Oct. 31, 1933. G. HOFMANN 1,933,263

COIN CONTROLLED LOCK

Filed April 14, 1931 2 Sheets-Sheet 1

Fig. 3.

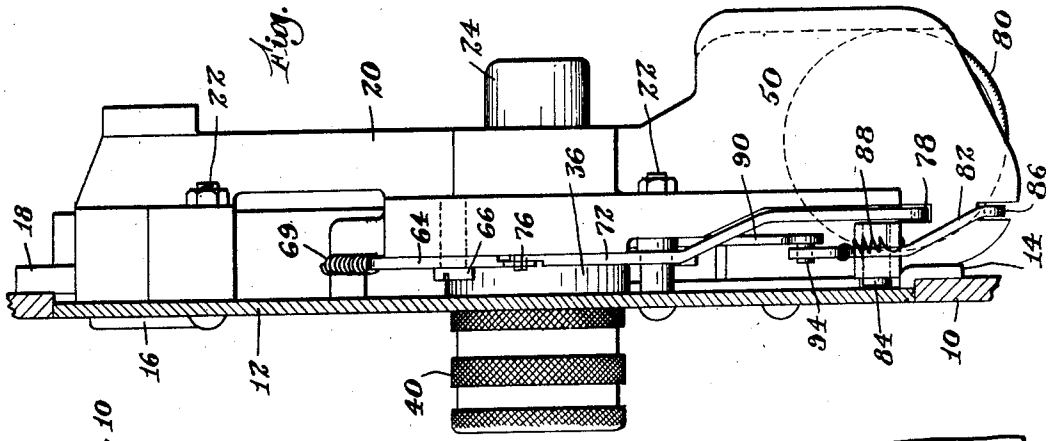


Fig. 1.

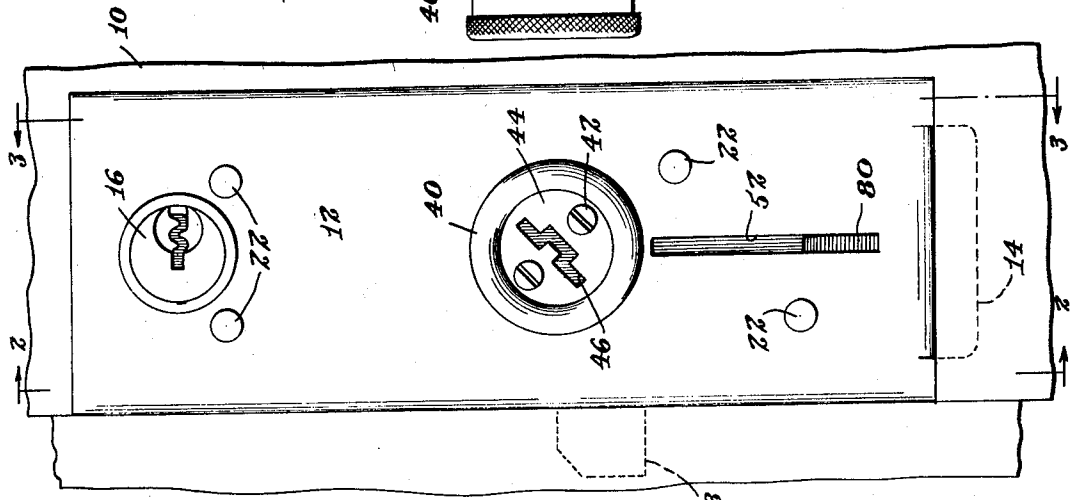
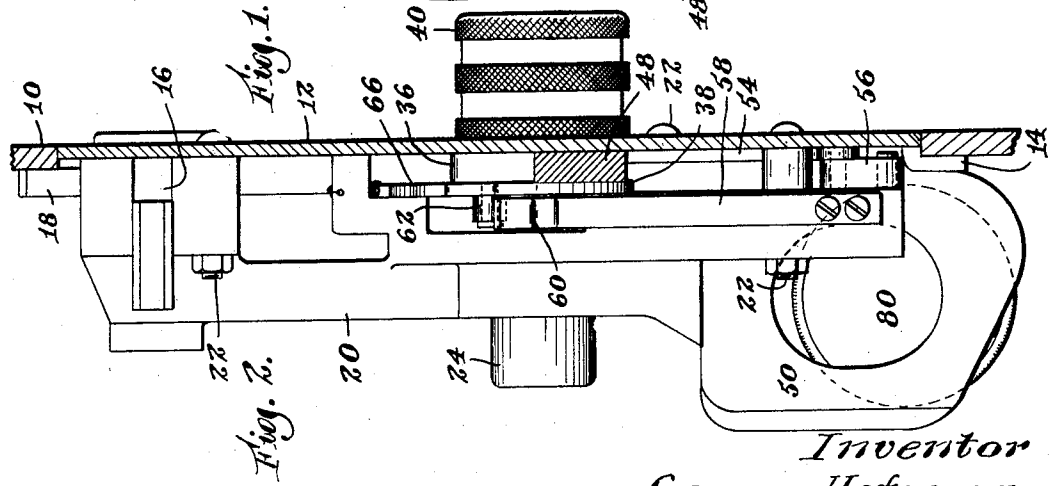


