed contact 26 when closed. The driving motor 27 of the stamp machine is connected between contact 26 and terminal 19. A cutter solenoid 28 is also connected between contact 26 and terminal 19 and is energized when the motor 27 is turned on.

FIG. 3 illustrates the main working mechanisms of the machine which comprises a frame plate 31 with an upwardly extending supporting plate 32. The motor 27 is mounted to the plate 31 by a suitable bracket 33 and is geared to an output pulley (not shown) which drives a belt 34. The belt 34 drives a pulley 36 mounted on a drive roller 37 which extends outwardly from the plate 32 and which is supported in an L-shaped bracket (not shown) which is mounted to the plate 31. A counting roller 38 is also rotatably supported on a shaft which is mounted in the plate 32 and has its opposite end rotatably supported by the L-shaped bracket (not shown) which supports the second end of the driving roller 37. A crescent-shaped guide member 39 is mounted to plate 31 adjacent the counting roller 38 to guide stamps between the counting roller and the guide. The counting roller is formed with projections 40 so spaced that they mate with perforations between adjacent stamps on a roll of stamps so as to count and regulate the dispersal of stamps. As best shown in FIGS. 4 through 8, the counter roller 38 is formed with a plurality of notches 41 about its periphery. A main latch-arm pawl 42 is pivotally attached to the plate 32 by a pivot pin 43 and has a notch-engaging projection 44 which is receivable in the notches 41 of the counting roller 38 to lock it. A spring member 46 is attached to the surface 47 of the pawl 42 away from the counting roller 38 and extends downwardly and is formed with a bend 48 at its lower portion. The spring 46 is so constructed that it is biased away from the pawl 42 so that when the pawl projection 44 moves out of a notch 41 the portion 48 of the spring 46 prevents the pawl from falling back into a notch 41 from which it has been immediately removed. This is true because the width of the spring to the opposite edge of the projection 44 is greater than the width of the slot and it cannot fall immediately back into the slot. However, if the counting roller is rotating, the edge of a notch will engage the spring 46 and depress it against the pawl 42 so that the projection 44 and portion 48 of the spring 46 can fall into a slot to lock the counting roller 38. This feature is desirable because the pawl is intermittently energized to remove it from the slot and the spring of 48 prevents it from falling back into the same slot until the counting roller 38 starts to move. However, the spring does not prevent the pawl 42 from engaging the next notch which passes beneath the projection 44 to lock the counter roller.

As best shown in FIG. 3, the latch solenoid 23 has an armature 51 which is connected by a pin 52 to the end of pawl 42 to move it out of the slot 41. A projection 53 is formed on the pawl 42 and engages the actuator 54 of switch 24. When the

projection 44 of the pawl 42 moves out of the slot 41, the projection 53 moves the actuator 54 of switch 24 to close it. As shown in FIG. 2, the switch 24 energizes the motor 27 and the cutter solenoid 28. An antijack-potting pawl 56 is pivotally attached to the pawl 42 by a pin 57. The pawl 56 has a projection 58 which under certain conditions can engage the notches 41 of the counting roller 38 to prevent it from rotating. A tension spring 59 extends between pawls 42 and 56 and biases them toward each other. An extension 61 is attached to the pawl 56 and may be engaged by a loading arm 62 which is pivotally attached to the plate 32 by a pin 63 and which carries a transverse pin 64 which is engageable with projections 53 and 61 of pawls 42 and 56, respectively, to move them out of engagement with the counting roller 38 as shown in FIG. 8 when the machine is to be loaded. A pair of limit stops 66 and 67 are mounted adjacent the loading pawl 62 to limit its motion.

