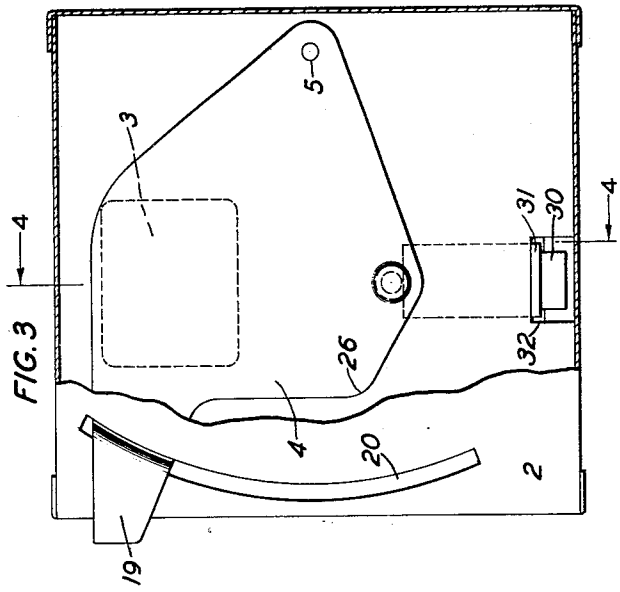
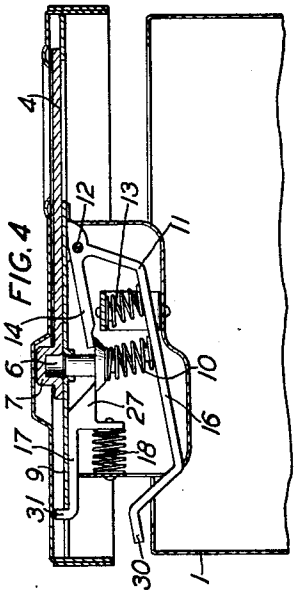
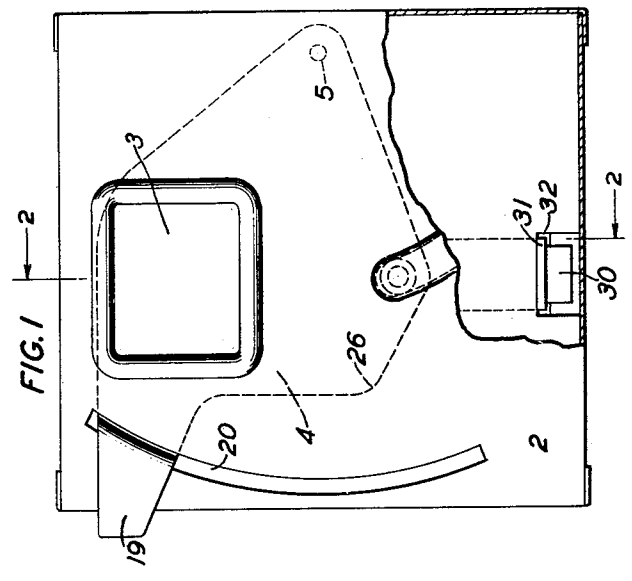
June 26, 1934. P. E. MILLS 1,964,528

