Nov. 16, 1937. H. P. SWEET 2,099,456

DOOR LATCH

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Fig. 1.

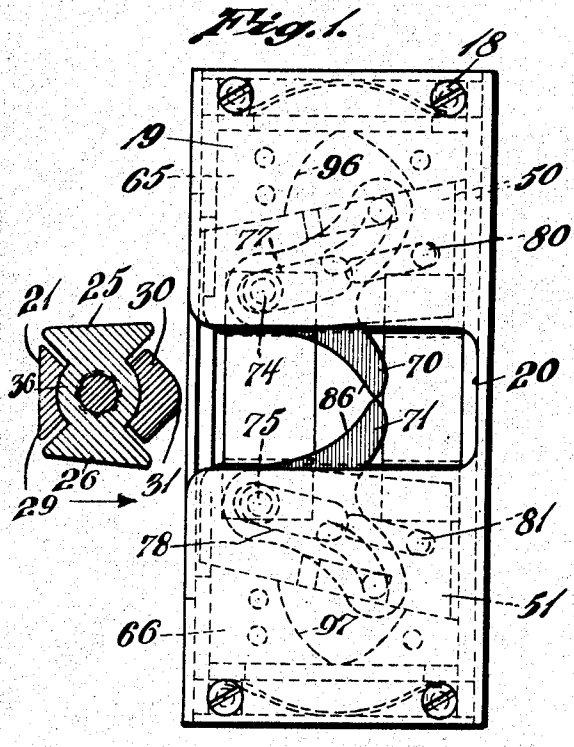


Fig. 3.

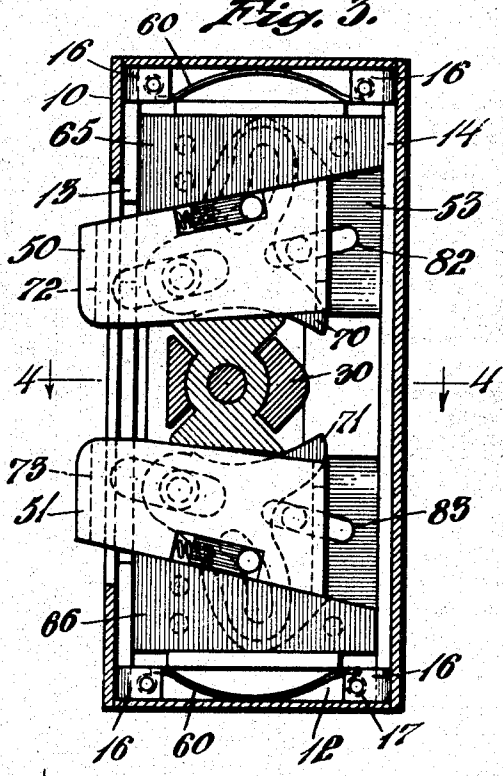


Fig. 2.

