

July 16, 1940.

A. L. SCHUYLER ET AL

2,207,827

LOCK

Original Filed July 11, 1936

2 Sheets-Sheet 1

FIG. 1

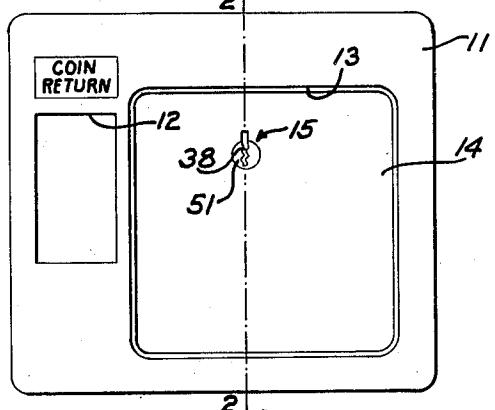


FIG. 3

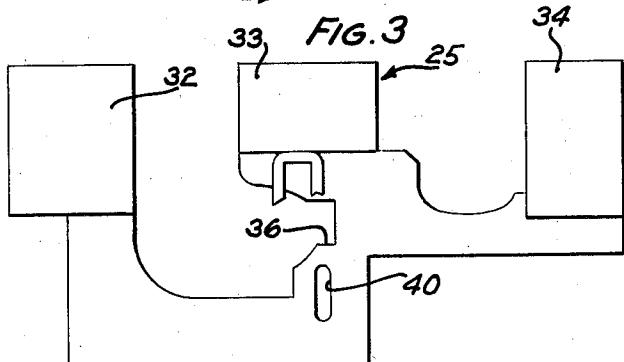


FIG. 2

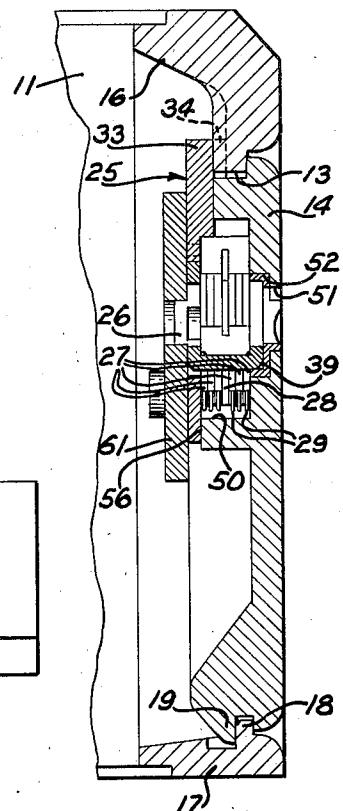
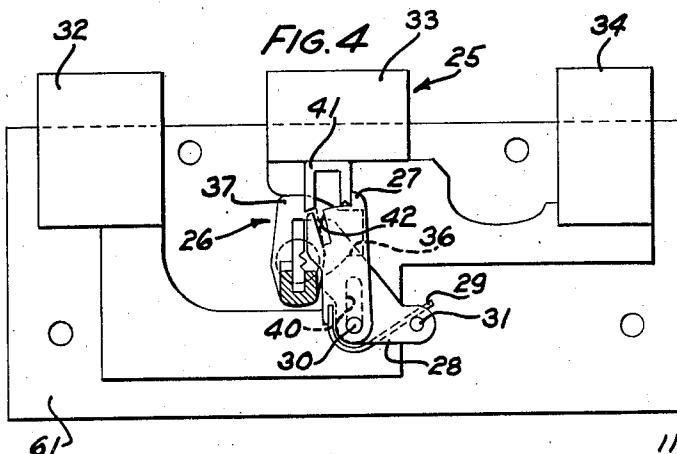