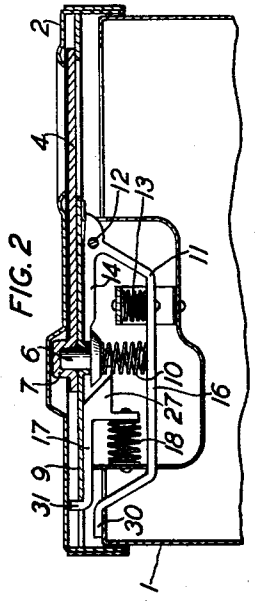
COIN RECEPTACLE COVER

Filed Dec. 10, 1931 4 Sheets-Sheet 1









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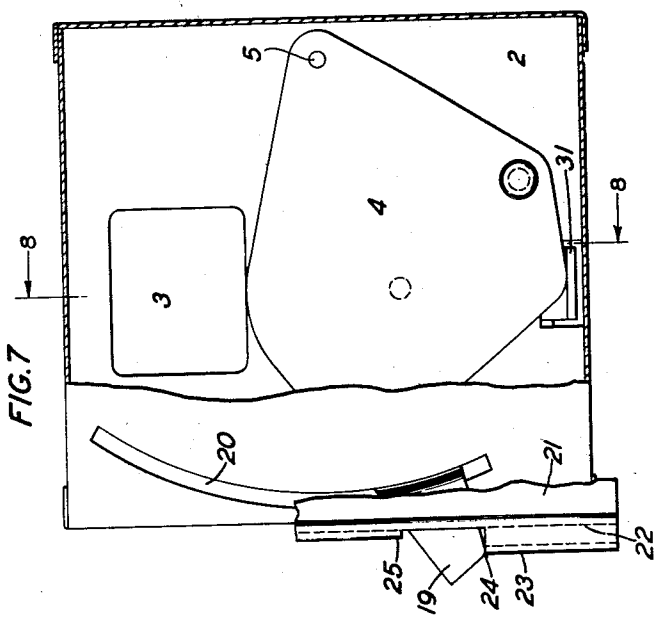
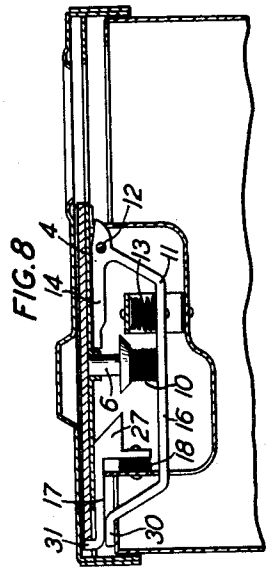
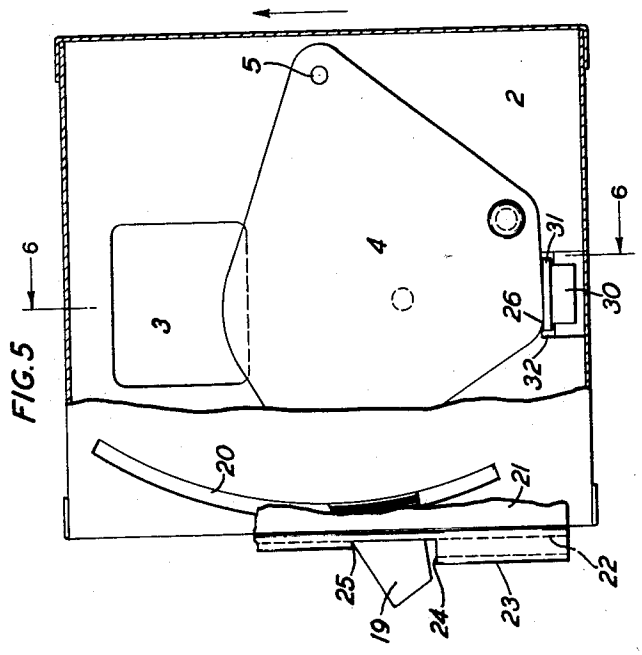
June 26, 1934. P. E. MILLS 1,964,528

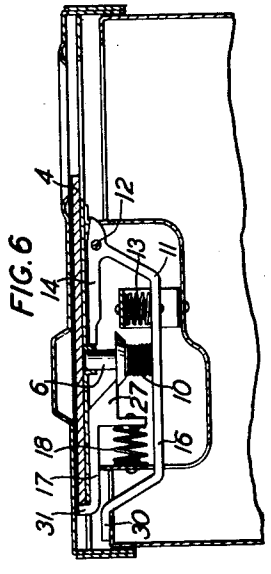
COIN RECEPTACLE COVER

Filed Dec. 10, 1931 4 Sheets-Sheet 2









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June 26, 1934. P. E. MILLS 1,964,528

