Jan. 24, 1967 E. M. SPENCER 3,299,678

LOCK DEVICE FOR VENDING MACHINE OR THE LIKE

Filed July 8, 1964

FIG. 1

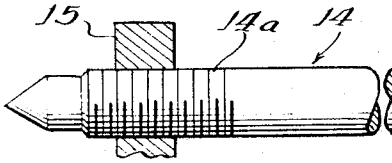


FIG. 2

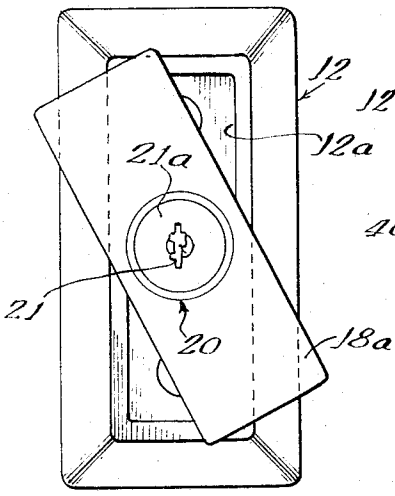


FIG. 3

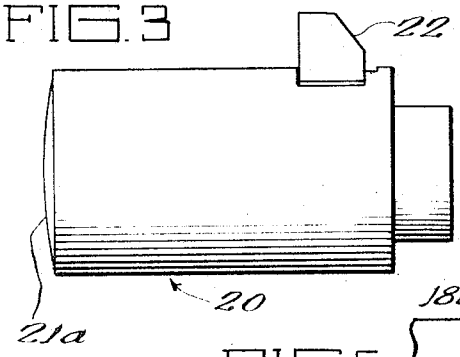


FIG. 4

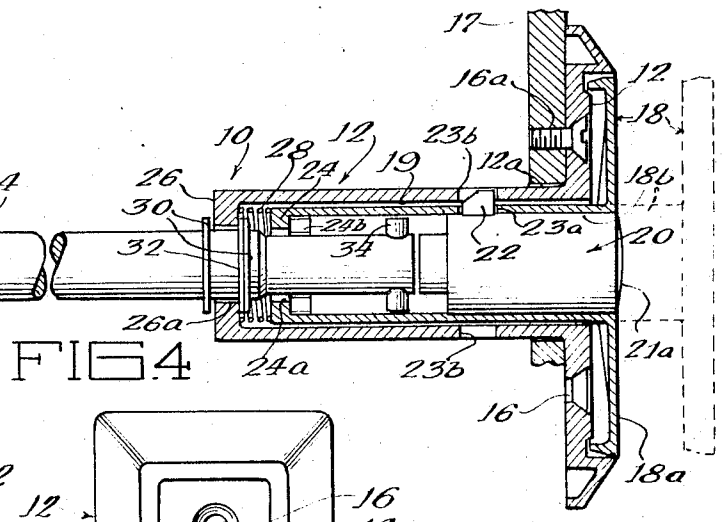
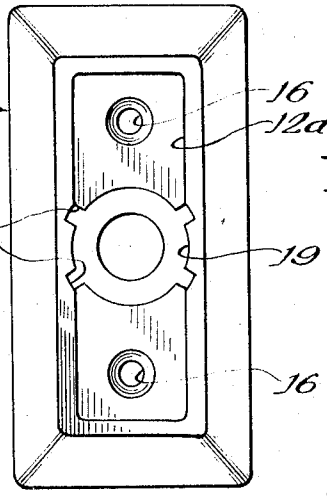


