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FIXING DEVICE OF CYLINDER LOCKS.

APPLICATION FILED NOV. 9, 1918.

1,343,712. **Patented June 15, 1920.**

Fig. 1.

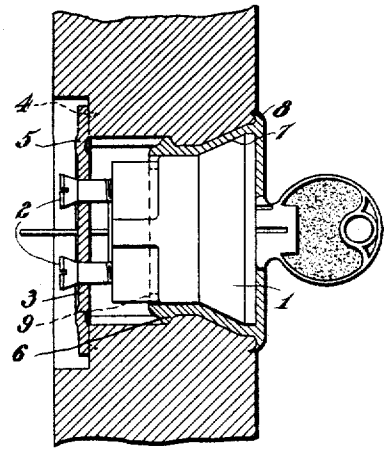


Fig. 2.

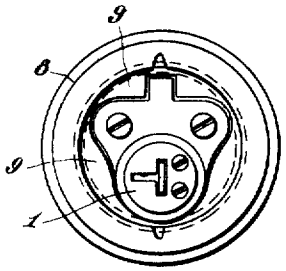


Fig. 3.

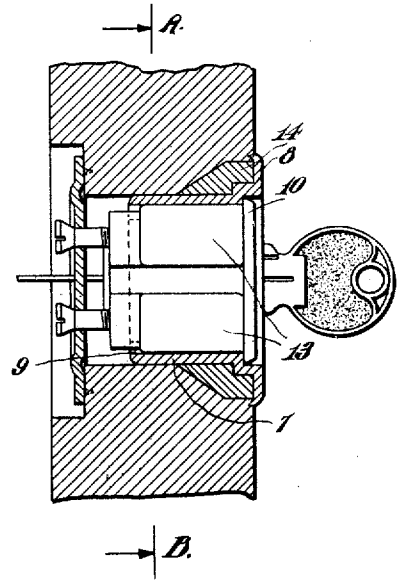
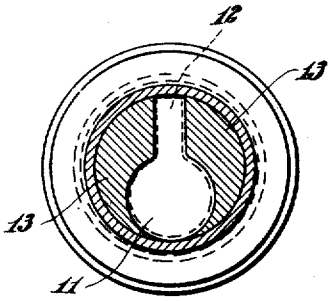


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FIXING DEVICE OF CYLINDER-LOCKS.

1,343,712. Specification of Letters Patent. Patented June 15, 1920.

Application filed November 9, 1918. Serial No. 261,917.

To all whom it may concern:

Be it known that we, VINCENT JOSEPH MARIE ERAS and HENRICUS JOHANNUS JOSEPHUS MARIA LIPS, of Dordrecht, Netherlands, have invented new and useful Improvements in Fixing Devices of Cylinder-Locks, of which the following is a specification.

The present invention relates to an improvement in the attaching arrangement of cylinder locks, more particularly in so-called "rim locks."

With said locks the lock cylinder has its escutcheon edge spaced from the surface and resting against a washer interposed between the door and said escutcheon edge, the lock cylinder being fastened by the aid of screws screwed into the lock cylinder on the inner side of the door, the heads of said screws bearing against a clamp plate on the inner side of the door.

It has been found that it is possible with lock cylinders fixed in the above described manner, to get with a jemmy or the like under the edge of the cylinder escutcheon arranged beyond the door at the lock cylinder and in this way and while leaning against the door to lift the cylinder out of the door without much trouble. It is customary with the existing cylinder locks to arrange a pressed metal hollow ring of about 1 mm. thickness between the edge of the lock cylinder and the door face, which ring is easy to pinch in, whereby the edge of the lock cylinder is exposed so that the jemmy can easily be put under said edge, without damaging the wood of the door.

Besides this it is possible to immediately catch the edge of the lock cylinder with the aid of tongs, to turn the cylinder and wrest it from the door.

By the present invention these attempts at burglary are entirely rendered ineffective. To this end a housing, fitting around the lock cylinder, is inserted into the door hole which housing rests at one end with an outwardly extending edge against the front surface of the door and closes at the opposite end with an inwardly extending edge around an edge formed on the lock cylinder. Furthermore, the outer diameter of the portion of the housing adjacent to the outwardly extending edge, is greater than the portion at the opposite end, so as to form a cone, whereas the housing is so proportioned that the frontal face of the lock cylinder lies behind the frontal face of the outwardly extending housing edge.

With this construction the lock cylinder does not bear with an edge against a washer interposed between this edge and the door, so that the lock cylinder is inaccessible for a jemmy and inasmuch as the cylinder does not project beyond the door it cannot be caught by the tongs. Should a jemmy be put under the edge of the housing, the latter will immediately bend out. If the jemmy is put into the wood to try to get at the cylinder nearer the back portion, no support will be found, as the jemmy will slide down the conical surface of the housing.

The present invention can be applied to all existing rim locks. The housing may comprise a single bush, of greater diameter at its front portion than its rear portion, to form a cone, or the housing may comprise a bush of uniform diameter and a metal ring arranged on the front portion thereof, the outer periphery of said ring being so shaped as to give the desired conical formation to the housing. The latter construction facilitates the pressing out of the bushes and particularly when being applied to existing locks, is of great importance, as in that case it would be necessary to make the foremost part of the bush thicker than the back part, as the shape of the cylinder has not a corresponding conical portion.