COIN RECEPTACLE COVER

Filed Dec. 10, 1931 4 Sheets-Sheet 3

FIG. 11

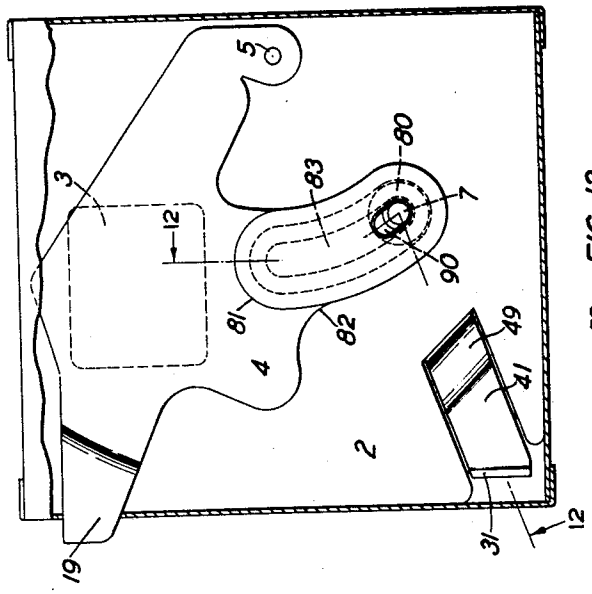


FIG. 12

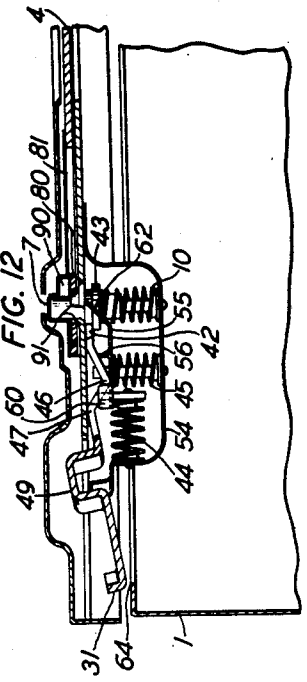


FIG. 9

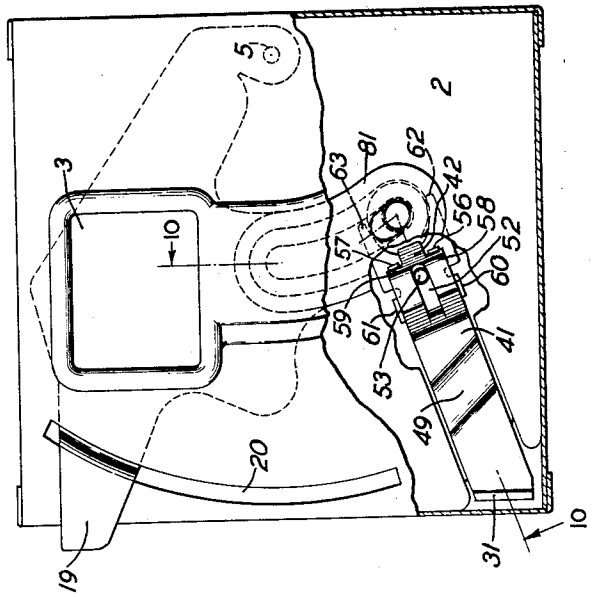
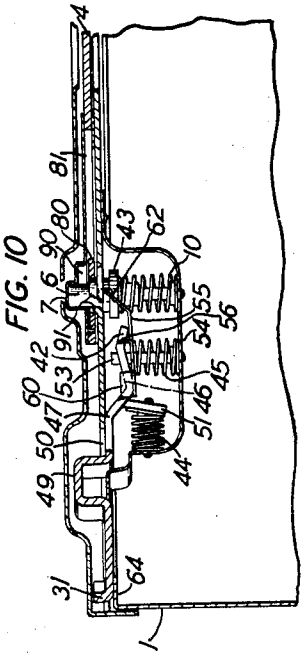


FIG. 10



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June 26, 1934. P. E. MILLS 1,964,528

