Aug. 3, 1965 M. C. COHEN 3,197,984

CLOSURE CONTROL

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FIG. 2.

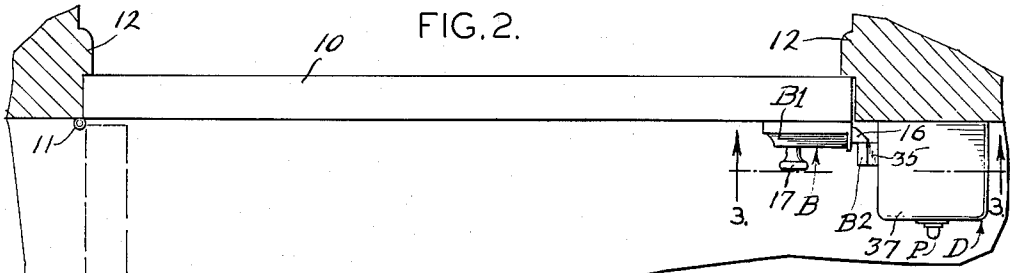


FIG. 1.

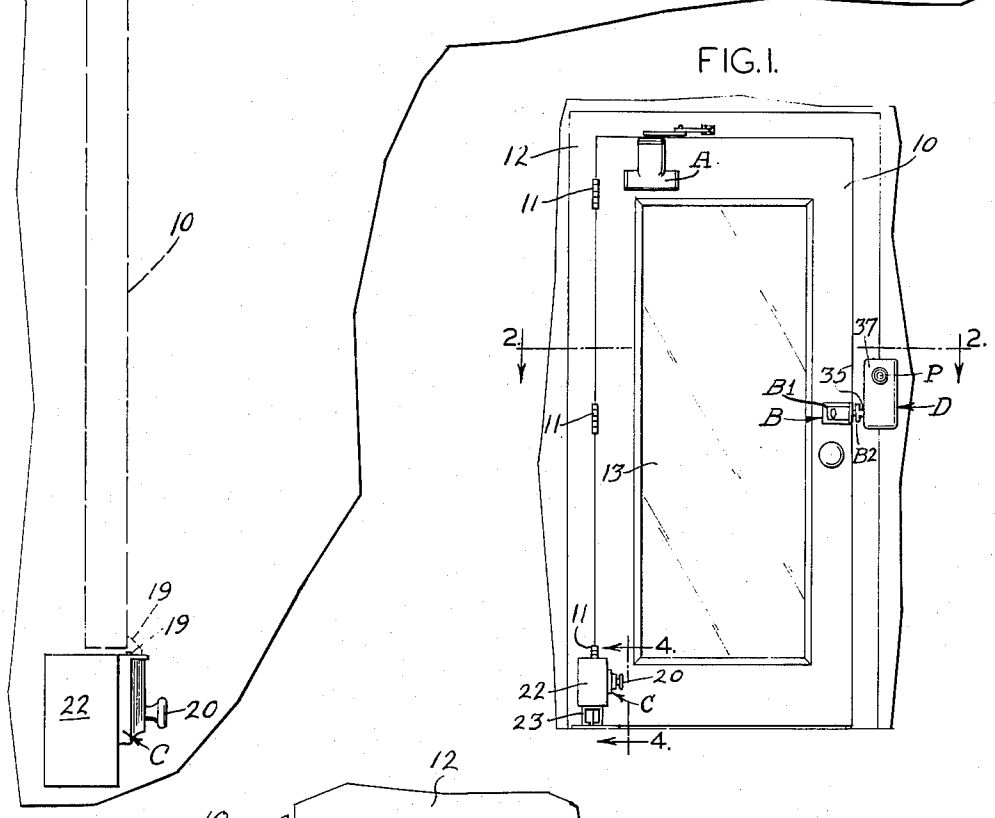
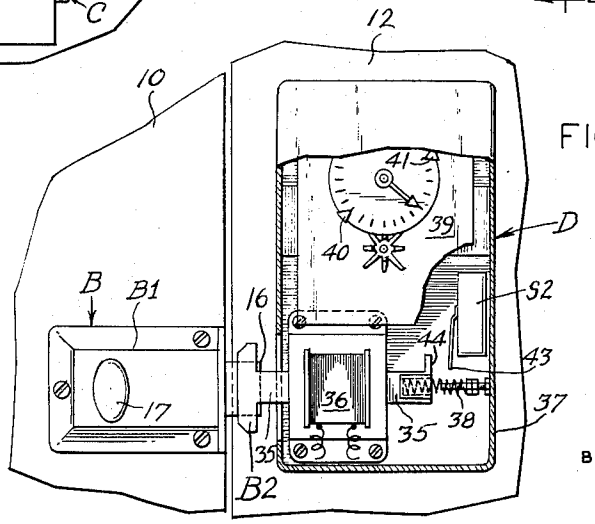


