July 23, 1935. J. K. JACKSON 2,009,085

COIN RECEPTACLE COVER

Filed Nov. 23, 1934

FIG. 1

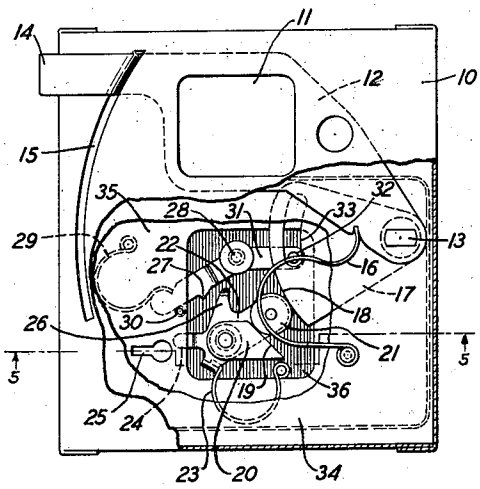


FIG. 2

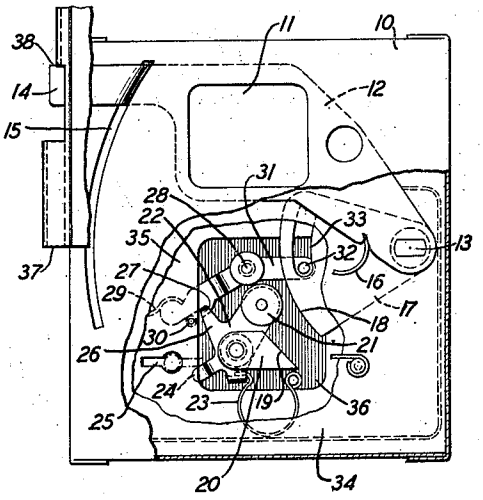


FIG. 3

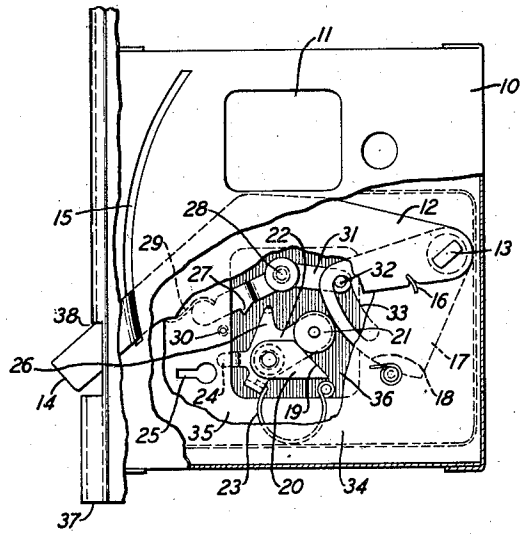


FIG. 4

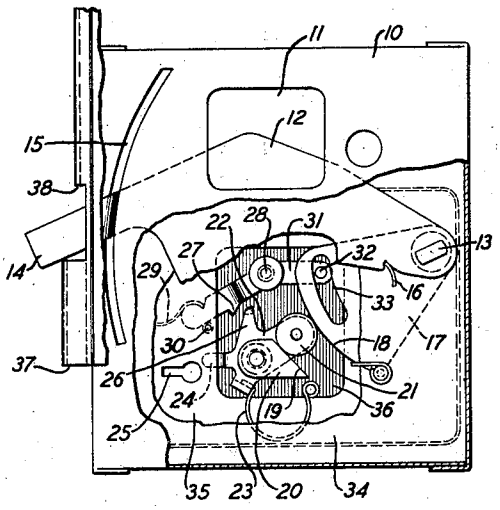
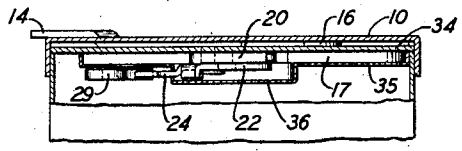


FIG. 5



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COIN RECEPTACLE COVER

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7 Claims. (Cl. 232—15)

This invention relates to shutters and particularly to shutters for coin receptacles such as are used in telephone pay stations.

It has been proposed to make shutters for coin receptacles self-locking so that when the receptacle is in place in the device in which the coins are dropped, it will be open to receive the coins, but as the receptacle is withdrawn, the shutter will close and lock and thereby prevent unauthorized persons from removing the contents. In such devices the locking means usually becomes effective only when the shutter is completely closed, but prior to that time the shutter is unlocked and is therefore susceptible to fraudulent entry.

The object of this invention is to provide a locking means for a shutter which is capable of locking the shutter against further opening no matter to what degree the shutter is already opened, but which does not at the same time prevent the shutter from closing.