Fig. 2.



Inventor
George Hofmann
by Kenway & Witter
Attorneys

Oct. 31, 1933. G. HOFMANN 1,933,263

COIN CONTROLLED LOCK

Filed April 14, 1931 2 Sheets-Sheet 2

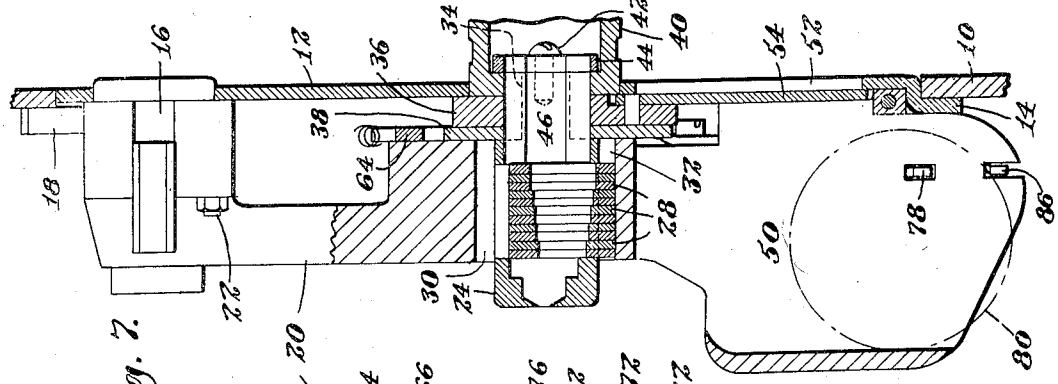


Fig. 7.

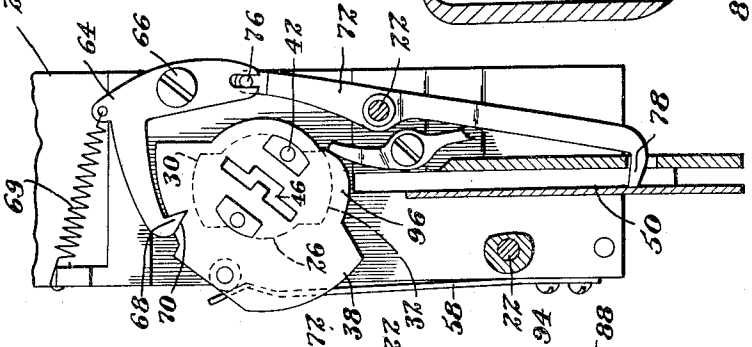


Fig. 6.