COIN RECEPTACLE COVER

Filed Dec. 10, 1931 4 Sheets-Sheet 4

FIG. 15

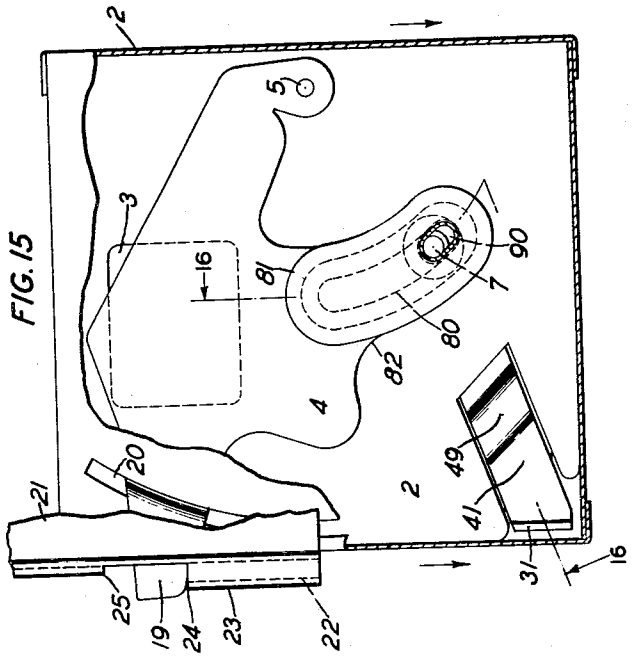


FIG. 16

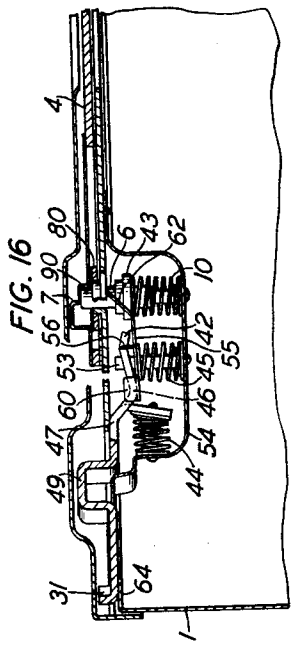


FIG. 13

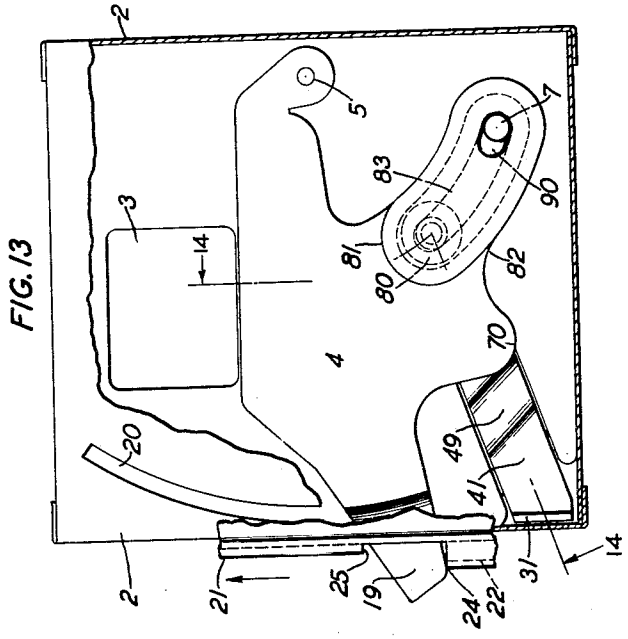
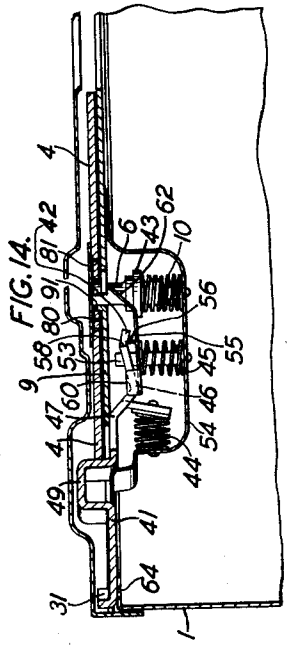


FIG. 14.



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Patented June 26, 1934

1,964,528

UNITED STATES PATENT OFFICE

1,964,528

COIN RECEPTACLE COVER

Percy E. Mills, Towaco, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application December 10, 1931, Serial No. 580,103

14 Claims. (Cl. 232—15)

This invention relates to coin receptacles and more particularly to self-locking detachable cash boxes for use with coin collectors for telephone systems.

An object of this invention is to provide a positive and simple locking device which operates upon the withdrawal of the coin receptacle from its housing to close and lock the coin opening therein.

A further object is to provide means actuated by the removal and replacement of the coin receptacle cover to unlock the shutter or closure for the coin opening therein and reset the locking device preparatory to inserting the receptacle in the coin collector.

Specifically the locking device which locks the shutter over the coin opening in its closed position comprises a spring actuated bolt which is adapted to engage a recess in the under surface of the shutter in its closed position and which upon replacing the cover is retracted by a lever cooperating with the receptacle case to release the shutter. In one embodiment the lever is pivoted and a spring operated stop latch engages the bolt to hold it in its retracted position out of engagement with the shutter and the latter operated by the insertion of the receptacle in its casing operates the latch to release the bolt. In another embodiment the latch and lever are combined in a rocking or floating lever.

Referring to the drawings:

Fig. 1 is a plan view of the coin receptacle cover showing the shutter in its closed and locked position with a portion of the upper wall broken away;

Fig. 2 is a cross-sectional view taken along the line 2—2 of Fig. 1 showing the locking mechanism in its locked position;

Fig. 3 is a plan view of the coin receptacle cover showing the shutter in its closed and unlocked position after it is removed from the coin receptacle with a portion of the upper wall broken away;

Fig. 4 is a cross-sectional view taken along the line 4—4 of Fig. 3 showing the position of the automatic means for unlocking the shutter when the cover is removed;

Fig. 5 is a plan view of the coin receptacle cover as the coin receptacle is being inserted in the coin collector with a portion of the upper wall broken away to show the position of the shutter and its relation to the locking device;

Fig. 6 is a cross-sectional view taken along the line 6—6 of Fig. 5 showing the position of the locking elements as the coin receptacle is placed in the coin collector;

Fig. 7 is a plan view of the coin receptacle cover fully inserted in the coin collector with a portion of the upper wall removed to show the position of the shutter and its relation to the locking device in this position;

