Dec. 24, 1940. H. MACHINIST 2,225,703

CYLINDER LOCK

Filed April 3, 1939

Fig. 1.

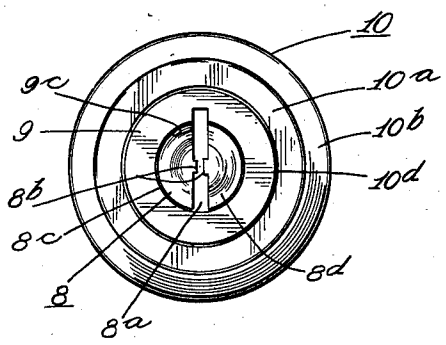


Fig. 2.

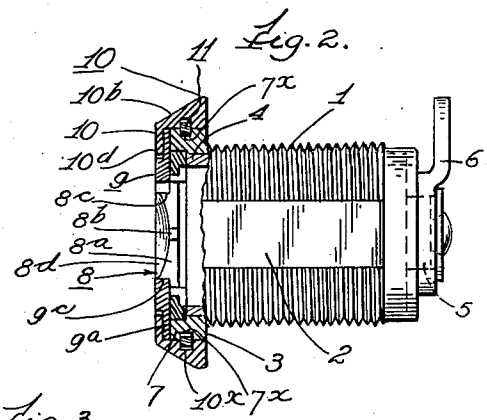
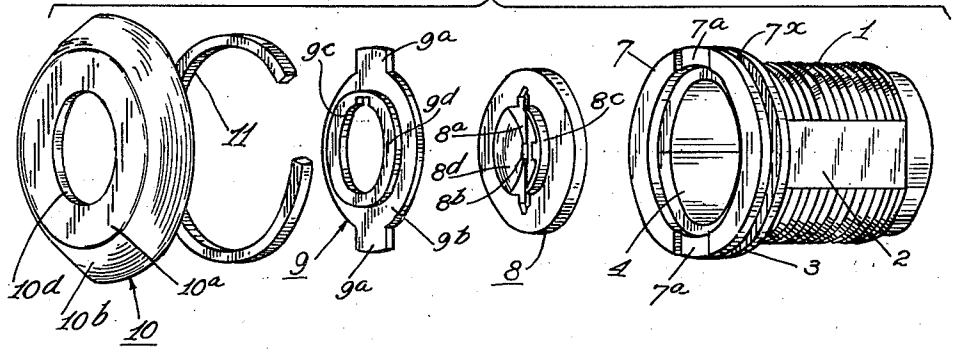


Fig. 3.



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2,225,703

CYLINDER LOCK

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4 Claims. (Cl. 70—417)

This invention relates to cylinder locks, and its object is to provide protective armor for the exposed portions of the lock, which shall be strongly resistant to cutting or drilling tools, and which is so connected to the parts of the lock itself as to offer no means for effectively gripping or engaging the said parts in an attempt to wreck the lock or to loosen it from its anchorage in the closure which it controls. The invention consists of certain features and elements of construction in combination, as herein shown and described and as indicated by the claims.

In the drawing:

Fig. 1 is an end or face view of a lock embodying this invention.

Fig. 2 is a side elevation partly in section.

Fig. 3 is a perspective view of the casing with the protective parts disassembled therefrom and arranged in the order of their replacement.

The drawing shows the lock casing 1 as comprising a cylindrical body threaded throughout most of its length and having flattened areas 2 at opposite sides, which may be understood to interlock with straight portions of a suitably formed aperture in the door or other closure to which the lock is applied. A shoulder 3 will normally seat against the outer face or surface of the closure, and any suitable securing nut, not shown, will be applied to the threads of the cylinder 1 so as to clamp against the opposite or inner face of the closure to secure the lock in operative position therein. Within the cylinder 2 there is provided a lining member 4 which may have suitable slots or apertures for inter-engagement with the usual tumblers of the key plug which is rotatable within the lining, and which terminates inwardly in a squared or otherwise non-circular spindle 5 to which the operating crank arm or "cam" is secured for inter-engagement with a locking bolt or latch to be operated by the lock mechanism.

The shoulder 3 is one surface of a head flange 7, formed integrally on the outer end of the casing 1. The lining sleeve 4 which is suitably anchored against rotation in the casing 1 terminates at a little distance back from the outer face of the head flange 7 providing a recess into which there is fitted an end cap 8 of special armor steel to protect the key plug. The end cap is rotatable in this recess of the head flange 7 and is held in place by a retainer plate 9 having lugs 9^a which engage notches 7^a. The end cap 8 includes a suitable key slot 8^a formed with wards 8^b to inter-member with the proper type of key for the lock, and this slot extends through a central projection 8^c whose outer face 8^d is of concave form to facilitate entering the key. The retaining plate 9 is formed with a central bore 9^c in a thickened annular portion 9^d of the plate which immediately surrounds the central projection 8^c of the end cap, and within which the latter is rotatable with the key plug.