FIG. 4



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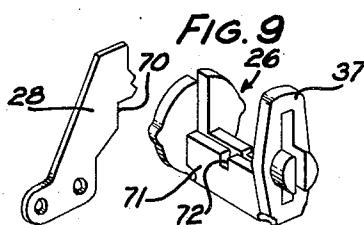
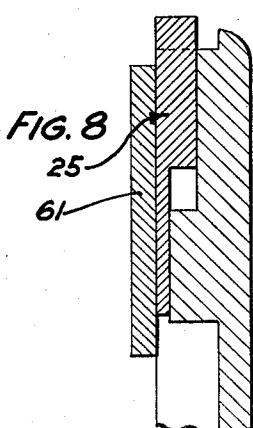
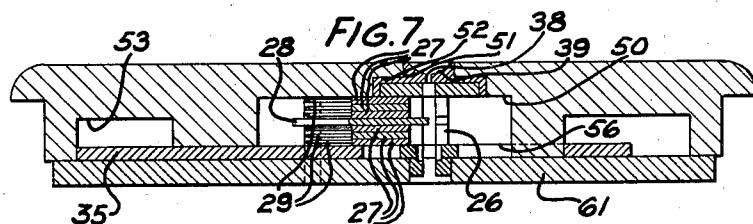
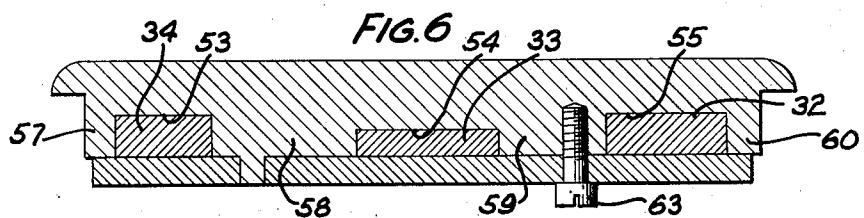
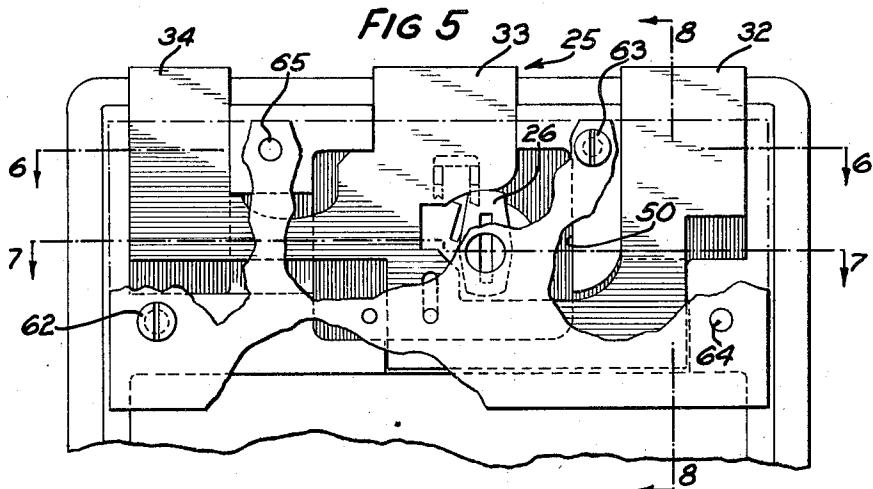
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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LOCK

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Original application July 11, 1936, Serial No. 90,076. Divided and this application November 11, 1937, Serial No. 173,964

1 Claim. (Cl. 70—81)

This invention relates to locks, and more particularly to locks for telephone pay station coin box housings, and is a division of our co-pending application entitled "Locks," Serial No. 90,076, filed July 11, 1936.

It is an object of the present invention to provide a strong, practically theft-proof lock which may be economically manufactured.

In accordance with one embodiment of the invention, the closure member or door of a telephone pay station lower housing which encloses the coin box has a lock built therein, the outer portion of the door being formed to constitute a part of the lock case in which a plurality of latching portions of a bolt are slidable. A back plate which constitutes the remainder of the lock case is provided upon which the stationary ward, movable tumblers, key center or barrel, bolt, and other operating parts of the lock may be mounted for assembly with the door. In the preferred embodiment of the invention, the stationary ward has a portion thereof cut away to form a straight surface against which the flat side of the key center or barrel may abut to properly locate the key slot formed in the lock center with respect to the door.

A better understanding of the invention may be had by reference to the following specification taken in conjunction with the accompanying drawings, wherein

Fig. 1 is a front elevational view of the lower housing of a telephone pay station adapted to enclose a coin box and having a combined door and lock mechanism formed in accordance with the present invention;

Fig. 2 is an enlarged vertical sectional view taken on the line 2—2 of Fig. 1 in the direction of the arrows;

Fig. 3 is an enlarged plan view of the bolt;

Fig. 4 is a front view of the back plate with the operating parts of the lock mounted thereon;

Fig. 5 is a view of the rear of the door with the lock bolt therein, parts being broken away to show the bolt construction;

Figs. 6, 7 and 8 are sectional views taken on the lines 6—6, 7—7, and 8—8 of Fig. 5, respectively, in the direction of the arrows, and

Fig. 9 is an exploded view of part of the lock mechanism showing the key center or barrel and stationary ward.

Referring now to the drawings wherein like reference characters indicate like parts throughout the several views, particular reference being had at this time to Fig. 1, wherein there is shown a lower housing 11 having a coin return

slot 12 and a coin box opening or door jamb 13 in which a door 14 may be locked by means of a lock designated generally by the numeral 15. As is usual in the art, the door when unlocked may be removed from the opening and a coin box (not shown) withdrawn from the housing. An empty coin box is returned to the housing before the door is replaced.

The lower housing as shown in Fig. 2, is provided with a front 16 cut out to form the coin box 10 opening 13 in which the door 14 fits somewhat snugly. The lower portion 17 of the front 16 is provided with a rib 18 which forms a seat for the door 14. Formed integrally with the door 14, which is formed by drop forging or punching, is a depending part 19 which cooperates with the rib 18 to hold the door in place when the door is locked. The door is also provided with a thickened upper part which, in the forming operation, will assume the irregular configuration shown in Figs. 2, 5, 6, 7 and 8 for receiving the operating parts of the lock which comprise a multi-head latch bolt 25, a key center or barrel 26, a plurality of movable tumblers 27 and a fixed ward 28. Each of the movable tumblers 25 has a flat spring 29 fixed thereto which normally urges the tumblers to rotate in a counterclockwise direction (Fig. 4) about a pivot pin 30. The fixed ward 28 is positioned upon the pin 30 and a second pin 31 and, as implied by its name, does not move about the pivot pin 30.