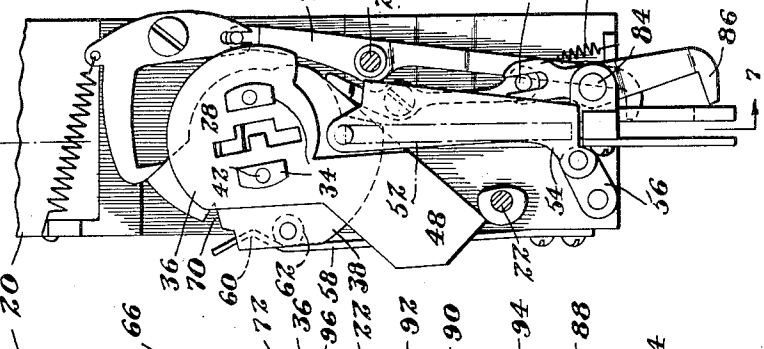


Fig. 5

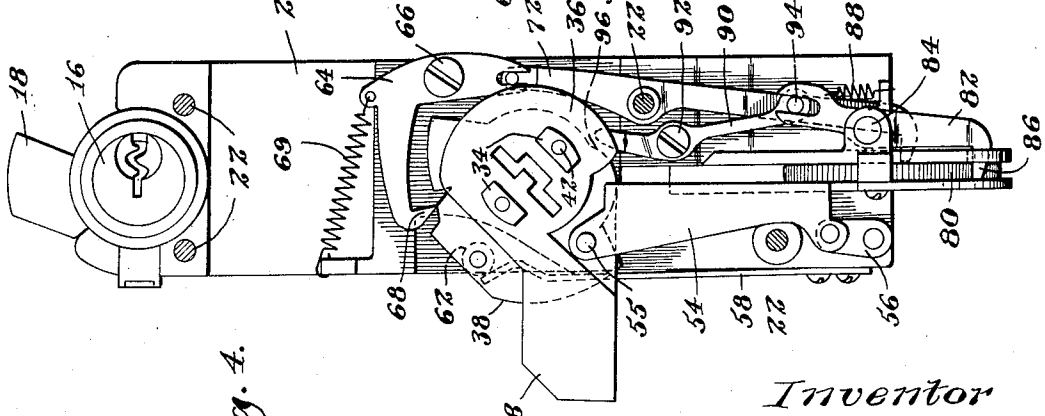


Fig. 4.

Inventor
George Hofmann
by Kenway & Ritter
Attorneys

Patented Oct. 31, 1933 1,933,263

UNITED STATES PATENT OFFICE

1,933,263

COIN CONTROLLED LOCK

George Hofmann, Boston, Mass., assignor to American Locker Company, Chicago, Ill., a corporation of Delaware

Application April 14, 1931. Serial No. 529,951

11 Claims. (Cl. 194—92)

This invention relates to coin controlled devices, and more particularly to such devices for vending purposes. The primary object of the invention is to provide an improved coin controlled lock which may be applied to a cabinet or the like and set in a locked position from which it may be opened only by the depositing of the proper coin thereinto.

After the lock has been opened and the vended goods delivered or removed, it is desirable that the lock can be again set to locked condition only by proper authority who, before so setting the lock, deposits thereinto another consignment of the goods to be vended, as otherwise the next customer might deposit a coin and receive no goods therefor. It is, therefore, another object of my invention to provide a coin controlled lock of the above defined nature wherein is embodied controlling means for preventing the resetting of the lock to locked position except by the properly authorized person.

Other objects of my invention include the provision of an exterior knob for opening the lock upon the depositing of a coin and a key receiving means, preferably therethrough, for resetting the lock to locked position, means for quickly throwing the lock to and retaining it in its locked and unlocked positions, improved means for preventing the insertion of a coin when the lock is not set, and a generally more compact and more serviceable combination.

In the accompanying drawings I have illustrated one specific embodiment of my invention but it will be understood that the invention can be otherwise embodied and that the drawings are not to be construed as defining or limiting the scope of the invention, the claims appended hereto being relied upon for that purpose.

Referring to the figures of the drawings,

Fig. 1 is a front view of my improved lock mounted in a vending cabinet;

Figs. 2 and 3 are sectional views therethrough taken respectively on lines 2—2 and 3—3 of Fig. 1;

Fig. 4 is a front elevation of the lock in the locked position and with the face plate removed;

Fig. 5 shows the same in unlocked position;

Fig. 6 is a fragmentary view similar to Fig. 4 and showing the retaining mechanism in operation; and

Fig. 7 is a sectional view taken on line 7—7 of Fig. 5.

Referring more particularly to the drawings by reference characters, 10 indicates a vending cabinet having an opening therein receiving the lock in such manner that the front plate 12 thereof covers the opening, the lower end of the plate having a lip 14 engaging the inner face of the cabinet and the upper end of the plate being locked within the opening by a lock 16 having a bolt 18 also engaging the inner face of the cabinet. A rear body portion 20 is secured to and in spaced relation from the rear face of the plate 12 by bolts 22 and the improved lock of my invention is supported on and between these front and rear elements, as will now be described.

The lock cylinder 24 is rotatably mounted in a bore 26 in the body 20 and is provided with a plurality of tumblers 28 which may slide vertically into upper and lower recesses 30 and 32 opening into the bore, the tumblers normally being in the down and locking position of Fig. 7 when the lock is in the released position of Fig. 5. The forwardly extending portion of the cylinder beyond the tumblers 28 comprises a pair of bar-like members 34 and these members extend through fitting openings within a locking plate 36, a member 38 and the inner end wall of an exterior knob 40. Screws 42 are threaded into the members 34 and in cooperation with a circular plate 44 hold the several parts assembled on the cylinder. The inner end of the knob is rotatably supported within an opening in the front plate 12 and a keyhole slot 46 extends through the several elements to the tumblers.