Fig. 8 is a cross-sectional view taken along the line 8—8 of Fig. 7 showing the position of the locking elements when the coin receptacle is fully inserted in the coin collector;

Fig. 9 is a plan view of another embodiment of the invention, showing the coin receptacle cover in its closed position, part of the upper and lower walls being broken away to show the relation of the elements with the shutter closed and locked;

Fig. 10 is a cross-sectional view taken along the line 10—10 of Fig. 9 showing the position of the locking elements when the shutter is closed and locked;

Fig. 11 is a plan view of the modified form shown in Fig. 9 showing the coin receptacle cover when it is removed from the coin receptacle, part of the upper wall being broken away to show the relation of the shutter and the locking mechanism;

Fig. 12 is a cross-sectional view taken along the line 12—12 of Fig. 11 showing the position of the elements when the cover is removed from the coin receptacle;

Fig. 13 is a plan view of the modified form shown in Fig. 1 showing the coin receptacle cover as the coin receptacle is fully inserted in the coin collector, part of the upper wall being broken away to show the relation of the shutter with the locking elements;

Fig. 14 is a cross-sectional view taken along the line 14—14 of Fig. 13 showing the position of the elements when the coin receptacle is fully inserted in the coin collector;

Fig. 15 is a plan view of the modified form shown in Fig. 9, showing the coin receptacle cover as the coin receptacle is being withdrawn from the coin collector, part of the upper wall being broken away to show the position of the elements;

Fig. 16 is a cross-sectional view taken along the line 16—16 of Fig. 15 showing the position of the elements as the coin receptacle is being withdrawn from the coin collector.

The coin receptacle 1 when in position in a coin collector, not shown, which may be of any of the forms well known in the art, such for example, as that shown in Patent 1,104,042 to O. F. Forsberg, July 21, 1914, rests within a compartment situated beneath a coin distributing mechanism. This coin receptacle 1 is equipped with a cover 2 which is provided with a coin receiving opening 3 through which the deposited coins from the distributing mechanism, not shown, pass on their way to the receptacle 1. The cover 2 which is removably secured may be swung back on hinges located on the backs thereof and not shown on the drawings, in order to open up the coin receptacle 1 for the removal of the coins.

The cover 2 comprises an upper and a lower plate within which is located a shutter 4 adapted to rotate about a pivot 5 to close the coin receiving opening 3. The shutter 4 is provided with a portion 19 which extends upwardly from the inside of the cover 2 to the outside through a slot 20 and then laterally beyond the edge of the cover 2 as indicated in Figs. 1 and 2. Integral with or attached to the upper side of the compartment in the coin collector, not shown, is a member 21 which is partially shown in Figs. 5 and 7. This member, through engagement with the cover 2, guides the coin receptacle 1 within the compartment in the coin collector, not shown. At one side the member 21 is provided with an opening 22 through which the portion 19 may extend. The opening 22 is partially closed by a laterally extending pocket 23 of the member 21. The rear edge 24 of the pocket 23 is adapted to engage the portion 19 when the coin receptacle 1 is being withdrawn from the compartment provided in the coin collector to rotate the shutter 4 to a position before the opening 3 as will be hereinafter described.

On the underside of the cover 2 is a locking mechanism which serves to lock the shutter 4 in its closed position. The locking mechanism comprises a bolt 6 adapted to engage a recess 7 in the shutter 4 when the latter is in its closed position. A spring 10 insures positive engagement of the bolt 6 with the recess 7 and also serves to retain the bolt in said recess. The resetting of the bolt 6 is automatic and is accomplished by means of a resetting lever 11 cooperating with a latch 17 when the cover 2 is removed from the receptacle 1. The resetting lever 11 is pivoted at 12 and comprises an arm 14 which is adjacent to and parallel to the base plate 9 of the cover 2 and extends under the head of the bolt 6. Another arm 16 extends downwardly a short distance from the pivot 12, runs parallel to the base plate 9, then extends upwardly toward the base plate 9 to end in a lip 30 which is adapted to fit on the upper edge of the coin receptacle 1 as shown in Fig. 2. The latch 17 which is adjacent the base plate 9 of the cover 2 is adapted to move toward the bolt 6 by means of the spring 18. A portion 31 of the latch 17 extends up through an opening 32 in the upper portion of the cover 2.

