May 25, 1943. A. H. GOLDEN ET AL 2,320,177

LOCK RETAINER

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Fig. 1.

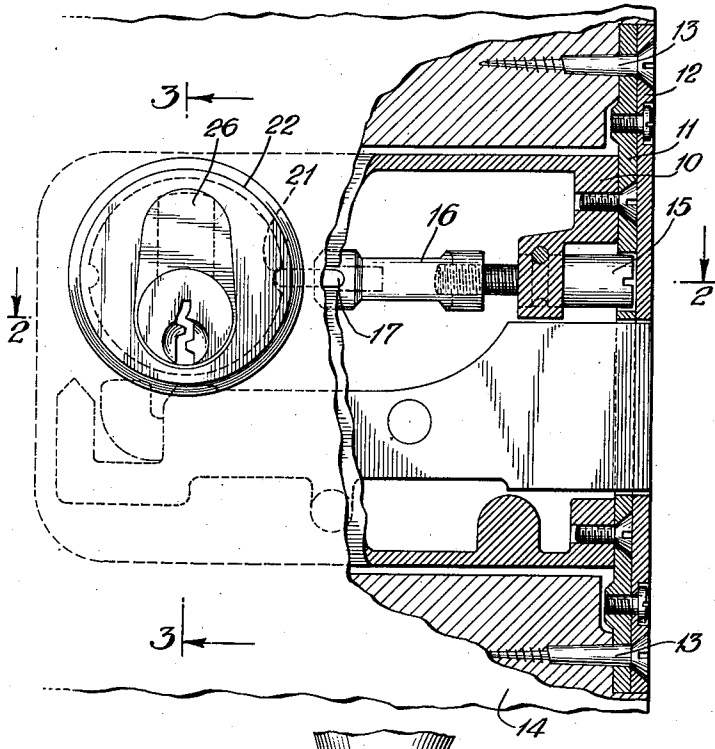
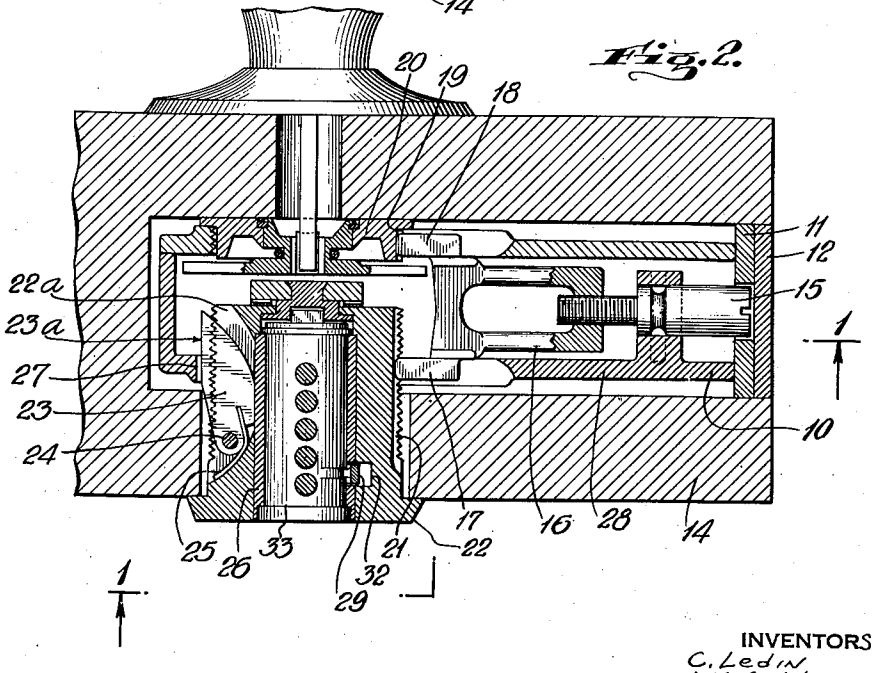


Fig. 2.



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Fig. 3.

