Jan. 11, 1966 W. F. STACKHOUSE 3,228,506

COIN CONTROLLED LOCKS

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Fig. 1.

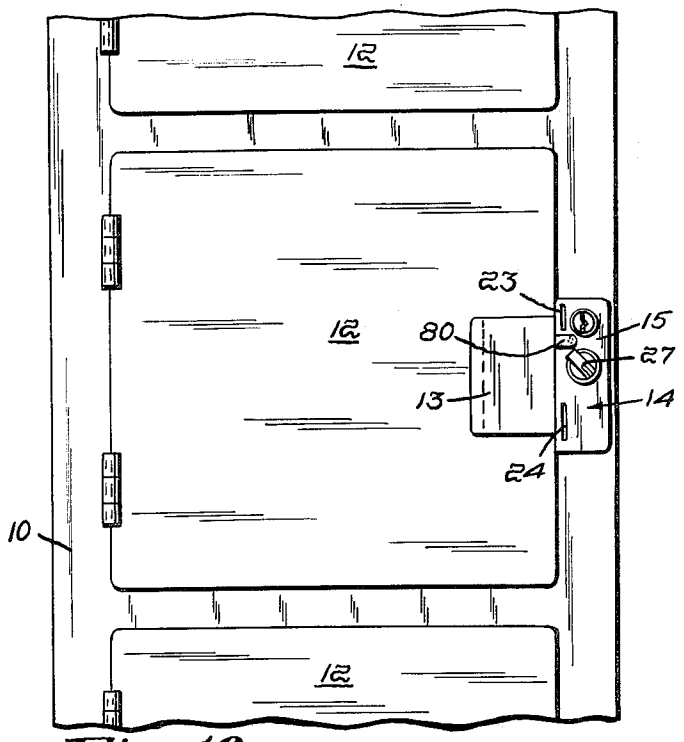


Fig. 10.

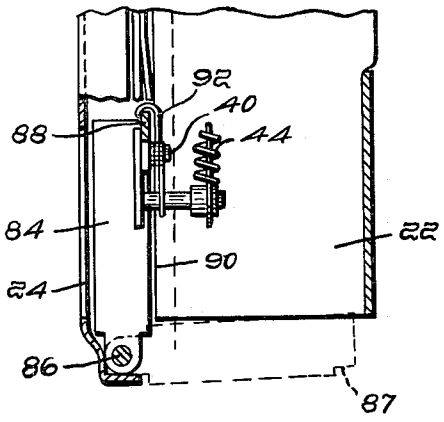


Fig. 8.

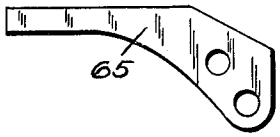
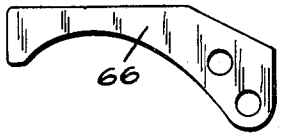


Fig. 9.



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COIN CONTROLLED LOCKS

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Fig. 2.

