June 10, 1924. 1,497,044

J. TERRELL

DOOR LATCH

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Fig. 1.

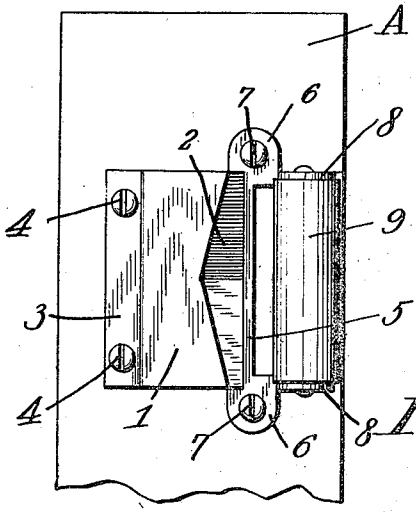


Fig. 5.

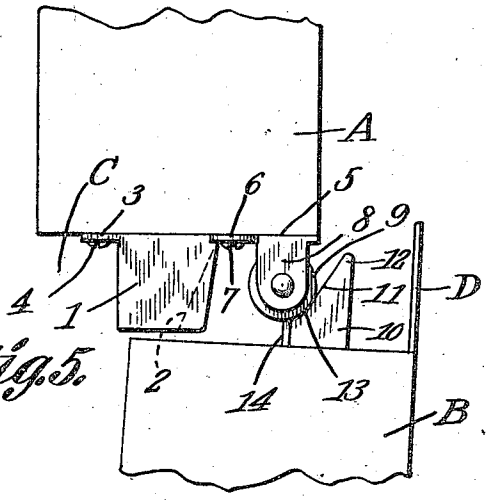


Fig. 2.

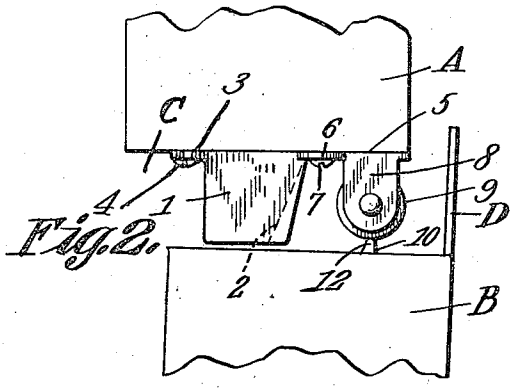
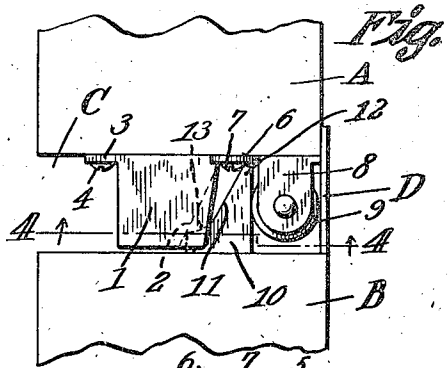


Fig. 3.



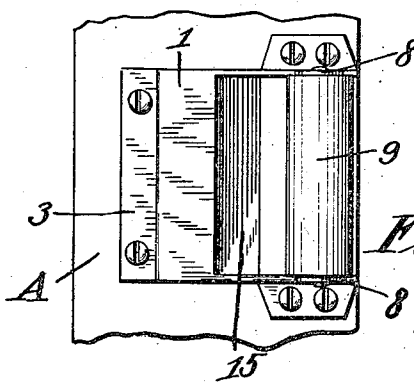


Fig. 6.

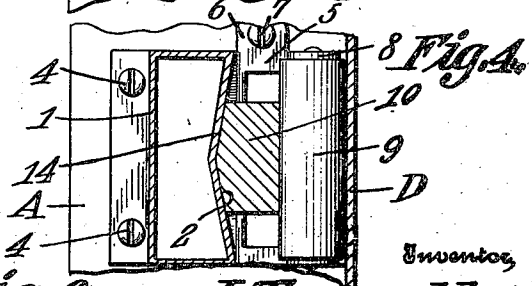


Fig. 4.

