July 25, 1939. R. MARPLE 2,167,391

LOCK KEEPER

Filed Dec. 20, 1937

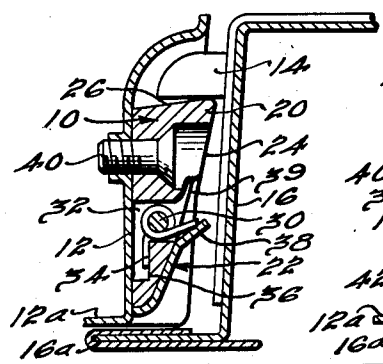


FIG. 1.

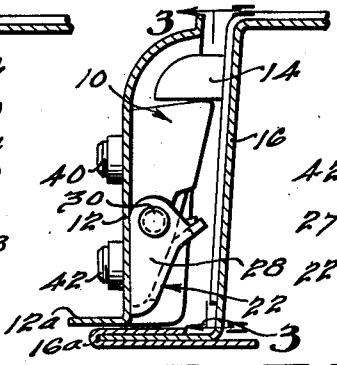


FIG. 2.

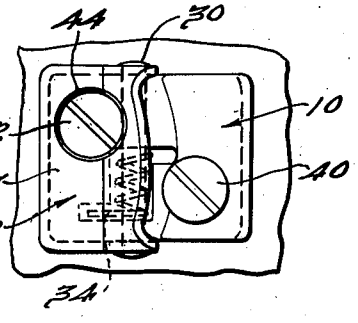


FIG. 3.

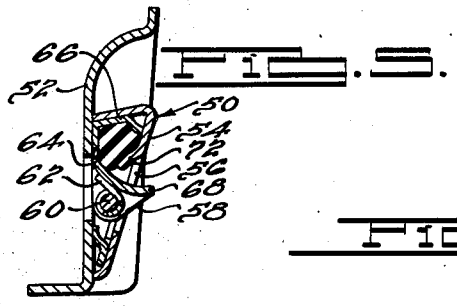


FIG. 5.

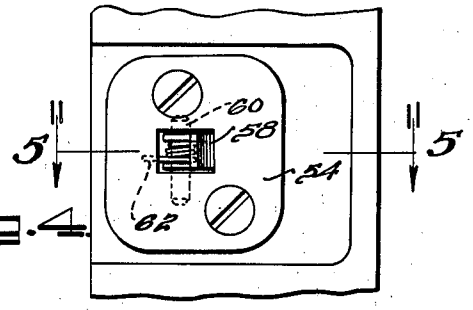


FIG. 4.

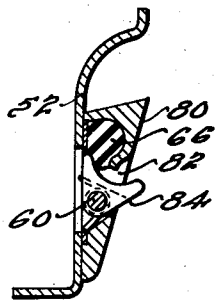


FIG. 6.

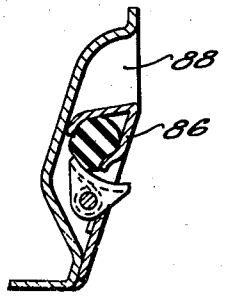


FIG. 7.

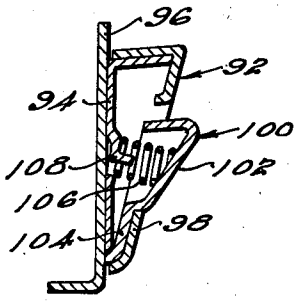


FIG. 8.

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2,167,391

LOCK KEEPER

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Application December 20, 1937, Serial No. 180,676

4 Claims. (Cl. 292—340)

The present invention relates to locking devices for vehicle doors and the like, and in particular provides an improved construction of lock keeper. The present application is a continuation in part of applicant's co-pending application Serial No. 159,746, filed August 18, 1937, and assigned to the same assignee as the present application.

Objects of the present invention are to provide an improved lock keeper for cooperation with the bolt of an associated locking device, characterized as being effective to hold the bolt in either of two positions corresponding respectively to a fully closed or an intermediate or safety position of the associated door; to provide such a construction in which the means for holding the bolt in the intermediate or safety position is of a retractable character, so as to minimize the effort required to cause the bolt to pass completely over the keeper into the fully closed position; to provide such a construction in which the keeper comprises a main keeper body, one face of which forms the fully closed holding element for the bolt, and which includes a spring pressed retractable element adapted to project therefrom and be retracted therein; to provide such a construction in which the safety element of the lock keeper comprises a shell pivotally fitted over the main body of the lock keeper; to provide such a construction in which the safety element includes a retractable element recessed in the body of the keeper; and to provide such a construction which is economical of manufacture, simple in assembly, and which is efficient and durable in action.