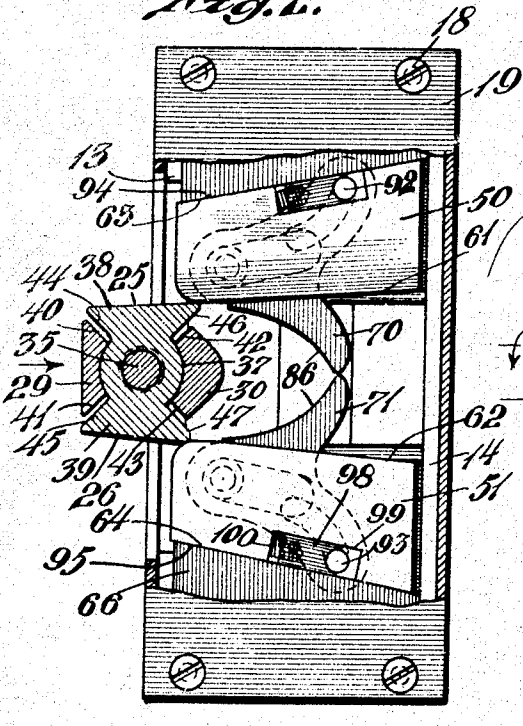
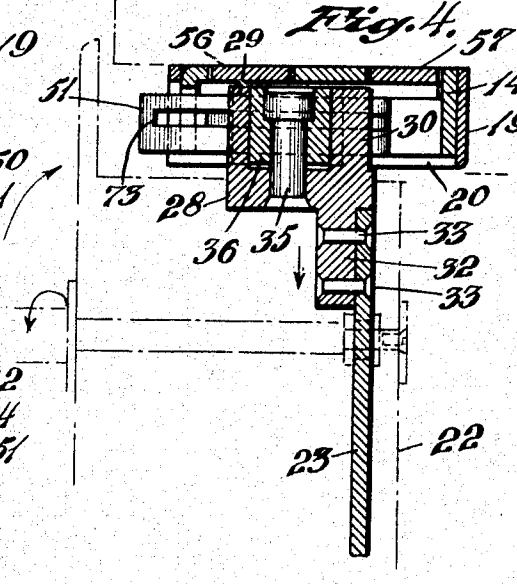


Fig. 4.



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Fig. 5.

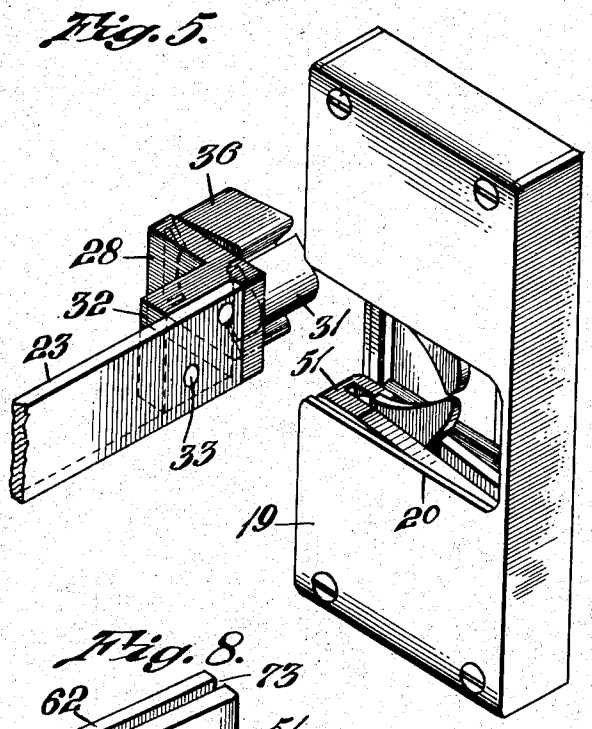


Fig. 6.

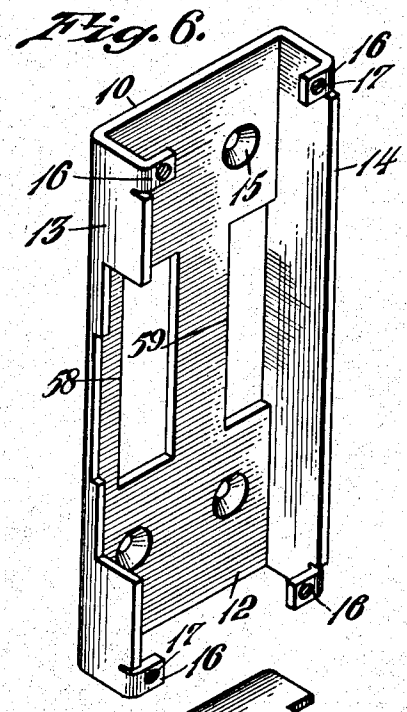


Fig. 8.

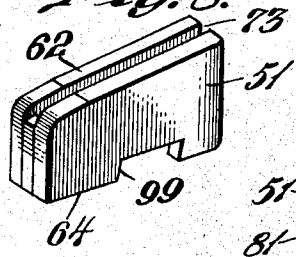


Fig. 9.

