Oct. 27, 1964 J. M. CHRISTENSEN 3,154,246

COIN HANDLING MECHANISM

Filed Dec. 21, 1961

FIG. 1

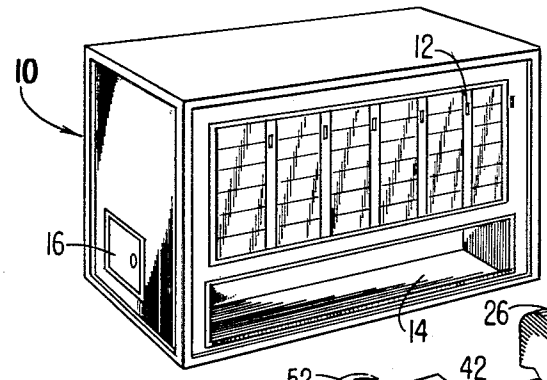
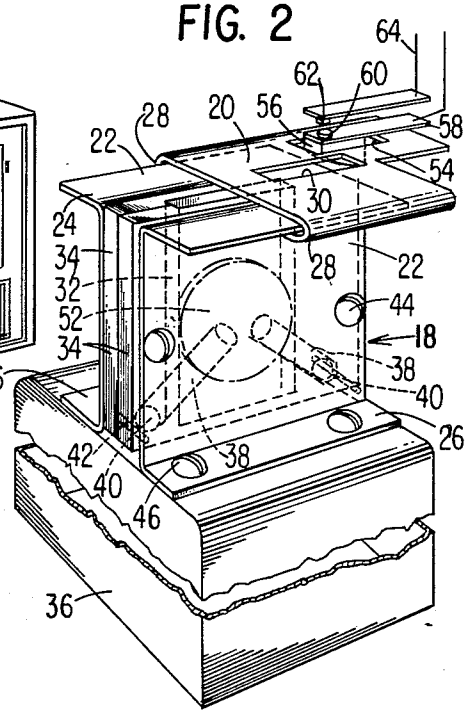


FIG. 2



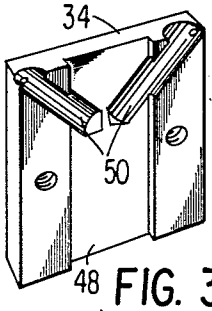


FIG. 3

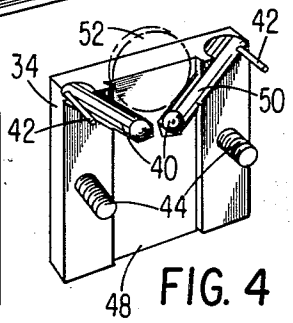


FIG. 4

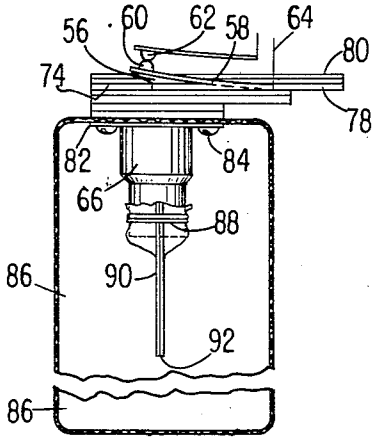
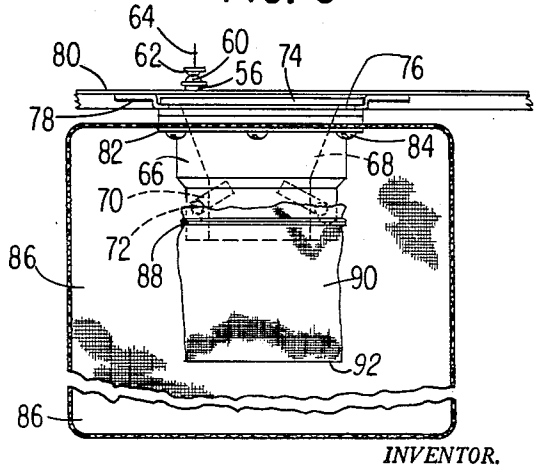


FIG. 5

FIG. 6



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COIN HANDLING MECHANISM

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This invention relates to a mechanism used for the handling of coins, and it relates more particularly to an improved mechanism adapted for use in conjunction with vending machines and similar coin operated units.

The use of coin operated machines has become increasingly popular. One problem associated with the handling of coins in such machines relates to pilfering or loss of coins which are deposited in the machines. In most facilities, the money deposited is stored over a period of time and is periodically collected. Coins have been lost accidentally by reason of the poor design of the coin boxes or coin bags employed. Furthermore, many cases have been recorded where pilfering of the deposited money has occurred. Many present designs of coin handling mechanisms are ineffective to prevent pilfering and, in some cases where pilfering is prevented, extremely costly steps have been taken by way of altering the coin handling mechanisms.

In some instances, coins are lost after the coin boxes or bags are removed from the machines. The loss can occur accidentally if these receptacles are inverted. Also, dishonest collectors have been known to remove the coins through the coin slot without actual damage to the receptacles. Furthermore, many coin operated facilities can be altered whereby coins deposited in the machine are diverted to other than the proper coin handling mechanisms. In such a case, articles are vended without recovery of revenue by the owner of the machine.

