March 4, 1930. S. F. ROLPH 1,749,649

INDICATOR FOR LOCKS

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Fig. 1

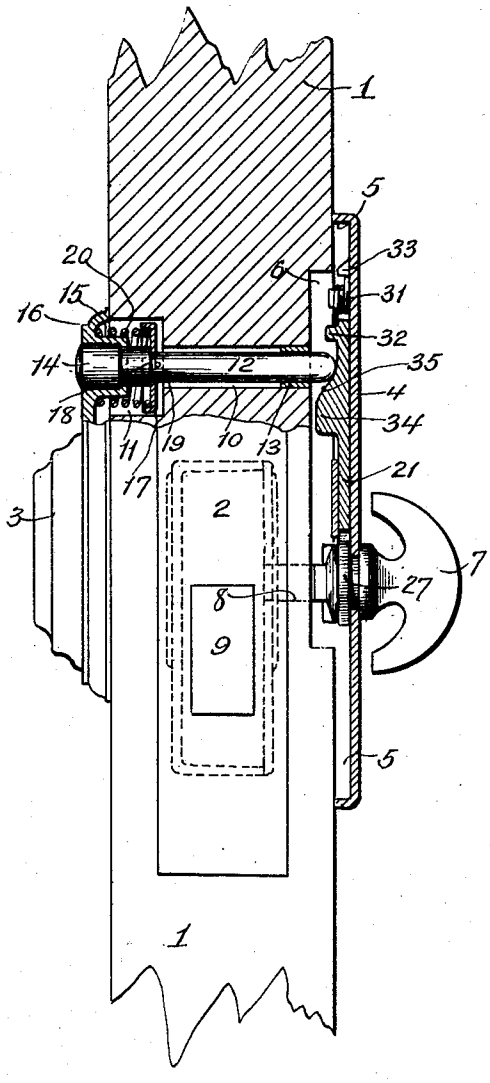
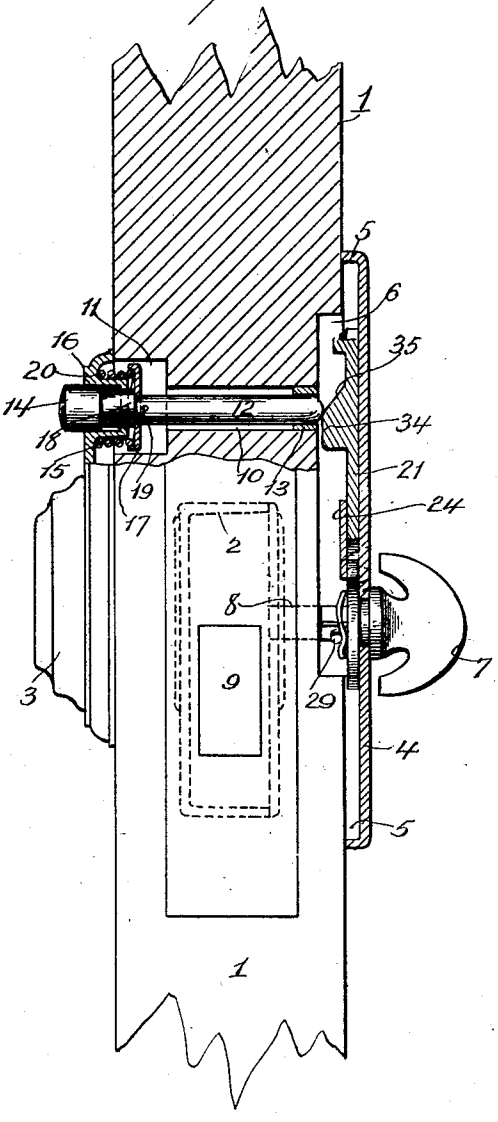


Fig. 2



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Fig. 3.

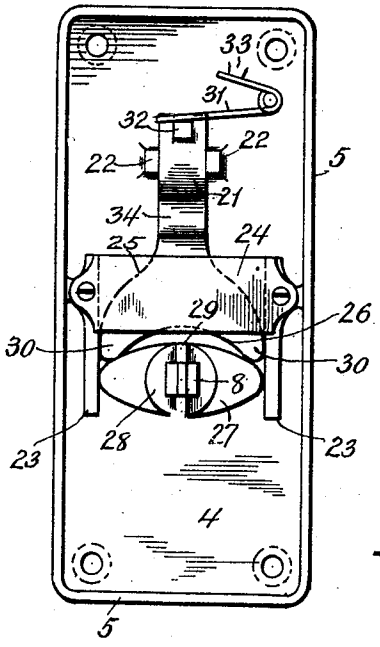


Fig. 4.