FIG. 7



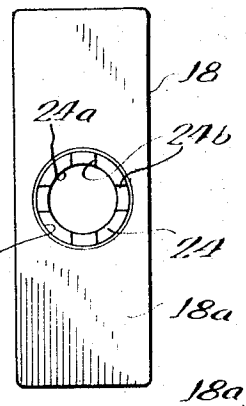


FIG. 5

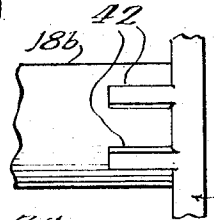


FIG. 6

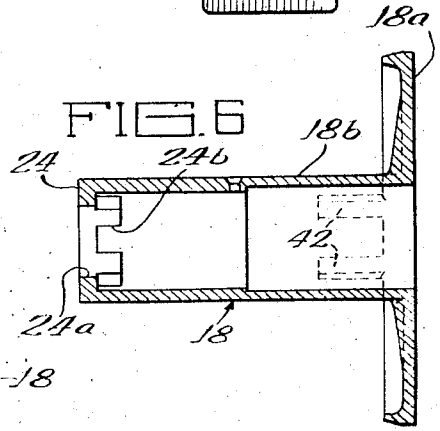


FIG. 8

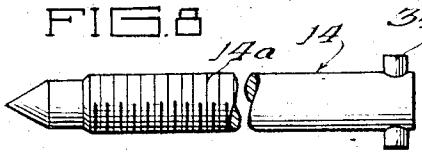


FIG. 9



Inventor:
Elbert M. Spencer
By: Hofgren, Wegner, Allen, Stellman & McCord
Attorneys

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3,299,678

LOCK DEVICE FOR VENDING MACHINE OR THE LIKE

Elbert M. Spencer, Wildwood, Ill., assignor to Illinois Lock Co., a corporation of Illinois

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1 Claim. (Cl. 70—208)

This invention relates to locking devices and more particularly, to a draw lock for a vending machine or similar cabinet-like device.

Draw locks are commonly used on refrigerated cabinets which possess a substantial amount of gasket material about the door. These locks are most ideal in that the threading of the shaft member into a mating receptacle in the cabinet provides the necessary torque for drawing the door tightly against the cabinet to sufficiently compress the gasket material while at the same time providing a structure wherein a key operated lock cylinder may be provided to lock the device in the closed position and prevent access to the interior thereof.

A limitation of presently known draw locks utilizing a locking element having a threaded shaft is that when the shaft has been threaded tightly into the mating nut provided in the cabinet to adequately seal the cabinet door to the body of the cabinet, the remaining portion of the locked mechanism may not be in alignment with other portions thereof to permit the device to be locked at the position of optimum door closure. A more particular limitation has been that such hitherto known locking devices have not been constructed in such a manner as to provide for the complete disconnection between the operating handle and the threaded shaft in the locking position of the device. Such a complete disconnection provides a more tamper-proof lock rendering entrance to the interior of the cabinet impossible without the proper means, namely a key.

It is therefore a primary object of this invention to provide a new and improved draw type locking device for vending machines or the like.

It is a general object of this invention to provide a new and improved draw type locking means for a vending machine or the like having means permitting the device to be locked in any selected position of threading of the draw shaft into the mating nut on the cabinet body.

It is another object of this invention to provide a new and improved draw type locking means for a vending machine or the like wherein the draw shaft may be completely disconnected from the remainder of the structure and remain disconnected during locking of the device.

Yet another object of this invention is to provide a new and improved draw type lock for a vending machine or the like having a threaded draw shaft for tightening into a cooperating nut in the body of the vending machine and being provided with a locking handle disconnected from the draw shaft with a lost motion connection and having means normally urging the handle and shaft into connection and a lock for locking the same out of connection with each other so that upon release of the lock the handle and shaft may be brought into engagement for turning of the shaft from the exterior of the lock and upon arriving at the desired point of threaded engagement or disengagement from the mating nut, the

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locking handle may be moved relative to the draw shaft to completely disconnect the two and lock the device at the selected position without interfering with the degree of threaded engagement between the draw shaft and the nut.

Further objects and advantages will become apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a partially broken section view of the locking device of this invention;

FIGURE 2 is a front view of the locking device showing the lock assembly in an unlocked position in connection with the draw shaft;

FIGURE 3 is an enlarged view of the lock tumbler used in the locking device of this invention;

FIGURE 4 is a front elevational view of the front plate of the housing in which the handle member is positioned;

FIGURE 5 is an enlarged fragmentary view of a portion of the shank of the handle member;

FIGURE 6 is a section view of the handle member of the lock of this invention;

FIGURE 7 is a front elevational view of the handle member of this invention with the lock tumbler removed;

FIGURE 8 is a broken view of the draw shaft used in the locking device of this invention; and

FIGURE 9 is an end elevational view of the draw shaft shown in FIGURE 8.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail an embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claim.

