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Newman

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[54] **PROTECTIVE LOCK RING ASSEMBLY**

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[52] **U.S. Cl.** **70/381,** 70/418, 70/452

[51] **Int. Cl.** **E05b 15/02**

[58] **Field of Search** 70/381, 452, 417, 70/418; 248/27

[56] **References Cited**

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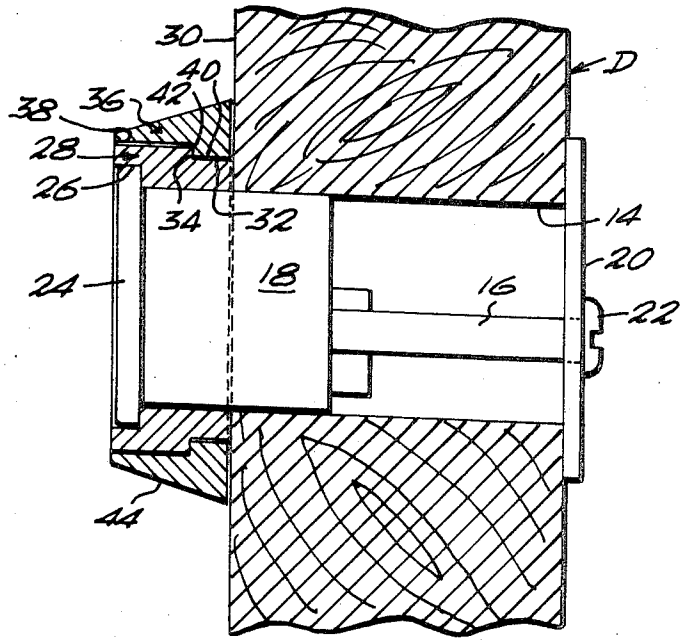
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[57] **ABSTRACT**

A two-part lock ring assembly for protectively encircling the outwardly projecting portion of a cylinder type of door lock. The ring assembly is comprised of an inner ring which is clamped tightly between an outer flange of the lock cylinder and the door, and an outer ring which is loosely, rotatively, held about the inner ring. The outer annular ring is of a truncated conical configuration.

4 Claims, 2 Drawing Figures



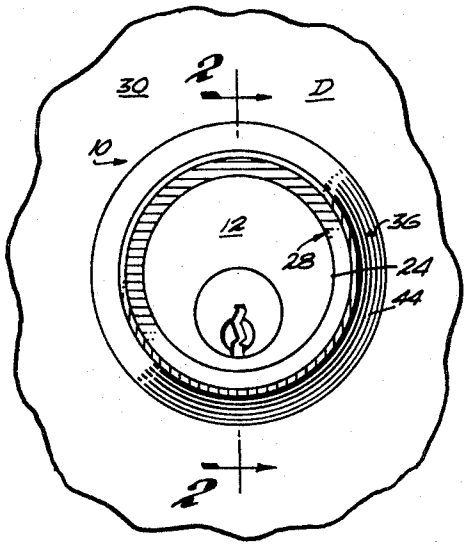

30
2
D
10
12
36
28
24
44
2

Fig. 1

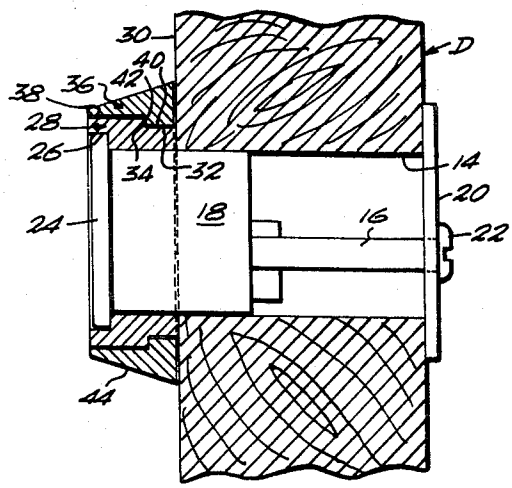

30
D
40
38
36
42
28
26
34
32
14
20
24
18
16
22
44

Fig. 2

PROTECTIVE LOCK RING ASSEMBLY

STATE OF THE PRIOR ART

Many cylinder type of locks are mounted through annular holes in doors and project outwardly a distance beyond the outer faces of the doors. Locks of this type generally have one thing in common. They have outer enlarged annular flanges which are seated in annular depressions in ring members which surround the outwardly extending portions.

These ring portions are generally more decorative in nature than they are protective, being formed of a relatively thin sheet metal which can be easily torn away with a pair of pliers. After the ring is removed, the extending portion of the lock cylinder can be grasped with pliers or the like and twisted and turned until the fastening means is broken, whereupon the lock cylinder may be readily extracted, rendering the entire lock mechanism useless, resulting in easy access to the house, apartment, office, etc.

BACKGROUND OF THE PRESENT INVENTION

The present invention provides a protective lock ring assembly, preferably formed of hardened steel, which is adapted to surround the outwardly extending portion of a cylinder type of lock. The ring assembly is designed to provide a very substantial degree of protection while, at the same time, having aesthetic qualities equal to or surpassing the presently used structures.