As best shown in FIG. 3, a reel 71 is rotatably supported on a projection 72 which is attached to the upper portion of plate 32. A cover plate 73 is held by a thumb screw 74. A roll of stamps 76 are mounted on the reel 71 and pass over a first roller 75 which is formed with a notch into which a feeler spring 77 of an out-of-stamp switch 78 may be received when stamps are not passing by the roller 75. When stamps are passing between the roller 75 and the feeler spring 77 the switch 78 is closed to allow the machine to be energized. The out-of-stamp switch 78 prevents the machine from operating when there are no stamps in the machine so that an operator will not place his money into the machine and receive no stamps. The stamps pass from the roller 75 down to the counting roller 38 and are threaded between the counting roller 38 and the guide 39 with the projections 40 mating with the serrations between adjacent stamps. The stamps then pass between the driving roller 37 and a pinch roller 81 and to a guide 82. A cutter bar 83 is mounted in suitable guides and is actuated by a linkage 84 which is connected to the solenoid 28. The dispensing unit shown in FIG. 3 is designated generally by the numeral 86 and it is to be realized that the unit 86 is received in the case 10, as shown in FIG. 1. A door inner-lock with the main power supply, so as to deenergize the machine when the rear door is open, is normally provided and a mechanical linkage may also be coupled to the loading pawl 62 to assure that it is not in the loading position when the door of the machine is closed. This prevents the stamps from being ejected upon closing of the door. Of course, since the serviceman would see the stamps coming from the machine he would immediately open the door closing the inner-lock, thus turning the machine off, and rereel the stamps onto the reel 76 in the event the linkage between the door and the locking pawl 62 were not in the machine. Of course the operator should move the locking pawl 62 to the position shown in FIG. 3 so that it does not engage the projections 63 and 61 of the pawls 42 and 56 after he has completed loading of the machine.

In operation, a user drops a coin into the slot 12 of the machine and it passes into the coin rejector where it is subjected to various tests. In the event the proper coin has been inserted the coin rejector closes the coin switch 21. This supplies a pulse to the latch solenoid 23. Latch solenoid 23 moves pawl 42 so that projection 44 comes out of slot 41 of the counting roller 38. When this occurs, the spring 46 moves outwardly from the projection 44, as shown in FIGS. 5 and 6, so that the pawl 42 will not fall back into the notch 41 when the pulse on the latch solenoid has been removed. It is to be realized that the coin switch is only momentarily closed but during this time the latch solenoid 23 moves the pawl 42 from the notch 41. As soon as the pawl 42 is moved from the notch 41, the projection 53 closes the latch switch 24 through the actuator 54, and this starts motor 27 and energizes the cutter solenoid 28. The cutter 83 is moved upwardly by the linkage 84 so that stamps may be emitted from the machine and the motor 27 is energized. The motor 27 drives the drive roller 37 through the belt 34 and gradually accelerates the stamps from the machine. The spacing of the notches 41 determines

whether 1, 2 or 4 stamps are dispensed by the machine each time it is energized. This may be adjusted by mounting various counting rollers 38 on the machine with the notches of varying spaces. This may be readily done by removing the holding bracket which supports and holds a counting roller in the machine.

Since the end of the projection 44 engages the surface of the counting roller between the notches 41, the switch 24 will remain energized by the projection 53 and the motor and cutter solenoid will be energized, thus driving the drive roller 37 to pull stamps from the reel 76 past the counting roller 38. This condition is illustrated in FIG. 5, for example. The coupling between the drive roller 37 and the motor 27 is such that the stamps are gradually accelerated to prevent breaks in the roll of stamps which would occur if the acceleration were too rapid. Since the spring 46 prevents the pawl 42 from dropping back into the notch 41, there is no necessity that the counting roller 38 immediately rotate upon energization of the motor 27. Thus the motor 27 and the cutter solenoid 28 will be energized until the pawl 42 engages the next adjacent slot 41 at which time the projection 44 will enter the notch 41, thus allowing the extension 53 to release actuator 54, opening switch 24. The pawl projection 44, of course, stops the counting roller 38 so that no additional stamps are dispensed. As soon as switch 24 is opened, the motor 27 is deenergized and the cutter solenoid will be deenergized releasing the cutter bar 83 so that it moves downwardly to either completely or partially sever the stamps which are being delivered from the roll 76. The user may then easily break the stamps and the cycle will have been completed.

If the switch 21 is jammed by a bent or defective coin which locks the relay 23, the antijack-potting pawl 56 will stop the counting roller 38. This occurs when the projection 58 of the pawl 56 engages a notch 41. Since all of the stamps must pass the counting roller 38, when it has been stopped, no additional stamps can be withdrawn from the reel 71, and thus the machine will not deliver all of the stamps under this malfunction condition.