When the coin receptacle 1 is ready to be inserted in the compartment provided for it in the coin collector, not shown, the shutter 4 is closed and the lock is approximately in the position shown in Fig. 6. As the coin receptacle is inserted in said compartment the portion 19 of the shutter 4 projects through the opening 22 and passes inside of the pocket 23. The projection 19 thereupon engages the rear edge of the opening 22 at 25 and as the coin receptacle is forced back into place in the direction shown by the arrow in Fig. 5 the shutter 4 is removed from before the opening 3. Upon further insertion of the coin receptacle 1 the cam 26 on the shutter 4 engages the portion 31 of the latch 17 and forces the latch forwardly against the pressure of spring 18. This forces the portion 27 of the latch 17 from under the head of the bolt 6 thus releasing the latter as shown in Fig. 8. The bolt 6 upon releasing bears upon the under side of the shutter 4 under the pressure of spring 10. Figs. 7 and 8 show the position of the elements when the coin receptacle is fully inserted in the compartment provided for it in the coin collector. In this position portion 19 of the shutter 4 and the pocket 23 are so proportioned that the portion 19 projects too far through the opening 22 to allow the coin receptacle 1 to be removed from the retaining member 21 unless the shutter 4 has been moved into position such that the bolt 6 will snap into the recess 7 in the shutter 4. Thus in order to remove the coin receptacle from the coin collector, not shown, the portion 24 of the pocket 23 bears against the portion 19 of the shutter 4 and forces it over the opening 3. When the shutter has closed the opening sufficiently, the bolt 6 will be on line with the recess 7 and under pressure of the spring 10 will snap therein. The portion 19 has now retired sufficiently to go through the pocket 23 and the coin receptacle may be removed from the coin collector.

After being removed the coin receptacle 1 may be opened by an authorized person. Upon removal of the cover 2, the resetting lever 11 under the action of spring 13 is forced away from the base plate of the cover. The portion 14 of the lever forces the bolt 6 out of engagement with the recess 7 of cover 4 and forces the latch 17 back against the pressure of its spring 18. When the head of the bolt 6 clears the portion 27 of the latch 17, the latch under pressure of its spring 18 will return to its normal position, the portion 27 now being between the head of the bolt 6 and the base plate 9 of the cover 2 and will prevent the bolt 6 from reengaging with the recess 7 of the shutter 4 as shown in Fig. 4.

When the cover 2 is replaced on the coin receptacle 1, the portion 30 of the resetting lever 11 is forced toward the base plate 9 of the cover 2 against the pressure of spring 13. This pivots the lever 11 about its fulcrum 12, and arm 14 returns toward the base plate 9 releasing its pressure on the underside of the head of bolt 6 as shown in Fig. 6. The head of the bolt 6 under the pressure of spring 10 then rests solely on the portion 27 of latch 17, and the coin receptacle is ready for insertion in the compartment provided for in the coin collector (not shown).

In another embodiment of this invention the resetting lever and latch are combined in a rocking or floating lever 41 as shown in Figs. 10, 12, 14 and 16. The lever 41 is so designed that a portion 42 is adapted to fit between the base plate 9 of the cover 2 and the head 43 of the bolt 6 under the pressure of springs 44 and 45 when the cover 2 is removed from the coin collector 1 as shown in Fig. 12. The lever 41 is bent at an angle of approximately sixty degrees at 46 and 47, the purpose of which will be later disclosed. A portion 49 extends up through an opening 50 in the base plate 9 of the cover 2 and is associated with the shutter 4 to remove the portion 42 from between the base plate 9 and the head 43 of the bolt 6. The lever 41 ends in a lip 31 which lies between the upper edge of the coin receptacle 1 and the upper plate of the cover 2 when the cover 2 is placed on the coin receptacle 1. A projection 51 extends from the underside of the lever 41 to serve as a support for the spring 44. Near the portion 42 of the lever 41 is an opening 52 through which extends a projection or pin 53 mounted on the lock casing 54. This insures longitudinal movement of the lever 41 as it is moved backward and forward. Mounted on the pin 53, between the lever 41 and the spring 45 is a latch 55 comprising projections 56 and 57 which snap up in front of the shoulders 58 and 59 of the lever 41 when the latter is forced away from the bolt 6 by the action of the shutter 4 on portion 49 thus prevent-

ing lever 41 from returning toward the bolt 6. Guards 60 and 61 on latch 55 keep the latter and lever 41 in alignment. The latch 55 is also provided with a fork-shaped end having prongs 62 and 63 which straddle the bolt 6 and bear on the base plate 9 and tend to keep the former in an approximately horizontal position at all times.

When the cover 2 is to be placed on the coin receptacle 1 prior to placing the coin receptacle in the compartment provided for it in the coin collector, not shown, the elements are in the position shown in Figs. 11 and 12. It is noted that projection 42 is between the base plate 9 and the head 43 of the bolt 6. As the cover is placed in the receptacle 1 the portion 31 of the lever 41 engages the end 64 of the receptacle 1 and is forced toward the upper plate of the cover 2. Lever 41 is thus rotated about the temporary axis 47 against the pressure of spring 45 exerted at 46 and by means of portion 42 forces the pin 6 out of the recess 7 in the shutter 4 against the pressure of spring 10 thus permitting the shutter 4 to be opened.

