L. BERTRAM.

COIN TESTING MECHANISM FOR COIN CONTROLLED MACHINES.

APPLICATION FILED MAY 3, 1918.

1,387,681.

Patented Aug. 16, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

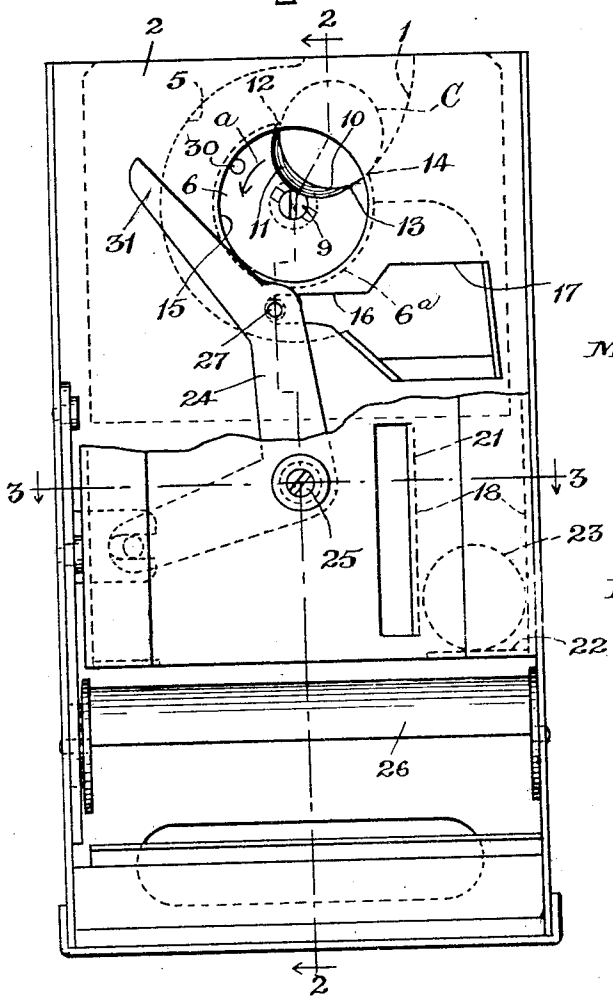


Fig. 2.

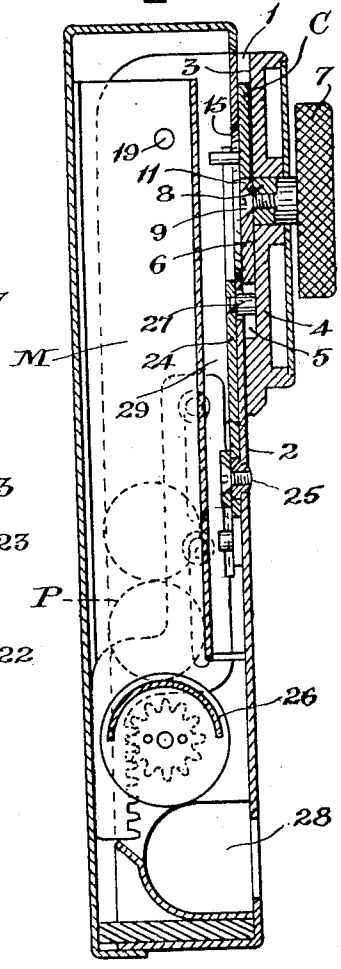
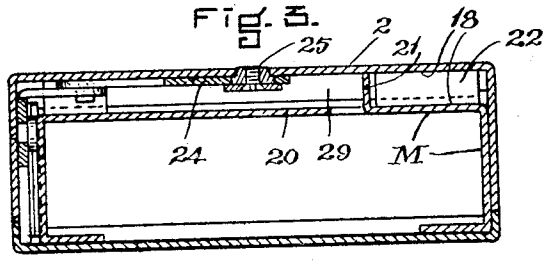


