United States Patent

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[54] **SECURITY LOCK**
15 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **70/416**
[51] **Int. Cl.** **E05b 13/00**
[50] **Field of Search** ..... 292/1, DIG. 21; 70/447, DIG. 58, 416, 431, 432, 429

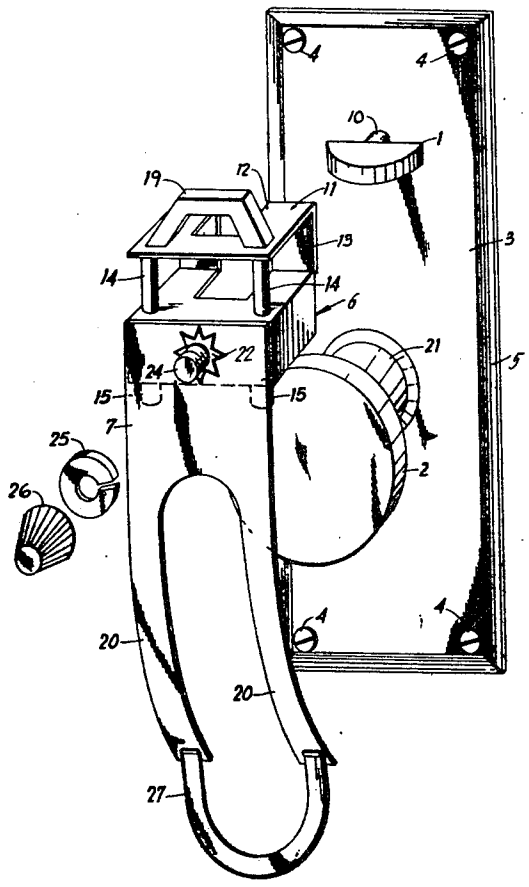
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ABSTRACT: The present invention provides a security lock for door locks which includes a knob member. A casing, preferably including a spring-biased cover is adapted to accept the knob portion of the lock therein with the casing secured in fixed position by an elongated portion extending from the casing which is firmly emplaced. The present invention further includes adjustment means so that the orientation of the casing and the securing portion can be adapted for use with locks having knobs of different locked positions and arrangements where the door handle and knob member are at various orientations to each other.