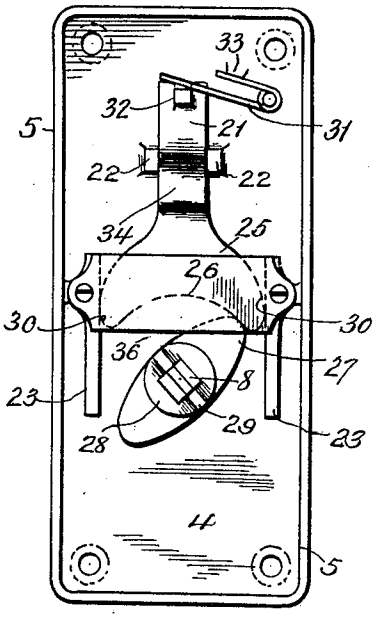
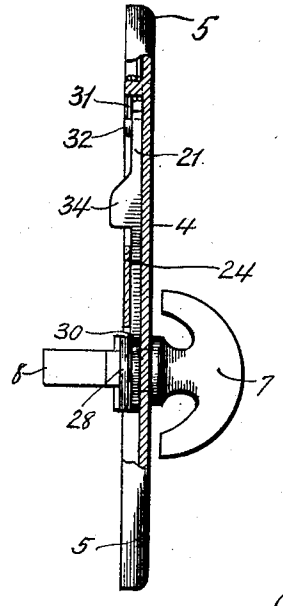


Fig. 5.



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UNITED STATES PATENT OFFICE

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INDICATOR FOR LOCKS

Application filed March 7, 1928. Serial No. 259,792.

This invention relates to improvements in indicators for locks and more particularly to an indicator attachment for use in connection with a cylinder mortise lock,—one object of the invention being to provide a simple attachment to denote whether a door has been locked from the inside and which attachment shall not be incorporated into the mechanism of the lock, but which may be employed with any lock to indicate, when the inside thumb turn is operated, whether the door is locked from the inside.

With this and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings:

Figure 1 is a view, partly in section, illustrating an application of my invention, the indicator being shown in its normal retracted position;

Figure 2 is a similar view, showing positions which the parts will assume when the indicator has been projected to denote that the bolt has been operated from the inside to lock the door;

Figures 3 and 4 are views showing different positions of the devices which control the operation of the indicator, and

Figure 5 is a sectional view, partly in elevation showing the operating devices for the indicator.

A portion of a door (a hotel door, for example) is shown at 1, a mortise lock being indicated at 2, and a portion of the casing of a cylinder lock is shown at 3 as projecting from the outer face of the door.

An escutcheon 4 is located on the inside of the door and provided at its edges with flanges 5 whereby the body of the escutcheon is spaced somewhat from the inner face of the door to accommodate indicator operating mechanism as hereinafter explained. For the accommodation of portions of said operating mechanism, the inside face of the door is recessed at 6.

The inside thumb turn 7 for the lock is suitably mounted in the escutcheon 4 and the spindle 8 may be angular in cross section and is connected with the bolt work in any suitable and well-known manner, so that when the thumb-turn is operated in one direction the bolt 9 will be projected to locking position, and when said thumb-turn is operated in the opposite direction, the bolt will be retracted, all as well known in the art.

In the embodiment of the invention shown in the drawings, the door is provided, above the lock, with a transverse bore 10 and with one end of this bore, a recess 11 in the outer side of the door communicates, the other end of said bore communicating with the recess 6 in the inner side of the door. The stem 12 of an indicator passes through and inwardly beyond the bore 10, a collar 13 being located in the inner end of said bore to provide guiding means for the stem. The indicator per se is, in the present instance, made in the form of a head or plunger 14, which is mounted in the cylindrical portion 15 of a cap 16 which closes the recess 11 and which may, if desired, be made as an extension of the escutcheon or casing member 3 of the cylinder lock. A flanged disk 17 is located on the stem rearwardly of the indicator head or plunger,—said disk being prevented from movement in one direction by a shoulder 18 and in the other direction by a pin 19. The disk 17 provides a seat for one end of a coiled spring 20, the other end of which has a bearing within the cap 16 and said spring serves normally to retain the indicator head or plunger in its retracted position, indicating that the door is not locked from the inside.