It is an object of this invention to provide a coin handling mechanism which is designed whereby coins inserted in the mechanism will not be accidentally lost during handling thereof.

It is an additional object of this invention to provide a coin handling mechanism which will effectively prevent surreptitious removal of coins by individuals handling these mechanisms.

It is an additional object of this invention to provide fittings for the coin handling mechanisms whereby the associated coin operated facilities will not vend articles unless the mechanisms are properly located in their fittings.

It is a further object of this invention to provide a coin handling mechanism adapted to achieve the above objects and which is characterized by simplicity, which can be economically manufactured and which can be readily incorporated into existing installations.

These and other objects of this invention will appear hereinafter and, for purposes of illustration, but not of limitation, specific embodiments of this invention are shown in the accompanying drawings in which—

FIGURE 1 is a perspective view of one type of a coin operated machine which can be modified in accordance with the principles of this invention;

FIGURE 2 is a persepective view of an arrangement for use in a coin operated machine including means for receiving coins inserted in the machine and a novel fitting for insuring operation only if the receiving mechanism is properly positioned;

FIGURES 3 and 4 represent detail perspective views of component parts of the improved coin receiving mechanism;

FIGURE 5 is a side elevation, partly in section, of an alternative form of a coin receiving mechanism; and

FIGURE 6 is a front elevation of the mechanism shown in FIGURE 5.

The coin receiving mechanism which is employed in accordance with this invention comprises a main body portion having a coin channel extending therethrough whereby coins can be collected in a bag or box associated with the mechanism. Narrow passage means are formed in the body and extend a substantial distance into the coin channel. Stop means, which may be small diameter balls or the like, are loosely located within the passage means. The passages formed in the mechanism are angularly disposed with respect to the coin channel whereby the stop means located in the passages will be gravitationally positioned at one or the other of the ends of the passages depending upon the vertical position of the mechanism. In one vertical position the stop means will be located at the ends of the passages which extend into the coin channel and, therefore, coins will be unable to pass through the channel. In the other position, the stop means will be positioned outside the channel whereby coins can pass freely therethrough.

In accordance with a preferred embodiment of this invention, the above described mechanism is incorporated with a novel fitting mounted in a machine. Means associated with the fitting are adapted to be operated by the coin receiving mechanism when it is associated with the fitting, and these means are connected to the control means for the machine in a manner such that the machine will not operate unless the coin receiving mechanism is properly positioned. As an example, switch means are adapted to be associated with the fitting for the coin receiving mechanism and the mechanism is adapted to be slidably positioned within the fitting. As the mechanism slides in, the switch means are actuated and operation of the machine is thereby made possible. In the absence of the receiving mechanism, the control circuit for the machine will not be operative.

The accompanying drawings will provide a more detailed explanation of the invention. FIGURE 1 illustrates a typical coin operated machine **10** provided with coin slots **12** whereby a purchaser can insert coins in order to receive a desired article. A vend chute **14** is conventionally provided for receipt of the articles once the vend cycle has been completed. A door **16**, located on the side of the machine, is provided for access to the coin collecting means in the machine. In the typical case, substantial amounts of coins are accumulated before collection, and therefore many steps have been taken by the prior art to prevent loss of the money.

In accordance with this invention, a coin receiving mechanism, generally designated by the numeral **18**, is adapted to be inserted into a coin operated machine such as the machine shown in FIGURE 1. A fitting **20** is advantageously provided in such a machine whereby the coin receiving mechanism can be removed from the machine as by means of the door **16**.

In the specific example shown in FIGURE 2, a pair of plates **22** are provided with upper and lower flanges **24** and **26**. The upper flanges are adapted to be slidably re-

ceived between the inturned portions 28 and the upper surface of the fitting 20. A slot 30, formed in the fitting 20, is adapted to be aligned with the channel 32 which is formed between blocks 34 of the mechanism 18. Accordingly, coins delivered to the receiving mechanism will have a clear path to the coin box 36 if the receiving mechanism is properly positioned.

The blocks 34 are provided with bores 38 which extend from the outer edge of the blocks a substantial distance into the channel 32. Balls 40 are located in each of the bores 38 and are retained in the bores by means of pins 42 which block the outer ends of the bores. Screws 44 are provided for securing the plates 22 to the blocks and for holding these elements in assembled relationship. Screws 46 serve to secure the plates 22 to the coin box 36.

FIGURES 3 and 4 illustrate the disassembled blocks 34. Each of the blocks is provided with a central recess 48 which is machined in the inner faces thereof. It will be apparent that the mating of the inner faces of the blocks 34 will provide for formation of the channel 32 by the recesses 48. Similarly semicircular bores 50 are formed in the same faces of the blocks and mating of the blocks will provide the bores 38. Obviously, the bores 38 could be formed prior to slitting of the blocks and machining of the channels 48. As will be hereinafter demonstrated, the main body portion of the mechanism can also be formed of an integral block.