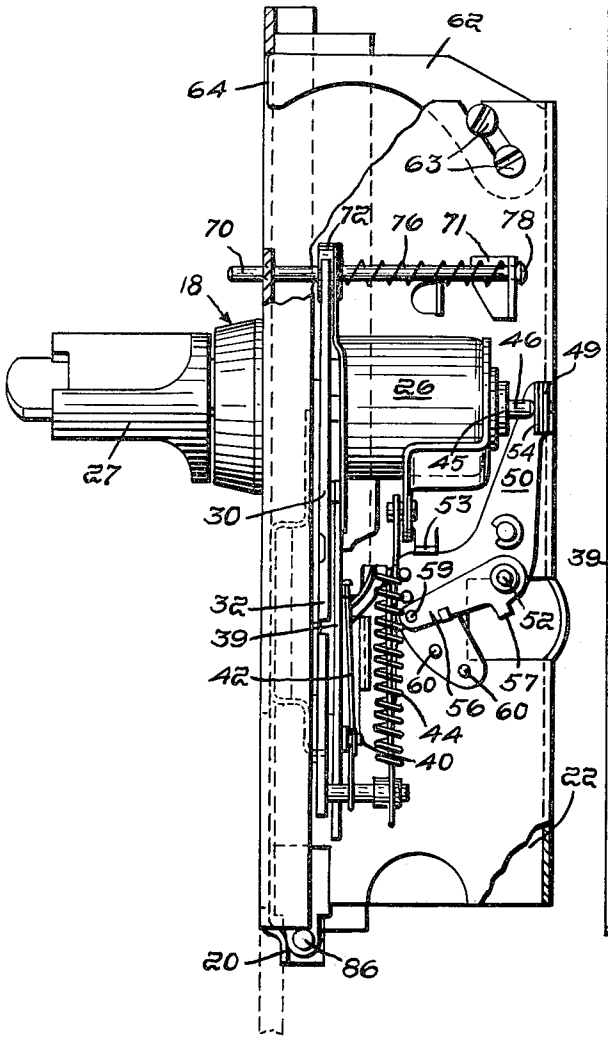
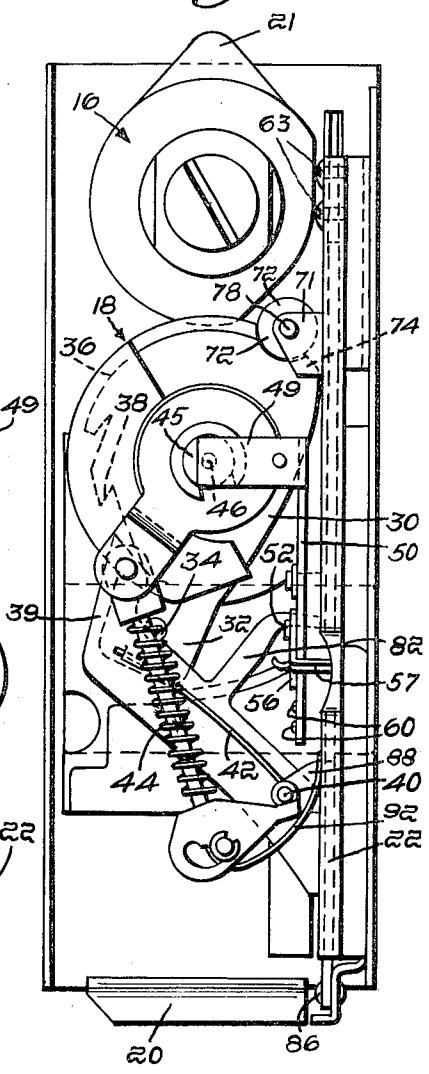


Fig. 3.



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COIN CONTROLLED LOCKS

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Fig. 4.

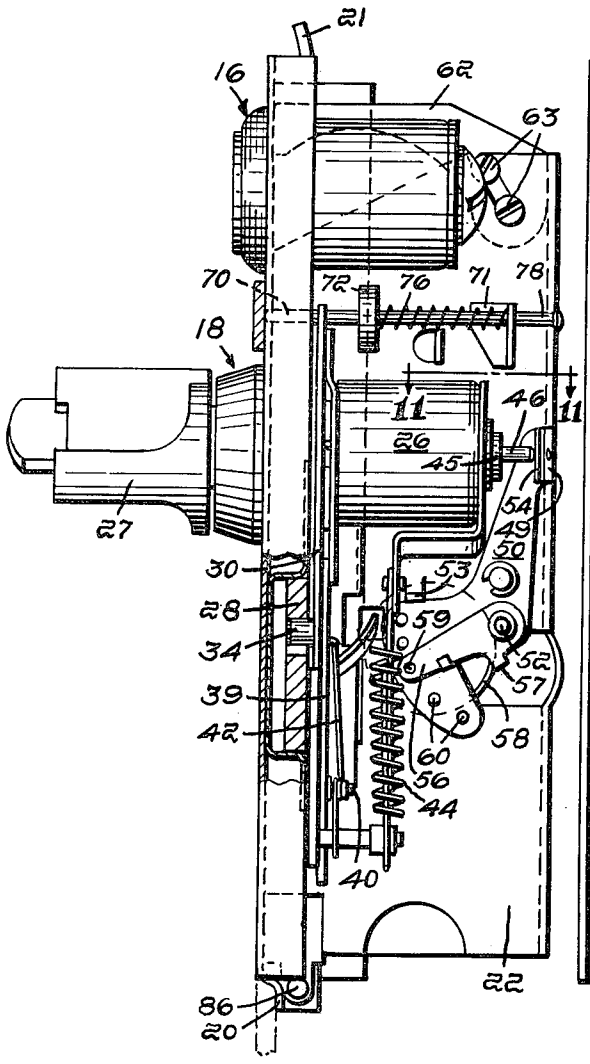


Fig. 5.

