Feb. 15, 1966 F. J. RUSSELL ETAL 3,235,301

RELEASABLE RETAINING MEANS FOR THE REVERSIBLE LATCH UNIT OF A UNIT LOCK

Filed Oct. 28, 1963

Fig. 1

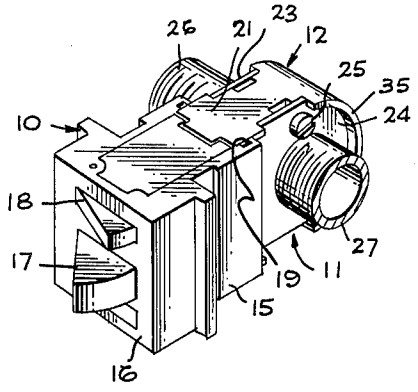


Fig. 4

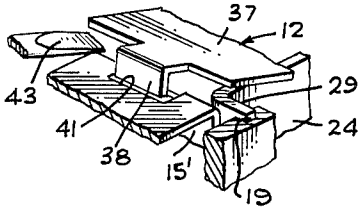


Fig. 2

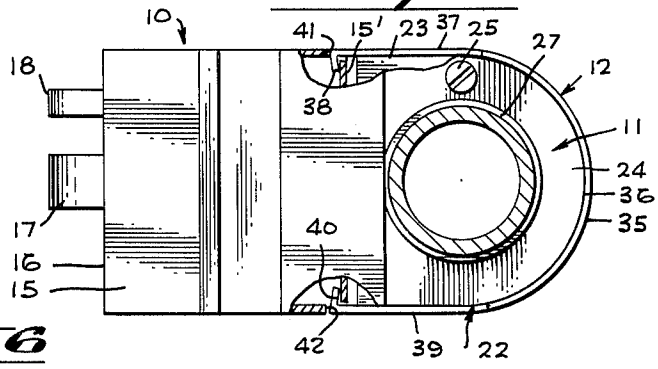
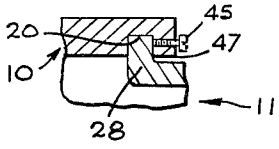


Fig. 6



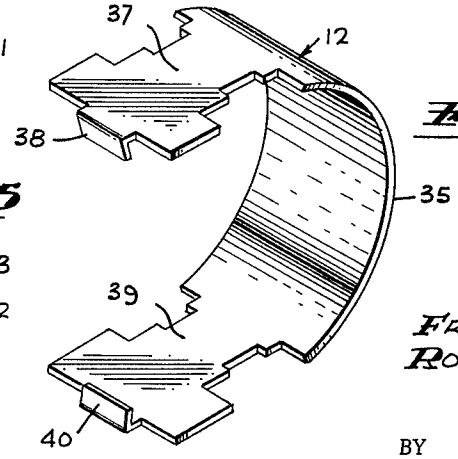
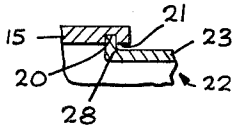


Fig. 3

Fig. 5



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RELEASABLE RETAINING MEANS FOR THE REVERSIBLE LATCH UNIT OF A UNIT LOCK

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4 Claims. (Cl. 292—244)

The invention has reference to lock sets of a type identified in the trade as a unit lock. In this particular instance the invention is directed to a retaining means capable of holding two separable subassemblies in operating engagement.

As in the case of most lock sets, it is desirable that the lock set be sufficiently versatile, so that it can be attached on either a right-swinging or left-swinging door and also, on occasions, of such character that it can be mounted to operate properly on a door which swings either outwardly or inwardly.

Since latch bolts are bevelled on one side in order to be pushed into the latch assembly when they hit the strike plate on the door jamb, the latch bolt and its mounting need to be capable of reversal in position for installations where the door swings in a direction opposite to that for which the lock is prepared.

It is therefore among the objects of the invention to provide in a latch set consisting of a latch subassembly having alternate positions of engagement with a retractor subassembly, a new and improved releasable means for holding the two subassemblies together.

Another object of the invention is to provide a releasable means for holding the subassemblies together which is simple, inexpensive, and at the same time one which in operation forms a secure and positive attachment between the subassemblies.