Referring now to the drawings, in FIGURE 1 there is shown the locking device **10** of this invention. The locking device **10** includes a generally T-shaped housing **12** which is provided with an elongate shaft **14** extending therefrom. The shaft **14** has a threaded end **14***a* for engagement with a mating nut **15** which may be positioned in the interior of a cabinet. The housing is provided with suitable means such as openings **16** for receiving fastening devices, such as screws **16***a*, for securing the housing to the door **17** of a cabinet. The sealing of the cabinet door to the body is accomplished by threading the stud **14** into the nut **15** secured to the interior of the cabinet. The housing is provided with a generally T-shaped handle which is nested within the housing and has a generally flat, upright face **18***a* and an inwardly projecting elongate shank or sleeve **18***b* which is received in the hollow interior **19** of the neck **12***a* of the housing.

A lock cylinder **20** is positioned in the interior of the handle shank **18***b* and is provided with a keyway **21** in the front face **21***a* thereof which is received in an opening **21***b* in the front face of the handle. The cylinder is further provided with a spring biased key operable upstanding tongue **22** which projects through the tongue opening **23***a* in the handle shank and one of the tongue openings **23***b* in the housing neck to lock the handle relative to the housing in the position shown in full outline in FIGURE 1. The front face **12***a* of the housing is

suitably dished out to accommodate the configuration of the handle face in such a manner as to present a substantially smooth appearance when the device is in locked position.

The interior end of the handle shank is partially enclosed with a cap **24** having an opening **24***a* and being provided with notches **24***b* on the interior side of the cap. The housing is similarly provided with a cap **26** at the end of the neck having an opening **26***a* in alignment with the handle shank opening **24***a* to receive the shaft **14**. A spring **28** is interposed between the exterior of the end cap **24** of the handle shank and the interior of the end cap **26** of the housing to normally urge the handle longitudinally relative to the shaft and housing toward an open position shown in dotted outline in FIGURE 1. The handle is maintained in the closed position by the locking tongue on the lock cylinder.

The shaft **14** is provided with retainer rings **30** which are positioned about the shaft on either side of the end cap **26** of the housing to hold the shaft against substantial longitudinal movement relative to the housing. The outer dimension of the shaft is slightly smaller than the inner dimension of the opening **26***a* so that the shaft is freely rotatable relative to the housing. A washer **32** abuts the interior of the cap **26** between the retainer ring **30** to facilitate the rotatable relation between the shaft and the housing. A cross-pin **34** is loosely positioned generally transversely to the length of the shaft at its inner end and is substantially freely movable relative to the shaft.

When the lock tongue **22** is retracted by means of a key, the force of the spring **28** pushing the handle may move the handle longitudinally relative to the shaft **14** and the housing **12** to the position shown in dotted outline in FIGURE 1 where the face of the handle may be grasped. This also positions the end cap **24** of the handle adjacent the end of the shaft **14** so that the pin **34** may be engaged with the notches **24***b* in the interior of the end cap to connect the shaft **14** to the handle **18** for rotation therewith. The relative looseness of the cross-pin in the shaft facilitates the lodging of the pin in the notches. When the lock is in such a position, as the handle **18** is turned, the shaft will also be turned to thread the shaft relative to the nut **15**. This threading will permit the door to which the housing is attached to be sealed or opened depending upon which movement is imparted to the handle. Once the desired degree of threaded movement has been reached, as for example, when the shank has been threaded into the nut a sufficient distance to tightly position the door against the body of a cabinet, the handle and shaft may be disconnected by simply pushing the handle against the spring toward the interior of the housing to a point where the notches are laterally spaced from the pin **34**. At such a point there is a complete disconnect between the handle and the shaft.