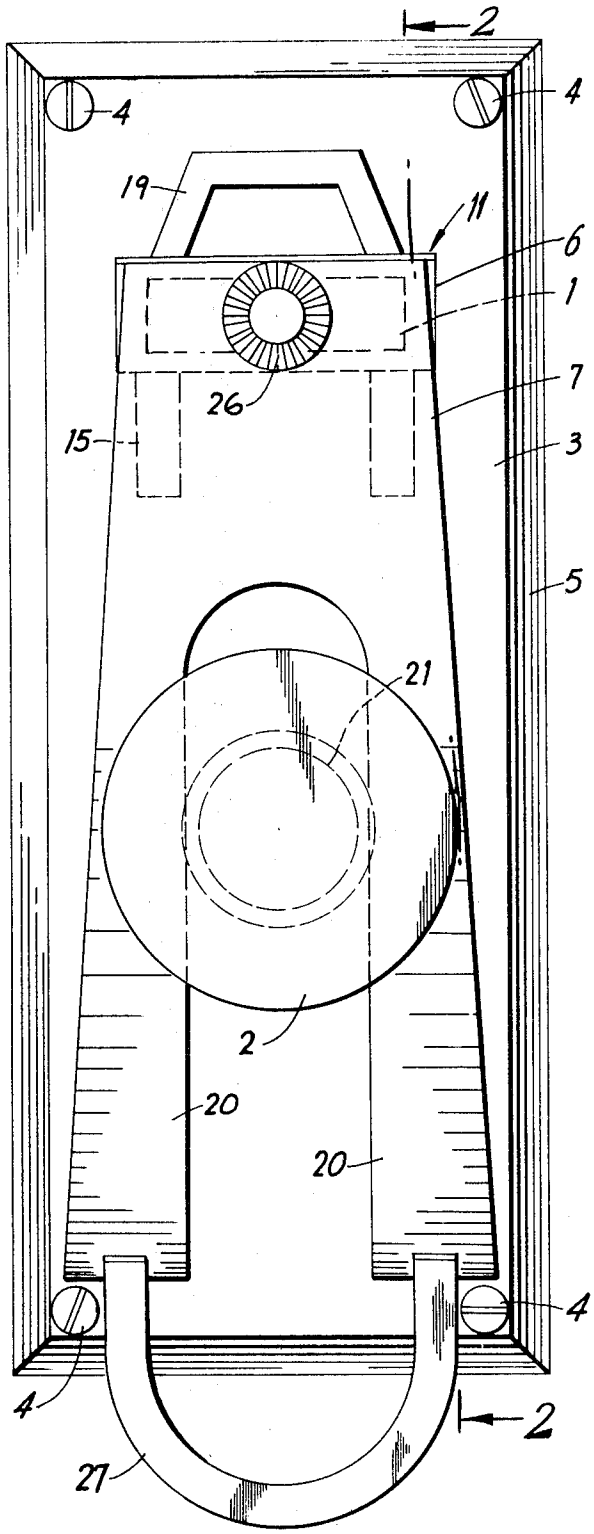


FIG. 1

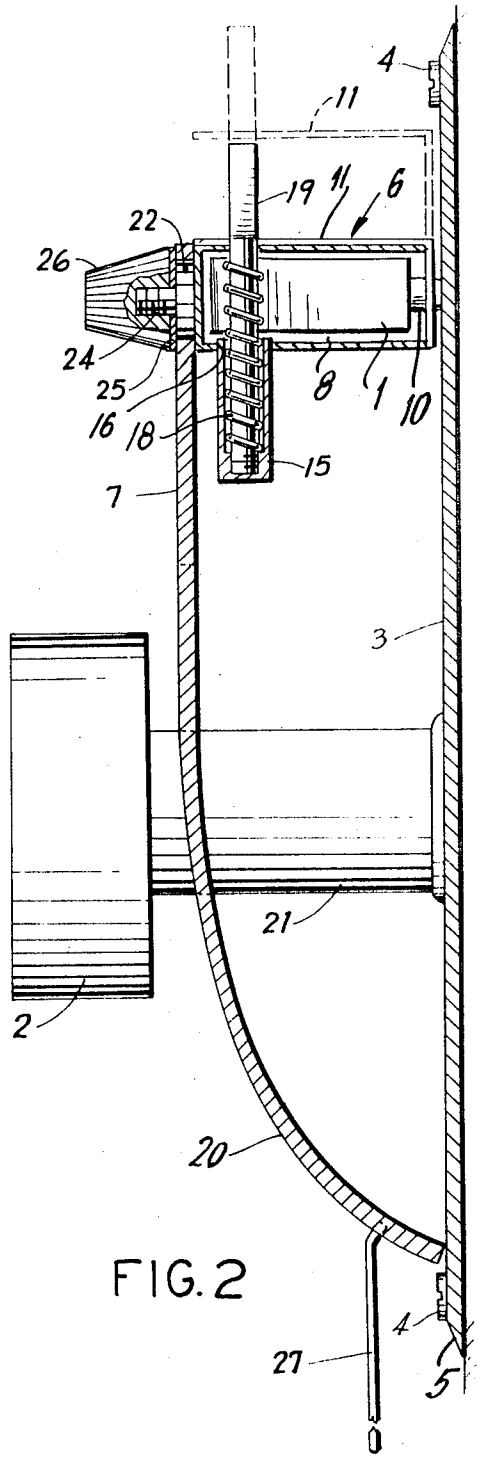


FIG. 2