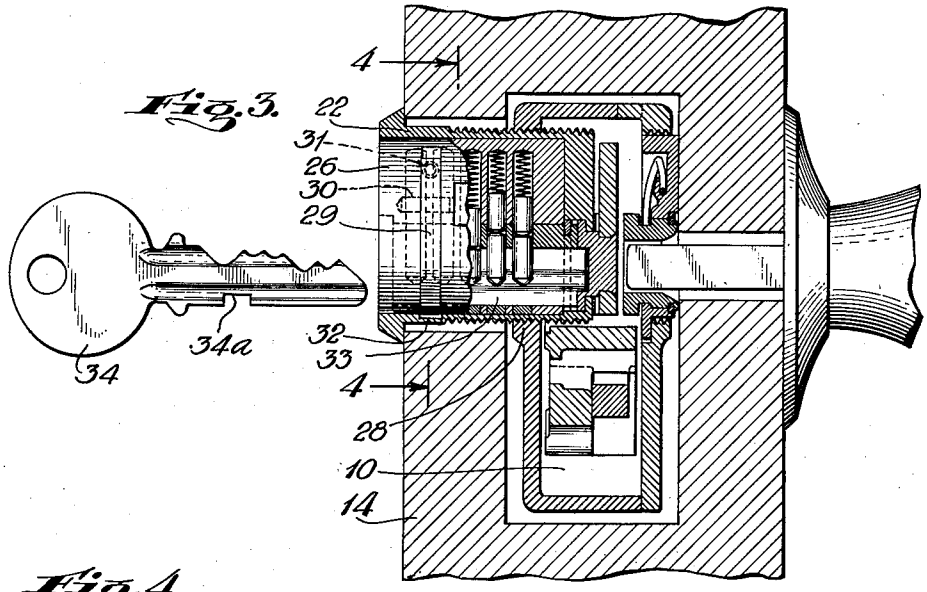


Fig. 4.

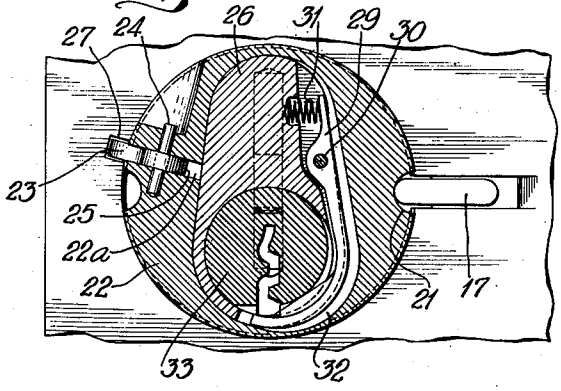


Fig. 5.

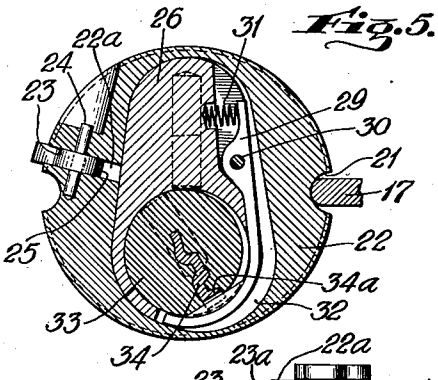


Fig. 7.

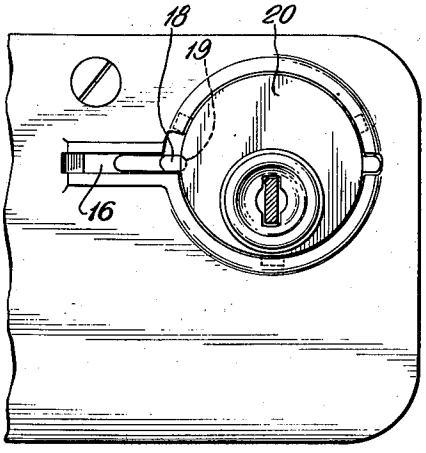
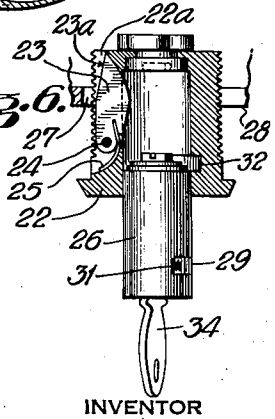


Fig. 6.



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LOCK RETAINER

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Application March 14, 1941, Serial No. 383,254

2 Claims. (Cl. 70—370)

This invention relates to means for securing cylinder lock core housings to lock casings, and more particularly, to means for securing a core housing to the thin face plate of a lock casing, with the securing means functioning to prevent rotation of the cylinder lock core housing after it is in any one of a number of laterally adjusted positions relatively to the casing.

Even more particularly, our invention relates to the securing of core housings such as described in the patent application of Charles Ledin for a Removable lock core, Serial No. 250,959, filed January 14, 1939, which has become Patent No. 2,268,511, dated December 30, 1941. A related structure is also shown in the Best Patent No. 1,561,771, dated November 17, 1935, to which reference will be made hereinafter.

