Feb. 23, 1926. 1,574,023

E. CROMPTON ET AL

LATCH OR KEEPER MEANS

Filed Oct. 12, 1921

Fig. 1.

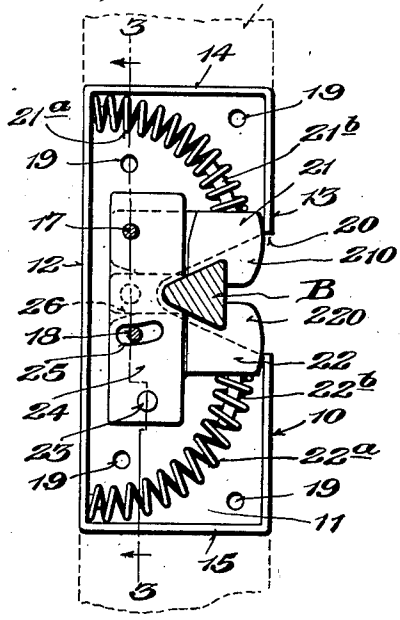


Fig. 2.

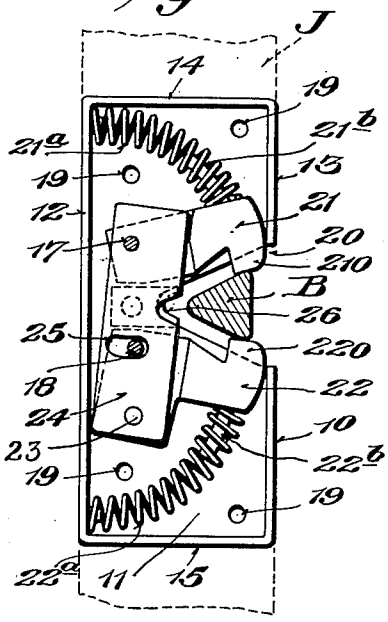


Fig. 3.

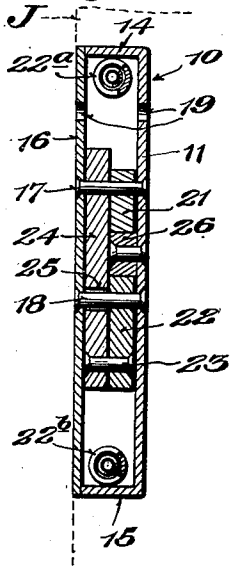
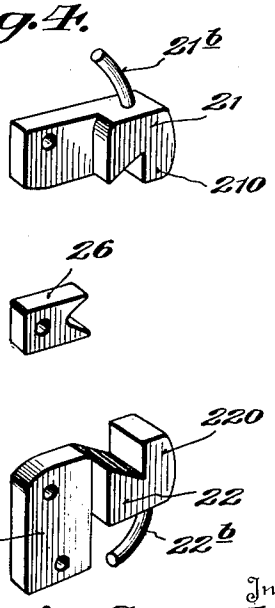


Fig. 4.



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Witness:-

Chas. L. Grustauer

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UNITED STATES PATENT OFFICE.

EDWIN CROMPTON AND CHARLES L. CROOKS, OF PUEBLO, COLORADO, ASSIGNORS TO THE POSITIVE LOCK COMPANY, OF PUEBLO, COLORADO, A CORPORATION OF COLORADO.

LATCH OR KEEPER MEANS.

Application filed October 12, 1921. Serial No. 507,190.

To all whom it may concern:

Be it known that we, EDWIN CROMPTON and CHARLES L. CROOKS, citizens of the United States, residing at Pueblo, county of Pueblo, State of Colorado, have invented certain new and useful Improvements in Latch or Keeper Means; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to latch or keeper means, and relates more particularly to latch or keeper means for use on doors or windows of vehicles such as automobiles, although it is to be understood that the invention is not limited to this particular use.

Latch or keeper means used on automobiles are subject to much vibration and rough usage, causing the parts to wear and this, together with the stresses caused from hard usage, results in loose fitting parts and connections with consequent rattling.

An object of this invention is to provide latch or keeper means which will readily yield to receive the bolt to be latched, but which will cooperate with the lock or latch bolt to hold the latter positively and firmly on all sides, thereby preventing rattling and helping to eliminate wear.