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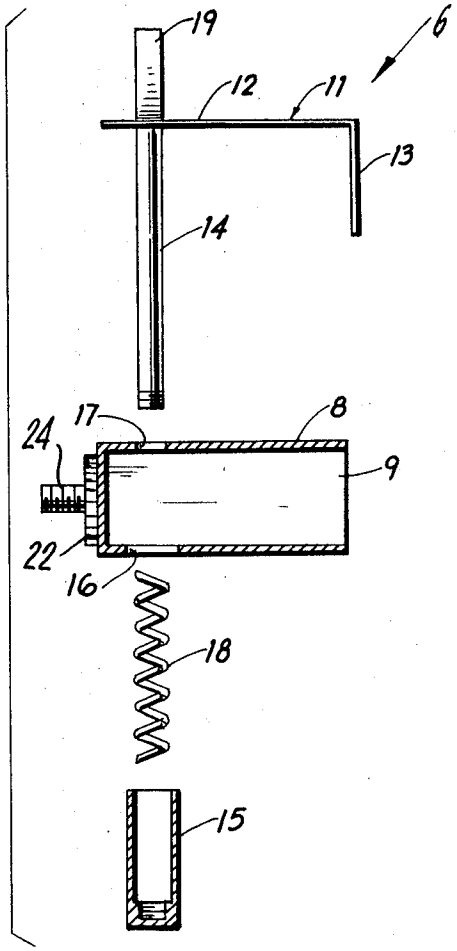