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

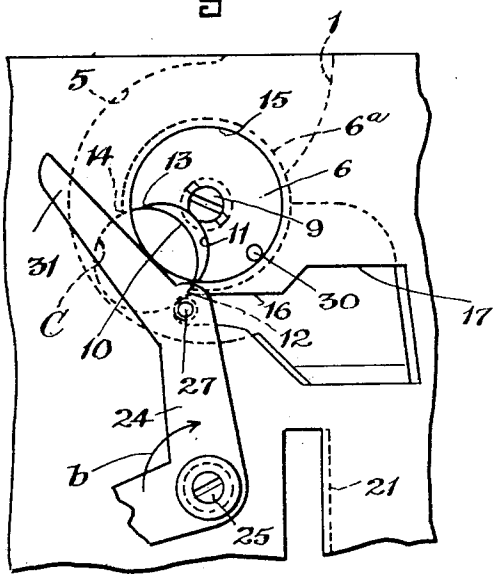


Fig. 5.

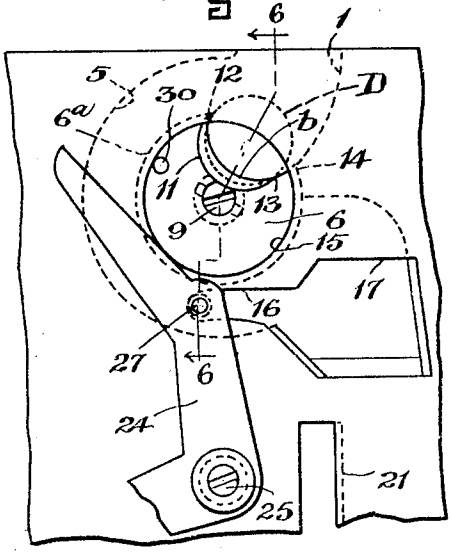


Fig. 6.

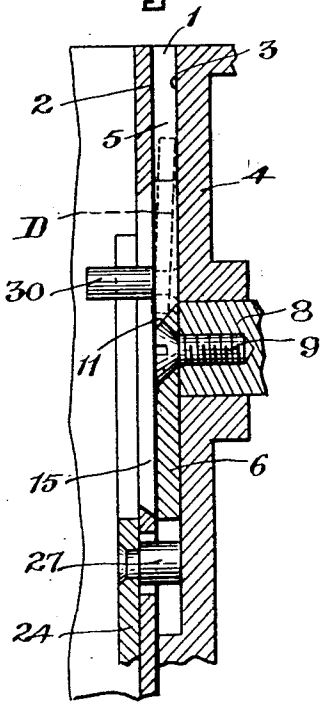
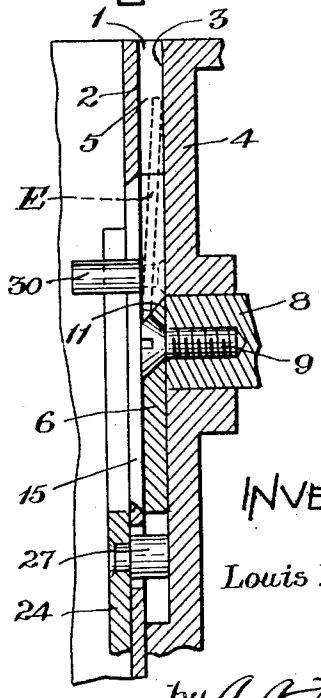


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUIS BERTRAM, OF LONG ISLAND CITY, NEW YORK, ASSIGNOR TO AUTOSALES CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

COIN-TESTING MECHANISM FOR COIN-CONTROLLED MACHINES.

1,387,681. Specification of Letters Patent. **Patented Aug. 16, 1921.**

Application filed May 3, 1918. Serial No. 232,205.

To all whom it may concern:

Be it known that I, LOUIS BERTRAM, a subject of the Emperor of Germany, and a resident of Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Coin-Testing Mechanisms for Coin-Controlled Machines, of which the following is a specification.