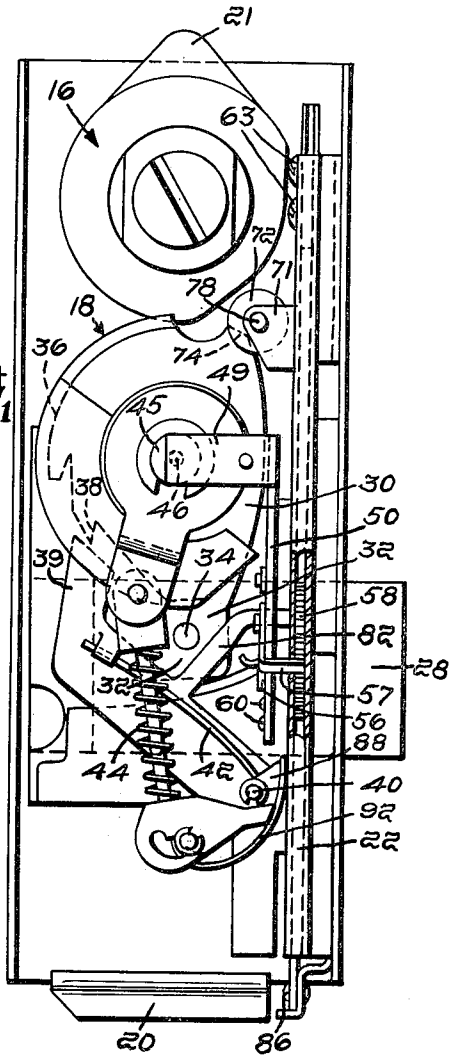
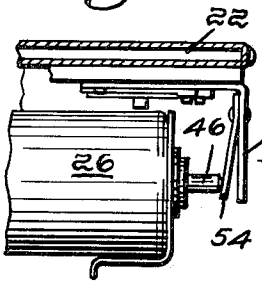


Fig. 11.



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COIN CONTROLLED LOCKS

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Fig. 6.

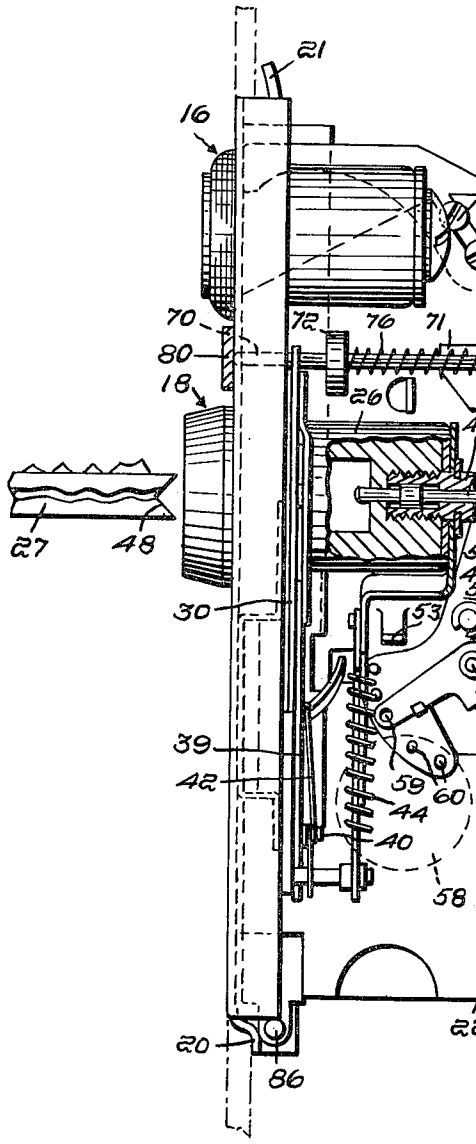
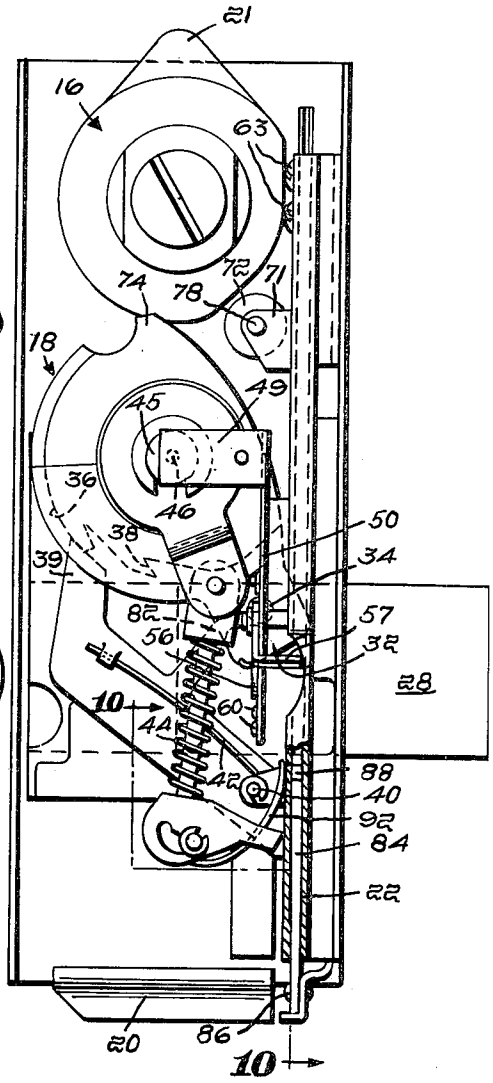