The assembled end cap 8 and retaining plate 9 fit into the recess in the end of the head flange 7 of the casing, but with the thickened portion 9^d projecting beyond the outer face of the head flange. And these parts are finally locked in position by means of a head ring 10 which fits snugly but rotatively around the cylindrical surface of the flange 7 and includes a front wall 10^a which overlaps the thinner peripheral portion 9^b of the retaining plate 9. A central aperture 10^d admits the thicker portion 9^d of the plate 9 so that the latter extends substantially flush with the outer face of the head ring. The cylindrical surface of the flange 7 includes a groove 7^x and the opposite surface of the head ring 10 includes a groove 10^x so that when the head ring is applied to the flange 7 a split locking ring 11 of spring steel, and preferably of rectangular cross-section, may be lodged in the groove 7^x and permitted to expand so as to extend partly into the groove 10^x as the head ring 10 is slipped into place. Thus the head ring is permanently secured on the flange 7 but with capacity to rotate freely thereon.

It should be understood that not only the end cap 8 but also the retaining plate 9 and the head ring 10 are formed of suitable alloy, preferably in the nature of armor steel, which is too hard to be cut by ordinary tools, such as drills, files or saws; accordingly, with the head ring and other parts in place over the end of the casing 1 the casing and the key plug within it are protected from any outside attack of this nature. Preferably, the periphery of the head ring 10 is inclined or beveled at 10^b to provide a suitably designed finish for the lock, and this beveled formation also renders it particularly difficult to secure a grip on the head ring by means of a wrench or other tool. And, in fact, since the head ring 10 is freely rotatable upon the flange 7 the application of a wrench or any other gripping tool to the ring would be futile for the purpose of attempting to rotate or twist the casing 7 to loosen it from its anchorage in the closure. The construction, therefore, effectively prevents tampering with the lock by thieves or mischie-

vous persons, and adds measurably to the security which the lock provides.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that variaus modifications and re-arrangements of the parts may be made without departing from the spirit and scope of the invention, and that the same is not limited to the particular form herein shown and described, except in so far as indicated by the appended claims.

I claim:

1. In a cylinder lock, a casing for supporting a rotatable key plug, an end cap of armor steel rotatably disposed against one end of the casing to cover the end of the key plug, and a head ring formed to cover the peripheral and outer end surfaces of said casing and retaining said end cap in place, said head ring being freely rotatable on the casing and being provided with means inaccessibly disposed within the ring and inter-engaged with the casing to retain the ring thereon.

2. In a cylinder lock, a casing for a rotatable key plug, the end of the casing having a recess, an end cap of armor steel rotatably disposed in the recess to cover the end of the key plug, a retaining plate formed with a central aperture smaller than said end cap, said plate marginally overlapping said cap and being held against rotation by inter-engagement with the casing, and a head ring freely rotatable on the casing and formed to cover the peripheral and outer end surfaces thereof and overlapping the retaining plate, together with means inaccessibly enclosed by said ring and inter-engaged with the ring and the casing to retain the ring thereon and secure the end cap and retaining plate in position.

3. In a cylinder lock, a casing for a rotatable key plug, an end cap of armor steel rotatably disposed at one end of the casing to cover the end of such key plug, said cap having a key slot to register with that of the plug for admitting a key thereto, a retaining plate formed with a central aperture smaller than said end cap and disposed with the marginal portion of the aperture overlapping the cap, said plate being held against rotation by inter-engagement with the casing and the rim of its aperture having a notch to admit the key for inter-engagement of the latter with said rim when the key is rotated, and a head ring freely rotatable on the casing and formed to cover the peripheral and outer end surfaces thereof and overlapping the retaining plate, together with means inaccessibly enclosed by said ring and inter-engaged with the ring and the casing to retain the ring thereon and secure the end cap and retaining plate in position.

4. In a cylinder lock, a casing for a rotatable key plug, the end of the casing having a recess, an end cap of armor steel rotatably disposed in the recess to cover the end of the key plug, a retaining plate formed with a central aperture smaller than said end cap, said plate overlapping the marginal portion of the cap to retain it in the recess, said plate having radially extending lugs and the end of the casing having notches to receive said lugs for holding the plate against rotation, and a head ring freely rotatable on the casing and formed to cover the peripheral and outer end surfaces thereof and overlapping the retaining plate, together with means inaccessibly enclosed by said ring and inter-engaged with the ring and the casing to retain the ring thereon and secure the end cap and retaining plate in position.

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