FIG. 4

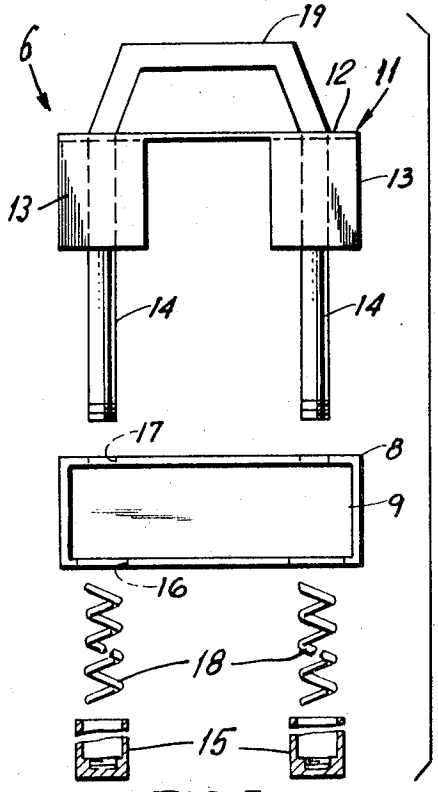


FIG. 5

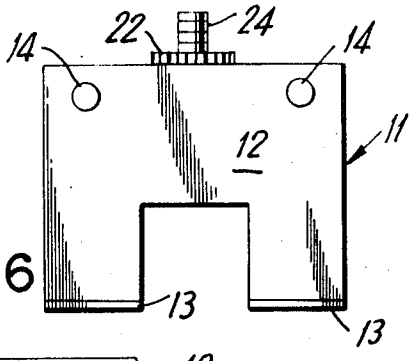


FIG. 6

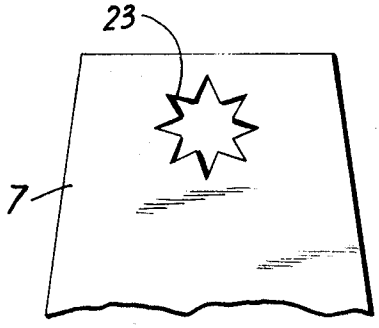


FIG. 8

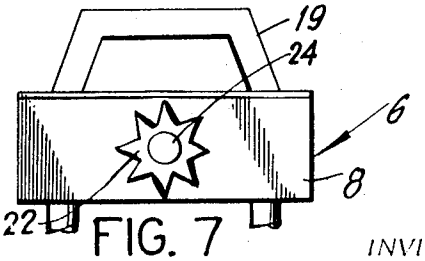


FIG. 7

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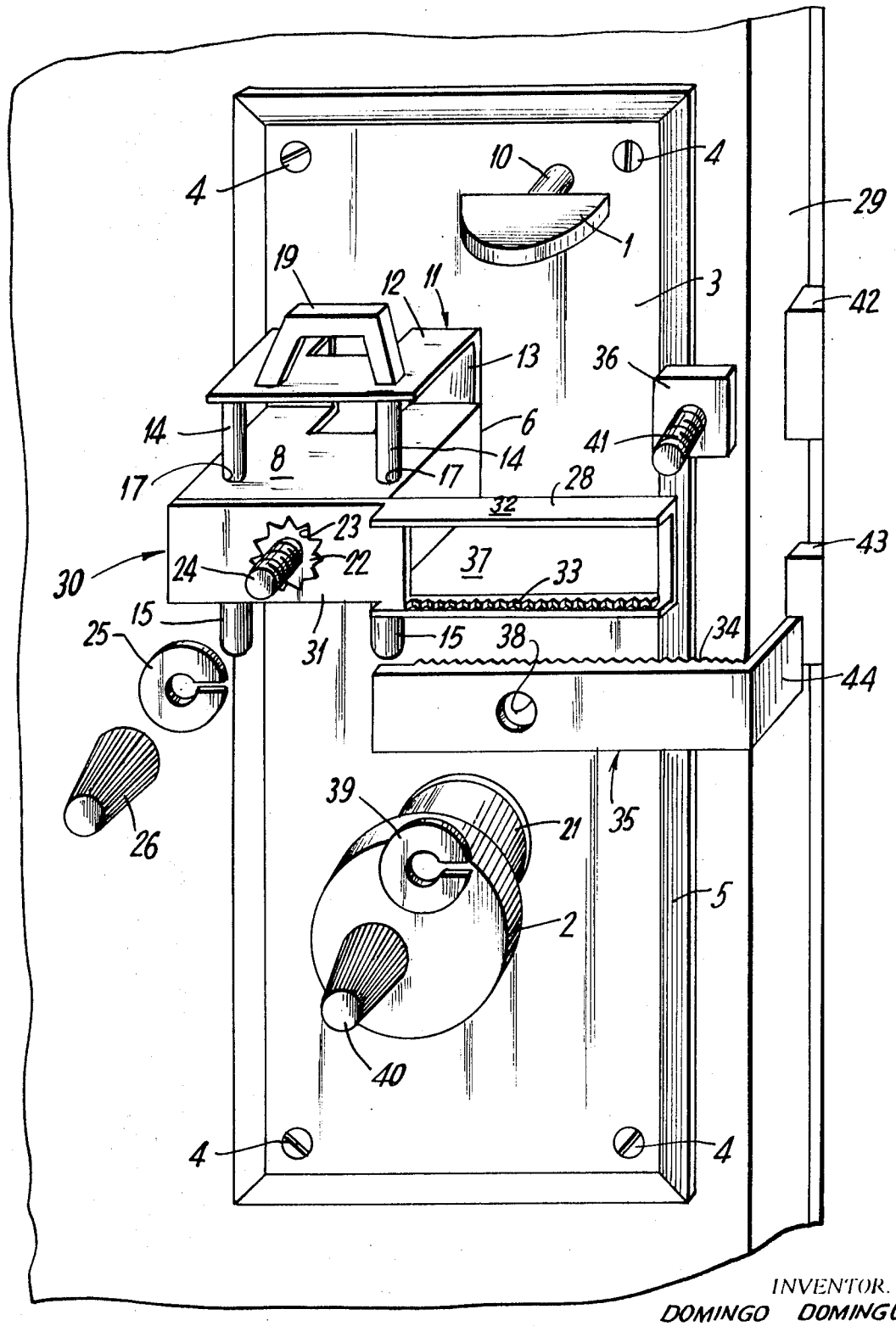