As a feature of our invention, we secure the core housing of a lock such as shown in the Ledin and Best patents, to the thin plate of a lock casing, using a detent carried by the core housing and fitting into a slot of the lock plate for preventing release rotation of the core housing relatively to the plate. As a further detailed feature of our invention, the detent extends longitudinally of the core housing for a considerable distance, whereby it may enter the slot of the lock plate in a considerable number of laterally adjusted positions of the core housing relatively to the lock.

As still a further feature of the invention, the detent is moved into the slot of the lock plate by the insertion of the cylinder core into the core housing from the front of the core housing, and after the core housing has been rotated to a particular laterally adjusted position relatively to the lock casing. Thereafter, only through the removal of the lock core, is the core housing released for rotation from its adjusted position.

Those skilled in the art will appreciate that the utilization of the longitudinally extending detent makes it possible to lock the core housing against rotation in any one of the considerable number of laterally adjusted positions to which the core housing may be rotated, and that this locking takes place merely through the insertion of the lock cylinder after the core housing has been adjusted relatively to the lock casing. In this way, the core housing is readily secured in position while a considerable adjustment may be obtained to compensate for various thicknesses of doors, all as is not possible with the type of retaining mechanism disclosed, for instance, in the Best patent supra, in which a screw is used for interlocking the core housing to the thin plate of the lock.

We have thus described generally the more important features of our invention and their relation to the prior art in order that our contribution to the art may be better understood and appreciated. One preferred form of the means which we have devised is shown in the accompanying drawings and will be described in this specification, but it should be understood that our contribution to the art may be embodied in physical forms other than that herein shown and described.

For a description of a preferred specific form of our invention, we now refer to the drawings wherein Fig. 1 is an elevation and partial section showing a lock casing embodying our invention secured relatively to a door, and taken along lines 1—1 of Fig. 2. Fig. 2 is a section taken along lines 2—2 of Fig. 1. Fig. 3 is a section taken along lines 3—3 of Fig. 1. Fig. 4 is a section taken along lines 4—4 of Fig. 3. Fig. 5 shows the parts of Fig. 4 in a different operating position. Fig. 6 is a view of parts of Fig. 2, but showing the cylinder core about to be removed from the core housing. Fig. 7 is a view of the back plate of the lock casing and the thumb turn cam plate secured thereto.

Referring now more particularly to the drawings, reference numeral 10 indicates a conventional lock casing having a front plate 11 and an armor plate 12, with screws 13 serving to secure the lock casing 10 to the wood door 14 in a manner well understood by those skilled in the art. The armor plate 12 serves to cover the front plate 11 of the lock and to prevent access normally to a screw 15, best illustrated in Figs. 1 and 2. This screw 15 is in threaded relation to a yoke 16 equipped with extending lugs 17 and 18. The extending lug 18, as best illustrated in Fig. 7, fits into a shallow depression 19 of the thumb turn cam plate 20 in a conventional manner well understood by those skilled in the art. The other extending lug 17 fits into a shallow lateral depression 21 in a core housing 22, also in a conventional manner well understood by those skilled in the art.

In the lock so far described, it is possible for unauthorized persons to remove the core housing 22 when the door 14 is open, by merely taking off the armor plate 12, rotating the screw 15, and retracting the yoke 16, as will be readily understood. In locks of the type having a core housing and a removable cylinder core, such as illustrated in the Ledin application supra, it is generally desired that the core housing be not removable except by authorized persons having a special removal key, and for that reason, such structures are utilized as shown in the Best patent supra, where the retaining screw 8 prevents removal of the core housing 1 until the cylinder core has been removed exposing the screw 8. In the Best patent, it will be noted, however, that very little lateral adjustment between the core housing and the thin plate 6 of the lock casing is possible, since the screw 8 can cooperate with the thin

plate 6 in but a few laterally adjusted positions of the core housing.

We shall now describe the novel structure of our invention. The core housing 22 is slotted at 22a for the mounting therein of a flat detent plate 23, pivoted to the housing on the pin 24, and spring pressed by the spring 25 away from the position of Fig. 2 and towards the position of Fig. 6. The cylinder core, designated by reference numeral 26, when assembled in the core housing 22, presses the detent plate 23 out of the position of Fig. 6 and into the position of Fig. 2 into a square faced slot 27 formed in the thin face plate 28 of the lock casing into which the core housing 22 is threaded, as best illustrated in Fig. 3.