In its preferred form this invention comprises a pivoted shutter to which is secured a plate cam. Opposite the plate cam is a fixed block or cam designed to form with the plate cam a passageway which is progressively narrower in a predetermined direction. A roller follower, mounted on a pawl is biased to enter the passageway and to prevent movement of the plate cam in the direction which would tend to force the follower into the narrowed passageway. The pawl may be latched against a pivoted detent which is automatically released when the shutter is fully open. The latching is accomplished by means of a key which engages an extension of the pawl and rotates the pawl until it is latched.

For a better understanding of this invention, reference is made to the accompanying drawing in which:

Fig. 1 is a plan view of a shutter in closed position with a portion of the cover cut away to expose the locking means;

Fig. 2 is a plan view of a shutter showing the locking means in unlocked condition;

Fig. 3 is a plan view of a shutter in fully opened position;

Fig. 4 is a plan view of a shutter in partially opened position; and,

Fig. 5 is a fragmentary vertical section on line 5—5 of Fig. 1 showing means in elevation.

Using Fig. 1 as a guide, the novel shutter may be generally described as follows: The receptacle or other device with which the novel shutter mechanism is used is provided with a cover 10 which is apertured at 11 to receive coins or checks from a chute (not shown) located above the receptacle. When the receptacle is removed from its associated apparatus, aperture 11 is closed by shutter 12, which is an irregularly shaped member secured at one end to a rotatable shaft 13 and provided at the opposite end with a finger 14. An arcuate slot 15 is provided in cover 10 through which finger 14 is passed to provide an external portion by which shutter 12 may be manipulated. A spring 16 is used to hold shutter 12 in closed position.

Rigidly secured to shaft 13 is a plate cam 17, the operative edge of which is located at 18. Since cam 17 is rigidly secured to shaft 13, it rotates whenever shutter 12 is rotated. Operative surface 18 is preferably made in the form of an arc of a circle, the center of which is located on the axis of shaft 13. A fixed cam surface 19 is located opposite movable cam 17 and forms a part of locking block 20. Cam surface 19 is so contoured with respect to cam surface 18 that it forms a passageway therewith which is progressively narrower toward its lower end. A roller follower 21 is mounted on a pivoted support 22, which is biased by spring 23 to urge follower 21 into the passageway at its widest end until follower 21 is locked between cam surfaces 18 and 19. When so locked, shutter 12 is likewise locked against opening, inasmuch as counter-clockwise rotation of shutter 12 tends to rotate cam 17 in the same direction and still further tends to lock follower 21 between cam surfaces 18 and 19.

Roller follower 21 may be withdrawn from the passageway by rotating its support 22 counter-clockwise. To effectuate this rotation an extension 24 is provided as a rigid portion of member 22, and by inserting a suitable key into key-hole 25 and rotating the key clockwise, contact may be established between the key and extension 24 whereby support 22 may be rotated and the follower 21 withdrawn from the passage. When the container is to be emptied, it is necessary to maintain follower 21 out of the passageway and this would be awkward if it were to be accomplished by means of the key alone, since the key would have to be held in a given position against the action of spring 23 all the time that the shutter is open. Accordingly, a latching means is provided whereby follower 21 may be automatically maintained out of contact with cam surfaces 18 and 19. The latching means comprises a pawl 26, which forms a part of roller follower support 22, cooperating with a detent 27 pivoted at 28. Detent 27 is urged in a counter-clockwise direction by spring 29, and is lim-

ited in its movement in that direction by a fixed stop 30. The releasing of pawl 26 and roller follower 21 is preferably accomplished automatically upon opening shutter 12 beyond a predetermined point. This may be done by providing an extension 31 to detent 27 on the opposite side of pivot 28, and a pin 32 at the end of extension 31 to cooperate with an arcuate slot 33 in cam 17, so that when shutter 12 is opened, cam 17 is rotated and the upper end of slot 33 strikes pin 32 and rocks detent 27 about its pivot 28, thereby releasing pawl 26.

For greater protection against tampering by unauthorized persons, the above elements are encased in various compartments as shown in the elevation of Fig. 5. One compartment is formed by cover 10 and inner cover 34, and in this compartment is placed shutter 12. The second compartment is formed by inner cover 34 and shallow container 35, a rectangular portion of which is extruded to form a third compartment 36. The second compartment includes cam 17, spring 16, roller follower 21, locking block 20, spring 23 and pin 32. The third compartment includes roller support 22, pawl 26, detent 27 and its pivot 28 and extension 31. Extension 24, which cooperates with the key to latch roller 21, spring 29 and stop 30 are located outside the third container 36 and below container 35, thereby causing three metal partitions to be interposed between them and the exterior.

The shutter and locking means are designed to operate in such a manner that when the receptacle is in place beneath the coin chute in the associated apparatus, the shutter will be open, and as the receptacle is removed, the shutter will automatically close and lock and remain locked until release by a key. At intermediate points between fully opened and fully closed positions, the locking means is designed to prevent further opening, but not to prevent further closing.