FIG. 9

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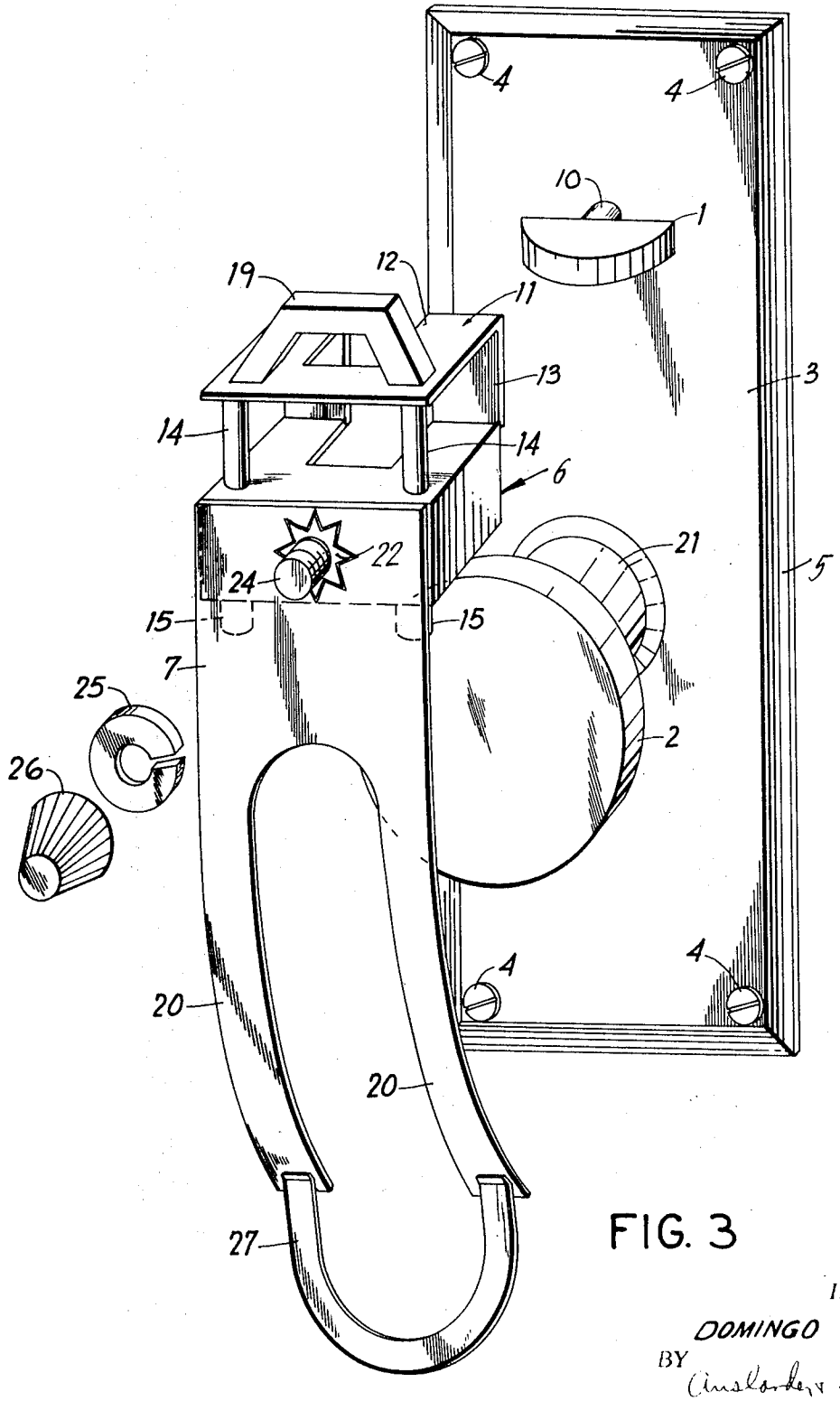


FIG. 3

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SECURITY LOCK

The present invention relates to a security lock.

Many key releaseable locks include on the opposite side of the door from the keyway a manually actuatable knob member which, when rotated, either engages or disengages the bolt of the lock. Such locks allow for the locking of the door from the inside without need to resort to a key or other supplemental release system. The knob is freely rotatable and is generally operably linked to the lock cylinder so that the knob rotates as the key engages or disengages the latching mechanism.

Due to the interengagement of the knob member and the cylinder, unauthorized disengagement of the bolt through use of a misappropriated key or by "picking" of the tumblers and revolving the lock cylinder can take place even if the door is locked from the inside since the knob member will be caused to rotate as the lock cylinder is rotated.

The present invention provides a means to positively lock the knob member in fixed position and against rotation when it is desired to immobilize the latch even against disengagement by a proper key.

In the past, some attempt has been made to provide a mechanism which would engage the knob member; however, such devices were generally limited to devices where the outer casing of the lock was exposed on the inside of the door with the lock casing or at least a portion thereof serving as a fixed retention surface for the knob member securing device. Other devices were either integral to the locks themselves and/or were supplemental structures which, due to their nature of operability, had to be especially designed for specific lock types having specified dimensions and part orientation.