Other objects and features of this invention will be apparent from the following description taken in connection with the accompanying drawings which illustrate a latch or keeper construction embodying our invention.

In the drawings,

Fig. 1 is a side or face view in elevation of a latch or keeper construction embodying our invention with the cover plate removed and the cooperating bolt, shown in section, in position in the latch or keeper;

Fig. 2 is a view similar to that illustrated in Fig. 1, the parts being in open position with the bolt, shown in section, entering the latch or keeper;

Fig. 3 is a vertical section view on line 3—3 of Fig. 1 with the cover plate in position; and

Fig. 4 is an enlarged detail view of some of the parts disassembled.

The latch or keeper construction embodying our invention is especially adapted for use with a lock or latch of the type shown, for example, in our U. S. Patent No. 1,419,230 in which the normally projecting bolt engages, and is held in latched position by a yielding latch or keeper, the bolt being retracted only when it is desired to remove it from its latched position, when it is withdrawn laterally from within the latch or keeper. The bolt can be retracted by some suitable handle device of known or suitable construction not necessary to illustrate. However, our invention is not to be limited to this use since it may be used equally well with a stationary bolt or catch.

Broadly stated, our invention comprises latching means projecting in the path of a bolt yieldable to allow the bolt to pass and then movable to overhang the bolt and prevent its passage in the opposite direction and movable abutment means engageable by said bolt and holding the latter in engagement with the latching means.

More specifically described, our invention comprises opposed resiliently-pressed members separable one from the other by the insertion of a bolt therebetween, and a pivoted abutment engageable by a bolt entering between said members operable by one of said members to press the bolt against said member.

Referring to the drawings, 10 indicates the latch or keeper casing or mounting which may be of any suitable shape and construction to support the latch or keeper elements. As here illustrated, the mounting or housing comprises a base plate 11 having right angle extensions forming sides 12 and 13 and ends 14 and 15. A cover plate 16 is secured to the plate 11 by any suitable means such as rivets 17 and 18. When used with a latch or lock bolt on a swinging door, the latch or keeper casing 10 is adapted to lie with either the plates 11 or 16 flush with the edge of the door jamb, shown in dotted lines at J, and is secured thereto by suitable fastening screws or other means inserted through the holes 19. The latch or keeper construction embodying the principles of our invention will be described as used in conjunction with a lock or latch bolt which does not yield when the bolt engages the latch or keeper as the door is being closed. The outer end of the bolt B normally projects from the free edge of the door and as the door is swung to close it,

the projecting end of the bolt is engaged by and held by suitable means within the casing 10. In order to allow the bolt B to enter the casing, the forward side 13 and the forward edges of the plates 11 and 16 are cut away to form a slot or recess designated by 20.

Within the casing 10, we have provided means not only for latching the bolt, but for firmly and positively clamping and holding it on all sides to prevent rattling or loose-play between the bolt and the latch or keeper means when the bolt is in latched position. In the example illustrated, two opposed hook-shaped members 21 and 22 are pivoted in the space between plates 11 and 16 on pins or rivets 17 and 18 respectively. The hooked ends 210 and 220 of the members 21 and 22 are disposed adjacent the front or forward side of the casing and normally lie almost in contact with one another in the slot or recess 20 and are pressed toward each other by suitable spring means. As illustrated, the hook members 21 and 22 are pressed toward each other by coiled springs 21^a and 22^a respectively, the springs being confined between the side 12 of the casing and the hook members. The hook members are each provided with bent pins 21^b and 22^b respectively which extend into one end of each of the springs to prevent their disengagement from the hook-members. The opposed edges of the outer extremities of the hook members are curved inwardly to provide a tapering entrance for the side of the bolt and thus facilitate the separation of the hook members 21 and 22 as the door is swung shut. One of the hook members, in this case the hook members 22. is provided at its inner or pivoted end with a right angle extension 221, forming in effect a bell-crank lever. The extension end of the hook member 22 is connected by a pivot 23 to one end of an abutment 24, the other end of which is pivoted at 17 to allow the abutment to swing across the path of the bolt. When the hook member 22 swings on its pivot it will cause the abutment member 24 to swing on its pivot. The arrangement is such that as the door is swung shut, the side of the projecting bolt enters between the hook members, forcing them apart, the member 22 causing the abutment member 24 to swing on its pivot 17 back or away from the entering bolt. After the bolt passes the hook ends 210 and 220 of the hook members, the latter close behind the bolt to prevent movement of the bolt in the opposite direction to open the door, the side faces of the hook members adjacent the bolt engaging and pressing against opposite sides of the bolt, and the abutment member 24 being swung on its pivot to engage the bolt and force it against the hook ends 210 and 220. It will be seen that this action not only latches the bolt, but clamps it against all side movement, thus preventing rattling. In order that the bolt may be firmly clamped, the hook portions of the members 21 and 22 and the part of the abutment 24 which engages the bolt are shaped to conform substantially to the shape of the sides of the bolt which they engage so that they will have an extended bearing engagement with said bolt. We have shown our invention used in conjunction with a V-shaped bolt, but it is to be understood that any shaped bolt may be used. although we consider the V-shaped bolt desirable as a bolt of this shape will enter the latch or keeper members more easily. The abutment member 24 is provided with a curved slot 25 through which the rivet 18 extends so that the latter will not interfere with the free movement of the abutment member and permitting the rivet 18 to be extended through the casing to hold the plates 11 and 16 together. Adjacent the inner end of the slot 20 a stationary abutment block 26 is provided. When the bolt is held in the keeper, this block is slightly back of the movable abutment 24, but when the parts of the keeper are wide open, block 26 is slightly in front or ahead of the movable abutment 24. In closing the door, especially when it is slammed shut, this stationary abutment receives the impact of the bolt, thus relieving the latch or keeper members from the shock and resultant wear.