Still another object of the invention is to provide a new and improved releasable means for the subassemblies which makes it possible to reverse the latch subassembly without necessity for removing the knobs or escutcheon plates.

Still another object of the invention is to provide a new and improved releasable means for holding the subassemblies in engagement which can be merely pried loose by virtually any available instrument instead of some special tool and which when reapplied merely snaps into position automatically.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claims and illustrated in the accompanying drawings.

In the drawings:

FIGURE 1 is a side perspective view of the two subassemblies in engagement.

FIGURE 2 is a side elevational view partially broken away showing the two subassemblies engaged by the retaining means in operating condition.

FIGURE 3 is a side perspective view of the retaining means alone.

FIGURE 4 is a fragmentary perspective view showing a mode of disengagement of the retaining means.

FIGURE 5 is a fragmentary transverse sectorial view illustrating how the two subassemblies engage each other.

FIGURE 6 is a fragmentary sectional view showing a second form of the invention.

In an embodiment of the invention chosen for the purpose of illustration there are shown two subassemblies, namely, a latch subassembly, indicated generally by the reference character **10**, and a retractor subassembly, indicated generally by the reference character **11**. These subassemblies, when held in engagement by a releasable retaining band **12**, comprise what may be identified as a unit lock of the type adapted to slide into a cut-out in one edge of a door.

The latch subassembly consists of a latch housing **15** having a front face **16** through which protrude a latch bolt **17** and a dead locking bolt **18**. It will be noted that the latch bolt **17** and dead locking bolt **18** are mounted so that they pivot at the left end, as viewed in FIGURE 1. This would be a proper mounting on occasions where the unit lock is mounted on the left edge of a door (not shown) and where the door is designed to swing inwardly. If, for example, the door were intended to swing outwardly, the mounting for the latch bolt and dead locking bolt would have to be reversed, namely, so that they are pivoted toward the right of the front face **16**. In the unit lock here under consideration, this is accomplished by reversing the entire latch subassembly with relation to its attachment to the retractor subassembly.

To make a reversal of this kind possible, the right end of the latch housing **15** is provided with a pair of opposite, parallel channels **19** and **20** which in effect form tracks extending in a vertical direction. Between the channels, the latch housing is cut away, forming an opening **21** to provide access to the channels **19** and **20**.

The retractor subassembly **11** includes a retractor housing **22** made of opposite parallel plates **23** and **24** held together by some apropriate means such as a bolt **25** or other conventional construction. The retractor housing **22** is adapted to mount opposite bearing sleeves **26** and **27** within which spindle means (not shown) rotate, the spindle means following conventional practice and being provided with hand holds or knobs (not shown).

In order to have the retractor subassembly **11** housing engageable with the latch subassembly **10**, the parallel plates **23** and **24** respectively are provided with opposite parallel shoes **28** and **29** over which the channels **19** and **20** are adapted to slide and thereby to engage the latch housing **15** with the retractor housing **22**. Because of this sliding engagement, the latch housing **15** can be slid in a vertical direction entirely free of the retractor housing **22**, reversed upper end for lower end, and then slid again into engagement. Once in engagement, however, it is necessary that the housings be secured together as a unit. This is accomplished by the agency of the releasable retaining band **12**.

The releasable retaining band **12** is a band of appreciable breadth, more or less the same breadth as the retractor housing **22**. The band has a rounded intermediate portion **35** adapted to encircle a rounded end **36** of the retractor housing **22**. An upper parallel portion **37** extends toward the latch housing **15** and is provided with a projection **38** having in general the form of a downwardly extending hook. Similarly, a lower parallel portion **39** is provided with a projection **40** having the form of an upwardly extending hook. By making the releasable retaining band **12** of resilient material, where the upper and lower parallel portions **37** and **39** are initially parallel or perhaps bent slightly inwardly toward each other, they will regain a parallel position after being spread apart.

To accomodate the projections **38** and **40**, the latch housing **15** is provided at its upper side with a recess **41** and at its lower side with a recess **42**, the recesses being shown by solid lines in the broken away portions of FIGURE 2, and the recess **41** being shown also in FIGURE 4. An inside wall **15'** of the latch housing forms part of each of the recesses **41, 42**.