According to the present invention, a security device for a lock knob member is provided having a first portion adapted to be removably engaged with the knob member and a second portion linked to the first portion adapted to be fixedly engaged, as with a handle, or the door itself, the second portion maintaining the first portion buttressed against torsional movement with the knob member therein at a desired orientation.

The linking of the first portion and the second portion is preferably adjustable so that the security device can be employed on various locks regardless of the normal knob orientation of such lock when the bolt of such lock is engaged.

Although such novel feature or features believed to be characteristic of the invention are pointed out in the claims, the invention and the manner in which it may be carried out may be further understood by reference to the description following and the accompanying drawings.

FIG. 1 is a front elevation of a security lock of the present invention in engaged position.

FIG. 2 is a sectional view taken along lines 2–2 of FIG. 1.

FIG. 3 is an exploded perspective view of a security lock and engagement surface in accordance with the present invention.

FIG. 4 is an exploded side elevational view of a knob retention member of the present invention.

FIG. 5 is an exploded rear view of the knob retention member of FIG. 4.

FIG. 6 is a bottom view of a knob retention member of the present invention.

FIG. 7 is a rear view of a knob retention member of the present invention.

FIG. 8 is a detail rear view of an anchoring portion of the present invention.

FIG. 9 is an exploded view of another embodiment of the present invention.

Referring now to the figures in greater detail, where like reference numbers denote like parts in the various figures.

As illustrated in FIGS. 1—3, the security lock of the present invention secures the knob member 1 of a lock such as would be generally found on a door or the like. The lock type illustrated provides for the integral emplacement of the locking device (not shown) within the door and door frame body. It is readily apparent, however, that the device of the present invention may also be employed on locks whose housings are exposed such as those types of locks which include a major portion thereof secured to the door itself.

In the embodiments shown in FIGS. 1—3, a commonly encountered physical arrangement has been shown for purposes of illustration wherein the knob member 1 is exposed in substantially vertical alignment with the door knob handle 2. A rectangular faceplate 3 is generally provided for the arrangement and secured to the door or other desired surface by screws 4 or the like. A peripheral flange 5 generally extends about the faceplate 3.

The security lock of the present invention generally provides a knob retention portion 6 and a securing portion 7, preferably adapted for adjustable orientation and fixed interengagement.

As most clearly illustrated in FIGS. 2, 3 and 4, the knob retention portion 6 generally includes a hollow casing 8 having an opening 9 along one side thereof. The internal dimensions of the casing 8 are such that its width along the mouth formed by opening 9 is in excess of the width of the knob member 1 and its internal height is slightly greater than the height of the knob member 1. The depth of the casing 8 is such that the entire body portion of the knob member 1 is able to be accepted therein with the shaft 10 of the knob member extending outward from the casing 8 towards the locking mechanism.

In order to secure the knob member 1 against lateral displacement outward of the casing 8, the casing 8 preferably includes a spring-biased cover plate 11 for the opening 9 which is adapted to fit about the shaft 10 of the knob member 1. While it is desirable to employ the cover plate 11, it should be noted as hereinafter more particularly described, the engagement of the securing portion 7 as shown in FIGS. 1—3 and 8 about the door handle 2 shaft between the faceplate 3 and the wider diameter door knob portion may be sufficient to deter lateral displacement of the knob member 1 from the casing 8.

The cover plate 11 generally includes a first surface 12 adapted to substantially overlie the top of the casing 8 and a second surface 13 at a right angle to the first surface 12 adapted to overlie a portion of the casing 8 opening 9. The second surface 13 is clearly illustrated in the exploded view of FIGS. 3 and 9 where the cover plate 11 is in extended position and in FIGS. 4 and 5.

As illustrated in FIGS. 3, 5 and 9, the second surface 13 is divided so as to preferably include a central opening or cutaway area to allow passage therethrough of the knob member shaft 10.

While the shaft 10 on the knob member 1 has been illustrated as cylindrical, oftentimes the shaft is of different configuration such as in the shape of a relatively wide diameter truncated cone (not shown). So that a shaft of such configuration can be accommodated the first surface 12 of the cover plate 11 as well as the top and bottom surfaces of the casing 8 can be provided with a cutaway area such as illustrated in FIGS. 3, 5, 6 and 9, opening along the side of the first surface 12 and the top and bottom surface of the casing 8 juxtaposed to the casing opening 9.