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J. TERRELL

DOOR LATCH

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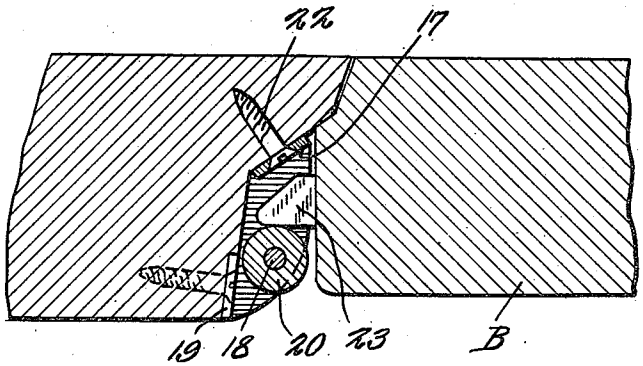


Fig. 7.

Fig. 8.

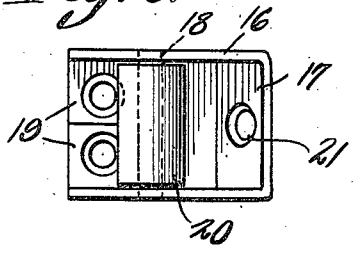


Fig. 9.

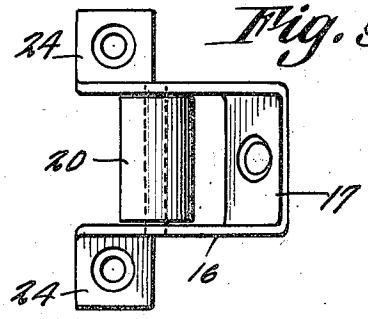


Fig. 11.

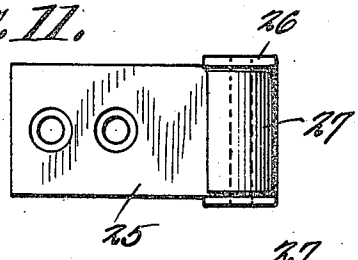


Fig. 10.

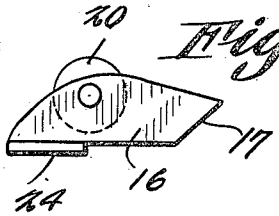


Fig. 12.

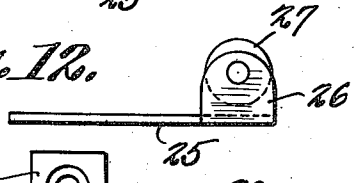


Fig. 13.

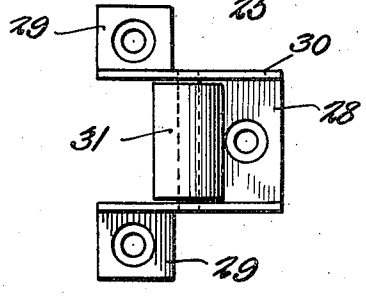
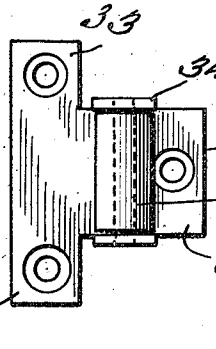


Fig. 14.



Inventor

Joel Terrell

By Clarence Lee

Attorneys

Patented June 10, 1924. 1,497,044

UNITED STATES PATENT OFFICE.

JOEL TERRELL, OF LOS ANGELES, CALIFORNIA.

DOOR LATCH.

Application filed December 27, 1921. Serial No. 524,972.

To all whom it may concern:

Be it known that I, JOEL TERRELL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Door Latch, of which the following is a specification.

This invention relates to latches especially designed for use on automobile doors, it being more particularly a continuation in part of my co-pending allowed application filed Feb. 16, 1921, Serial No. 445,397.

One of the objects of the invention is to provide a latch which can be applied readily to a door and its casing and which, by reason of its peculiar construction, will prevent the door from vibrating either horizontally or vertically and also serves as an efficient lock or fastener for holding the door securely in closed position.

