

IMPROVED KEEPER DEVICE FOR LOCK OR LATCH ASSEMBLY

This invention relates generally to lock or latch assemblies and more particularly to an improved keeper device for use in such assemblies.

5 Lock or latch assemblies currently in use generally comprise a lock or latch bolt which can be mounted to a door or the like and is moveable between a lock position and a release position. The bolt may in some circumstances be operable by means of a key. In the lock position the bolt is received within a keeper which may for example be mounted on a door jamb. The keeper generally comprises an aperture or recess through
10 which the bolt can pass into the locked position. A striker plate may be provided which overlies the aperture or recess and through which the bolt can pass when moved into the lock position.

When the bolt is in the release position, dust and grit may accumulate in the aperture especially if it is located at ground level. The accumulated dust and grit can add
15 to the wear and tear that is caused to the end of the bolt thereby increasing the risk of damage.

It is an object of the present invention to provide an improved keeper device which alleviates the aforementioned problem. According to ^{one aspect of} the present invention there is provided a keeper device ~~which is~~ suitable for use in a lock assembly, the lock
20 assembly including a lock bolt which is moveable into a lock position in which it engages the keeper device, the keeper device including a main body having a ^{cavity therein with a blind end and an open end, an end cap release} bolt receiving aperture ^{therethrough} therein, a closure element mounted ^{within said cavity} for movement ~~relative to the main body~~ between a first position in which it closes the bolt receiving aperture and a second ^{mounted at the open end of the cavity} position in which it is spaced from the bolt receiving aperture, and biasing means ^{within said cavity} urging ^{said end cap having} the closure element into said first position, ^{the arrangement being such that, when in use,} said closure element is urged into said second position against the action of said biasing means when the bolt is moved into the lock position and ~~returns to the first position under the influence of the biasing means when the bolt is removed from its lock position.~~

^{said end cap and said closure element having co-operating shoulder surfaces which locate the closure element in the first position,} Preferably, ^{biasing means comprising a helical spring} the bolt receiving aperture is in a wall of the main body the wall
30 ~~having an outer side and an inner side with the closure element being mounted so that it is urged into the aforementioned first position from the inner side.~~

In one preferred form ~~the main body has a cavity therein with the bolt receiving aperture providing access to this cavity. The closure element is preferably disposed~~

within the cavity and is urged towards the bolt receiving aperture under the influence of the biasing means so that it adopts the aforementioned first position.

Preferably the biasing means is in the form of a spring such as for example a helical or coil spring.

5 ^{In one preferred form the} The closure element may in one preferred form comprise a plug which is disposed within the cavity for sliding movement therealong, ^{the} The plug may preferably include a closure portion which has the same general cross section or dimension as the bolt receiving aperture.

10 Preferably the bolt receiving aperture has a peripheral flange therearound which defines a striker plate. Preferably this peripheral flange is formed on the main body of the device.

Preferably the main body and the closure element may have cooperating stops which locate the closure element in the first mentioned position under the influence of the biasing means.

15 In one preferred form the cavity includes a blind end and an open end with the bolt receiving aperture being at the open end and the spring and closure element being disposed within the cavity with the spring being between the closure element and the closed end of the cavity.

20 ^{Preferably, the} In one preferred form the main body may further include an end cap which is ^{has an outer face said end cap and said main body have co-operating shoulder sections which locate the outer face of the end cap substantially} releasably securable at the open end of the cavity with the bolt receiving aperture being ^{a plane containing the outer edge =} formed in the end cap.

A preferred embodiment of the invention will hereinafter be described with reference to the accompanying drawings in which:

25 Figure 1 is a schematic of a lock assembly incorporating a keeper device according to the present invention;

Figure 2 is an exploded view of a keeper device according to the present invention; and

Figure 3 is a side elevation of the keeper device shown in Figure 2.

30 Referring to the drawings and firstly to Figure 1 there is shown a lock assembly which includes a lock bolt 51 which is operable by insertion of a key into keyhole 52 for movement between a release position and a lock position. The lock bolt 51 is mounted to a door 54 and the keeper device 1 according to the present invention is mounted to door jamb 53. In the release position the bolt 51 is withdrawn into the door 54 and in

the lock position it projects from the door.