Thus, it is seen that this invention provides a simple and reliable stamp dispensing machine which utilizes fewer parts than in conventional machines and also incorporates an antijack-potting feature which will prevent the machine from dispensing an entire roll of stamps during a malfunction.

Although minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim:

1. A machine for dispensing stamps from a roll comprising a main frame, a roll-supporting means mounted on the main frame and carrying said roll, means in engagement with the stamps to remove them from the roll, a counting roller in non-slipping engagement with the stamps at a position after the stamps have been removed from the roll and formed with depressions which are spaced integral distances equivalent to the length of stamps, locking means comprising a main pawl pivotally supported on the main frame and formed with an engaging portion which is received in the depressions of the counting roller, means for energizing the locking means to move it from a depression in the counting roller, and driving means energizing means engageable with said locking means when the locking means has moved out of a depression of the counting roller and including a spring attached to said main pawl adjacent said engaging portion and the width of the engaging portion and the spring such that the main pawl will not enter the depression of the counting roller when the roller is stopped, but the engaging portion and the spring will enter a depression of the counting roller to stop it when the counting roller is turning.

2. Apparatus according to claim 1 wherein the counting roller rotates in a direction such that when the spring engages a depression in the counting roller the spring will be com-

pressed toward the engaging portion of the main pawl and the main pawl will enter the depression to lock the counting roller.

3. Apparatus according to claim 2 wherein the means for energizing the locking means comprises a solenoid and switch.

4. Apparatus according to claim 3 wherein the driving means energizing means comprises a switch for applying electrical power to the driving means and the main pawl engages the switch to actuate it when the main pawl is out of a depression of the counting roller.

5. Apparatus according to claim 4 wherein the main pawl has a projection which engages said switch to actuate it.

6. Apparatus according to claim 5 comprising an antijack-potting pawl pivotally attached to the main pawl and formed with a depression engaging portion, said antijack-potting pawl normally out of engagement with the counting roller when the main pawl is in a depression of the counting roller or in engagement with the surface of the counting roller between depressions, but movable to engage a depression to stop the counting roller when the main pawl is held away from the counting roller.

7. Apparatus according to claim 6, a spring biasing the main and antijack-potting pawls toward each other, and limit means for limiting the relative motion between the pawls.

8. Apparatus according to claim 7 wherein the antijack-potting pawl is pivotally attached to the main pawl at a point different from the pivot shaft of the main pawl relative to the frame.

9. Apparatus according to claim 8 wherein the antijack-potting pawl loosely engages the pivot shaft of the main shaft to limit the motion of the antijack-potting pawl relative to the main pawl.

10. Apparatus according to claim 9 comprising a loading arm pivotally mounted on the frame and in a first position out

of engagement with the main and antijack-potting pawls and movable to a second position to lock the main and antijack-potting pawls out of engagement with the counting roller.

11. Apparatus according to claim 7 comprising a cutter bar in the path of the stamps after they pass the counting roller, and a cutter bar energizing means connected in circuit with the driving means and energized to move the cutter bar so that stamps may pass when the driving means is energized and the cutter bar is movable to at least partially cut the stamps when the driving means is not energized.

12. A machine for dispensing stamps from a roll comprising a main frame, a roll-supporting means mounted on the main frame and carrying said roll, means in engagement with the stamps to remove them from the roll, a counting roller in non-slipping engagement with the stamps at a position after the stamps have been removed from the roll and formed with depressions which are spaced integral distances equivalent to the length of stamps, locking means comprising a main pawl pivotally supported on the main frame and formed with an engaging portion which is received in the depressions of the counting roller, an antijack-potting pawl pivotally attached to the main pawl and formed with a depression engaging portion, said antijack-potting pawl normally out of engagement with the counting roller when the main pawl is in a depression of the counting roller or in engagement with the surface of the counting roller between depressions, but movable to engage a depression to stop the counting roller when the main pawl is held away from the counting roller.

13. Apparatus according to claim 12 comprising a spring biasing the main and antijack-potting pawls toward each other and limit means for limiting the relative motion between the pawls.

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