It is believed that the operation of our device is clear from the foregoing description and it will therefore be only briefly stated here. As shown in Fig. 2, when the door is closed the bolt enters the latch or keeper and forces the members 21 and 22 apart, the part 22 in turn moving the swinging abutment 24 away from the entering bolt. As soon as the bolt has passed the hook ends 210 and 220, the hook members come together to grip opposite sides of the bolt, the hook ends closing behind the bolt to prevent its movement in the opposite direction and the abutment 24 moving toward and engaging the bolt to force it against the hook ends. The bolt is thus securely clamped to prevent all side movement in addition to being securely latched. To open the door, the hook members are opened or else the bolt is retracted laterally from between the keeper members.

What we claim is:

1. The combination, with a bolt, of clamping members acting substantially at right angles to one another adapted when the bolt is moved between the same to automatically engage the bolt and substantially prevent rattling thereof.

2. The combination, with a bolt, of latching means projecting in the path of the bolt movable to allow the bolt to pass and then

movable to prevent the bolt repassing, and means operable by said latching means for holding said bolt in engagement with the latter.

3. The combination, with a bolt, of latching means therefor comprising means projecting in the path of said bolt movable to allow the same to pass and then movable to prevent the bolt repassing, and means movable in the line of movement of the bolt to engage and press the bolt against said latching means.

4. The combination, with a bolt, of latching means therefor comprising means projecting in the path of the bolt yieldable to allow the bolt to pass and then movable to overhang the bolt and prevent its passage in the opposite direction, and movable abutment means engageable by said bolt and holding the bolt in engagement with said latching means.

5. The combination, with a bolt, of keeper means therefor comprising a movable abutment, and latching means movable by said bolt and adapted to hold the latter in latched position, said abutment holding said bolt in engagement with said latching means.

6. The combination, with a bolt, of keeper means therefor comprising a resiliently pressed movable abutment, and latching means movable by said bolt and adapted to hold the latter in latched position, said abutment holding said bolt in engagement with said latching means.

7. The combination, with a bolt, of latch or keeper means therefor comprising members separable one from the other and provided with edges adapted to have extensive bearing engagement against the sides of a bolt therebetween, said members acting at substantially right angles to one another.

8. The combination, with a bolt, of latch or keeper means therefor comprising at least three members resiliently pressed one toward the other and separable by the movement of the bolt in entering, the opposite edges of said members being shaped to conform substantially to the shape of the bolt engaged thereby whereby said edges have extensive bearing engagement against all of the sides of a bolt therebetween.

9. The combination, with a bolt, of latch or keeper means therefor comprising a movable abutment, and a hook member, said bolt being movable past the hook end of said member to latch the bolt in the space between said hook end and said abutment, said abutment pressing said bolt against said hook end.