In many coin-controlled machines, particularly vending machines, heretofore constructed, there is a coin-carrier by means of which the deposited coin is conveyed into operative position within the machine. This coin-carrier is operated by hand from the outside of the machine. In some of those machines, the coin was tested by means of separate coin-testing mechanisms as it was being carried by the coin-carrier into operative position.

It is the object of my present invention to dispense with separate coin-testing mechanisms and to provide a coin-carrier which itself is adapted to test the deposited coin as to diameter and thickness. In this way the mechanism of the machine is considerably simplified.

My invention is particularly applicable to machines having a coin-carrier in the form of a rotatable disk which rotates in a substantially vertical plane. These coin-carrying disks of the prior art are provided with a substantially semi-circular recess or seat for receiving the deposited coin. The coin-carrier of my invention has a coin-receiving recess or seat so constructed that a coin of less than the prescribed thickness or diameter will be automatically discharged out of the coin-seat during the movement of the coin-carrier and before the improper check reaches an operative position within the machine.

My invention will be clearly understood by reference to the embodiment which I have shown for the sake of illustration in the accompanying drawings, in which—

Figure 1 shows a rear view, with the back plate removed, of a machine provided with my new coin-carrier, the latter being shown in position to receive the deposited coin;

Fig. 2 is a longitudinal view in cross-section approximately on the broken line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a transverse cross-sectional view approximately on line 3—3 of Fig. 1, looking downwardly;

Fig. 4 is a fragmentary view showing the coin-carrier in position to cause the deposited coin to perform its intended function;

Fig. 5 is a fragmentary view showing how a deposited check which is too small will slide out of the coin-receiving recess or seat;

Fig. 6 is an enlarged cross-sectional view approximately on the broken line 6—6 of Fig. 5, illustrating in dotted lines how a check which is too small is not retained in the coin-seat, but automatically slides out of the same; and

Fig. 7 is a view similar to Fig. 6, showing how a check which is of the same diameter as, but thinner than, the required coin, is automatically dislodged out of the coin-seat of the coin-carrier.

My new form of coin-testing coin-carrier is applicable to machines of various constructions, and for the sake of illustration I have shown it applied to a coin-controlled vending machine like that set forth in the co-pending application of Edwin B. Potts, Serial No. 227,856, filed April 11, 1918. I will, therefore, not deem it necessary to describe in detail the delivery mechanism shown in these drawings, because the same is described in great detail in the said co-pending application of Edwin B. Potts. I will only refer to so much of the coin-actuated mechanism as is necessary for an understanding of my present invention.

The casing of the machine is provided at the top with a coin-entrance slot 1 which is formed between the front plate 2 of the casing and the wall 3 of the casting 4 secured to the front plate of the casing. In the particular construction illustrated in the drawings, the coin-entrance slot 1 is formed in the casting for itself. The coin-entrance slot 1 leads into what may be called the coin-chute or chamber 5 in which operates the coin-carrier 6. In the preferred form of my invention, this coin-carrier is in the form of a disk which is rigidly connected with a suitable hand-operable member on the outside of the casing, such as the hand-wheel or knob 7, by means of which the coin-carrier is rotated. The hand-wheel or knob 7 is shown provided with a stud shaft 8 which projects through the casting 4 and to which the coin-carrier 6 is rigidly connected by means of the screw 9, or other-