Fig. 7.



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3,228,506

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3,228,506

COIN CONTROLLED LOCKS

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Filed Jan. 21, 1963, Ser. No. 252,868
8 Claims. (Cl. 194—92)

This invention relates to coin controlled locks and particularly to improvements in the lock shown in my copending application Ser. No. 144,755 filed October 12, 1961.

The lock is used primarily in checking and vending cabinets requiring the depositing of a coin or coins of predetermined diameter. Economic conditions or other factors may arise and require the changing of the lock to receive and operate on a coin or token of a different diameter, and an important feature of the invention resides in novel mechanism for conveniently thus adjusting the lock to serve such required conditions.

The lock includes means for supporting a deposited coin of predetermined diameter in predetermined position to release the lock for operation. This means is necessarily of a critical nature and includes a coin intercepting and supporting finger operative to critical position against a fixed stop. A further feature of the invention includes resilient means disposed always to bring and hold the finger in exact coin intercepting and holding position against the stop and thus avoid the possibility of malfunction due to failure of holding the finger in full and definite contact with the stop.

The lock, as heretofore employed in checking cabinets, includes means for preventing door locking movement of the lock until the door is closed, and a further feature of my improved lock disclosed herein comprises improved mechanism for performing this function and, furthermore, preferably also preventing door unlocking movement of the lock except when the door is in closed position.

Also when used in checking cabinets, the lock is adapted to render either prepaid or free service to the patrons and for this purpose the deposited coin can be directed into a collection box or returned to the patron. A further feature of the invention relates to a pivotally mounted bar for optionally thus directing the coin and including novel latch means for positively holding the bar in position closing the coin return slot.

These and other features of the invention will be best understood and appreciated from the following description of preferred embodiments thereof selected for purposes of illustration and shown in the accompanying drawings in which:

FIG. 1 is a fragmentary front elevation of a bank of checking lockers employing the invention,

FIG. 2 is a side elevation of the lock, partly broken away and showing the lock in unlocked position,

FIG. 3 is a rear elevation thereof,

FIG. 4 is a side elevation of the lock with the locking bolt moved forwardly from the position of FIGS. 2 and 3,

FIG. 5 is a rear elevation thereof,

FIG. 6 is a side elevation, partly broken away and showing the locking bolt in door locking position,

FIG. 7 is a rear elevation thereof,

FIGS. 8 and 9 are elevations of coin slot blocking members,

FIG. 10 is a fragmentary sectional view taken on line 10—10 of FIG. 7, and

FIG. 11 is a fragmentary view taken on line 11—11 of FIG. 4.

In the drawings, 10 indicates a bank of coin controlled checking cabinets and 12 indicates the closure door of one of the cabinets. A hand gripping block 13 is provided on the door. The lock unit 14 is removably secured to a marginal portion of the cabinet in position to cooperate with and lock the door. This unit comprises a face plate 15 and cooperating parts supporting two key-operated rotary locks 16 and 18 thereon rearwardly of the face plate, each unit being disposed over and closing an opening through a fixed margin of the cabinet adjacent to the door 12. The unit is thus removably secured in place by the cooperation of a lip 20 on the bottom end of the face plate and a cooperating lip 21 carried by the lock 16.