When the two subassemblies **10** and **11** are in engagement with each other in assembled position and with the

releasable retaining band **12** in place, they appear as shown in FIGURES 1 and 2. When the need arises to reverse the swing of the latch bolt **17** and dead locking bolt **18**, the releasable retaining band **12** must first be released. The manner of releasing is shown in FIGURE 4, where there is pictured a pry which may be a screwdriver end **43** or other appropriate instrument inserted under a part of the upper parallel portion **37** and in this manner lifting the upper parallel portion **37** high enough so that the projection **38** is withdrawn from the recess **41**. When this has been accomplished, the lower projection **40** is readily released from its position in the lower recess **42** and, accordingly, the releasable retaining band **12** can be removed entirely from the retractor subassembly **11**. This leaves the two subassemblies free for disengagement in the manner heretofore described, namely, by sliding the latch subassembly **10** upwardly or downwardly so that the shoes **28** and **29** are free of the channels **19** and **20**. The latch subassembly **10** then is merely inverted and re-engaged by the same sliding motion.

Once in the new position of engagement, the releasable retaining band **12** is reapplied. This is accomplished merely by inserting first one or another of the projections **38** or **40** into the respective recess **41** or **42**, then springing the opposite projection, until it is positioned over the respective recess, whereupon, by reason of the resilient character of the releasable retaining band, it will re-engage, and the housings will again be held together in the new relationship.

In the form of invention shown in FIGURE 6, the latch subassembly **10** engages the retractor subassembly **11** in the same manner as heretofore described. That is to say, the shoes, as represented by the shoe **28**, slide in the channel **20** of the track to place the subassemblies in engagement. In this form a set screw **45** is threaded into an appropriate threaded hole **46** in an overlying flange **47** forming one side of the channel **20**. The set screw **45** may be tightened against the shoe **28** sufficiently to prevent the subassemblies from sliding free of each other. When they are to be separated, the set screw **45** is loosened and the subassemblies can then be readily separated. In this form of the invention therefor the releasable retaining band **12** is dispensed with.

From the foregoing description it will be appreciated that a very simple retaining means has been provided which is inexpensive but at the same time dependable and capable of being applied with extreme simplicity.

While the invention has herein been shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but it is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described the invention, what is claimed as new in support of Letters Patent is:

1. In a lock which fits into a notch cut-out in the edge and adjacent faces of a door swingable about a vertical axis, the combination of a retractor subassembly including a retractor housing, a latch subassembly including a latch housing, track means on one of said housings extending in a vertical direction, shoe means on the other of said housings having a vertically slidable retention engagement with said track means, and retention means releasably holding said housings in engaged relationship.

2. In a lock which fits into a notch cut-out in the edge and adjacent faces of a door swingable about a vertical axis, the combination of a retractor subassembly including a retractor housing, a latch subassembly including a latch housing, track means on one of said housings extending in a vertical direction, shoe means on the other of said housings having a vertically slidable retention engagement with said track means, and retention means releasably holding said housings in engaged relationship, said means comprising an element having hooked end portions releasably attached to the latch housing and a second portion intermediate said end portions in a position encircling said retractor housing.

3. In a lock which fits into a notch cut-out in the edge and adjacent faces of a door swingable about a vertical axis, the combination of a retractor subassembly including a retractor housing, a latch subassembly including a latch housing, track means on one of said housings extending in a vertical direction, shoe means on the other of said housings having a vertically slidable retention engagement with said track means, and retention means releasably holding said housings in engaged relationship, said means comprising a band having an intermediate portion encircling at least a portion of said retractor housing, a projection at one end of said band in releasable hooked engagement with an upper part of said latch housing and a projection at the other end of said band in releasable hooked engagement with a lower part of said latch housing.

4. In lock which fits into a notch cut-out in the edge and adjacent faces of a door swingable about a vertical axis, the combination of a retractor subassembly including a retractor housing, a latch subassembly including a latch housing, track means on one of said housings extending in a vertical direction, shoe means on the other of said housings having a vertically slidable retention engagement with said track means, and retention means releasably holding said housings in engaged relationship, said means comprising at least one set screw threadedly mounted in a part of one of said housings adjacent the track means and engageable with the shoe means on the other of said housings whereby to hold said housings in engagement.

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