wise. Any suitable means may be used for connecting the coin-carrier 6 with the hand-operable member 7. The coin-carrier 6 is provided with a recess or seat 10 shaped to receive the coin required to operate the machine. The coin-receiving seat or recess 10 of the coin-carrier is formed with a beveled or slanting surface 11 which has the shape or appearance of a crescent, as clearly shown in Figs. 1, 4 and 5. Preferably, this crescent-shaped beveled surface 11 does not extend from edge to edge of the coin-seat 10, but extends from the edge 12 to approximately the point 13, so that between the point 13 and the other edge 14 of the coin-carrier, the coin-seat is of the same thickness as the body of the coin-carrier itself. I should explain, perhaps, at this point, in order to avoid possible confusion, that in Figs. 1, 4 and 5, the periphery of the coin-carrier 6 is indicated by the dotted circular line 6ª. The circle 15 shown in full lines in those figures represents an opening in the front plate 2 of the casing. It will be seen from Figs. 1, 4 and 5 that the coin-carrier 6 is slightly larger than the opening 15 and is mounted concentrically with said opening.

It has already been explained that the coin-seat 10 is between the points 13 and 14 of the same thickness, or substantially the same thickness, as the body of the coin-carrier itself. The purpose of providing the thick section 13—14 at one edge of the coin-seat is to provide a driving contact surface for the coin, as will presently be explained in detail.

The front plate 2 of the casing has formed therein a slot 16 which widens into an opening 17 through which good coins are discharged into the coin-box or compartment 18. The coin-box 18 is preferably formed out of the magazine M itself. The magazine M, in which the vendible goods are stacked, is conveniently formed of sheet metal and is hinged to the side walls of the casing by pins or studs 19, one of which is shown in Fig. 2. The front wall 20 of the sheet metal magazine M has a cutout portion 21 which is turned at right angles to the wall 20, as best shown in Fig. 3. At its bottom edge the front wall 20 of the magazine is formed with an extension 22 which is bent forwardly at right angles to the front wall 20 and forms the bottom of the coin-receptacle 18. In Fig. 1 the dotted lines 23 indicate a discharged coin resting on the plate 22. By utilizing the metal of the magazine itself to form the compartment into which the good coins are discharged from the coin-carrier after performing their intended function, the need of separate pieces to form the coin receptacle is obviated, thereby adding to the simplicity and cheapness of the machine.

In the broad aspect of my invention, the deposited coin may perform any desired function. For the sake of illustration, I have shown in the drawings a lever 24 pivoted at 25 to the front wall 2 of the casing. In the particular machine illustrated, the lever 24 actuates a delivery cylinder 26, as set forth in detail in the copending application of Edwin B. Potts previously referred to. I will not explain in detail the operative connections between the lever 24 and the delivery cylinder 26, since they form no part of my present invention and are furthermore fully explained in the aforesaid Potts application.

The lever 24 is provided with a pin or lug 27 arranged to project through the slot 16 into the chamber 5 in which the coin-carrier 6 operates.

I will now describe how a good coin actuates the member 24 by engaging with the pin 27. When a good coin is inserted into the coin-entrance slot 1, it will eventually, if not immediately, fall into the coin-seat 10 of the coin-carrier 6, as indicated at C in Fig. 1. If the coin-carrier happens to be in the position shown in Fig. 1 when the coin is deposited, the coin will at once fall into the proper position in the coin-seat, as indicated in Fig. 1. Should the coin-seat 10 be out of alinement with the coin-entrance slot when the coin is deposited, the coin will simply rest on the periphery of the coin-carrier until the coin-seat 10 is brought into the position shown in Fig. 1 by rotation of the coin-carrier, whereupon the coin drops into the coin-seat. When the coin-carrier is rotated from the position shown in Fig. 1 in the direction of the arrow *a*, the section between the points 13 and 14 of the coin-seat, having substantially the same thickness as the coin, acts upon the coin by pushing the same through the coin-passage 5. The outer edge or wall of this coin-passage is circular in shape and is substantially concentric with the coin-carrier, so that the coin will be guided into its operative position as it is being propelled by the coin-carrier. As seen from Fig. 2, the coin-entrance slot and the coin-passage leading therefrom, is only a trifle wider than the coin, so that when the deposited coin C rests in the coin-seat, it is maintained in proper position between the front wall 2 of the casing and the wall 3 of the casting 4. In other words, the front and rear walls of the coin-passage act as props for sustaining the coin in the coin-seat during the rotation of the coin-carrier. The coin-engaging section 13—14 of the coin-seat secures a firm grip on the edge of the coin and so propels the same through the coin-passage until the edge of the coin strikes the pin 27, as shown in Fig. 4. Further rotation of the coin-carrier in the same direction causes the coin C to engage the pin 27 and thereby rock the