A further characteristic of the present invention lies in the fact that that portion of the housing lying against the outer door face is bent toward the door and is formed with an acute edge, so that on tightening the screws of the cylinder, this edge is pushed into the wood of the door. Owing to said projecting edge small deviations, if any, in the form or the width of the hole are moreover made invisible.

Furthermore according to the present invention the inwardly bent housing edge may be bent with a large radius, so that, should it be possible to get at said edge with a jemmy or some other burglar tool, the latter will necessarily slide down the bent edge.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a horizontal section of a part of a door with the lock cylinder in top plan view and the fixing device in section.

Fig. 2 is a rear view of the lock cylinder with the housing, comprising a single bush, fitting thereupon,

Fig. 3 is a section as in Fig. 1, the invention being applied to the fixing of a lock cylinder of the usual form,

Fig. 4 is a section on the line A—B of Fig. 3, but with the periphery of the lock cylinder shown in dotted lines.

The lock cylinder 1 is, as with the known construction, screwed into position with the aid of two screws 2, disposed at the rear face of the door. The screws are supported near their heads by a clamp plate 3 located against the rear door face.

The edges 4 of the clamp plate are preferably bent and sharpened, so that on securing the cylinder in the door said edges are driven into the wood, the clamp plate being also strengthened by a rib 5. Furthermore the screw heads 2 are conical at the side adjacent the clamp plate 4. Owing to this, no bending stress will occur in the screws, should same assume a somewhat aslant position on account of inaccuracies in the position of the clamp plate or owing to the holes in the clamp plate not being bored accurately, thus securing the screws against cracking on being secured, as often occurs. In this way the lock is very firmly secured, preventing not only the clamp plate from being thrown through the door hole, but also preventing the lock cylinder from being turned. In this connection it may be remarked that this turning might also be prevented by providing the back portion of the housing at its outer periphery with projections, which will be forced into the wood on the lock cylinder being fixed. These projections are shown in Fig. 1 at 6.

The lock cylinder 1 does not rest, as is now usual, with a flange or edge against a washer located on the front face of the door, but the cylinder on tightening the screws 2 is locked up in a housing comprising, in this example, a bush 7 fitting in the door hole and around the lock cylinder. This bush is provided on the outer side of the door with an outwardly bent edge 8, lying against the front face of the door, while on the opposite end of the bush an inwardly bent edge 9 is formed thereon, and the lock cylinder has at that point an edge engaging with the edge 9. Furthermore the foremost portion of the lock cylinder is thicker than the remaining portion, said portions running into each other so as to form a cone. As a result the bush 7 accurately fitting thereon is also conical on the corresponding portion, so that on putting a jemmy or the like between the wood of the door and the bush no support will be obtained, as said tool will slide down the conical portion.

On tightening the screws 2 the edge formed on the lock cylinder will contact with the edge 9, while the conical faces of cylinder and bush will likewise contact, thus locking the lock cylinder 1 in the bush 7 constituting the housing.

Furthermore the housing is so formed that the front face of the lock cylinder is situated behind the front face of the edge 8 formed on the housing, practically in one plane with the door face, thus rendering it impossible to catch the cylinder with tongs.

The edge 8 of the bush 7 is bent toward the door and sharpened off, so that this edge is pressed into the wood of the door on tightening the cylinder screws.

The shape of the edge 9 is clearly shown in Fig. 2 and corresponds with the periphery of the shoulder in which the locking pins are located, with the ears for the screws 2 and the cylindrical portion in which the lock cylinder is arranged. This shape also prevents the bush 7 from being turned in respect to the lock cylinder.

Fig. 3 shows the manner in which the invention may be applied to lock cylinders, of the type now generally used for rim locks.

The fixing of the lock cylinder is effected in the same way as with the usual arrangement described above, namely by means of the screws 2 and clamp plate 3. The lock cylinder is formed on the front side with a flange or edge 10, which with the fixing arrangement of the known type rests against a washer interposed between said flange and the door face.

In this example the housing comprises a bush 7 of uniform diameter throughout, with the exception that at its front end it is made of larger diameter to form a step against which the rear face of the flange 10 bears, in combination with a separate metal ring 14 arranged on the bush 7 behind the edge 8 of the latter. This ring is pressed on the bush 7 and is of such a shape that the outer periphery gives the desired conical formation. This construction facilitates the manufacture of the housing in that the wall of the bush 7 is of uniform thickness. On the lock side the bush 7 is provided with an inwardly bent edge 9, the shape of which practically corresponds with that shown in Fig. 2. As, however, at that point the lock cylinder 1 has no edge, but a section formed by the cylinder shaped portion 11, in which the key cylinder is located and a shoulder 12 situated thereabove, in which the locking pins are arranged, small metal stuffing pieces 13 are arranged on either side of said shoulder 12, in order to obtain a cylindrical edge, while the inwardly bent edge 9 of the bush 7 engages with the rear side of

said metal pieces and the latter rest against the rear face of the front flange 10 of the lock cylinder. The parts 13 also prevent the bush 7 from being knocked in by tongs, which would facilitate the catching of the cylinder. The sectional shape of the lock cylinder and the parts 13 lying thereon, are shown in Fig. 4.