The cover plate 11 for the casing 8 is spring biased to its closed position about the opening 9 in the casing. Two vertical posts 14 integral to or fixedly secured to the first surface 12 of the cover plate 11 extend through the casing 8, with each post 14 seated within a moveable retention cup 15. The retention cups 15 are of a wider diameter than the posts 14 and are preferably cylindrical and include threading for screw affixation to the journaled ends of the posts 14. The retention cups 15 are further at least slightly longer than the height of the casing 8. An opening 16 is provided along the bottom of the casing 8 for each retention cup 15 and serves as a guide channel for the retention cups 15. The opening 17 in vertical alignment to the opening 16 is provided along the top surface of the casing 8, with the opening 17 of a smaller diameter than the

opening 16, but of a sufficient diameter to accept the post 14. A spring 18 fits about each post 14 internal of the casing 8 so as to impinge along the inner side of the upper surface of the casing 8 and the base of each of the retention cups 15.

A handle 19 which may either be an extension of the vertical post 14 about the first surface 12 of the cover plate 11 or which may be a separate unit is preferably included on the cover plate 11 to facilitate the raising of the cover plate 11.

The knob retention portion 6, once secured about the knob member 1, is locked against rotational movement by the securing portion 7, as shown in FIGS. 1—3. The securing portion 7 is preferably an elongated arcuate forked member open along one end which extends vertically from the knob retention member 6, curving inward along its open end towards the faceplate 3. The securing portion 7 is preferably of a lesser width than the faceplate 3, so that its open end lies juxtaposed to the faceplate 3 between the side flange 5 of the faceplate 3.

The legs 20 of the securing portion 7 formed by the fork are adapted to fit about the shaft 21 of the door handle 2.

The securing portion 7 and the knob retention portion 6 may be constructed as an integral unit. As illustrated in FIGS. 3, 7 and 8, it is preferable that they be separate units adapted to fixed engagement with means to alter their orientation with respect to each other. While the knob member 1 has been illustrated as horizontal in locked position, oftentimes the knob member 1 is vertically oriented in locked position. In a like manner, whereas the door handle 2 has been illustrated in substantially vertical alignment to the knob member 1, oftentimes this is not the case.

Selective affixation of the retention portion 6 and the securing portion 7 is thus desirable so that the security lock of the present invention may be employed with a plurality of locking arrangements. The same situation is true with regard to the knob retention unit 6 as shown in FIG. 9.

As illustrated in FIG. 8, such selective orientation can be provided through use of a star-shaped flange 22 on the rear of the casing 8 which is juxtaposed to the securing portion 7.

The star-shaped flange 22 fits within mated star-shaped opening 23, provided in the securing portion 7. By selective alignment of the flange 22 within the opening 23, varied orientation of parts is provided.

A bolt 24 extends from the casing 8 through an opening in the securing portion 7, which is preferably the opening 23 and the knob retention portion 6 and the securing portion 7 are fixedly joined, such as by use of a washer 25 and locknut 26 applied to the bolt 24.

If desired, a flexible strap 27 can be provided along a portion of the securing portion 7 so that the security lock of the present invention can be readily stored, such as by hanging on the door handle 2 when not in use.

In some instances, the knob 1 may be separated from the door handle 2 by a distance in excess of the normal length of the securing portion 7.

As shown in FIG. 9, an alternative securing portion construction 28 is shown, operable with the knob retention portion 6, braceable against an edge 29 of a door.

The securing portion 28 comprises a master plate 30 having an opening 23 adjustable in the same manner as the opening 23 of the securing portion 7.

The master plate 30 includes a first portion 31 adapted to fit adjacent the knob retention portion 6 and a second portion 32 extending horizontally in the direction of the door edge 29.

The second portion 32 is provided with gripping means 33 which are adapted to interact with gripping means 34 on an adjustable L-bar 35.

The first portion 31 is fixed in adjusted position to extend horizontally toward the door edge 29 by proper adjustment over the star flange 22.

As shown in FIG. 9, the exploded washer 25 and locknut 26 secure the securing portion construction 28 to the knob retention portion 6.