FIG. 3.



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FIG.4.

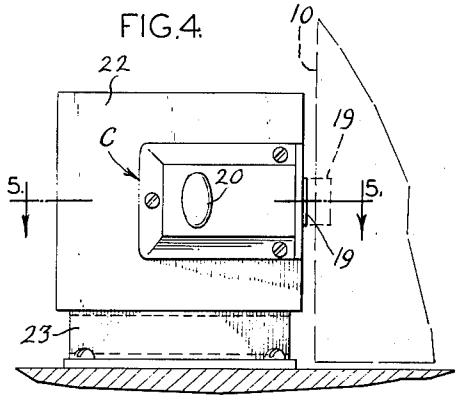


FIG.5.

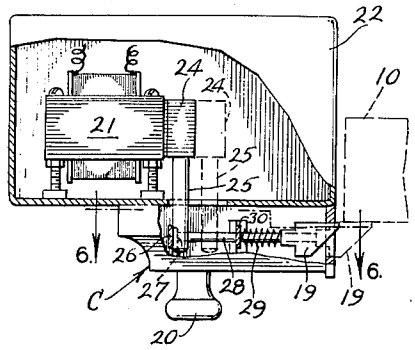


FIG.6.

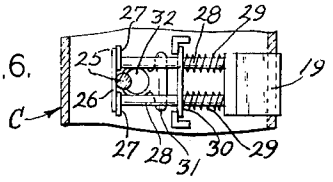
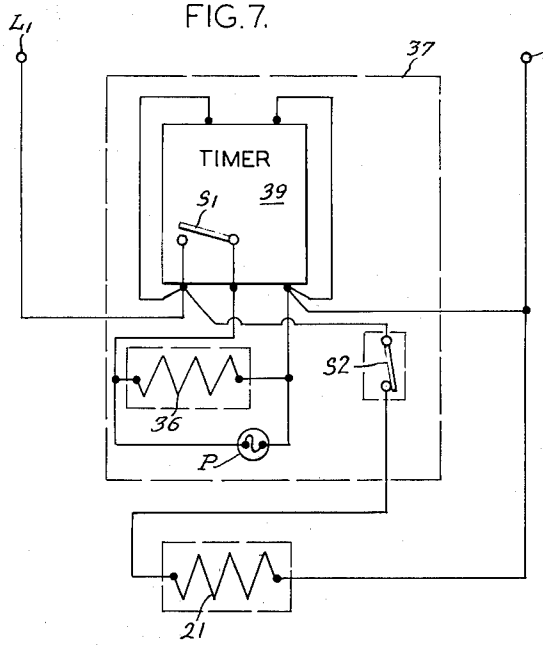


FIG.7.



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CLOSURE CONTROL

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1 Claim. (Cl. 70—271)

This invention relates to a closure control, as for the door of an unattended public coin-operated laundry which requires closing and locking during certain hours and opening for use at other hours and has for an object the provision of improvements in this art. To this end the invention includes means operable to so control the lock of a door to make it lockable upon closure at specified times of the day and to render it openable at other times of the day with the times being controlled by a clock mechanism and automatically operable. The invention also incorporates means effective to make closing and locking fully effective at a given time and acting at other times to make the lock nonlockable.