As best seen in Figures 2 and 3, the keeper device 1 comprises a main body or housing 5 which is generally cylindrical in form having a cavity 6 therein, the cavity including an open end 7 and a closed end 8. A peripheral flange 9 at the open end 7 forms a striker plate. A cap 10 having a threaded section is receivable within the open end of the main body or housing 5 and secured thereto through a complementary threaded section on the wall of the cavity. The cap 10 includes a bolt receiving aperture 15 through which lock bolt 51 can pass when moved into the lock position.

A closure element 20 in the form of a plug 21 is receivable within the cavity 6. The closure element 21 includes a closure portion 22 which is of the same cross sectional diameter as bolt receiving aperture 15. The plug further includes a shoulder 23 which is adapted to abut against ^{the inner end of} ~~shoulder 11~~ on the closure cap so as to define a stop which inhibits movement of the closure element out through the bolt receiving aperture. *The closure cap includes a shoulder 11 which seats against a shoulder 12 at the open end of the cavity.*

The device further includes biasing means 24 in the form of a helical spring 26 which is located within the cavity 6 between the closed end 8 and the plug 21.

The spring urges the plug into a position where the closure portion 23 is disposed with bolt receiving aperture 15. The device can be made from any suitable material and preferably it is formed from metal.

The operation of the keeper device will be hereinafter described. The keeper device can be mounted to the door jamb 53 in any conventional fashion. When it is mounted the main body 5 of the device is substantially disposed internally of the door jamb 53. The striker plate formed by flange 9 on the main body abuts against the door jamb 53. In its normal position the plug 21 is urged by spring 26 towards the bolt receiving aperture 15. The stops 11 and 23 are positioned such that the outer surface of the closure portion 22 of plug 21 is in the same general plane as the bolt receiving aperture 15. Thus dirt and grit are inhibited from entry into the cavity 6.

When the door 54 is closed the bolt 51 can be moved into the lock position whereby it first engages the outer surface of the closure portion 22 of the plug 21 and forces it against the bias of spring 26 into the cavity. The free end portion of the bolt 51 is then disposed within the cavity 6 and the door is locked. Retraction of the bolt 51 permits the plug 21 to return to its original position under the influence of spring 26.

Finally it is to be understood that various alterations, modifications and/or additions may be incorporated into the various constructions and arrangement of parts

without departing from the spirit or ambit of the invention.

Many modifications and variations may be made to the above described keeper device without departing from the spirit and scope of the invention.

CLAIMS

1. A keeper device suitable for use in a lock assembly, the lock assembly including a lock bolt which is moveable into a lock position in which it engages the keeper device,
- 5 the keeper device including a main body having a ^{cavity therein with a blind end and an open end, and an end cap releasably mounted at the open end of cavity said end cap having} bolt receiving aperture therein, a closure element ^{within said cavity} mounted ^{therein} for movement relative to the main body between a first position in which it closes the bolt receiving aperture and a second position in which it is spaced from the bolt receiving aperture, and biasing means ^{within said cavity} urging the closure element into said first position, ^{said end cap and said closure element having co-operating shoulder sections which locate the closure element in the first position,} the arrangement being such that when in use said closure element is urged into said second position against the action of said biasing means when the bolt is moved into the lock position.
- 15 2. A keeper device according to claim 1 wherein said ~~bolt receiving aperture is in a wall of the main body, the wall having an outer side and an inner side, the closure element being mounted so that it is urged into said first position from the inner side.~~
- 20 ~~3. A keeper device according to claim 1 or claim 2 wherein said main body has a cavity therein, said bolt receiving aperture providing access to said cavity, said closure element being disposed within said cavity and being urged towards said bolt receiving aperture so as to adopt said first position.~~
4. A keeper device according to any preceding claim wherein said biasing means ~~comprises a helical spring.~~ ^{biasing means comprises a helical spring.}
- 25 3¹. A keeper device according to claim ¹ or claim ² wherein said closure element comprises a plug disposed within said cavity for sliding movement therealong, the plug including a closure portion which has the same general cross-sectional dimension as the bolt receiving aperture.
- 30 4². A keeper device according to any preceding claim wherein said bolt receiving aperture has a peripheral flange therearound defining a striker plate.