As the coin receptacle is inserted in the coin collector, portion 19 of the shutter 4 projects through opening 22 and passes inside of the pocket 23. The portion 19 thereupon engages the rear edge of the opening 22 at 25 and as the coin receptacle is forced back into place in the direction shown by the arrow in Fig. 13, the shutter 4 is removed from before the opening 3. Upon further insertion of the coin receptacle 1, the cam 70 on the shutter 4 engages portion 49 of the lever 41 and forces the lever outwardly against the pressure of spring 44. This disengages the portion 42 from the head 43 of bolt 6 thus releasing the latter. The bolt 6 upon being released, bears upon the underside of a casing 81 mounted on portion 82 of the shutter 4 under pressure of spring 10 as shown in Fig. 14. Upon complete insertion of the coin receptacle in the coin collector, the lever 41 is forced further from the bolt 6 and shoulders 58 and 59 of lever 41 clear the projections 56 and 57 of member 55, the latter of which under the pressure of spring 45 moves toward the base plate 9 of the cover 2 and forms an obstacle against the return of lever 41 toward the bolt 6 as shown in Fig. 14.

As the coin receptacle 1 is removed from the coin collector in order to empty it of its contents, portion 24 of the pocket 23 bears against the portion 19 of the shutter 4 and forces it over the opening 3. Cam 70 on the shutter 4 disengages from the portion 49 of lever 41, allowing the latter under pressure of spring 44 to move toward the locking bolt 6. When the lever has moved sufficiently, the shoulders 58 and 59 engage projections 56 and 57 on member 55 and prevent further movement of the lever. When the shutter has closed the opening sufficiently, the bolt 6 will be on line with the recess 7 and under pressure of the spring 10 will snap therein as shown in Fig. 10. The portion 19 will now be allowed to go through the pocket 23 and the coin receptacle may be removed from the coin collector.

After being removed the coin receptacle 1 may be opened by an authorized person in the usual manner. Upon removal of the cover 2 spring 45 exerts an upward pressure at 46 and the lever 41 which has been released from the top 64 of the receptacle 1, swings about 47 as a pivot. This causes portion 42 to approach the base plate 9 of the cover 2, disengages the shoulders 58 and 59 from the projections 56 and 57 and allows the lever 41 when these obstacles have been removed to be moved toward the bolt 6 under pressure of spring 44. Springs 44 and 45 cooperate to force the portion 42 between the head 43 of the bolt 6 and the base plate 9 of the cover 2 as shown in Fig. 12. The locking mechanism has thus been automatically set so that when the cover 2 is replaced on the coin receptacle 1, the lock will be automatically reset for reinsertion in the coin collector. Thus portion 31 will engage with portion 64 of the coin receptacle 1, swinging the lever 41 about 47 as a pivot and disengaging the bolt 6 from recess 7 by the downward movement of portion 42 as explained before.

Applicant in this modified structure has also provided two safeguards which render it impossible for an unauthorized person to purloin the contents of the coin collector.

The first of these is a floating washer 80 loosely mounted on the upward projecting portion 91 of the base plate 9 which acts as a guide for the bolt 6. Surrounding the washer 80 is a casing 81 provided on portion 82 of the shutter 4 which is of such length as to permit the shutter to open and close. An opening 83 in the bottom of portion 82 is provided for the bolt 6. Thus, while the shutter 4 is being opened or closed, casing 81 moves with the shutter 4 while bolt 6 and washer 80 remain in approximately the same position. By means of this structure, fraudulent attempts to prevent bolt 6 from engaging recess 7 are rendered impossible.

The second safety feature in this device is a means to prevent the reopening of the shutter 4 after opening 3 has closed a certain extent while the coin receptacle 1 is being withdrawn from the coin collector. This is accomplished by an auxiliary recess 90 adjacent recess 7 which is so positioned that bolt 6 engages it when the shutter is in the position shown in Fig. 15. The small portion of opening 3 that is left uncovered is too small to allow even the extraction of a small coin. Under normal conditions, upon further closing of the shutter preparatory to its being withdrawn from the coin collector, the bolt 6 will snap into recess 7 and the shutter will be locked in its fully closed position.

What is claimed is:

1. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for closing said opening, means on said cover to engage and lock said shutter in its closed position, and means on said cover and actuated by relative movement between said cover and said box for controlling said locking means.