The ring assembly of the present invention comprises, generally an inner ring member, clamped firmly between the enlarged outer flange of a typical cylinder type of lock and the outside surface of the door. An outer ring surrounds the inner ring and is rotatively held in place thereby. The outer ring preferably provides a beveled peripheral surface generally having the form of a truncated cone.

The combination of the annular beveled periphery and the rotational aspect of the outer ring portion makes it virtually impossible to grasp and apply and substantial forces to the ring assembly by any conventional tool. Additionally, the fact that both ring portions of the assembly are of a substantial thickness of hardened steel, adds substantially to the protective value of the ring assembly of the instant invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the ring assembly of the present invention, mounted on a typical cylinder type of lock mechanism, mounted in a door; and

FIG. 2 is a cross sectional view taken along the line 2—2 in FIG. 1.

DETAILED DESCRIPTION OF THE DRAWINGS

With reference to the drawings in which like reference numerals designate like or similar parts throughout the two views, the numeral **10** generally designates the ring assembly of the present invention, applied to a typical cylinder lock mechanism **12**, mounted in a door D.

As illustrated in FIG. **2**, the lock mechanism **12** is mounted in a through hole **14** in the door D. Various mechanical details such as the bolt mechanism, inside actuating means, etc. have been omitted because they have no association with the protective ring assembly of the present invention.

One typical type of mounting means is illustrated in FIG. **2**, consisting of a pair of internally screw threaded tubular members **16** (one shown), fixed to the lock cylinder **18** and extending through to an inside plate member **20**. A screw **22** passes through the plate member **20** into threaded engagement within each of the tubular members **16**.

The lock cylinder **18** extends partially into the hole **14** and extends partially outwardly thereof and terminates in an enlarged outer flanged portion **24**. The flange **24** is seated in an annular recess **26** provided in the outer end of a first or inner ring member **28**. As illustrated in FIG. **2**, the inner ring member **28** is held tightly between the flange **24** and the outer face **30** of the door. It should be noted that some cylinder type of locks may include a nut, plate or the like, overlying the outer face of the door and the inner ring **28** would then be clamped between the flange **24** and the nut, plate or the like, however in all circumstances the inner ring **28** is clamped firmly in place when the screws **22** are drawn tight.

The inner ring **28** has a reduced external diameter at the inner end portion **32**, thereby forming a shoulder **34**. An outer ring **36** is circumposed about the inner ring **28**, providing internal diameters **38** and **40** loosely, engaged about the respective mating external diameters of the inner ring **28**, and forming a shoulder **42** in abutment with the shoulder **34**. As illustrated in FIG. **2**, the reduced internal diameter portion **40** of the outer ring **36** is slightly shorter than the reduced external diameter portion **32** of the inner ring. The outer ring **36** is therefore confined to loose rotational movement about the inner ring **28**.

The outer periphery of the outer ring member **36** is beveled as at **44**, generally forming an outwardly extending truncated conical configuration. As previously stated, both the inner and outer rings **28** and **36** are preferably formed of relatively thick hardened steel, which, in combination with the rotatable outer ring **36** having a beveled outer periphery, provides a structure which is relatively tamper proof by conventional methods and tools.

When the inner and outer rings are assembled as illustrated in cross section in FIG. **2**, the outer faces thereof are flush and the respective shoulders **34** and **42** are equidistant from the outer faces. However in a preferred embodiment the overall thickness of the outer ring is approximately one-sixteenth of an inch less than the overall thickness of the inner ring, permitting free rotational movement of the outer ring **36** about the inner ring **28**.

What is claimed is:

1. A protective lock ring assembly for encircling an outwardly projecting portion of a cylinder type of lock, fixedly mounted in a through hole in a door or the like and having an outer enlarged annular flange comprising,

A. a one-piece inner ring of a first axial length about the outwardly extending portion of the lock in a fixed relation between the enlarged annular flange and the door and including,

1. an annular depression in the outer face thereof to receive the enlarged annular flange in a recessed relation,

2. the inner ring having a first end and a second end, said inner ring being sized for the first end to bear against the surface of the door and said

second end to bear against the annular flange, and said inner ring having an outer surface,

B. an outer ring loosely on said inner ring and of an axial length no greater than the axial length of the inner ring, and said outer ring having an inner surface overlaying said outer surface of said inner ring along their respective axial lengths and in close adjacent relationship; and

C. means to confine said outer ring on said inner ring to rotational movement only.

2. A protective lock ring assembly as defined in claim 1 wherein said outer ring includes a beveled outer periphery providing the form of an outwardly extending truncated cone.

3. A protective lock ring assembly as defined in claim 1 wherein said means to confine comprises a reduced external diameter inner end portion on said inner ring forming a shoulder a predetermined distance inwardly from the inner end thereof and a reduced internal diameter inner end portion on said outer ring forming a shoulder a slightly shorter distance inwardly from the inner end thereof.

4. A protective lock ring assembly as defined in claim 3 wherein said inner and outer rings are formed with thick walls of a hardened steel.

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