With the above, as well as other objects in view, which appear in the following description and in the appended claims, a preferred but illustrative embodiment of the invention is shown in the accompanying drawing, throughout the several views of which corresponding reference characters are used to designate corresponding parts, and in which:

Figure 1 is a view in horizontal transverse section, of one embodiment of the invention;

Fig. 2 is a view corresponding generally to Figure 1, but showing the parts in elevation;

Fig. 3 is a view taken along the line 3—3 of Fig. 2;

Fig. 4 is a view in plan of a modification of the invention;

Fig. 5 is a view taken along the line 5—5 of Fig. 4; and,

Figs. 6, 7 and 8 are views in horizontal transverse section of further modifications of the invention.

It will be appreciated from a complete understanding of the invention, that the improvements thereof may be embodied in lock keepers adapted for use either with bolts of the conventional slidable type, or with bolts of the so-called rotary or pivoted types. Claims which are generic to lock keepers for use with both of the above, as well as other, types of bolts are presented in the above identified co-pending application, Serial No. 159,746. The embodiments specifically disclosed herein are particularly, but not necessarily, adapted for use with bolts of the slidable type.

Referring first to the embodiments of Figs. 1, 2 and 3, the lock keeper designated as a whole as 10 is illustrated as being secured to a door pillar 12, for cooperation with the bolt 14 of a locking device (not otherwise shown), and which is mounted in the body of the illustrative door or other closure 16. The parts are shown in the fully closed positions thereof, in which the flange 16*a* of the door lies closely adjacent the outer face 12*a* of the door pillar 12.

The lock keeper 12 comprises the main body 20, which may be and preferably is formed as a brass or steel casting, and a safety element 22. The main body 20 is generally rectangular when viewed in plan. As viewed in Figs. 1 and 2, the main body 20 presents a gradually inclined outer face 24, which terminates in a shoulder or bolt engaging portion 26, against which the bolt 14 bears in the fully closed position of the parts. The safety element 22 is in the form of a shield or hood which is fitted over the body 20. Element 22 includes a central bolt engaging portion 27, and a pair of laterally turned legs 28, which lie closely adjacent the corresponding sides of the body 20. Element 22 is pivotally connected to the main body 20 by means of a pin 30, which is rotatably received in a bore provided therefor in the body 20, and the ends of which pass through corresponding openings provided in the legs 28 and are suitably riveted over. The main body 20 is further cored out as indicated at 32, to accommodate a biasing spring 34, which is wound around the pin 30. One end of the spring 34 bears against a surface 36 formed in the body 20, and the other end thereof bears against the outwardly flared lip 38 of the safety element 22. The spring 34 is thus continuously effective to urge the safety element to the projected position shown in the various figures.

The central portion 27 of the safety element

is generally planar and, as clearly appears in Fig. 1, rests directly upon the lower rounded part of the inclined surface 24 of the main body 20 of the keeper. The bolt engaging lip 38 is outwardly bent as clearly indicated in Fig. 1, so as to substantially overlap the face of the bolt 14 when the latter is in the partially closed position of the door 16. In this way a substantial safety catch is provided and at the same time the slope of the face of the keeper as a whole is maintained at a low value, thus minimizing the resistance to the door closing movement. It will further be noted that the bearings for the pin 30 are positioned closely adjacent the point of engagement of the bolt 14 with the safety element 22, thus minimizing the leverage of the bolt 14 on the pin 30 and correspondingly minimizing the stresses to which the pin 30 and its bearings are subjected.

The keeper 10 is secured to the face of the pillar 12 by means of the studs which are countersunk into the main body portion 20, and are received in threaded openings provided therefor in the pillar. The safety element 22 is provided with an opening 44 therethrough to accommodate the stud 42, thus permitting the keeper itself to be completely assembled before being secured to the pillar 12.

In operation, it will be appreciated that to effect an opening movement of the door 16, the bolt 14 may be retracted by any suitable means (not shown), to a position in which the end thereof clears the keeper 10. During a normal door closing movement, at the beginning of which the bolt 14 occupies a projected position, the bolt 14 first engages and slides along the central portion 27 of the safety element 22. During this movement, the bolt 14 is cammed inwardly due to the slope of the just mentioned portion 27. By virtue of the fact that the slope of the portion 27 is gradual, no abrupt camming action is involved and the resistance to the door closing movement is therefore minimized. When the bolt 14 starts across the lip 38 of the safety element, the latter is caused to pivot about the pin 30 to a position in which the lip 38 is received within a recess 39 provided therefor in the main body portion 20. The depth of this recess corresponds to the thickness of the lip 38 so that the outer surface of the lip, when fully retracted, lies flush with the surface 24 of the body 20. The passage of the bolt 14 from the lip 38 on to the surface 24 thus does not involve any objectionable clicking or other noise.

As soon as the bolt 14 has passed completely beyond the lip 38, on to the face 24 of the body 20, the safety element is released, and, under the influence of the spring 34, resumes the position shown in Figs. 1, 2 and 3. In this position, the lip 38 affords a positive abutment which prevents movement of the door to the fully open position unless the bolt 14 is retracted in the usual way. The door is thus securely held in the safety position.