Heretofore, in order to prevent side vibration and the noise resulting therefrom it has been the practice to provide cushions and, in order to eliminate vertical vibration and the consequent noise clasp springs have been employed.

It is an object of this invention to eliminate the supplemental attachments.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings—

Figure 1 is a plan view of the latch and showing the relative positions of the bolt and keeper when they are first brought into contact during the closing of the door.

Figure 2 is a similar view showing the parts in their intermediate positions.

Figure 3 is a plan view showing the door secured in closed position.

Figure 4 is a section on line 4—4, Figure 3.

Figure 5 is a face view of the keeper.

Figure 6 is a face view of a modified form of keeper.

Figure 7 is a section through a modified form of device.

Figure 8 is a face view of the keeper.

Figure 9 is an elevation of another form of keeper.

Figure 10 is a plan view of the keeper shown in Figure 9.

Figure 11 is a face view of another modified form of keeper.

Figure 12 is a plan view thereof.

Figure 13 is a face view of another modified structure.

Figure 14 is a face view of another modification.

Referring to the figures by characters of reference A designates a portion of a car body and B designates a door adapted to swing into and out of the door opening indicated generally at C, the door being provided with a flange D adapted to close the space between the free edge of the door and the corresponding wall of the door opening.

To said wall of the door opening is connected the keeper of the latch. This keeper comprises a block 1 preferably hollow, as shown in Figure 4 and the outer or active face of which is provided with a shallow V-shaped recess 2 gradually increasing in depth from the base of the block toward the opposed face thereof as indicated by dotted lines in Figure 1.

An attaching flange 3 is extended from the base of the block and is adapted to be secured to the wall of the door opening C by screws 4 or other fastening devices. Another flange 5 is extended in the opposite direction from the base of the block 1 and has oppositely extending ears 6 fastened by screws 7 or the like to the wall of the opening C. The flange 5 extends past the ears 6 and is provided at opposed edges with ears 8 extending perpendicularly to the flange 5 and constituting bearings for a roller 9.

The lock in the door B can be of the usual type having a spring bolt. The bolt 10 in the present instance, however, has its inner face beveled as at 11 and extending to a blunt point 12 at the free end of the bolt while the other end of the beveled face is preferably merged into a rounded seat 13. A portion of the back face of the bolt is provided with opposed bevels 14 so that when said portion is seated within the recess 2 it will fit snugly against the walls of the recess as shown in Figure 4.

By referring to Figures 1, 2 and 3 it will be noted that when the door is moved toward its closed position the concave seat 13 will first come against the roller 9. By then exerting a pressure against the door the beveled face 11 of the bolt will ride over the roller and cause the bolt to be deflected backwardly or retracted so that its point will ride over the roller as shown in Figure 2. When the door assumes its closed position the bolt will pass over the roller and will spring outwardly into the space between said roller and the block 1, the seat 13 and the beveled faces 14 of the bolt entering the recess 2 and pressing firmly against the walls thereof. Thus it will be seen that the door will be held securely closed and cannot open accidentally when subjected to outward pressure. Furthermore the wedging of the bolt between the roller and the inclined walls of the tapered recess 2 will hold the door from vibrating in any direction and producing objectionable rattling noise.

Under some conditions it may be found desirable to use a plain surface on the block, as indicated at 15 in Figure 6 for engagement with the beveled face of the bolt.

Obviously by providing the roller 9 friction will be materially reduced during the movement of the bolt to locking position and the door will therefore be more easily closed than many doors now in use.

While there has been shown a keeper secured on the wall of the door opening C it is to be understood that if desired this keeper can be arranged within a mortise in said wall, if the conditions make such an arrangement advantageous.

In Figures 9 to 14 inclusive there have been shown other forms of the structure constituting the present invention, these different forms being designed for use in connection with cars of different constructions. For example in Figure 7 there has been shown a keeper formed in a single length of metal bent to provide side wings 16 connected at one end by a cross member 17 as shown while projecting inwardly from the other end of the wing at the back edges thereof are ears 18 which preferably abut as shown in Figure 8. The wings 16 support a pin 19 on which is mounted a roller 20. Openings 21 are provided within the connecting portion 17 and within the ears 18 for the reception of fastening screws 22 or the like. It will be noted that in this form of device the block hereinbefore referred to is dispensed with and when the bolt 23 comes against the roller 20 while the door is being closed it will ride past the roller and assume position back of the roller and out of contact with the connecting portion 17 as shown in Figure 7. The roller 20 acts as a deflecting means for forcing the door B tightly against the wall of the door opening, the backward pressure of the door against the wall of the door opening continuing as long as the spring pressed bolt 23 is thrusting against any portion of the roller 22 back of the pin 19.

