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R. A. VOGEL

1,982,274

COIN CONTROLLED VENDING MACHINE

Filed April 25, 1933

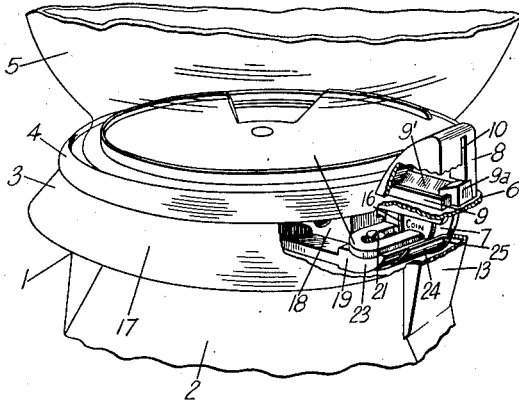


Fig. 1

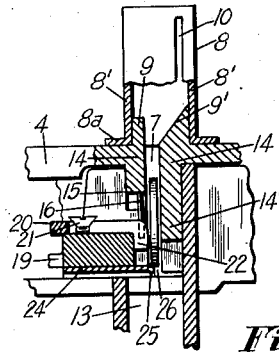


Fig. 2

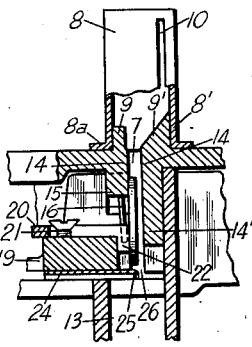


Fig. 3

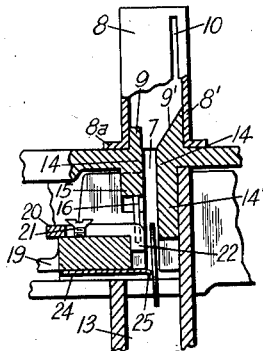


Fig. 4

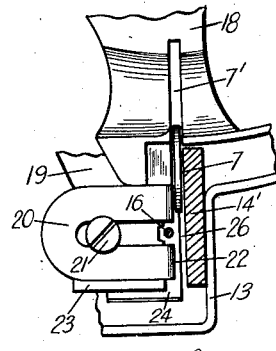


Fig. 5

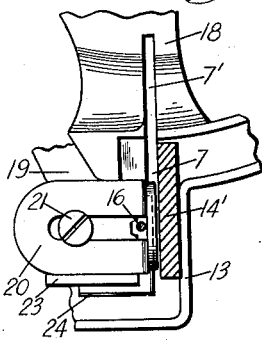


Fig. 6

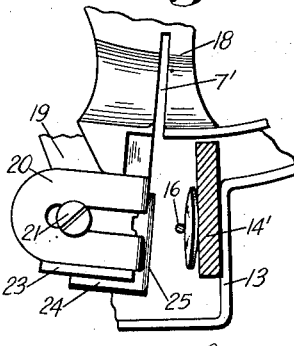


Fig. 7

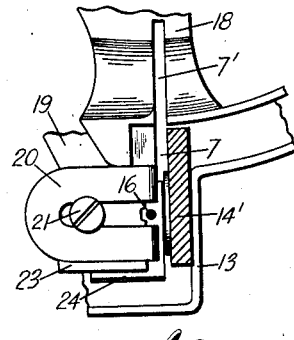


Fig. 8

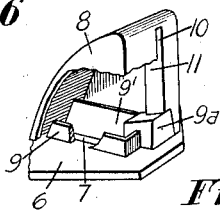


Fig. 9

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UNITED STATES PATENT OFFICE

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COIN CONTROLLED VENDING MACHINE

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7 Claims. (Cl. 194—101)

My invention relates to coin-controlled vending machines. It has to do more particularly with a coin-controlled vending machine which is provided with means for effectively protecting the machine from operation by coins or other devices, other than those for which the machine is designed.

One of the objects of my invention is to provide a coin-controlled vending machine having very effective means for precluding the insertion of coins or slugs which are too large in diameter or which are too thick and which is also provided with means for effectively precluding the operation of the machine by coins or slugs which are of lesser thickness than the coins or other devices by which the machine is intended to be operated.

Another object of my invention is to provide means of the type indicated which is associated with a vending machine in such a manner and which is of such a structure that any coins or slugs which are magnetic in character and which are inserted into the machine will be detected and will not be permitted to cause operation of the machine, but will be discharged into the coin compartment of the machine before they reach the operating mechanism thereof.