lever 24 in the direction indicated by the arrow *b* in Fig. 4. This movement of the lever 24 causes the connected delivery cylinder 26 to eject the lowermost package P from the magazine M into the delivery chamber 28 at the bottom of the casing. After the coin has thus acted on the pin 27, further forward rotation of the coin-carrier will cause the coin to be pushed out from between the edge 14 of the coin-carrier and the pin 27, the discharged coin falling through the opening 17 into the coin receptacle 18 previously referred to.

In the broad aspect of my invention, the form or function of the coin-actuated member 24 is immaterial, and when hereinafter I speak of a member adapted to be engaged by the coin in the coin-carrier, I mean any suitable member intended to perform any suitable function.

I will now describe how my new form of coin-carrier automatically ejects improper checks.

Assuming that the machine is intended to operate only with a nickel (which may be said to be the coin represented at C in Figs. 1 and 2), let us now assume that a person deposits a smaller coin, such as a cent or a dime. Such a coin, being of smaller diameter and less thickness than the prescribed coin, will not remain in the coin-seat 10 of the coin-carrier 6, but will slide down over the beveled surface 11, as indicated by the dotted lines D in Figs. 5 and 6, and fall out of the coin-seat through the opening 15 of the front plate 2 down to the bottom of the casing.

Even if the improper check should be as large as the prescribed coin, but thinner, as indicated at E in Fig. 7, it will slide over the beveled surface 11 of the coin-carrier and fall through the opening 15 down to the bottom of the casing. This is because a thin check, when it reaches the beveled surface 11 of the coin carrier finds no support between the walls 2 and 3 of the coin slot, as would a coin of the proper thickness, with the result that the thin check will simply slide off the beveled surface 11. In other words, the walls 2 and 3 of the coin slot are spaced in such a way as to constitute a support for a coin of proper thickness as the same drops from the coin entering slot into the curved seat of the coin carrier. Fig. 7 shows how a thin check E is not sustained between the walls 2 and 3, but leans against the wall 3 at such an angle as to slip off the beveled surface 11 of the coin carrier.

I have found by actual trial that the improper check drops out of the coin-seat practically at the moment when the coin-seat is in alinement with the coin-entrance slot, as shown in Fig. 5. Should the coin-seat of the coin-carrier be out of alinement with the coin-entrance slot when the too-small or too-thin check or coin is deposited, the check will rest on top of the coin-carrier until the coin-seat comes into line with the coin-entrance slot. When that occurs, the improper check simply slides out of the coin-carrier in the manner above described.

The improper check drops down through the chamber indicated at 29 which is between the front wall 2 of the casing and the front wall 20 of the magazine M, and is to one side of the coin receptacle 18. The discharged improper checks are, therefore, free to fall down into the chamber 28 at the bottom of the magazine, whence they may be readily removed.

In the drawings I have shown the coin-carrier 6 provided with a rearwardly projecting pin 30. The purpose of the pin 30 is to engage the extension 31 of the lever 24 and actuate the same after the proper coin in the coin-carrier has moved the lever 24 a certain amount by engaging with the pin 27. In other words, the pin 30 completes the operative movement of the lever 24 in order to effect the ejection of the packages by means of the delivery cylinder 26. The feature of the pin 30 forms no part of my present invention, and I have shown it, merely because I have chosen to illustrate my new coin-carrier as applied to a machine like that shown in the copending application of Edwin B. Potts, previously referred to.