The lock 18 is coin controlled and its primary function is to permit locking of the door 12 only when the required coin has been deposited in the lock. The lock is carried on a frame including a relatively long and U-shaped coin guide 22 spot welded to the rear face of the face plate 15, and upper and lower coin passage slots 23 and 24 into the coin guiding channel are formed through the face plate at the top and bottom ends of the guide. The lock includes a barrel 26 adapted to be rotated by a key 27. The barrel is normally locked against rotation by tumbler mechanism shown in my said copending application and adapted to be released upon insertion of the key.

A rectangular locking bolt 28 is mounted for movement in the lock to and from the door unlocked position of FIG. 3 and the locking position of FIG. 7. A disc 30 fixed to the forward end of the barrel 26 has an arm 32 provided with a stud 34 extending into an opening in the lock bolt whereupon rotation of the lock barrel thus moves the bolt forwardly and rearwardly. A disc 36 also carried on the forward end of the barrel is notched to provide a shoulder 38 for cooperating with a pawl 39 pivoted at 40. A spring 42 serves normally to pivot the pawl into contact with the disc 36 in position to be engaged by the shoulder. The lock is illustrated in normal unlocked position in FIG. 3, in which position a high peripheral portion of the disc 36 has engaged and moved the pawl 39 outwardly of the shoulder 38, as illustrated in my Patent 3,077,970. When the barrel is rotated forwardly from this position the spring pivots the pawl inwardly whereupon the shoulder engages the pawl and limits such rotation to the position shown in FIG. 5. The lock is illustrated in door locking position in FIGS. 6 and 7 and means including a spring 44 maintains the lock in one or the other of these positions from an intermediate position. A further detailed description of this and other mechanism employed in the lock appears in my said copending application.

A threaded plug 45 (FIG. 6) is seated tightly and axially within and projects outwardly of the inner end of the barrel 26. Mounted to slide axially within and projecting outwardly of the plug is a rod 46 having an enlarged middle portion for limiting such movement. The inner end of the rod is disposed to be engaged and centered within a V-notch 48 in the forward end of the key 27. The outer end of the rod is disposed to engage the offset top end 49 of a lever 50 pivoted at 52. When the key is fully inserted to the position shown in FIGS. 2 and 4, it holds the lever in contact with a fixed stop 53. The maintenance of this contact is critical to the coin controlled operation, and a leaf spring 54 (FIG. 11) secured to the end 49 of the lever in position to be engaged by the rod serves to assure this contact. An arm 56 disposed adjacent to the lever and pivoted at 52 carries a coin intercepting finger 57 extending into the coin guiding channel. When the key is in the lock it holds the lever in coin intercepting position (FIG. 4) and when the key is withdrawn the lever swings anti-clockwise and releases the coin (FIG. 6).

The coin intercepting finger 57 is disposed to cooperate with the opposite margin of the coin guiding channel and intercept and hold a deposited coin 58 of predetermined diameter therebetween as illustrated in FIG. 4. Economic conditions or other factors may arise and require the

changing of the lock to receive and operate on a coin or token of a different diameter, and the mechanism illustrated in FIG. 4 is conveniently adjustable for this purpose. The free end of the arm **56** carries a detent **59** disposed to cooperate with a series of holes **60** in the lever **50**, the holes illustrated being so predetermined that such adjustable settings of the arm respectively provide for intercepting and holding quarters, nickels, dimes, domestic tokens and small foreign tokens. In FIGS. 2, 8 and 9, I have also illustrated novel and convenient means for likewise adjusting the coin inserting slot **23** to a size to receive coins of the authorized diameter and prevent the insertion of larger coins which would block the coin guiding channel. Coins smaller than the authorized diameter will drop freely through the lock. The slot **23** is of maximum size to receive quarters. When the mechanism is set to intercept coins of smaller diameter an insert plate **62** is secured by screws **63** to the lock as shown in FIG. 2, the forward end **64** of the plate extending into and blocking a top end portion of the slot **23** and leaving an open slot of a size to receive the authorized coin. Additional like plates **65** and **66** (FIGS. 8 and 9) having different sized slot blocking ends are provided to be employed when required.