Another object of my invention is to provide means of the type indicated for precluding operation of a coin-controlled vending machine by coins other than those by which it was intended that the machine should be operated, such means being extremely simple, very inexpensive to manufacture, and very effective for the purpose for which it was intended.

A further object of my invention is to provide means for precluding operation of the vending machine by all coins or slugs of an improper nature, which are inserted therein, without returning such improper coins to the operator who has attempted to defraud the machine, but discharging all of them into the coin compartment before they reach the operating mechanism of the machine.

In its preferred form, my invention contemplates the provision of a coin-controlled vending machine having a coin channel which is provided with means for precluding the insertion of coins or slugs therein, which are too large in diameter, or are thicker than the coin or other device by which the machine is intended to be operated. This coin channel is designed to conduct a proper coin to the proper position in the machine for operating the coin-actuated mechanism. Means is also provided in association with the coin channel for arresting the movement of magnetic coins

therethrough and for discharging such magnetic coins into the coin compartment before they can reach the operating mechanism of the machine. Furthermore, I also preferably provide means for permitting coins or slugs of lesser thickness than those for which the machine was designed, such as thin copper, aluminum or fiber slugs, to be discharged from the coin channel and to be conducted to the coin compartment before reaching the coin-actuated mechanism of the machine.

The preferred embodiment of my invention is shown in the accompanying drawing wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is a perspective view of a portion of a vending machine which is provided with means made in accordance with my invention for precluding operation of the machine by coins or slugs for which it is not designed to be operated.

Figure 2 is an enlarged detail in section of the coin detecting and eliminating mechanism which is made in accordance with the principles of my invention, and showing a good coin therein.

Figure 3 is a view similar to Figure 2, showing a magnetic coin in the detecting mechanism.

Figure 4 is a view similar to Figure 3 showing how a coin which is too thin is discharged before reaching the operating mechanism.

Figure 5 is a detailed enlarged plan view of the coin detecting and eliminating mechanism and showing how a good coin is conducted to the proper position in the machine for actuating the coin-controlled mechanism thereof.

Figure 6 is a plan view similar to Figure 5 but showing a magnetic coin in the position it occupies when movement thereof through the coin channel is arrested.

Figure 7 is a plan view similar to Figure 6 and showing how the magnetic coin is discharged from the coin channel and conducted to the coin compartment.

Figure 8 is a plan view similar to Figure 6 and showing how a coin or slug which is of less thickness than those by which the machine is intended to be operated, is discharged from the coin channel before it reaches the operating mechanism of the machine.

Figure 9 is a perspective view, partly broken away, showing in detail the structure of the upper portion of the coin channel.

With reference to the drawing, and particularly to Figure 1, I have shown a vending machine 1, comprising a base 2 of suitable form. This base 2 has a casing 3 mounted on the upper end thereof and this casing is adapted to contain

the coin-actuated mechanism of the vending machine. On top of the casing 3 a plate 4 is mounted and this plate serves as a support for the article-containing hopper 5 of the machine and also serves as a bottom for this hopper. This vending machine is provided with means for precluding operation thereof by improper coins, in accordance with my invention.

The plate 4 of the vending machine is provided with a radial extension 6 which may be formed integrally therewith and which has a coin channel 7 formed therein. On the upper surface of the extension 6 of the plate 4 a hood 8 is mounted. This hood is preferably made in one piece and the side walls 8' thereof are provided with portions 8a which extend at right angles thereto and which may be used for securing the hood member to the extension 6.

The inner surfaces of the side walls 8' closely abut against lug members 9 and 9' which project upwardly from the extension 6 and which are formed at each side of the upper end of the coin channel 7. These lug members serve to keep the hood in position.

The front of the hood member 8 is provided with a slot 10. This slot is of very accurate dimension and is open at its lower end. A projection 9a is formed on the extension 6 at a point in front of the coin channel 7. The lower portion of the front wall of the hood 8 is cut away to fit around this upwardly projecting portion 9a. This portion 9a serves as the bottom of the slot 10, and this slot and the portion 9a are made of accurate dimensions and will preclude the insertion of coins which are too large in diameter into the hood 8. The slot is also adapted to preclude insertion of coins or slugs which are too thick. The upper surface of the portion 9a is inclined rearwardly and downwardly. This portion is of considerable depth so that it will render it difficult or practically impossible to insert a wire into the coin channel and, even if a wire is inserted, due to the depth or thickness of this member, the wire cannot be guided properly and sufficient pressure cannot be exerted to affect the mechanism of the machine. The front wall of the hood 8 is also of considerable thickness, as indicated at 11 (Figure 9), for this purpose. The upper surface of the lug 9' is inclined inwardly and downwardly toward the coin channel 7.