In employing a coin receiving mechanism of the type shown in FIGURES 2, 3 and 4, it will be apparent that coins 52 will freely pass to the coin box 36 as long as the box is positioned whereby the balls 40 are located outside the channel 32. If the mechanism is inverted in an attempt to remove the coins without damage to the mechanism, it will be apparent that the balls 40 will block the coin channel.

FIGURE 2 also illustrates a machine control means preferably provided in combination with the described coin receiving mechanism. To incorporate this means, the fitting 20 is provided with a second opening 54. A contoured element 56 is disposed immediately below this opening and is secured to a spring member 58. The spring member is mounted in any desirable manner to means not shown whereby the element 56 will normally be positioned beneath the plane of the flanges 22 of the coin receiving mechanism 18. A contact 60 is mounted on the upper surface of the element 56, and an additional contact 62 is positioned above the fitting 20 for engagement with the contact 60. Leads 64 are provided whereby the switch made up of the contacts 60 and 62 can be included in the control circuit for the machine.

As the coin receiving mechanism of FIGURE 2 is inserted into the fitting 20, the flanges 22 will abut the element 56. Accordingly, the element will be raised in opposition to the spring 58 and the contacts 60 and 62 will be made. Since the leads 64 incorporate these contacts in the machine control circuit, this arrangement provides a unique means for preventing operation of the machine unless the mechanism 18 is in position.

FIGURES 5 and 6 also illustrate the contact means which are included in the preferred form of this invention. In addition, FIGURES 5 and 6 illustrate an alternative form of the invention wherein a one piece block 66 is employed as the coin receiving mechanism. The block is provided with a central coin slot 68 and bores 70 extend a substantial distance into this slot. Balls 72 operate in the manner previously described for preventing removal of coins which pass through the slot 68.

The block 66 is provided with an upper plate 74 and a recess 76 is formed immediately beneath this upper plate. By means of this recess the block 66 is adapted to be received in sliding engagement with the flange member 78 secured to the fitting 80.

The upper plate 74 is adapted to engage the element 56 when the mechanism is positioned in the fitting 80. As previously indicated, positioning of the mechanism provides for closing of the contacts 60 and 62 whereby the machine vend cycle can be carried out.

The block 66 is also provided with a lower plate 82 adapted to be secured to the block by means of the screws 84. The edges of coin bag 86 are interposed between the plate 82 and the top of the block 66 whereby the coin bag can be effectively secured when the screws 84 are tightened against the block. An annular recessed portion 88 is located near the bottom of the block 66, and the neck of a cloth member 90 is secured to this recessed portion. The member 90 is provided with a slit end 92 whereby coins passing through the channel 68 will fall into the coin bag 86. This cloth member can be provided as an added safeguard, since the flexible cloth member will serve to prevent removal of coins from the bag 86.

Many modifications of the means for preventing operation of the machine when the coin receiving mechanism is removed are contemplated. Instead of the normally open switch illustrated, the removal of the coin receiving mechanism could serve to permit closing of a normally closed switch which would provide for shorting of the control circuit preventing operation of the machine. It is also contemplated that the insertion of the plate or other means for holding the receiving mechanism could bridge contacts located in the fitting whereby machine operation could be accomplished.

The described mechanism preferably includes nonmagnetic balls to act as stop means in the coin channels. With this provision it will not be possible to hold the balls against the side walls when the mechanism is inserted. Other means can be employed which will guard against tampering with the mechanism in attempts to frustrate its operation.

It will be apparent that there has been described an improved mechanism which will prevent accidental loss or pilfering of coins which are collected from coin operated machines. In addition, the unique switch control means situated to co-act with the receiving mechanism provides an additional safeguard against improper removal of the machine revenue. The switch means, due to its location, is substantially hidden from view and, therefore, attempts to prevent its operation can be largely avoided.

The mechanism of this invention are designed for use in combination with various other means which have been provided for coin operated machines. Obviously, other safeguards can be employed along with the described mechanisms to further reduce the possibility of loss of revenue.

It will be understood that various modifications can be made in the above described improvements which provide the characteristics of this invention without departing from the spirit thereof, particularly as defined in the following claims.

I claim:

1. A coin receiving mechanism comprising a main body, a coin channel defined by a pair of relatively large, closely spaced, opposing parallel faces and by relatively narrow adjoining end portions, said channel extending through said body, passage means comprising two converging circular bores formed in said body and each having one end extending a substantial distance into said channel with the other ends extending through said end portions beyond the extent of said channel, stop means comprising balls loosely located within each passage, the axes of said passages being disposed in a plane extending parallel to said opposing faces and being angularly disposed with respect to the axis of said channel whereby said stop means are gravitationally positioned at said one end of the passage when the last mentioned axis is in one vertical position and said stop means is located at the other end of said passage and clear of said channel when said last mentioned axis is inverted, and wherein said main body is formed of a pair of blocks each having a recess formed in one face, said recesses forming said channel when said faces are mated and each block having semicirmular

bores therein, said bores mating and forming said passage means when said blocks are mated and means for securing said blocks together.

2. A mechanism according to claim 1 wherein said bores extend to the outer surface of said blocks and including means within said bores located near said outer surface for preventing loss of said stop means.

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