It is desirable that locking of the door shall be prevented until the door is in closed position and my invention herein provides the following simplified and improved mechanism for performing this function and, furthermore, preferably also preventing door unlocking movement of the lock except when the door is closed. This mechanism comprises a rod **70** disposed outwardly of and parallel with the rotary axis of the lock barrel **26** and having its forward end extending through a hole in the face plate **15**. The rod extends rearwardly through a bracket **71** which cooperates with the face plate to support the rod for axial movement. A stop **72** is fixed to the rod rearwardly of the face plate. The disc **30** is affixed to and rotatable with the lock barrel and is provided with a tooth **74** projecting outwardly beyond the inner portion of the path of movement of the stop. A spring **76** on the rod between the stop and bracket normally holds the rod in the foremost position permitted by a head **78** on the inner end of the rod. In this position (FIG. 2) the rod extends forwardly beyond the face plate and the stop is in the path of movement and respectively at opposite sides of the tooth **74** when the barrel is in the locked and unlocked positions, whereupon the tooth and stop cooperate to prevent rotation of the barrel from unlocked position to locking position and from locked position to unlocked position until the stop is moved out of said path of movement of the tooth. Inward pressure on the outwardly projecting forward end of the rod is adapted to move the rod inwardly and carry the stop out of said path, and this function is automatically performed by a plate **80** affixed to the door **12** in position to move the rod inwardly as shown in FIGS. 4 and 6 when the door is closed.

A coin feeling finger **82** is carried by the pawl **39** in position to contact a coin **58** supported on the coin intercepting finger **57**. When the lock barrel **26** is rotated forwardly from the unlocked position of FIG. 3 the pawl **39** and finger **82** pivot clockwise. If no coin is present on the finger **57** the finger **82** passes freely into the coin guiding channel and the pawl is engaged by the shoulder **38** and stops further rotation of the barrel. If a coin is present (FIG. 5) the finger **82** contacts the coin and holds the pawl outside the shoulder whereupon the barrel and bolt can be moved to the locking position of FIG. 7. When the key is removed the lever **50** pivots away from the stop **53** and releases the coin. The coin thereupon drops downwardly into a coin collection box.

In my said copending application, I have illustrated and described adjustable mechanism for rendering either prepaid or free service, the temporary depositing of a coin being required in the latter. My present invention also provides improved mechanism of this nature wherein the lower coin slot **24** serves as a channel for refunding the deposited coin. A bar **84** pivoted at **86** is adjustable about the pivot to the two positions illustrated in FIG. 10. When in the broken line position, the bar is disposed to receive the released coin and direct it outwardly through the coin slot **24**. When in the upright position shown in full lines, the bar closes the slot **24** and permits the coin to drop into the coin box. The following novel and convenient means is provided for positively and securely maintaining the slot in this fully closed position.

The free end portion of the bar **84** is notched at **87**. A latch arm **88** pivoted at **40** is adapted to be swung into the notch **87** when the bar is in the vertical position shown in full lines in the drawings. In such position the latch arm is disposed between the free end of the bar and the adjacent edge **90** of the coin guide **22** in which position any inward thrust against the bar to pivot it inwardly is directly and positively opposed by the edge **90**. The bar is thus positively and firmly supported against any tampering attempting to dislodge or force it inwardly and, furthermore, the latch arm is held in this position by a spring **92** having a hook end disposed to be engaged over the arm. When it is desired to pivot the bar to the horizontal position, the spring hook is released and the latch arm pivoted upwardly and rearwardly whereupon the bar is free to pivot to the horizontal position illustrated in broken lines in FIG. 10.

Having thus disclosed my invention what I claim as new and desire to secure by Letters Patent is:

1. A coin controlled lock for use with checking cabinets, comprising a frame including a face plate and a downwardly extending coin guiding channel rearwardly of the face plate, means for securing the frame to a checking cabinet having a door for closing the cabinet, a rotary barrel mounted on the frame rearwardly of the face plate and having a locking bolt connected thereto and movable therewith to locked and unlocked positions, means normally retaining the barrel and bolt in one of said positions, the face plate having two coin passage slots therethrough respectively into the top and bottom portions of said channel, means for retaining in predetermined position in the channel a coin deposited thereinto through the upper coin slot, a coin feeler, means for moving the feeler into contact with the coin while held in said position and thereby render the first named means inoperative, means for releasing the coin when the bolt is moved from said one position to the other position, a bar pivotally mounted at the bottom portion of the lower coin slot rearwardly of the face plate and disposed to pivot to two positions respectively closing the lower coin slot and providing a support for receiving and directing the released coin outwardly through such slot, a latch carried by the lock and movable thereon to a position engaging the free end portion of the bar and holding it in said slot closing position, and means for holding the latch in this position but permitting manual movement thereof from said holding engagement with the bar.