It will be seen from the foregoing that I have devised an exceedingly simple means for automatically discharging improper checks from the hand-operable coin-carrier of a coin-controlled machine. Broadly speaking, the improper checks which my new coin-carrier would discharge, are checks of less than the diameter or thickness of a proper coin. This means checks which are smaller in diameter and in thickness than a proper coin, checks which are of substantially the same thickness as a proper coin but of smaller diameter, checks which are of the same diameter as a proper coin but of less thickness, and many other kinds of irregular checks that might be inserted into the machine. For instance, the part indicated in Fig. 7 by the dotted lines E, might be a rectangular strip of metal, which would at once slide out of the coin-carrier, and so neither operate nor clog the machine.

The beveled surface 11 on the coin-carrier 6 also performs the function of keeping the coin-seat on the carrier and the coin-chamber 5 free from such extraneous material, as strips of paper or the like, that are frequently inserted into slot machines. Such strips will not remain in the coin-seat, but will automatically slide out of the same through the opening 15.

Owing to the fact that my new coin-test-

ing mechanism does not in its preferred form add anything to the machine, my invention is particularly applicable to coin-controlled machines of essentially small construction, such as vending machines used in theaters and like places.

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

1. In a coin-controlled machine, a casing adapted to be supported in a substantially upright position and having a downwardly extending coin-passage, the width of said coin-passage being substantially equal to the thickness of a proper coin, a hand-operable coin-disk mounted to rotate in said coin-passage and having a curved seat or recess for receiving a proper coin and carrying the same into operative position, and a beveled surface leading downwardly from said coin-seat, whereby checks of less than prescribed thickness or diameter automatically slide down said beveled surface out of the coin-seat.

2. In a coin-controlled machine, a casing adapted to be supported in a substantially upright position and having a downwardly extending coin-passage, the width of said coin-passage being substantially equal to the thickness of a proper coin, a hand-operable coin-disk mounted to rotate in said coin-passage and having a curved seat or recess for receiving a proper coin and carrying the same into operative position, and a beveled surface leading downwardly from said coin-seat, whereby checks of less than prescribed thickness or diameter automatically slide down said beveled surface out of the coin-seat, said coin-seat having a thick portion for engaging the edge of a proper coin in the forward movement of the coin-carrier.

3. In a coin-controlled machine, a pair of slightly spaced walls forming a vertical shallow chamber, a disk rotatable in said chamber and having a seat or recess for receiving the deposited coin, said walls cooperating to sustain a proper coin in said coin-seat during the operation of said disk, one of said walls having an opening opposite said disk, and a crescent-shaped beveled surface leading downwardly from said coin-seat, whereby checks of less than the prescribed thickness or diameter automatically slide down said beveled surface and out of the coin-seat through said opening.

4. In a coin-controlled machine, a pair of slightly spaced walls forming a vertical shallow chamber, a disk rotatable in said chamber and having a seat for recess for receiving the deposited coin, said walls coöperating to sustain a proper coin in said coin-seat during the operation of said disk, one of said walls having an opening opposite said disk, and a crescent-shaped beveled surface leading downwardly from said coin-seat, whereby checks of less than the prescribed thickness or diameter automatically slide down said beveled surface and out of the coin-seat through said opening, said coin-seat having a thick portion for engaging the edge of the deposited coin in the forward rotation of said disk.

5. In a coin-controlled machine, an upright casing provided with a pair of vertical chambers arranged side by side, a rotatable coin-carrier mounted above said chambers and having a curved seat or recess to carry the deposited coin into operative position, a member adapted to be actuated through the medium of the coin on said coin-carrier, said coin being automatically discharged from said coin-carrier into one of said chambers after actuating said member, and a downwardly beveled surface formed on said coin-seat, whereby checks of less than the prescribed thickness or diameter automatically slide down said beveled surface out of the coin-seat and into the other of said chambers without actuating said member.

In witness whereof, I hereunto subscribe my name this 26th day of April, 1918.

LOUIS BERTRAM.