As shown in Fig. 1, the receptacle is removed from its associated apparatus and shutter 12 is in closed position. Roller follower 21 is locked between cam surfaces 18 and 19 and hence no access may be had to the inside of the receptacle without the aid of a key. Assuming now that the mechanism has been unlocked and latched in this position, shutter 12 still tends to close, due to the action of spring 16, but it can easily be opened and the contents of the receptacle can readily be removed. After the removal of the contents, the locking means is still latched in unlocked positon and shutter 12 is closed. Upon inserting the receptacle into its place beneath the coin chute, finger 14 of shutter 12 passes through a slot 37 in the apparatus until it strikes edge 38. At this point (Fig. 2) the receptacle is not fully in place and must be inserted still further to bring aperture 11 to its proper place.

Referring now to Fig. 3, the position of the shutter and the condition of the locking means are shown after the receptacle has been completely inserted. The shutter is in open position, due to the relative displacement of edge 38 with respect to the receptacle which causes the shutter to be rotated counter-clockwise, and the locking means is unlatched, due to the cooperation between pin 32 and the upper edge of slot 33. The apparatus remains in this condition until it is withdrawn.

Fig. 4 shows a receptacle when it is partly withdrawn. There is nothing to prevent it from being completely withdrawn because this would automatically close and lock the shutter. If an attempt is made to reinsert the receptacle, roller follower 21 will lock between cam surfaces 18 and 19 and prevent the reinsertion unless the locking means is unlatched and locked in this condition by means of a key. Thus the receptacle must either be completely withdrawn or completely inserted in both of which cases no access can be had to the inside of the receptacle except through a destruction of the receptacle or associated apparatus or with the aid of a key.

The unlatching of roller follower 21 is dependent upon the position of the end of slot 33 with respect to pin 32 and hence by a proper design of these elements follower 21 can be made to release at any desired point between the extreme positions of shutter 12.

It is understood that the foregoing is merely descriptive of one form of the invention and that the scope of the invention therefore is not to be limited thereby but is to be determined by the appended claims.

What is claimed is:

1. A wall having an opening therein, a shutter for the opening, means for locking the shutter against motion in a predetermined direction, said locking means comprising a cam controlled by said shutter, an opposed cam in fixed relation to the wall and a follower adapted to engage both cams, said cams defining a progressively constricted passageway for the follower in the direction against which the shutter is locked.

2. A wall having an opening therein, a shutter for the opening, means for locking the shutter against motion in a predetermined direction, said locking means comprising a cam controlled by said shutter, a fixed cam surface and a follower adapted to engage both cams, means for disengaging the locking means from said shutter, said disengaging means comprising a pawl secured to the follower, and means engaging the pawl for holding the follower in disengaged position, said last mentioned means being controlled by the shutter to release said pawl.

3. A wall having an opening therein, a shutter for the opening, means for locking the shutter against motion in a predetermined direction irrespective of the position of the shutter relative to the opening, a latch to engage said locking means to hold it in unlocked position, said latch being controlled by the shutter to release said locking means.

4. A wall having an opening therein, a shutter for the opening, means for locking the shutter against motion in a predetermined direction irrespective of the position of the shutter relative to the opening, a pivoted latch to hold the locking means in unlocked position, means operable when the shutter is in open position to trip the latch, said tripping means comprising an extension of the latch and an extension of the shutter adapted to engage the latch extension when the shutter is fully open.

5. A coin receptacle having a coin receiving opening therein, a shutter for said opening, means for locking the shutter against reopening before it is fully closed, said locking means comprising a cam controlled by the shutter, a cam in fixed relation to the receptacle, said controllable and fixed cams defining a progressively constricted opening, a roller adapted to cooperate with said cams, a pivoted support for the roller for swinging the roller into and out of engagement with the cams, a pawl on the roller support, a pivoted detent cooperating with the pawl to hold the roller in disengaged position, an extension on

the detent, and means on the shutter for cooperating with the extension to release the pawl when the shutter is in open position.

6. A coin receptacle having a coin receiving opening therein, a shutter for said opening, means for locking the shutter against reopening, said locking means comprising a cam controlled by said shutter, biasing means tending to hold the shutter in closed position, an opposed cam in fixed relation to the wall, a follower adapted to engage both cams and biasing means tending to hold the follower in engagement with both cams, said cams defining a progressively constricted passageway for the follower in the direction against which the shutter is locked.

7. A coin receptacle having a coin receiving opening therein, a shutter for said opening, means for locking the shutter against reopening before it is fully closed, said locking means comprising a cam controlled by the shutter, spring means adapted to urge the shutter to its closed position, a cam in fixed relation to the receptacle, said controllable and fixed cams defining a progressively constricted passageway, a roller adapted to cooperate with said cams, a pivoted support for the roller for swinging the roller into and out of engagement with the cams, spring means for urging the roller into the passageway, a pawl on the roller support, a pivoted detent cooperating with the pawl to hold the roller in disengaged position, spring means for urging the detent against the pawl, an extension on the detent, and means on the shutter for cooperating with the extension to release the pawl when the shutter is in open position.

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