A slide 21 is mounted against the inner face of the escutcheon and is guided between lugs 22 and flanges 23 on said escutcheon,—displacement of said slide being prevented by a cross bar or plate 24 spanning the upper portions of the guide flanges 23. The lower portion of the slide is enlarged as at 25 and the lower end of this enlarged portion is curved to provide an arcuate lower edge 26 which is concentric with the axis of the thumb-turn spindle 8.

A cam 27 is mounted on the spindle 8 so as to turn therewith and is retained in position against the inner face of the escutcheon by means of a spring 28 the latter being held in

place and under tension by means of a pin 29 passing through the spindle 8.

Normally, the fingers 30 formed by the wider portion 25 of the slide 21 rest upon the arms of cam 27 when said arms are disposed horizontally as shown in Figure 3, and the slide is held in and returned to such position by means of a spring 31, bearing respectively against a lug 32 on the slide and a lug 33 on the escutcheon 4. The slide is provided between its ends with a lug or enlargement 34 having a beveled or cam face 35 which is cooperable with the inner end of the stem 12 to move the indicator plunger 14 forwardly when the slide 21 is moved upwardly.

When the inside thumb-turn is operated in a direction to project the bolt, the cam 27 will also be turned and, engaging the lower end of the slide, will cause upward movement of the latter against the resistance of the spring 31, said cam riding on the arcuate lower edge of the slide from the position shown in Figure 3 to the position shown in Figure 4. When the slide is thus moved, the cam enlargement thereon will effect the projecting of the indicator head as previously explained,—such projecting position of said indicator head denoting that the door has been locked from the inside.

It is necessary to have means for limiting the movement of the spindle 8 and its cam 27. Such limiting means are not however part of this invention since practically all locks have means for limiting the movement of the bolt throwing cam. Thus, the spindle 8 and consequently cam 27 will be limited in their movement by the limiting means inside the lock casing 2. Such means are fully shown in the Heyer Patent 1,598,523 August 31, 1926, my present invention being especially adapted to cooperate with the lock shown in that patent. Other limiting means may, however, be employed.

I am fully aware of the fact that an indicator for a lock is not broadly new. However, my invention illustrates an indicator and actuating means therefor which are entirely independent of the lock and which may be manufactured as a separate unit to be applied to practically any lock of standard make using a thumb-turn. It is this feature wherein an ordinary mortise lock equipped with a thumb-turn may be changed to an indicating hotel lock that is of great value and constitutes my invention.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent is:—

1. An indicator attachment for a lock of the type equipped with an inside bolt-throwing spindle, comprising an indicator plunger to be mounted in the door independently of the lock, an inside escutcheon plate, means independent of the lock carried by said escutcheon plate for operating said indicator plunger, and a cam adapted to be mounted on the inside bolt-throwing spindle for actuating the plunger operating means when the bolt is thrown.

2. An indicator attachment for a lock of the type equipped with an inside bolt-throwing spindle, comprising an outside indicator independent of the lock, operating means also independent of the lock for said indicator, and means external to the lock to be actuated by said bolt-throwing spindle for actuating said last-mentioned operating means to move the indicator to a position denoting that the bolt has been projected by the inside spindle, the means actuated by said bolt throwing spindle including a member detachably mounted on said spindle.

3. An indicator attachment for a lock of the type equipped with an inside bolt-throwing spindle, comprising an outside indicator, said indicator being independent of the lock and having a stem to pass through a door, an inside escutcheon, a slide independent of and external to the lock mounted on said escutcheon, a cam on said slide for cooperation with the stem of the indicator for projecting the latter, and means to be operated by the inside bolt-throwing spindle for moving said slide to effect the projecting of the indicator.

4. An indicator attachment for a lock of the type equipped with an inside bolt-throwing spindle, comprising an outside indicator, said indicator having a stem to pass through a door, an inside escutcheon, a slide carried thereby, a cam on said slide for cooperation with the stem of the indicator, a cam to be carried by the bolt throwing spindle and cooperable with said slide to effect projecting of the indicator, a spring retaining said indicator in and returning it to normal position, and a spring for retaining said slide normally in and returning it to retracted position.

5. An indicator attachment for a lock of the type equipped with an inside bolt-throwing spindle, comprising an outside indicator having a stem to pass through a door, means for mounting said indicator, a spring cooperable with said indicator and mounting means and operable to hold said indicator in and return it to retracted position, an inside escutcheon, a slide carried by said escutcheon, a cam on said slide cooperable with the stem of the indicator, said slide having a curved lower end, a cam to be carried by the bolt-operating spindle and cooperable with the lower end of the slide to raise the latter, and a spring tending to press said slide downwardly.

In testimony whereof, I have signed this specification.

SAMUEL F. ROLPH.