2. A coin controlled lock for use with checking cabinets, comprising a frame including a face plate and a downwardly extending coin guiding channel rearwardly of the face plate, means for securing the frame to a checking cabinet having a door for closing the cabinet, a rotary barrel mounted on the frame rearwardly of the face plate and having a locking bolt connected thereto and movable therewith to locked and unlocked positions, means normally retaining the barrel and bolt in one of said positions, the face plate having two coin passage slots therethrough respectively into the top and bottom portions of said channel, means for retaining in predetermined position in the channel a coin deposited thereinto through the upper coin slot, a coin feeler, means for moving the feeler into contact with the coin while held in said position and thereby render the first named means inoperative, means for releasing the coin when the bolt is moved from said

one position to the other position, a bar pivotally mounted at the bottom portion of the lower coin slot rearwardly of the face plate and disposed to pivot to two positions respectively closing the lower coin slot and providing a support for receiving and directing the released coin outwardly through such slot, and a latch carried by the lock and movable thereon to a position disposed directly adjacent to and rearwardly of the free end portion of the bar in its slot closing position and directly adjacent to and forwardly of a portion of the frame, whereby said portion of the frame provides a positive abutment supporting the latch and bar against rearward movement.

3. A coin controlled and key-operated lock including a rotary barrel having a key-receiving slot axially therein and a locking bolt connected thereto and movable therewith to locked and unlocked positions, latch means normally operative to retain the barrel and bolt in one of said positions, means providing a downwardly extending coin guiding channel in the lock, a member having a coin intercepting finger extending into said channel adjacent to one margin thereof, means mounting the member on the lock for forward and rearward movements respectively projecting the finger toward and from the opposite margin of the channel, a stop for limiting forward movement of the member, the finger and said opposite margin being disposed to intercept and retain therebetween in the channel a deposited coin of predetermined diameter when the member is engaged against the stop, means including a rod disposed within and movable axially of the barrel between the key slot and member and resilient means actuated by the rod for moving the member forwardly and holding it resiliently in contact with the stop when the key is inserted to operating position in the barrel, and means cooperating with the latch means and including a feeler disposed to engage the coin while thus retained and thereupon render the latch means inoperative, the member and finger being adapted to move rearwardly and release the coin when the key is removed.

4. The combination defined in claim 3 in which said resilient means comprises a spring carried by said member in position to receive the inward thrust of the key and rod and move the member to and hold it resiliently in contact with the stop.

5. A key-operated coin controlled lock including a rotary barrel and a locking bolt connected thereto and movable therewith to locked and unlocked positions, means normally operative to retain the barrel and bolt from movement from unlocked position to locked position, means providing a downwardly extending coin guiding channel in the lock, means for intercepting and retaining in fixed predetermined position in the channel a coin of predetermined diameter deposited thereinto, means disposed to contact the coin in said position and thereby render the first named means inoperative, said coin intercepting and retaining means comprising a coin intercepting finger extending into said channel adjacent to one margin thereof and carried by a member mounted on the lock for movement of the member and finger toward and from the opposite margin of the channel, a stop for limiting forward movement of the member and finger toward said opposite margin to a position wherein said coin but not coins of any smaller diameter will be intercepted and retained in said predetermined position by and between the finger and said opposite margin, means for holding the member against the stop when the key is disposed in operative position in the lock, and means for adjustably varying the distance between the coin intercepting finger and said opposite margin of the channel to intercept and retain coins of different predetermined diameters when said member is in contact with the stop.

6. The combination defined in claim 5 in which said finger is mounted on said member for adjustment toward and from said opposite margin of the channel to positions so varying the distance between the finger and opposite margin that coins of different predetermined diameters will be intercepted and retained when the member is in contact with the stop.

7. The combination defined in claim 5 in which said member is mounted on the lock for pivotal movement about a fixed axis and an arm disposed adjacent to the member outside of said channel is mounted for pivotal movement about said axis, said finger being carried on the arm remote from said axis.

8. The combination defined in claim 5 plus an arm mounted for pivotal movement on said member and carrying said finger, and means for locating and holding the arm in a plurality of predetermined pivotal positions respectively spacing the finger from said opposite margin of the channel different distances adapted to receive and retain in said fixed position coins of different predetermined diameters when the member is in contact with the stop.

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