When a proper coin is inserted into the slot 10, it will be directed rearwardly by the inclined upper surface of the portion 9a and will then be deflected inwardly into the upper end of the coin channel 7 by the inclined upper surface of the lug 9'. As previously stated, this structure serves to prevent or render difficult the insertion of wires into the machine.

The casing 3 is also provided with a radial extension 13 which is inclined inwardly and downwardly and which is adapted to conduct improper coins, which are discharged from the coin channel 7 before they reach the operating mechanism of the machine, into a coin compartment formed in the base 2. As shown in Figures 2 to 4, inclusive, the lowermost portion of the coin channel 7 is formed in a downwardly extending portion 14 of the extension 6. This portion 14 extends down within the radial extension 13 on the housing 3. One wall of the portion of the coin slot 7 which is formed in the extension 14 terminates at a point 15 which is slightly below the lower surface of the plate 4. This wall has a downwardly extending pin 16 of non-magnetic material ex-

tending from the lower edge thereof, for a purpose which will be explained later.

The housing 3 is further provided with an outwardly extending hood portion 17 which extends from the radial extension 13 around the housing 3 a distance which is approximately equal to the distance of travel of the vender lever plate 18, for a purpose which will be apparent later. The vender lever plate 18 is rotatably mounted in the machine in a suitable manner and suitable coin control means is provided for normally preventing movement of this plate a sufficient distance to vend articles from the machine. However, a slightly limited movement of this vender lever plate is permitted, even though the coin-actuated locking mechanism is in locking position, for a purpose which will be described later.

As shown in Figure 5, the vender lever plate 18 is provided with a coin slot 7' which is normally in alignment with the coin channel 7. This vender lever plate is provided with a radially extending member 19 which extends out from the casing 3 into the chamber formed in the outwardly extending portion 17 of such casing. Thus, when the vender lever plate is moved back and forth to discharge articles from the machine, the extending member 19 thereon will move back and forth in the chamber formed in the extension or hood member 17 of the casing 3.

The outer end of the extension 19 has a horseshoe magnet 20 adjustably mounted thereon by means of a screw 21 threaded thereinto. This horseshoe magnet has its outer ends bent downwardly at right angles, as at 22. The outer ends of the magnet 22 will extend into the lower end of the coin channel 7 and the pin 16 will normally extend down between the legs of this magnet.

The lower surface of the extending member 19 on the vender lever plate is curved upwardly and outwardly at its outer end as indicated at 23 (Figure 1). This curved portion of the member 19 is adapted to receive a correspondingly curved plate 24 which is secured thereto in a suitable manner. However, this plate 24 and the corresponding surface on the member 19 may be inclined instead of curved. This plate 24 is adapted to extend into the lower end of the coin channel and its outer end is preferably bent downwardly as indicated at 25, so that improper coins or slugs will quickly drop therefrom, as will appear later. In its normal position, the outer end of the plate 24 is spaced slightly from the wall 14' of the portion of the coin channel 7 which is formed in the extension 14. This produces a narrow slot 26 in the coin channel through which coins which are not sufficiently thick may be discharged before reaching the operating mechanism of the machine. If desired, the plate 24 may be adjustably mounted so that the width of the slot 26 may be changed, whenever desired.

In the operation of my device, if a good coin of proper diameter and thickness and of non-magnetic material is inserted through the slot 10 into the hood 8, it will drop into the coin channel 7. Obviously, coins of too great diameter or of too great thickness could not be inserted through the slot 10. The good coin, as shown in Figure 2, will drop down into the lower portion of the coin channel 7 and will hit the outer end of the plate 24. This plate is curved downwardly and inwardly, as shown in Figure 1, and will cause the good coin to roll inwardly into the slot 7' in the vender lever plate, since this slot will normally be in alignment with the lower portion of channel 7, as illustrated in Figure 5. The coin will then oc-

copy a proper position in the vender lever plate for actuation of the machine which may be caused by rotation of such plate.

5 If, however, a magnetic coin is inserted into the machine, it will pass down into the lower portion of the coin channel 7, but movement thereof will be arrested by the magnet 20 which will attract the magnetic coin thereto, as illustrated in Figures 3 and 6. Thus, the magnetic coin will not
10 be permitted to reach the operating mechanism of the machine.