The cylinder core 26 is itself retained relatively to the core housing by a lever 29 pivoted at 30 to the cylinder core 26 and lying in a slot 32 formed in the core housing 22, as best shown in Fig. 4. A spring 31 tends to press the lever 29 outwardly of the slot 32, but is prevented from so doing by the body of the key plug 33 of the cylinder core. If the key plug 33 is rotated by a key 34, cut away at 34a (Fig. 3), as from the position of Fig. 4 to the position of Fig. 5, the lever 29 will be pressed by its spring 31 out of the slot 32 in the core housing. The cooperation of the several parts just described is set forth in considerable detail in the Ledin application supra, and need not therefore be described in more detail here. Actually, the means for retaining the cylinder core 26 within the core housing 22 do not per se form a part of our invention. Upon movement of the lever 29 out of slot 32, the cylinder core 26 may then be removed from the core housing 22, as illustrated in Fig. 6, to allow the spring 25 to move the detent plate 23 out of the slot 27 in the thin face plate 28.

It will now be appreciated that to assemble the several parts of the lock, the core housing 22 is threaded into the thin face plate 28 of the lock casing in a conventional manner until it reaches a particular laterally adjusted position relatively to the lock casing 10 and the door 14. The cylinder core 26 may then be inserted into the core housing 22 until it reaches the position of Fig. 2, in which position it is retained by the lever 29 operating in the slot 32 of the core housing. In this position of the parts, the detent plate 23 is held against the pressure of the spring 25 within the slot 27 of the thin face plate 28. The considerable distance through which the retaining surface 23a of the detent plate 23 extends makes it possible for the detent plate to cooperate with the slot 27 in a considerable number of laterally adjusted positions of the core housing relatively to the casing 10, all as will be quite apparent to those skilled in the art.

It is obvious, moreover, that the detent plate 23, cooperating as it does with the square faced slot 27, prevents any rotation of consequence of the core housing. Moreover, the shape of the slot makes it impossible to impart inward camming motion to the detent plate 23. It will also be appreciated by those skilled in the art that the slot 27 is slightly wider than the thickness of the detent plate 23, and that therefore the core housing 22 will have some slight inconsequential movement relatively to the face plate 28 of the casing. It is the function of the extending lug 17 of the yoke 16 to hold the lock cylinder against this movement, and to prevent any vibration of the core housing relatively to the lock casing. The yoke 16 and its extending lug 17 form, therefore, an auxiliary retaining means, in effect.

When it is desired to remove the core housing 22 from the lock casing 10, it is merely necessary to insert the key 34 into the key plug 33 of the cylinder core 26, after which some slight rotation of the key plug 33 allows the lever 29 to move to the release position of Fig. 5. The cylinder core may now be removed, allowing the spring 25 to move the detent plate 23 into the release position of Fig. 6. A retraction of the yoke 16 and its extending lug 17 then permits free rotation of the core housing 22 so as to withdraw its screw threads from the cooperating screw threads of the lock plate 28.

We now claim:

1. In a lock of the class described, a lock casing, a core housing in screw threaded relation to said casing whereby rotation of said core housing adjusts it laterally relatively to said casing, said core housing having an opening extending inwardly from the front end thereof for the insertion of a cylinder lock core endwise therein, a detent movably mounted on said core housing and movable into a slot in said casing to lock said core housing against rotation, a spring pressing said detent out of said slot and inwardly of said core housing whereby a portion of said detent is maintained yieldingly within said opening, a cylinder lock core of the type comprising a cylinder portion and a key plug rotatable in said cylinder portion, said cylinder lock core being inserted endwise into said opening of the core housing as a unit after said core housing is in screw threaded relation to said casing in a particular laterally adjusted position, the said core when so inserted pressing said detent portion out of said opening whereby to move said detent into the slot of said casing to lock the core housing thereafter against rotation from said laterally adjusted position.

2. In a lock of the class described, a lock casing, a core housing in screw threaded relation to said casing whereby rotation of said core housing adjusts it laterally relatively to said casing, said core housing having an opening extending inwardly from the front end thereof for the insertion of a cylinder lock core endwise therein, a detent movably mounted on said core housing and movable into a slot in said casing to lock said core housing against rotation, a spring pressing said detent out of said slot and inwardly of said core housing whereby a portion of said detent is maintained yieldingly within said opening, a cylinder lock core of the type comprising a cylinder portion and a key plug rotatable in said cylinder portion, said cylinder lock core being inserted endwise into said opening of the core housing as a unit after said core housing is in screw threaded relation to said casing in a particular laterally adjusted position, the said core when so inserted pressing said detent portion out of said opening whereby to move said detent into the slot of said casing to lock the core housing thereafter against rotation from said laterally adjusted position, and means for thereafter retaining said cylinder lock core in said core housing.

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CHARLES LEDIN.