A locking bar 48 is carried by the plate 36 and is shown in the cabinet-locking position in Fig. 4. Beneath the cylinder 24 is a coin receiver 50 into which a coin may be deposited through a slot 52 in the front plate 12 when the cabinet is in locked position. A closure plate 54 is provided for preventing such insertion when the lock is moved to its unlocked position. The upper end of this plate is pinned to the plate 36 at 55 and its lower end is carried by a rocking arm 56. The closure plate is, therefore, carried positively by the plate 36 into the two positions shown in Figs. 4 and 5. The cylinder 24 and its plates are resiliently thrown to and held in these two positions from an intermediate position by a leaf spring 58 secured to the body 20 and having a free pawl-like V end 60 cooperating with a roller 62 on the plate 38.

The following means are provided for holding the lock in the cabinet-locking position (Fig. 4) until a coin has been deposited in the receiver 50. A pawl 64 pivoted at 66 has its nose 68 normally engaged by means of a spring 69 with the edge of the plate 38. In the locked position the nose 68 is adapted to cooperate with a notch 70 in the plate 38 and prevent rotation of the cylinder

in the unlocking direction, as illustrated in Fig. 6. A lever 72 pivoted at 22 has at its upper end a pin and slot connection 76 with the pawl 64, a finger 78 on the lower end of the lever being adapted to extend into the coin receiver 50 when the pawl engages within the notch 70 (Fig. 6). When the cylinder is in its full forward position (Fig. 4) the pawl nose 68 is forced out of the notch 70 and the finger 78 is likewise withdrawn from the coin receiver 50, thereby permitting a coin to be received therein. It will be clear that a coin 80 in the receiver will act as an abutment to the finger 78 and thereby withhold the pawl nose 68 from engaging within the notch 70, thus permitting the cylinder to be rotated in the unlocking direction.

When a coin 80 is deposited through the slot 52, it is necessary that it shall be retained within the receiver 50 until it has served its lock-releasing function. The following means are provided for this purpose. A lever 82 pivoted at 84 has a coin-retaining finger 86 on its lower end and a spring 88 normally urges the lever in a direction holding this finger in coin-detaining position within the receiver (Fig. 4). A second lever 90 pivoted at 92 has at its lower end a pin and slot connection 94 with the lever 82 and its upper end is in the path of movement of a cam portion 96 of the plate 38. A coin deposited into the receiver is, therefore, supported therein by the finger 86 until the notch 70 has passed the engaging pawl end 68, the cam face 96 thereafter acting to withdraw the finger and permit the coin to drop into a receptacle. The function of the spring 58 should herein be particularly noted. The V portion 60 of the spring is so located that the roller 62 passes thereby before the locking bar 48 has passed to the releasing position and the spring thereafter acts to quickly complete the operation whereby the lock is brought to the unlocked position (Figs. 5 and 7) and the coin dropped into the receptacle.

The operation of the device may be briefly described as follows. The lock is shown in the unlocked position in Figs. 5 and 7 and is held in such position by the tumblers 28. The same may be set to the locked position only by the authorized agent by the insertion of the proper key whereby to withdraw the tumblers. Upon such insertion and clockwise rotation of the lock, the spring 58 acts to quickly throw the parts to the locked position (Figs. 4 and 6) and to normally hold them in the position of Fig. 4. In this latter position the coin slot 52 is open and the finger 78 is withdrawn. Any attempt to rotate the knob 40 rearwardly will cause the pawl 68 to engage within the notch 70 (Fig. 6) and prevent further unlocking movement. However, when a coin is deposited into the receiver 50, it acts as a stop to the finger 78 which, in turn, prevents the operation of the pawl 68, such coin being retained within the receiver by the finger 86. The lock may now be rotated in the releasing direction and as soon as the notch 70 passes the tooth 68 the roller 62 will have passed the V portion 60 of the spring 58, whereby such spring will act to quickly complete the unlocking movement. During this further unlocking action, the cam portion 96 acts on the lever 90 to withdraw the finger 86 whereby the coin is released and drops into a receptacle. The lock is thereupon brought to the original unlocked position, from which it can be reset only by the use of the proper key. Such a key is used by the authorized agent when he comes to refill the cabinet with goods to be vended.