2. In combination, a coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening, said shutter having a recess on the underside thereof, a bolt on said cover adapted to engage said recess when said shutter is in closed position, a spring to actuate said bolt, a pivoted lever on said cover and actuated by relative movement between said cover and said box to retract said bolt from said recess, a spring operated stop latch to engage said retracted bolt and means to operate said latch to release said bolt, said means comprising a cam controlled by said shutter.

3. In combination, a coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening, said shutter having a recess on the

underside thereof, means on said cover for locking said shutter in closed position, said means comprising a bolt adapted to engage said recess in said shutter, means on said cover cooperating with said box upon the removal and replacement of said cover to reset said locking means, said means comprising a lever, and means to trip said lever thus releasing said locking means.

4. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening, means on said cover for locking said shutter in closed position, said means comprising a bolt, means on said cover actuated by the removal and replacement of said cover to reset said bolt and render it ineffective, said means comprising a floating lever adapted to engage said box and means adapted to engage said floating lever to render said lock effective, said means comprising a cam controlled by said shutter.

5. In coin collector apparatus the combination of a casing, a coin receptacle and a cover therefor having a coin receiving opening therein, a shutter on said cover for closing said opening, a lock on said cover for said shutter, said lock comprising a bolt adapted to engage and lock said shutter in closed position, means on said cover cooperating with said receptacle upon the removal and replacement of said cover to unlock said shutter, said means comprising a lever, and means comprising said shutter cooperating with said lever to render said lock effective upon insertion of said receptacle in said casing.

6. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess on the underside thereof, a bolt on said cover adapted to engage said recess when said shutter is in closed position, a spring to actuate said bolt, means on said cover comprising a lever cooperating with said box to retract said bolt as said cover is removed from said box, a spring to actuate said lever, means to retain said bolt retracted, and means to release said bolt from said retracting lever, said releasing means comprising means on said lever adapted to engage said box.

7. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess on the underside thereof, a bolt on said cover adapted to engage said recess when said shutter is in closed position, means on said cover actuated by the removal and replacement of said cover to reset said bolt and render it ineffective, said means comprising a lever adapted to engage said bolt, means on said lever adapted to engage said box, means comprising a cam controlled by said shutter to engage said lever and render said bolt effective, and latching means to restrain said lever until said cover is removed.

8. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening, a bolt on said cover for locking said shutter in closed position, means on said cover including a lever actuated by the removing of said cover to engage said bolt, means including said box to actuate said lever to render said lock ineffective when said cover is replaced, and means to render said lock effective comprising a cam controlled by said shutter.

9. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess therein, a bolt on said cover adapted to engage said recess and lock said shutter, means on said cover and actuated by the removal and replacement thereof to reset said bolt, said means comprising a floating lever adapted to engage said box, means comprising a cam controlled by said shutter to release said bolt from said floating lever, and means including a latch adapted to engage said floating lever to render it ineffective.

10. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess therein, a bolt on said cover adapted to engage said recess and lock said shutter, a guide for said bolt, a washer mounted on said guide and surrounding said bolt, a casing for said washer mounted on said shutter, said casing so constructed as to permit movement of said shutter and means on said cover and actuated by relative movement between said cover and said box to retract said bolt from said recess, said means comprising a lever adapted to engage said box.

11. In combination, a housing, a coin receptacle adapted to fit in said housing, a cover for said receptacle having a coin receiving opening therein, a shutter on said cover for said opening having a plurality of adjacent recesses therein, means in said housing adapted to open and close said shutter, a bolt on said cover adapted to engage said recesses, said recesses being so placed that said bolt engages one of said recesses before said coin receptacle can be removed from said housing and means on said cover and actuated by relative movement between said cover and said receptacle to retract said bolt from one of said recesses, said means comprising a lever adapted to engage said box.

12. In combination, a coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess in the underside thereof, a bolt on said cover adapted to engage said recess when said shutter is in closed position, means to actuate said bolt, means on said cover to automatically retract said bolt from said recess when said cover is removed, means to engage and retain said retracted bolt and means to operate said retaining means to release said bolt when said cover is replaced, said means comprising a cam controlled by said shutter.

13. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for closing said opening, a bolt on said cover to lock said shutter in its closed position and a lever mounted on said cover and actuated by relative movement between said cover and said box for controlling said bolt.

14. A coin receptacle comprising a box, a cover therefor having a coin receiving opening therein, a shutter on said cover for said opening having a recess on the inside thereof, a bolt adapted to engage said recess when said shutter is in closed position, a spring to actuate said bolt, means on said cover comprising a lever cooperating with said box to retract said bolt as said cover is removed from said box, a spring to actuate said lever, means to retain said bolt retracted, and means to release said bolt from said retaining means, said releasing means comprising means on said shutter adapted to engage said retaining means.

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