Since the distance from the knob retention portion 6 to the door edge 29 may vary from door-to-door, the L-bar 35 may be adjusted by having its gripping means 34 interfit with the gripping means 33 of the second portion 32, then locking in position by the placement of the bolt 36 passing through the opening 37 in the second portion 32, through the small opening 38 in the L-bar 35, and locked with the washer 39 and locknut 40 tightened to the threads 41 of the bolt 36, all of which is shown in exploded form in FIG. 9.

The L-bar 35, of course, must be extended, preferably for a flush fit to the door edge 29, before the bolt 36, washer 39 and locknut 40 are tightened so that there can be no slippage between the gripping means 33 of the second portion 32 and the gripping means 34 of the L-bar 35.

As a further precaution, the door edge 29 may be provided with spaced wedges 42, 43 to guide the right angle portion 44 of the L-bar 35 into position, provide a space between the door edge 29 and the door frame (not shown) and to further prevent any turning of the knob retention portion 6 beyond the normal protection afforded by the door edge 29 itself.

In operation of the two embodiments of the present invention, the knob member 1 is set in its locked position and the cover plate 11 on the casing 8 is lifted to its open position.

In the embodiment of FIGS. 1 to 3, the securing portion 7 is emplaced on the door handle 2 as aforedescribed, and the knob member 1 is seated within the casing 8. The cover plate 11 is allowed to return to its closed position. It is desirable that the securing portion 7 be spring like so as to allow some latitude in mounting, if needed.

The terms and expressions which are employed are used as terms of description; it is recognized, though, that various modifications are possible.

Having thus described certain forms of the invention in some detail, what I claim is:

1. A security locking device for a door lock having a shaft mounted pivotal actuating knob comprising, a knob retention member including a substantially hollow casing having an opening along one side thereof, said casing having internal dimensions slightly in excess of the periphery dimensions of said actuating knob, said casing adapted to receive said actuating knob therein, said casing including cover means for said opening, said cover means in closed position adapted to fit about said knob shaft and means to link said knob retention portion to a door portion buttressed against torsional movement of said shaft mounted pivotal actuating knob.

2. The invention as claimed in claim 1 wherein said cover is spring biased to a closed position on said casing.

3. The invention as claimed in claim 1 wherein said cover includes a first section adapted to overlie one side of said casing and a second section at substantially a right angle to said first section adapted to overlie a portion of said casing opening.

4. The invention as claimed in claim 3 further comprising cover mounting means, said cover mounting means including at least one vertical post on said first section of said cover means, said vertical post extending through said casing; a moveable retention member vertically aligned for reciprocal movement within said casing; said vertical post fixedly mounted to said retention member; and spring means within said casing adapted to bias said retention member away from said side of said casing juxtaposed to said first cover section.

5. The invention as claimed in claim 4 wherein said retention member is of a height greater than the width of said casing.

6. The invention as claimed in claim 1 wherein said casing includes a cutaway area on each of two opposed sides thereof, said cutaway areas juxtaposed to said opening on said casing.

7. The invention of claim 1 including means to link said knob retention portion to a door handle, said linking means including an elongated forked member fixedly mounted to said knob retention portion, said forked member adapted to fit about a portion of said door handle to deter rotational movement of said casing.

8. The invention as claimed in claim 7 wherein said elongated forked member is arcuate.

9. The invention as claimed in claim 8 including means to adjustably affix said elongated member to said knob retention member.

10. The invention as claimed in claim 9 wherein said adjustable affixation means includes a flanged portion on a side of said casing, a mated opening on said elongated member adapted to receive said flanged portion therein and securing means adapted to secure said knob retention member and said elongated member.

11. The invention as claimed in claim 7 further including a flexible strap on said security locking device.

12. The invention of claim 1 including means to link said knob retention portion to a door edge said linking means including an elongated L-shaped member.

13. The invention of claim 12 wherein said L-shaped member is longitudinally adjustable.

14. The invention of claim 13 including means to adjustably affix said L-shaped member to said knob retention member.

15. The invention of claim 14 wherein said adjustable affixation means includes a flanged portion on one side of said casing, a mated opening on said L-shaped member adapted to receive said flanged portion therein and securing means adapted to secure said knob retention member and said L-shaped member.