~~7. A keeper device according to claim 5 wherein said main body and said closure element have co-operating stops which locate the closure element in said first position.~~

5 58. A keeper device according to any preceding claim wherein said ~~cavity includes~~ ^{end cap has an outer face and said end cap and} said main body have ~~a blind end and an open end at which the bolt receiving aperture is located, said spring~~ ^{co-operating shoulder sections which} and said closure element being disposed within said cavity. ^{locate the outer face of the end cap substantially in a plane containing}

~~9. A keeper device according to claim 8 wherein said main body further includes an~~ ^{outer edge of the open end of the cap}
10 end cap releasably securable at the open end of said cavity, said bolt receiving aperture being in the end cap

10. A keeper device substantially as hereinbefore described with reference to the accompanying drawings.

ABSTRACT

IMPROVED KEEPER DEVICE FOR LOCK OR LATCH ASSEMBLY

A keeper device suitable for use in a lock assembly having a lock bolt (51) which can be moved between a release position and a lock position in which it engages the keeper device. The keeper device (1) includes a main body (5) having a bolt receiving aperture (15) therein, and a closure element (20) mounted for movement relative to the main body (5) between a first position in which it closes the bolt receiving aperture and a second position in which it is spaced from the bolt receiving aperture. There is further provided biasing means urging the closure element into the first position. The arrangement is such that when in use the closure element (20) is urged into the second position against the action of the biasing means (25) when the bolt (51) is moved into the lock position.

(Figure 2)

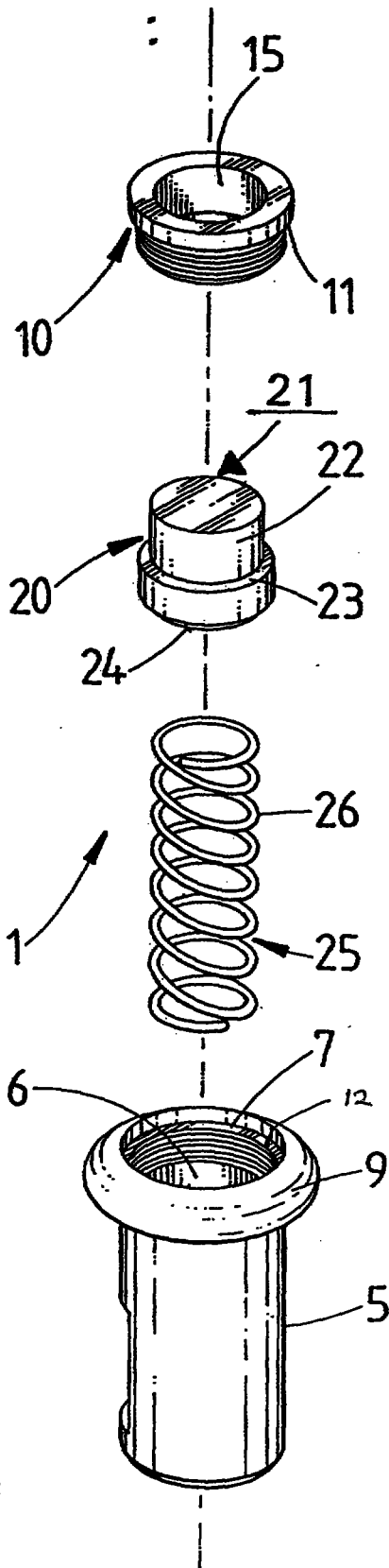


FIG 2

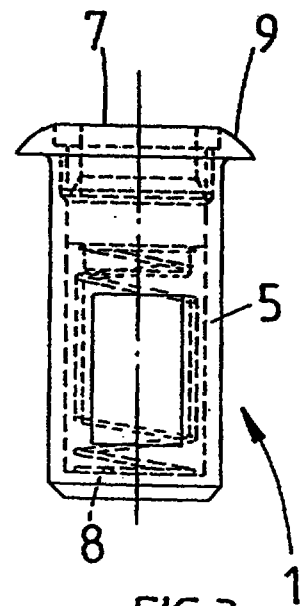


FIG 3