United States Patent

[11] 3,630,053

[72] Inventor **Edwin G. Krakauer**
2 Turf Lane, Roslyn Heights, N.Y. 11577

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[54] **SAFETY LOCK**
4 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **70/421,** 70/358, 70/408
[51] **Int. Cl.** **E05b 15/14,** E05b 27/06
[50] **Field of Search** ..... 70/421, 419, 408, 401, 364 A, 456–459, 386, 358, 363, 368–369, 378, 400, 416

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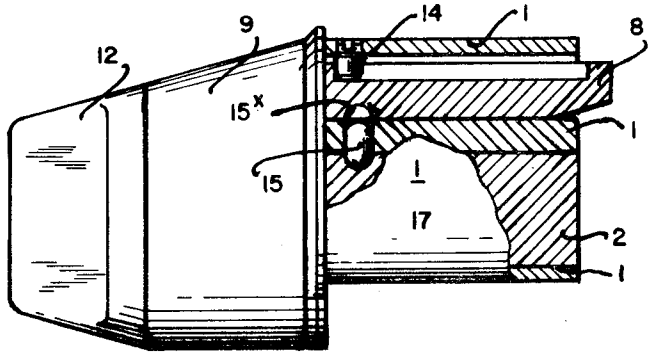
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Primary Examiner—Robert L. Wolfe
Attorney—W. Lee Helms

ABSTRACT: The casing of a lock holding a cylinder with the usual key-operated tumblers associated with the casing, and the usual key-receiving passageway in the cylinder for key operation of said tumblers, is provided with a safety combination against "picking" the lock, comprising a barlike element slidingly mounted in a passageway of the casing at the side of the cylinder, a bar-head and turn button carried by the barlike element and adapted to receive the finger end of a key, means limiting outward movement of the barlike element with the elements carried at its outer end, a safety lock tumbler movable in a passage in the casing and movable into a rounded seat in the cylinder wall, and into a like-rounded seat in the barlike element, in reverse movement, whereby in both outward and inward positions of the barlike element the cylinder is locked by said safety lock tumbler, and the cylinder face is blocked by the bar-head in the unlocking operation of the turn button, said safety lock tumbler locking the barlike member against outward movement from its "In" position until upon unlocking operation the key is returned to insert position with the cylinder.



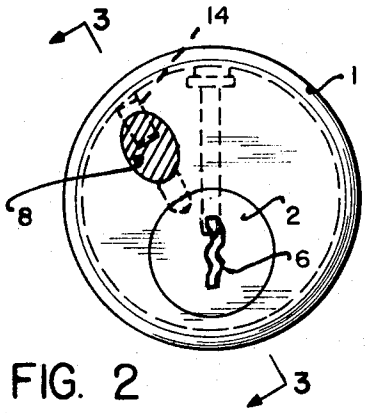


FIG. 2

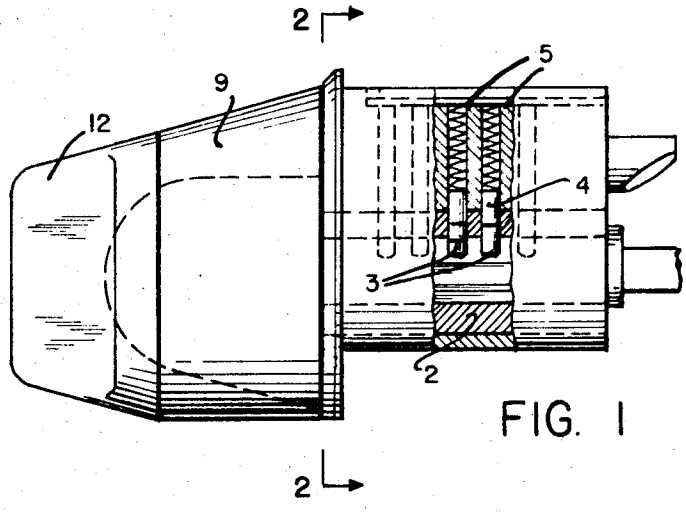


FIG. 1

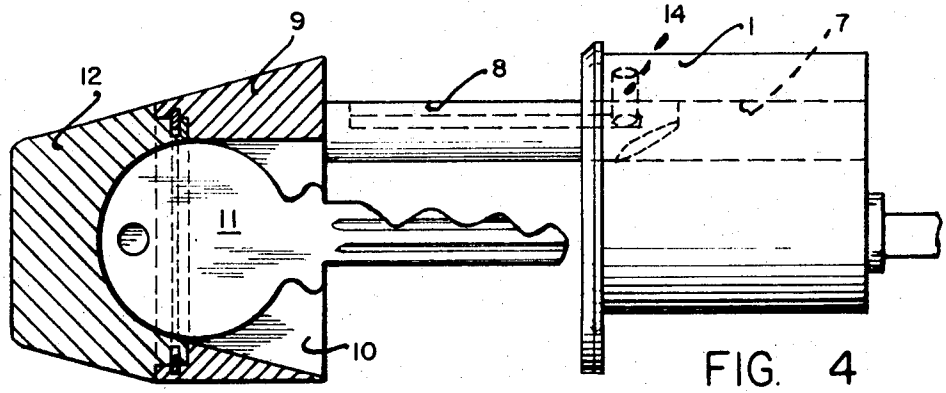


FIG. 4

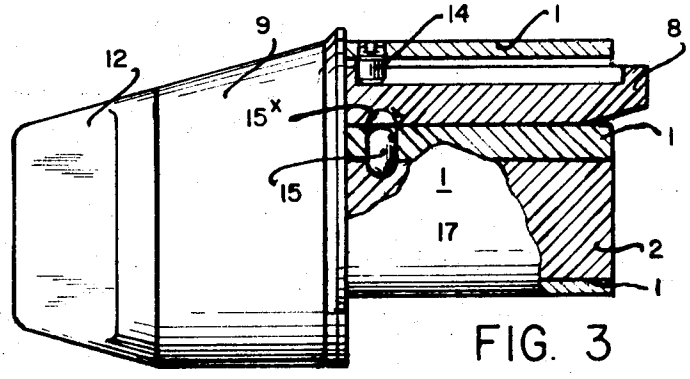


FIG. 3

INVENTOR.
Edwin G. Krakauer
BY H. Lee Helms
Attorney

SAFETY LOCK

The invention will be described with reference to the accompanying drawings, in which:

FIG. 1 is a view in side elevation, partly in section and dotted lines, the curved dotted line bounding key finger-receiving openings in the illustrated bar-head and turn button; as shown more particularly in FIG. 4.