To insure that when the handle member is reinserted into the housing the tongue **22** will be aligned with one of the openings **23***b* in the housing, guiding means are provided on the handle and the housing. This guiding means includes a plurality of longitudinally extending grooves **40** which are formed in the interior of the housing and extend to the front face **12***a* thereof. For mating with these grooves, the exterior of the handle is provided with a plurality of peripherally disposed ribs **42**. The mating ribs and grooves are so formed that the handle may be inserted in the housing in only those positions where the tongue will be in registry with one of the housing openings **23***b*. In the embodiment shown, the two openings **23***b* are 180° apart and the two positions in which the handle may be inserted in the housing are substantially 180° apart. The ribs extend from the inside of the handle face to a point which is short of the point to which the handle shank must be moved to disconnect the handle from the shaft. After the shaft **14** has been

threaded to the desired position, and the handle has been moved longitudinally relative to the shaft to disconnect the shaft pin from the handle notches, the handle may be freely rotated to a position where the ribs thereof are in alignment with the grooves in the shank without disturbing the shaft **14**. Once the position of alignment has been reached, the handle may be moved axially toward the interior of the shank in opposition to spring **28** to the position shown in FIGURE 1 where the lock mechanism may be actuated by a suitable key to move the tongue **22** through the opening **23***a* in the handle shank and one of the openings **23***b* in the housing body. Thus, the device will be in a fully locked position with the shaft **14** essentially a freely rotatable member relative to the housing. Only when the handle is moved longitudinally to bring the pin and notches into engagement can the shaft be turned. Since the housing is secured to the cabinet door by means which are covered by the face of the handle, and since the lock holds the handle against longitudinal movement, only one having a key to unlock the handle may gain access to the interior and bring the shaft and handle into operable engagement.

An added feature of this invention is that the individual lock cylinders are removable. In those instances where route men who service vending machines may have resigned or whose actions may have become suspect, the individual cylinders may be replaced without necessitating the complete removal of the locking unit. To accomplish this, the device is unlocked so that the handle is essentially in the position shown in dotted outline in FIGURE 1 which positions the top of the tongue **22** slightly to the exterior of the face **12***a*. The spring biased tongue may be depressed below the opening **23***a* so that the cylinder **20** may be moved axially relative to the interior of the shank and withdrawn therefrom. The new lock cylinder may be easily inserted in place of the old cylinder so that only those personnel having keys to the new tumbler will be able to gain access to the interior of the cabinet.

I claim:

A draw lock device for securing a cabinet door to a cabinet, comprising: a lock housing secured to said cabinet door and having a cylindrical neck portion; a shaft extending through the neck portion of said lock housing and projecting from the door toward the interior of said cabinet, said shaft being mounted in said neck portion for rotation relative to said housing; a handle mounted in said housing by means permitting longitudinal movement of said handle relative to the housing and the shaft from a position wherein said shaft and handle are conjointly rotatable relative to the housing to a position wherein said handle is free to rotate relative to said housing and said shaft; a pin loosely positioned in said shaft generally transverse to the axis thereof, said handle mounting means including a sleeve on said handle telescopically received within the said housing over said shaft, a plurality of radial and circumferentially spaced slots including slots transverse to each other at the distal end of said sleeve each for closely receiving said loosely positioned pin at a plurality of different rotationally indexed connecting positions to provide easy connection with said shaft at each connecting position for said shaft and handle; a spring urging said handle longitudinally of said housing and relative to said shaft for connecting the handle with said shaft at any of said connecting positions for rotation of said shaft and handle relative to said housing, said slots receiving said pin in each position and blocking said handle from free rotation in either direction relative to said shaft; means for securing said handle in said housing against rotation relative to said housing and in complete disconnection from said shaft; and means operable after disconnection of said handle relative to said shaft for guiding said handle into locking engagement in said housing without moving said shaft, said means including a plurality of generally longitudinally

extending slots in said housing bore and a plurality of generally longitudinally extending ribs on said handle sleeve, said ribs being spaced from said housing slots when said shaft and handle are in operable engagement a distance greater than movement of said handle longitudinally of said housing and said shaft to disconnect said handle from said shaft so that, after said disconnecting movement of said handle, said handle may be rotated relative to said housing and said shaft to align said ribs with said housing slots to permit axial insertion of said handle into said housing.

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BOBBY R. GAY, *Primary Examiner.*