One of the particular objects of the invention is to provide electro-magnetic means for controlling the lock of a door to make it lockable upon closure at certain times together with coordinated means for releasing it from an open position, if so held, for closure, as by a door check, to make closing and locking fully effective at a given time, the same means acting at another predetermined time to make the lock nonlockable.

Another object is to provide such controls which largely use ordinary locking, closing and holding means whereby to minimize the cost of the installation.

Another object is to provide a lock control which requires only the replacement of the keeper or striker of an ordinary commercial latch bolt type of door lock, sometimes referred to as a night latch.

Another object is to provide a control of the fail-safe type in which mechanical means are employed for making the lock lockable so that the door cannot become unlocked due to current failure of the electro-magnetic control means.

The above and other objects, features and advantages of the invention will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawings, wherein:

FIG. 1 is an inside elevation of a door with the control mechanism installed;

FIG. 2 is a greaty enlarged horizontal section taken on the line 2—2 of FIG. 1;

FIG. 3 is a vertical section and elevation taken on the line 3—3 of FIG. 2;

FIG. 4 is an elevation taken on the line 4—4 of FIG. 1 showing one form of means for holding the door in open position;

FIG. 5 is an enlarged horizontal section taken on the line 5—5 of FIG. 4;

FIG. 6 is a vertical section taken on the line 6—6 of FIG. 5; and

FIG. 7 is a wiring diagram.

A closure 10, such as the outside door of a coin-operated unattended public laundry, is mounted on hinges 11 in a frame 12. The door has a heavy clear glass panel 13 providing inspection from the outside, as by an officer or travelling guard or attendant.

The door is at all times urged to closed position, as by a common type of closure closing device A. It will be assumed that the door closing device, often referred to as a door check, will be spring biased against an air escape or dashpot which checks the closing speed. Such devices of many types are well known and need not be explained at length.

A lock B is provided for the closure, the lock or lock unit including the lock proper B1 which is here shown

mounted on the door and a keeper or strike B2 which is here shown mounted on the frame.

The lock B1 is of a common type, sometimes referred to as a "Yale" night latch, and includes a spring-projected latch bolt 16 which is bevelled on the outer side so as to pass over the keeper when the door is closed. A hand knob 17 is provided for operation of the lock from the inside so that a customer who happens to be inside the premises at closing time can get out; and key operating means, not shown, are provided so that authorized persons may enter at any time.

There is also provided a door hold-open device C which again may be a common type of latch device altered to suit present purposes and which includes a spring-projected latch bolt 19 bevelled on one side to permit the door to pass over and be caught by it and a hand knob 20 for manually releasing the door from open position when desired to permit it to be closed by the door-closing device.

The alteration of the hold-open latch consists in the provision of an electro-magnet or solenoid 21 mounted in a box 22 supported on the adjacent wall or floor (floor, as shown) by a base 23. The plunger 24 of the solenoid 21 carries a laterally projecting pin 25 which engages a transverse bar 26 secured on the usual cam plates 27 carried by the ends of the guide plunger rods 28 of the latch bolt 19. Springs 29 on the plunger rods 28 act against a guide and abutment plate 30 to urge the latch bolt outward. The usual cam member 31 which is carried by the shaft 32 of the hand knob 20 for acting on the plates 27 of the guide plunger rods is shown in FIG. 6.

As so far described, it is seen that there is a door closing device A, a door lock B and a door hold-open device C.

Means are provided for controlling one of the door lock elements, either the lock proper B1 or the keeper B2 and here specifically the keeper element B2, to condition it for locking or freeing the door at different predetermined times, the lock controlling means coincidently controlling the door hold-open means.

As shown in FIGS. 1 to 3, the keeper B2 of the lock is carried by the plunger 35 of an electro-magnet or solenoid 36 mounted in a control box 37 which is secured to the closure frame. The solenoid is a component of a switch control unit which is generally designated by the letter D. The plunger 35 and keeper B2 are normally urged outward into locking position by a spring 38.