FIG. 2 is a view in elevation of the casing front, taken on the line 2—2, FIG. 1. the slidable bar being shown in transverse section.

FIG. 3 is a side elevation of the assembly, the bar being shown in "In" or closed position, the view being partly in section on the line 3—3, FIG. 2.

FIG. 4 is a view in side elevation of the safety lock elements of the invention, the bar-head and its turn button being broken away, and shown in outward position.

Referring to the drawings, it will be seen that the assembly comprises a barrellike casing 1, which receives a cylinder 2, the latter being formed with a row of apertures receiving tumbler pins 3 (FIG. 1). Adapted for alignment with said tumbler pins, by rotation of the cylinder, is a row of tumblers 4 in casing apertures which receive springs 5. As shown in FIG. 2, the cylinder is formed with a key passage at 6 leading to the tumbler elements.

At 7, FIG. 4 is shown a passageway in an extending longitudinally of the casing which slidingly receives a barlike member 8. In cross section, FIG. 2, this bar is shown out of round, as is the passageway in practice, so that the bar is held from turning. At the front or outer end of the bar it carries a head 9, the latter being recessed at 10, FIG. 4, to clear insertion of the finger end of a key, a key being indicated at 11.

Rotationally held on the outer end of bar-head 9, in any suitable manner, is a finger-operated turn button 12. This turn button at its face opposite recess 10 is formed with a slot to snugly fit the finger end of a key such as that indicated at 11, FIG. 4. The bar may hold the key in line with the key aperture of the cylinder 2, but the key can be directly inserted into the cylinder, when the bar-head has been moved outwardly, followed by inward movement of the bar-head and the elements carried thereby.

FIG. 4 shows that the barlike element has been moved outward and that such movement has been limited by a stop stud 14, which may be received in a longitudinal channel of the bar.

Offset in the casing 1 with respect to the cylinder and its tumblers is a safety lock tumbler 15, which may be a ball and which in the present embodiment is shown as an oval form with rounded opposite ends, and the receiving passage in the casing for said lock tumbler is such that the latter may freely move endwise. When the bar 8 and the elements carried thereby are in the position of FIG. 4, for insertion of a key for unlocking movement, the safety lock tumbler 15 will be held in cylinder-locking position, as reference to FIG. 3 will show, the said Figure also showing that the bar holds, by the lock tumbler, a locking action on the cylinder until the bar-head abuts and blocks the face of the cylinder, and the latter is key

rotated to unlock. In said key-unlocking action, the safety lock tumbler with its lower rounded end resting in and engaged by the walls of a rounded cavity in the cylinder, will be raised by the turning movement of the cylinder until it clears the round wall of the cylinder, the top area of the safety lock tumbler entering a rounded cavity in the bar since the lock tumbler has no other space to enter. The bar and the elements carried thereby are locked against outward movement until the key, after unlocking action, is turned back to initial position with the cylinder, and the safety lock tumbler 15 drops into the rounded cavity 15^x of the cylinder. The bar then may be moved outwardly for removal of the key if that is desired.

Thus it will be seen that a primary factor of the antipicking control of the lock is that to insert the key, for unlocking the bar-head, turn button, and bar must be brought outwardly, as form its position in FIG. 3 to its position in FIG. 4, and throughout these movements and positions the safety lock tumbler will lock the cylinder, and the key cannot operate the cylinder until the bar reaches the "In" position of FIG. 3, and the key insert face of the cylinder is blocked by the head of the bar.

It will be understood that various modifications may be made in the elements constituting the embodiment illustrated without departing from the spirit of the invention. Thus the bar head may be swiveled on the bar for partial rotation for easy insertion of the key, these and other modifications being considered as indicated by the invention.

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

1. A safety lock construction comprising a casing and a key-operated cylinder together with associated key-operated tumbler elements, the cylinder having a key insert face, in combination with a safety assembly against "picking" of the lock and comprising a barlike member slidingly mounted in a passageway of the casing offset from the cylinder, a head construction carried by the barlike member and adapted to engage and rotate a key entering said key insert face of the cylinder, said barlike member being movable to an inward position in the casing at which ti blocks said key insert face, a safety lock tumbler movable in a passage in the casing and also movable into a cylinder seat and a seat in the barlike member by rotation of the cylinder, said safety lock tumbler locking the cylinder in outward positions of said barlike member and until the head of the latter is positioned in blocking of the key insert face of the cylinder.

2. A safety lock construction in accordance with claim 1, in which the head of the barlike member includes an outermost turn button adapted to engage the finger piece end of a key.

3. A safety lock construction in accordance with claim 1, in which the safety tumbler seats in the cylinder and barlike member are aligned when the barlike member is in its inward position, with the safety tumbler in the cylinder seat, rotation of the cylinder from key insert position moving the safety tumbler into the seat of the barlike member.

4. A safety lock construction in accordance with claim 1, in which the safety lock tumbler is a gravity movable member guided by the wall of the passage in the casing.

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