The wall thickness at the front end of the housing might be made somewhat thicker and afterward the outer periphery be finished until a conical form is obtained, or the housing might directly be pressed into the conical form, but as it is preferable for the manufacturing to keep the wall thickness uniform as above described.

Having thus fully described our invention, what we claim is:—

1. In combination, a lock cylinder, a housing fitting around the same, the diameter of the front portion of the housing being greater than that of the rear portion, to form a cone, an outwardly-bent edge at the front face of said housing, adapted to be pressed into the wood of a door on the housing being secured in place thereon, an inwardly extending flanged portion at the opposite end of the housing, means carried by the lock cylinder, for engaging said flanged portion, and means for securing the lock cylinder and housing to a door.

2. In combination, a lock cylinder, a housing fitting around the same, the diameter of the front portion of the housing being greater than that of the rear portion, to form a cone, an outwardly-bent edge at the front face of said housing adapted to be pressed into the wood of a door on the housing being secured in place thereon, an inwardly extending flanged portion at the opposite end of the housing, means carried by the lock cylinder, for engaging said flanged portion, and means for simultaneously securing the lock cylinder and housing to a door.

3. In combination, a door having an opening therein, a lock cylinder within the opening, a conical housing surrounding the lock cylinder, the base of the cone being toward the front of the door, an outwardly projecting turned-back sharpened edge at the front thereof, an inwardly bent edge at the other end of the housing, coöperating engaging means carried by the lock cylinder, and means for securing the housing to the door and the lock cylinder within the housing.

4. In combination, a flanged lock cylinder, a bush fitting around said cylinder, an outwardly-bent edge at the front thereof adapted to bed into the wood of a door, a step on the inner side of the bush, an inwardly bent edge portion at the opposite end of the bush, stuffing pieces carried by the lock cylinder contacting with said inwardly bent edge and the rear face of the flange on the lock cylinder, a metal ring, the outer periphery of which has a conical portion, carried by the bush, and means for securing the lock cylinder and bush to a door.

5. In combination, a door having an opening therein, the exterior portion of the opening being greater than that of the interior portion, to form a cone, a housing adapted to fit the opening, outwardly-projecting sharpened edge portions on the exterior and interior of the housing adapted to bed into the wood of the door when the lock is secured in position, a lock cylinder fitting within the housing, inwardly-extending flanged portions at the inner end of the housing, coöperating projections on the lock cylinder, and means for simultaneously securing the latter and the housing to the door.

6. In combination, a lock cylinder, a housing fitting around the same the diameter of the front portion of the housing being greater than that of the rear portion, to form a cone, an outwardly-bent edge at front face of said housing, adapted to be pressed into the wood of a door on the housing being secured in place thereon, an inwardly extending flanged portion at the opposite end of the housing, means carried by the lock cylinder, for engaging said flanged portion, and means for simultaneously securing the lock cylinder and housing to a door, comprising a clamp plate located adjacent the rear face of the door having screw-holes tapped therethrough, and screws engaging said clamp plate and the lock cylinder.

7. In combination, a lock cylinder, a housing fitting around the same, the diameter of the front portion of the housing being greater than that of the rear portion, to form a cone, an outwardly-bent edge at front face of said housing, adapted to be pressed into the wood of a door on the housing being secured in place thereon, an inwardly extending flanged portion at the opposite end of the housing, means carried by the lock cylinder, for engaging said flanged portion, and means for simultaneously securing the lock cylinder and housing to a door, comprising a clamp plate, located adjacent the rear face of the door and having screw-holes tapped therethrough sharpened projections on said clamp plate, a strengthening rib, and conically-headed screws for engaging said clamp plate and the lock cylinder.

8. In combination, a lock cylinder, a housing fitting around the same, the diameter of the front portion of the housing being greater than that of the rear portion, to form a cone, the frontal face of the lock cylinder being behind the frontal face of

the housing, an outwardly-bent edge at front face of said housing, adapted to be pressed into the wood of a door on the housing being secured in place thereon, an inwardly extending flanged portion at the opposite end of the housing, means carried by the lock cylinder, for engaging said flanged portion, and means for securing the lock cylinder and housing to a door.

9. In combination, a flanged lock cylinder, a conical housing, comprising a bush and a conical ring thereon, fitting around said cylinder, an outwardly-bent edge at the front of the bush adapted to bed into the wood of a door, a step on the inside of the bush, an inwardly bent edge portion at the opposite end of the bush, stuffing pieces carried by the cylinder adapted to contact with said inwardly bent edge and the rear face of the flange on the lock cylinder, and means for securing the latter and its housing in position on a door.

In testimony whereof we affix our signatures in presence of two witnesses.

VINCENT JOSEPH MARIE ERAS.
HENRICUS JOHANNUS JOSEPHUS MARIA LIPS.

Witnesses:
L. U. GEEN,
W. P. YORRITLINA.