In order to discharge the magnetic coin from the coin slot where it will occupy a position, as shown in Figure 3, it is merely necessary to move
15 the vender lever plate a slight distance. As previously stated, a limited movement of this vender lever plate will be permitted, even though the coin-actuated locking mechanism is in locking position and without operating the machine. When
20 the vender lever plate is moved slightly, the magnetic coin will tend to move along with the magnet 20. However, this magnetic coin will contact with the pin 16 and this will cause it to be released from the end of the magnet 20 (Figure 7).
25 Also, when the vender lever plate is moved, the plate 24 will also move therewith. This will permit the magnetic coin to drop from the coin channel past this plate and down through the radial hood 13 into the coin compartment in the base of
30 the machine. Thus, the magnetic coin will be discharged into the coin compartment before reaching the operating mechanism of the machine.

In case a coin or slug, which is thinner than the proper coin for actuating the machine, is
35 dropped into the coin slot, it will pass downwardly therethrough, and when it arrives at a position over the slot 26 adjacent the end of the plate 24, it will drop through such slot and be carried into the coin compartment in the base of the
40 machine. Thus, such thin coins or slugs will not reach the operating mechanism of the machine, but will be carried into the coin compartment before reaching such operating mechanism. The manner in which the thin coin is eliminated is
45 most clearly illustrated in Figures 4 and 8.

It will be understood from the above description that I have provided means for use on coin-controlled vending machines which will effectively
50 protect such machines from operation by means of coins or slugs, other than those for which the machine is designed. Furthermore, this means is extremely simple, very inexpensive to manufacture, and very effective for the purpose intended. It is of such a type that coins
55 which are too large in diameter or too great in thickness cannot be inserted into the machine, and if coins which are magnetic in character or coins or slugs which are too thin and of a non-magnetic material are inserted into the machine,
60 they will be conducted into the coin compartment before reaching a position where they can be used for operating the machine.

Having thus described my invention, what I claim is:

1. In a vending machine, having a coin-controlled locking mechanism for normally preventing
65 rotation of the vending member sufficiently to operate the machine but permitting limited rotation of the vending member, an annular housing, an annular plate superimposed on said
70 housing, a vending member rotatably mounted within said housing, and having a radial extension thereon, which projects outwardly past the edge of said plate, an outwardly extending hood member on said housing in which the outer end

of said radial extension operates, a radial extension projecting outwardly from the edge of said
annular plate, said radial extension having depending portions adapted to form the walls of a
coin channel, said portions fitting into a radial
80 extension on said housing, one of the walls of said coin channel being partly cut away, a magnet mounted on the outer end of said radial extension of said vending member and projecting through
85 said cut-away portion of the coin channel wall when the vending member is in its initial position, a plate member mounted on said extension below said magnet and extending into said coin channel when the vending member is in its initial
90 position, said plate member serving as a bottom for the coin channel and being of such a type and so disposed as to direct good coins radially inwardly into a coin slot formed in said vending member, which slot normally coincides with the coin channel, the edge of said plate member being
95 spaced from the opposite wall of said coin channel so that coins which are too thin will drop through said space, the radial extension on said housing being adapted to direct said thin coins into a coin compartment before reaching the coin-
100 operated mechanism, movement of a magnetic coin through said channel being arrested by said magnet, said magnet and said plate member being moved away from said channel upon movement of said vending member, and means projecting
105 into the cut-away portion of the wall of said coin channel and adapted to preclude movement of said magnetic coin with said magnet so that said magnetic coin will be stripped from said magnet and will pass into the coin compartment through
110 said radial extension of the housing.

2. In a vending machine, having a coin-controlled locking mechanism for normally preventing
rotation of the vending member sufficiently to operate the machine but permitting limited rota-
115 tion of the vending member, an annular housing, an annular plate superimposed on said housing, a vending member rotatably mounted within said housing and having a radial extension thereon which projects outwardly past the edge of said
120 plate, a radial extension projecting outwardly from the edge of said annular plate, said radial extension having depending portions adapted to form the walls of a coin channel, said portions fitting into a radial extension on said housing,
125 a magnet mounted on the outer end of said radial extension of said vending member and projecting into the coin channel when the vending member is in its initial position, means on the extension of said vending member and extending into said
130 coin channel when the vending member is in its initial position, said means serving as a bottom for the coin channel and being of such a character as to direct good coins radially inwardly into a coin slot formed in said vending member, which
135 slot normally coincides with the coin channel, said means being spaced from one of the walls of said coin channel so that coins which are too thin will drop through said space, the radial extension on said housing being adapted to direct
140 said thin coins into a coin compartment before reaching the coin-operated mechanism, movement of a magnetic coin through said channel being arrested by said magnet, said magnet and said means on said vending member extension
145 being moved away from said channel upon movement of said vending member, and means for precluding movement of said magnetic coin with said magnet so that said magnetic coin will be stripped from said magnet and will pass into the
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coin compartment through said radial extension of the housing.