The door closing movement is completed, as will be appreciated, when the nose of the bolt passes beyond the end of the surface 24, permitting the bolt 14 to move to the position shown in the various figures, in which it solidly bears against the face 26 of the keeper 10.

Referring particularly to Figs. 4 and 5, a modified keeper is illustrated, in which the body 50 of the keeper is of generally triangular form in section, the base whereof is secured to the door pillar 52, and the opposite and generally uniformly sloping face 54 of which is presented to the bolt of the associated lock. The face 54 of the keeper is provided with an opening 56, through which the safety catch 58 projects. The safety catch 58 is carried upon a pin 60, which is journaled in the respectively opposite side walls of the striker body. A spring 62 is connected between the safety catch and the keeper body, and continuously urges the safety catch to the position shown in Fig. 5. A limit stop to such movement is afforded by the engagement between the end 64 of the safety catch and a buffer 66 which may be formed of, for example, rubber or other resilient material. The buffer 66 is received within the body of the keeper. In the position of the parts shown in Fig. 5, the end 68 of the safety catch 58 extends sufficiently beyond the plane of the sloping surface 54 to cooperate with the bolt of the associated lock to hold the door in the partially closed or safety position. During a closing movement of the door the bolt slides upwardly along the surface 54, as viewed in Fig. 5, and, upon encountering the safety catch 58, depresses the latter into the keeper body, and so passes over it without substantial obstruction. A limit to the depressing movement of the safety catch 58 is afforded by the engagement between the end 68 thereof and a portion 72 which is depressed inwardly from the surface 54.

The embodiment of Fig. 6 distinguishes primarily from the embodiment of Figs. 4 and 5 in that the body 80 of the keeper is formed as a metal casting as distinguished from the pressed metal body 50 described above. The body 80 is recessed at 82 to receive the pivotally mounted safety catch 84, which may correspond in operation and function to the pivotally mounted safety catch 58. In other respects, the arrangement of the embodiment of Fig. 6 corresponds with that described with reference to Figs. 4 and 5.

Fig. 7 illustrates a construction, otherwise like that of Figs. 4 and 5, in which the outer face 86 of the keeper lies flush with and forms an uninterrupted continuation of the correspondingly angled surface of the door pillar 88, which is recessed as shown to receive the body of the keeper.

Fig. 8 illustrates a construction in which the keeper is formed entirely of metal stampings. In Fig. 8, the body 92 of the keeper is formed of an inner stamping 94, which may be secured directly to the outer face of the door pillar 96, and an outer stamping 98, which is suitably fitted over and secured to the stamping 94. The safety catch 100, also formed of a metal stamping, is provided with a surface portion 102, which normally extends beyond the normal level of the surface of the stamping 98, and is also provided with an extended portion 104, which fits between the two stampings 94 and 98, to provide a pivotal supporting connection for the safety catch. A compression spring 106 is seated between the safety catch 102 and a lug 108 struck inwardly from the base of the stamping 94, and acts to continuously urge the safety catch 100 to the position shown. The lug 108 also acts as a limit stop to an inward movement of the safety catch 100, caused, for example, by the passage thereover of the bolt (not shown) of the associated lock.

From the foregoing, it will be appreciated that the present invention provides extremely simple and effective keeper constructions, which are sim-

ple and economical of manufacture, and which are exceptionally efficient and satisfactory in operation. It will also be appreciated that the specifically described embodiments are illustrative, and that various modifications in the form, number and arrangement of the described parts may be made within the spirit and scope of the invention.

What is claimed is:

1. In a lock keeper, the combination of a main body portion having a gradually sloping face terminating in a bolt engaging surface, a safety catch of generally U shape fitted over said main body and pivotally connected thereto, said safety catch having a main portion conforming generally to the slope of said body portion and a lip disposed to engage a bolt.

2. In a lock keeper, the combination of a main body portion having a gradually sloping face terminating in a bolt engaging surface, and a safety catch pivotally mounted on said body having a part overlying said face and having an outwardly projecting nose forming a bolt engaging abutment extending outwardly from said face.

3. In a lock keeper, the combination of a main body portion having a gradually sloping face terminating in a bolt engaging surface, and a safety catch pivotally mounted on said body having a part overlying said face and having an outwardly projecting nose forming a bolt engaging abutment extending outwardly from said face, said face having a recess to receive said nose upon pivotal movement of said catch.

4. In a lock keeper, the combination of a body having an outer face terminating at one end in a bolt engaging shoulder, and a safety catch pivoted to said body at a point spaced from said end, said catch having a part which overlies a portion of said face and a nose disposed when the said part is seated on the face to project outwardly from the said face and constitute a bolt engaging abutment, said catch being rockable about its pivot by the passage of a bolt thereover so as to bring the nose into engagement with said face, and means biasing the catch to a position in which the said part seats upon the face.

ROLLO MARPLE.