Obviously instead of having the ears inturned as shown in Figure 8 they can be outturned as shown at 24 in Figure 9. Or, if desired, the connecting portion 17 can be dispensed with entirely and a flat plate 25 such as shown in Figures 11 and 12 can be used, this plate having side ears 26 outstanding therefrom for supporting a roller 27 therebetween. Under some conditions it is desirable to use a structure such as shown in Figure 13 while a plate 28 is provided with outstanding attaching ears 29 at one end and with outstanding flanges 30, a roller 31 being mounted between these flanges. Or, if desired, a flat attaching plate 32 can be used with laterally extending ears 33 and with outstanding ears 34 for supporting a roller 35 as shown in Figure 14. Obviously various other modifications can be used to adapt the device to cars of different constructions.

What is claimed is:—

1. The combination with a swinging door having a spring pressed bolt provided with a beveled inner side and with a straight outer side that is parallel with the line of movement of the bolt, of a stationary keeper including attaching means, and a roller supported by the attaching means and in the path of and adapted to be engaged by the beveled side of the bolt when the door is moved to closed position, the straight outer side of the bolt constituting means for pressing against the back or inner portion of the roller thereby to force the door to its tightly closed position and positively to hold the door shut.

2. The combination with a hinged door and a spring pressed bolt carried thereby, said bolt having one side of its free end beveled and the opposite side thereof parallel with the line of movement of the bolt of a keeper comprising attaching means, a freely rotatable roller carried by the attaching means, the side of the bolt parallel with the line of movement cooperating with the roller to force the door to tightly closed position and to hold the door positively in closed position.

3. In a door latch the combination with a spring pressed bolt having a beveled face, the opposite face of the bolt being straight and parallel with the line of movement of the bolt of attaching means, a freely rotatable anti-friction roller carried by the attaching means and supported in the path of the beveled face of the bolt, said bolt being adapted to move against and past the roller and to be seated against the back portion

of the roller, thereby to force to tightly closed position a door to which the bolt is connected, and to hold the door positively against opening when subjected to outward pressure of the bolt against the roller.

4. The combination with an attaching structure including spaced side portions, a freely rotatable anti-friction roller supported between said side portions, and a bolt having a beveled face movable against and past the roller and adapted to be seated against a portion of the roller, said bolt and the engaged portion of the roller cooperating to hold in tightly closed position a door to which the bolt is connected, one face of the bolt being parallel with the line of movement of the bolt for cooperation with the engaged roller to hold the door against outward movement when the bolt is pressed laterally against the roller.

5. In a door latch the combination with a latch bolt having a beveled end portion, of a keeper comprising a roller in the path of the beveled portion of the bolt for retracting the bolt when pressed against the roller, and a block spaced from the roller and having an inclined face, the beveled portion of the bolt constituting means for wedging between the roller and the block.

6. In a door latch the combination with a latch bolt having a beveled striking base, of a keeper including a roller in the path of the bolt for engaging the striking face and retracting the bolt during its movement against and past the roller, a block spaced from the roller and having an inclined face, said bolt being movable into the space between the roller and block and having means cooperating with the inclined face to hold the bolt against up and down movement relative to the block.

7. In a door latch the combination with a spring bolt having a beveled strike face, of a keeper including a roller in the path of said strike face, said roller and strike face cooperating to retract the bolt while passing the roller, and a block spaced from the roller and having a V-shaped recess of varying depth, said bolt being insertable into the space between the roller and block and cooperating with the walls of the recess to hold the bolt against vibration within the said space.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOEL TERRELL.

Witnesses:
R. SCHNEWIND,
W. D. KING.