3. In a vending machine, having a coin-controlled locking mechanism for normally preventing movement of the vending member sufficiently to operate the machine but permitting limited movement of the vending member, a housing, a removable plate superimposed on said housing, a vending member movably mounted within said housing, a coin slot formed in said plate, depending portions projecting from said plate below said coin slot and adapted to form the walls of a coin channel, said depending portions adapted to fit into a socket in said housing which will prevent relative displacement of said plate and said housing, a magnet mounted on said vending member and projecting into the coin channel when the vending member is in its initial position, means on the vending member and extending into said coin channel when the vending member is in its initial position, said means serving as a bottom for the coin channel and being of such a character as to direct good coins into a coin slot formed in said vending member, which slot normally coincides with the coin channel, said means being spaced from one of the walls of said coin channel so that coins which are too thin will drop through said space, means for conducting the thin coins to a coin compartment before reaching the coin-operated mechanism, movement of a magnetic coin through said channel being arrested by said magnet, said magnet and said means on said vending member being moved away from said channel upon movement of said vending member, and means for precluding movement of said magnetic coin with said magnet so that said magnetic coin will be stripped from said magnet and will be conducted into the coin compartment before reaching said coin-operated mechanism.

4. In a vending machine, having a coin-controlled locking mechanism for normally preventing movement of the vending member sufficiently to operate the machine but permitting limited movement of the vending member, a vending member movably mounted on the machine, a coin channel, a magnet mounted on said vending member and projecting into the coin channel when the vending member is in its initial position, means on the vending member and extending into said coin channel when the vending member is in its initial position, said means serving as a bottom for the coin channel and being of such a character as to direct good coins into position to operate said coin-controlled locking mechanism, said means being spaced from one of the walls of said coin channel so that coins which are too thin will drop through said space before reaching said coin-controlled mechanism, movement of a magnetic coin through said channel being arrested by said magnet, said magnet and said means on said vending member being moved

away from said channel upon movement of said vending member, and means for precluding movement of said magnetic coin with said magnet so that said magnetic coin will be stripped from said magnet and will be prevented from reaching said coin-operated locking mechanism.

5. In a vending machine, having a coin-controlled locking mechanism for normally preventing movement of the vending member sufficiently to operate the machine but permitting limited movement of the vending member, a vending member movably mounted on the machine, a coin channel, a magnet mounted on said vending member and projecting into the coin channel when the vending member is in its initial position, movement of a magnetic coin through said channel being arrested by said magnet, said magnet being moved laterally away from said coin channel upon movement of said vending member, and means for precluding movement of said magnetic coin with said magnet so that said magnetic coin will be stripped from said magnet and will be prevented from reaching said coin-operated locking mechanism.

6. In a vending machine, having a coin-controlled locking mechanism for normally preventing movement of the vending member sufficiently to operate the machine but permitting limited movement of the vending member, a vending member movably mounted on the machine, a coin channel, means mounted on said vending member and projecting into the coin channel when the vending member is in its initial position, said means serving as a portion of the bottom of said coin channel and being spaced from one of the walls of said coin channel so that when thin coins are placed in said coin channel they will drop through said space and will be prevented from reaching said coin-controlled locking mechanism.

7. In a vending machine, a coin channel, a slot in the upper end of said coin channel, a lug projecting upwardly from one side of said slot and a lug projecting upwardly from the other side of said slot, one of said lugs being comparatively thick and being beveled inwardly and downwardly towards said slot, a comparatively thick lug disposed at the forward end of said slot and being beveled downwardly and rearwardly, a hood member mounted above said slot and having its lower end disposed in surrounding relation to said lug members which will keep it in position relative to the upper end of the coin channel, a coin slot formed in the forward wall of said hood member at the side of said hood member corresponding to the side where the said comparatively thick lug member is disposed, said slot having an open lower end, the said thick lug member at the forward end of said first-mentioned slot being adapted to serve as the bottom of said coin slot in said hood member.

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