10. The combination, with a bolt, of latch or keeper means therefor comprising means adapted to have bearing engagement against opposite sides of a bolt therebetween, and means adapted to have bearing engagement against opposite sides of the bolt substantially at right angles to the first mentioned sides.

11. The combination, with a bolt, of latch or keeper means therefor comprising a movable abutment, and hook members, said bolt being movable past the hook ends of said members to latch the bolt in the space between said hook ends and said abutment, said hook members pressing against opposite sides of said bolt and said abutment pressing said bolt against said hook ends.

12. Latch or keeper means of the class described comprising opposed members separable one from the other by the insertion of a bolt therebetween, and a movable abutment engageable by a bolt entering between said members and holding said bolt in engagement with said members.

13. Latch or keper means of the class described comprising opposed hook shape members separable one from the other by the insertion of a bolt therebetween, and a movable abutment spaced from the hook ends of said members and arranged so that a bolt inserted between said members will be retained between said hook ends and said abutment, said abutment holding said bolt in engagement with said members.

14. Latch or keeper means of the class described comprising opposed pivoted members having their opposed edges conforming substantially to the shape of the bolt inserted therebetween, spring means pressing said members toward one another, and a movable abutment, said abutment adapted to press the bolt against said pivoted members.

15. The combination, with a bolt, of latching means therefor movable by said bolt and adapted to hold the latter in latched position, and a movable abutment operable by said latching means for holding said bolt in engagement therewith.

16. Latch or keeper means of the class described comprising opposed members separable one from the other by the insertion of a bolt therebetween, and a pivoted abutment engageable by a bolt entering between said members operable by one of the members to press said bolt against said member.

17. Latch or keeper means of the class described comprising opposed members separable one from the other by the insertion of a bolt therebetween, spring means pressing said members toward one another, and a pivoted abutment engageable by a bolt entering between said members operable by one of the members to press said bolt against said member.

18. Latch or keeper means of the class described comprising opposed pivoted members separable one from the other by the insertion of a bolt therebetween, spring means pressing said members toward one another, and a movable abutment engageable by a

bolt entering between said members and holding said bolt in engagement with said members.

19. Latch or keeper means of the class described comprising opposed resiliently-pressed pivoted members separable one from the other by the insertion of a bolt therebetween, and a pivoted abutment engageable by a bolt entering between said members, one of said members being connected to said abutment to operate it to force said bolt in engagement with said members after entry of the bolt therebetween.

20. The combination, with a bolt, of latching means projecting in the path of the bolt movable to allow the bolt to pass and then movable to prevent the bolt repassing, said latching means adapted to press against and clamp said bolt, and means movable to hold said bolt in engagement with said latching means.

21. The combination, with a bolt, of means comprising cooperating members adapted to receive said bolt therebetween, one of said members pressing toward the other member and against said bolt to clamp the bolt between said members, and means adapted and arranged to clamp said bolt to prevent rattling thereof.

22. The combination, with a bolt, of latch means therefor comprising a movable abutment and cooperating members, one of which is provided with an overhanging end, said bolt being movable past the overhanging end of said member to latch the bolt in the space between said overhanging end and said abutment, said bolt being clamped between said cooperating members and said abutment clamping said bolt against said overhanging end.

23. The combination, with a bolt, of latching means projecting in the path of the bolt, said latching means movable to allow the bolt to pass and then movable to prevent the bolt repassing, and means automatically movable to hold said bolt in engagement with said latching means.

24. The combination, with a bolt, of latching means projecting in the path of the bolt, said latching means movable to allow the bolt to pass and then movable to prevent the bolt repassing, and means automatically movable to engage the bolt and substantially prevent rattling thereof.

25. The combination, with a bolt, of latching means movable by said bolt and adapted to hold the latter in latched position, and means operable irrespective of wear on the parts to cause snug engagement of said bolt with said latching means.

26. The combination, with a bolt, of latching means movable by said bolt and adapted to hold the latter in latched position, and means operable irrespective of wear on the parts both to cause snug engagement of said bolt with said latching means and to release such engagement.

27. Latch or keeper means of the class described comprising opposed members separable one from the other by the insertion of a bolt therebetween, and means engageable by a bolt entering between said members for holding said bolt in snug engagement with said latching means, said means movable to release such engagement.

In testimony whereof we hereunto affix our signatures.

EDWIN CROMPTON.
CHARLES L. CROOKS.