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

1. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar operated thereby, an exterior knob for rotating the cylinder, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the cylinder and bar may be moved by said knob from locking position to released position, means acting to quickly throw the cylinder to both said two positions from an intermediate position and to resiliently retain the cylinder in such positions, and key controlled means preventing unauthorized return movement of the cylinder and bar to locking position.

2. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar operated thereby, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the cylinder and bar may be moved from locking position to released position, and combination controlled means preventing unauthorized return movement of the cylinder and bar to locking position.

3. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar carried thereby, an exterior knob for rotating the cylinder, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the knob can rotate the cylinder and bar from locking position to released position, and combination controlled means preventing unauthorized return movement of the cylinder and bar to locking position.

4. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar operated thereby, an exterior knob connected to the cylinder, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the knob can rotate the cylinder and bar from locking position to released position, and key controlled means within the cylinder preventing unauthorized return movement of the cylinder and bar to locking position.

5. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar operated thereby, an exterior knob coaxial with and connected to the cylinder, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the knob can rotate the cylinder and bar from locking position to released position, key controlled means within the cylinder preventing unauthorized return movement of the cylinder and bar to locking position, and means

providing for the engagement of a releasing key with the cylinder through the knob.

6. A coin controlled lock comprising the combination of a rotatable cylinder, a locking bar operated thereby, an exterior knob connected to the cylinder, a coin receiver, means normally retaining the cylinder and bar in locking position and having a finger adapted to enter the receiver, the presence of a coin in the receiver being adapted to obstruct the finger and thereby prevent the retaining action of the first-named means whereby the knob can rotate the cylinder and bar from locking position to released position, a plurality of locking tumblers within the cylinder for preventing unauthorized return movement of the cylinder and bar to locking position, and means providing an exterior key passage into the cylinder whereby the application of a key thereto is adapted to withdraw the tumblers and permit turning of the cylinder to the first-named position.

7. A lock comprising a rotatable cylinder, a locking bar moved thereby between locking and unlocking positions, an exterior knob for rotating the cylinder, a coin receiver, means preventing movement of the cylinder by the knob from the locking position to the unlocking position except when a coin is present in the receiver, and means preventing the resetting of the lock to the locking position except by the application of a key thereto.

8. A lock comprising a rotatable cylinder, a locking bar moved thereby between locking and unlocking positions, an exterior knob for rotating the cylinder, a coin receiver having a coin slot opening thereinto, means preventing movement of the cylinder by the knob from the locking position to the unlocking position except when a coin is present in the receiver, combination controlled means preventing unauthorized return movement of the cylinder and bar to locking position, and means connected to the cylinder and moved thereby to obstruct the slot opening when the cylinder is in the unlocked position.

9. A coin controlled lock comprising the combination of a base, a cylinder therein, a coin receiver, a shoulder connected to the cylinder, a pawl adapted to be disposed in the path of travel of the shoulder, a finger connected to the pawl and adapted to enter the receiver when the pawl enters the path of said shoulder, means for retaining a coin in the receiver in a position obstructing the finger, means including a cam carried by the cylinder for releasing the first-named means upon rotation of the cylinder and after the shoulder has passed the pawl, and a spring attached to the base and acting on the cylinder for quickly completing the rotation of the cylinder after the said passing of the shoulder.

10. A coin controlled lock comprising the combination of a cylinder, a coin receiver, a shoulder connected to the cylinder, a pawl adapted to be disposed in the path of travel of the shoulder, a finger connected to the pawl and adapted to enter the receiver when the pawl enters the path of said shoulder, means for holding the finger from entering the receiver when the cylinder is in the extreme position from which the shoulder prevents movement to the other extreme position, and resilient means including a leaf spring having a V engagement with a roller carried by the cylinder normally holding the cylinder in the first said extreme position, and operative quickly to throw the cylinder to both said positions from an intermediate position.

11. A coin controlled lock comprising the combination of a rotary cylinder, a locking member operated thereby, means exteriorly of the lock for rotating the cylinder and thus moving the member from locked position to unlocked position, a coin receiver, means for retaining said member in locked position against the action of the first-named means and including means for permitting movement of the member to unlocked position by the first-named means when a coin is present in said receiver, and key-operated tumblers preventing return rotation of the cylinder and thus return movement of the member from unlocked to locked position by the first-named means.

GEORGE HOFMANN.