The solenoid 36 is energized by a closing switch S1 (FIG. 7) in a control circuit supplied with current from a convenient source such as normal 120 volt house installation, as from power lines L1, L2. Herein a clock mechanism 39 with trip set elements 40 and 41 controls the closing and opening of the switch S1. Although, for simplicity and economy of equipment, the clock is shown to be mounted in the box 37 it is to be understood that the timing control of the switch S1 may be remotely located and operated.

A pilot lamp P is lighted when the switch S1 is closed to indicate when the door is not conditioned for locking.

A normally closed switch S2 controls the action of the door release solenoid 21, the switch having an operating member 43 which is engaged by a lateral projection 44 of the plunger 35 of the keeper operating solenoid 36 when the solenoid is energized.

If desired, means may be provided for holding the keeper B2 in retracted position independently of the solenoid 36 so the current of the control circuit may be cut off during the time the lock is not effective.

The operation should be clear from the above description but in review, as applied, for example, to a public laundry, the clock is set at 40, 41 for a closing time and an opening time. These times are often set by law to

assure the closing of public facilities during the later hours of the night. At closing time the switch S1 is opened to de-energize the magnet 36 and allow the spring 38 to project the keeper into locking position. Outward movement of the solenoid plunger 35 moves the projection 44 from the operator 43 of switch S2 and allows switch S2 to close. This energizes solenoid 21 and retracts the latch bolt 19 to allow the door to be closed by the door closing device A.

If any customers are in the premises after closure they can leave by turning the knob 17, after which the door will again close and lock.

If an attendant wishes to enter after closing time he may do so by using a key to withdraw the latch bolt.

At opening time the switch S1 is closed to energize the magnet and retract the keeper B2. Thereafter customers can freely enter and leave since the lock is not effective.

During the day the hold-open magnet 21 is de-energized to allow the latch bolt 19 to be projected so that the door will be held open, as on warm days or for ventilation. If it is desired that the door be in closed position, the knob 20 of the hold-open device is operated by hand to release the door to close.

The pilot light P when lighted will indicate when the keeper B2 is not in the distended or locking position. Inspection by a guard or patrolman will reveal at any time after the closing hour whether the latch bolt 16 has been held out. Frequent inspection and trying of the door, as is usual and intended, will determine whether the locking facilities are fully effective.

The timer shown herein a known commercial type, the particular one shown being model 948 of Tork Timer Controls, Inc. of Mount Vernon, N.Y.

Herein the term "latch bolt" means a bolt which cams into locking position when the closure is closed.

It is seen that the invention provides simple, inexpensive and effective closure means which, if failing, will fail in the fail-safe position to assure proper locking.

While one embodiment has been described for purposes of illustration it is to be understood that there may be various embodiments and modifications within the general scope of the invention.

I claim:

Closure control apparatus, as for an unattended public laundry, comprising in combination with a closure and its frame, a closure closing device, a lock between the closure and its frame including a lock proper having a latch bolt comprising one locking element and a movable strike keeper comprising the other locking element, said strike keeper being movable from a retracted position where it is clear of said latch bolt to a position where it will cooperate with the latch bolt to lock the closure, a first controlled power means adapted to be energized for moving said keeper in one direction and a spring urging it constantly in the other direction, a closure hold-open device, a second controlled power means adapted to be energized for moving said hold-open device in one direction and a spring urging it constantly in the other direction, and a power control means for conjointly energizing both of said controlled power means, said first power means when energized moving said keeper to retracted inactive position and said second power means where energized moving said hold-open device to retracted position to release the closure for closing and locking, said power control means including a subservient control means controlled by said keeper for causing said second power means to be energized to retract said hold-open device when the keeper is projected in to locking position and for de-energizing said second power means to cause said hold-open device to be projected when said keeper is retracted into non-locking position.

References Cited by the Examiner

UNITED STATES PATENTS

363,920	5/87	Stockwell	70—267
518,877	4/94	Curwen	70—271
779,173	1/05	Merritt	292—341.16
813,119	2/06	Smith	292—341.16
843,730	2/07	Wittmann	70—271
1,383,269	6/21	Fienberg et al.	292—341.16
1,618,738	2/27	Weiss	292—341.16
1,621,847	3/27	McCutchen	70—262

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