The bolt, as shown in Fig. 3, has three relatively thick head portions 32, 33 and 34, and an irregularly shaped shank plate 35 to which the head portions are rigidly or integrally connected. The plate 35 is provided with a cam notch 36 adapted to cooperate with a camming portion 37 of the key center or barrel when the key center or barrel is rotated to move the bolt into or out of latching position. Formed in the plate 35 is a slot 40 through which the pivot pin 30 will extend when the bolt is assembled in the lock.

In the assembled lock the upper faces of the tumblers 27 project into the path of an inverted U-shaped member 41, the vertical portions 43 of the U preventing retraction of the bolt unless the movable tumblers 27 be rotated by a proper key to move the upper faces of the tumblers out of the paths of the vertical portions of the U-shaped member, and to properly align slots 42 in the tumblers with the right hand vertical portion (Fig. 4) of the U-shaped member. This movement of the tumblers may be brought about in the usual manner by the use of a properly designed key inserted through a slot 38 in a key 55

center cap 39, and when the movable tumblers are brought into the proper alignment, the bolt will be retracted upon the further operation of the key to withdraw the bolt.

5 The head portion 33 of the bolt 25 is somewhat thinner than the head portions 32 and 34, as clearly shown in Fig. 6, and when the bolt is in locking position, the portion 33 will engage a thickened part of the front 16, whereas the 10 bolts 32 and 34 will engage somewhat thinner parts of the front.

In forging or punching the door 14, a plurality of recesses are formed therein adapted to receive and enclose the operating parts of the lock and to constitute parts of the lock case. 15 One of the recesses, as indicated at 50, is substantially rectangular in configuration, and receives the lock center and tumblers. This recess has an aperture 51 formed therein around which 20 a circular bearing depression 52 is formed for supporting the key center cap 39. The other recessed portions formed in the door are adapted to receive the various portions of the bolt, the recesses 53, 54 and 55 serving as guides for the 25 head portions 34, 33 and 32, respectively, and a recess 56 slidably supporting the irregularly shaped plate 35. The ribs between the recesses, as indicated in Fig. 6 at 57, 58, 59 and 60, are adapted to be engaged by a back plate 61 upon 30 which all of the operating parts of the lock are assembled. The plate 61, after the lock parts including the tumblers, bolt, key center and key center cap, and the pivot pin 30 and pin 31 are mounted thereupon, may be secured to the 35 door by means of machine screws 62 and 63, locating pins 64 and 65 being formed on the door to properly position the back plate 61 thereon.

It will be noted, by reference to Figs. 2 and 7, that the stationary ward 28 is interposed between the movable tumblers. This is done so that when a key not designed for the lock is inserted therein, the fixed ward will break the key and prevent the fraudulent opening of the lock.

40 In the present invention, the fixed ward 28 has been modified somewhat in order to serve a second purpose. This modification consists in forming the fixed ward with a rectangular cutout, as shown at 70, for cooperation with a flat

side 71 and a slot 72 on the lock center 26 (see Fig. 9).

By milling the slot 72 in the manner shown in Fig. 9 and forming a rectangular cutout, as shown at 70, the stationary ward will serve as an 5 abutment or stop against which the flat side 71 of the key center or barrel will strike when the bolt is in its extreme outward or locking position and in this manner the locked parts will be properly centered so that when the proper key 10 is inserted in the lock, no difficulty will be encountered due to the key center or barrel being turned out of the proper position.

15 While the stationary ward 28 has been shown in the embodiment of the invention disclosed as positioned between the third and fourth tumblers from either the front or rear of the lock (Fig. 2), it will be understood that this ward might be positioned between any two movable tumblers, and it will also be understood that various other 20 modifications of the lock structure and the configuration of the door might be made without departing from the scope of the appended claim.

What is claimed is:

In a telephone coin box housing having a 25 door jamb, a door adapted to fit said door jamb, a retractable bolt having a plurality of head portions rectangular in cross section slidably in said door and adapted to engage spaced portions of said door jamb to lock the door in the door 30 jamb, a key center for projecting and retracting said bolt and having substantially cylindrical projections at its ends forming trunnions for rotatably supporting it, tumblers movable to permit said bolt to be retracted, a flat plate fixed 35 to said door for supporting the bolt, tumblers and center, and a plurality of ribs formed integral with said door for cooperating with the flat plate to provide a lock case for enclosing the tumblers and key center and to provide guides 40 for said bolt, said door having a depression formed therein to provide a bearing for one end of the center and having flat portions bearing against the tumblers and the plate being provided with an aperture, the sides of which form 45 the other bearing for the center.

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