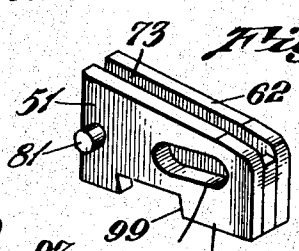


Fig. 10.

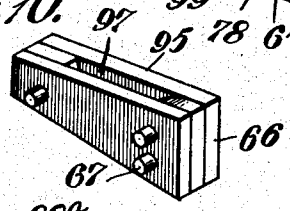


Fig. 11.

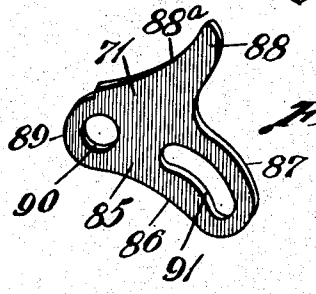
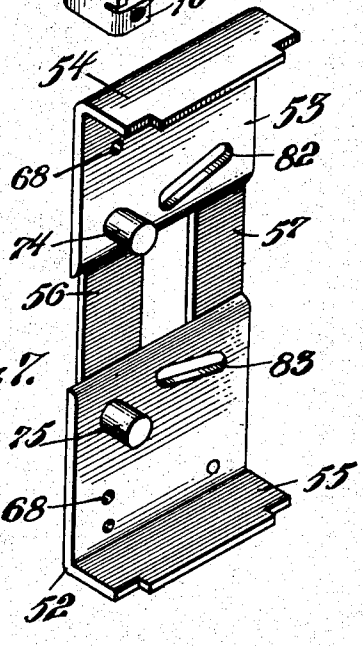


Fig. 7.



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DOOR LATCH

Herbert P. Sweet, Providence, R. I.

Application April 14, 1936, Serial No. 74,316

26 Claims. (Cl. 292—340)

This invention relates to door latches, and in particular to door latches for motor vehicle doors; and has for one object the provision of a simple and inexpensive latch construction and keeper means adapted to clamp and firmly grip the bolt member upon contact with the same irrespective of the amount of subsequent movement of the door towards a closed position.

Another object of the invention is to provide latch or keeper means which will readily yield to receive the latch bolt and is so arranged to cooperate with the sides of the bolt immediately upon contact thereby to prevent any unnecessary slamming of the door to bring about engagement of the latch parts.

Another object of the invention is to provide a yieldable keeper construction which is capable of firmly clamping and holding the bolt member against rattling or twisting movement of the members of the door jamb incident to the operation of the motor vehicle.

Another object of the invention is to provide keeper means for gripping the bolt member from opposite sides to be engaged and actuated thereby in which any subsequent movement in either direction of the bolt after engagement by said keeper means further serves to tighten the grip thereon and prevent accidental opening of or unintentional unlatching of the door.

Another object of the invention is to provide movable keeper members to be engaged by the bolt member for causing movement of said members toward the bolt member and in a direction opposite to the latching movement of the latter as the door is being swung to a latched position, in which said keeper members are capable of further tightening their grip thereon in response to subsequent movement of the bolt.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a side elevational view of the latch or keeper member embodying my invention and shown in an open position opposite the bolt member prior to entrance by the same;

Fig. 2 is a fragmentary view, partly in section, of the latch construction illustrated in Fig. 1 showing the bolt member partially in contact with the keeper parts and about to enter the bolt chamber;

Fig. 3 is a sectional view, in elevation, of the latch construction illustrated in Fig. 1 with the cover plate removed showing the bolt member in its final closed position and positively engaged by the cooperating keeper parts;

Fig. 4 is a plan view in section taken on the line 4—4 of Fig. 3 but with the cover plate in position;

Fig. 5 is a perspective view illustrating the relative positions of the parts prior to entrance of the bolt member in the keeper means;

Fig. 6 is a detail in perspective of the base member of the latch casing;

Fig. 7 is a detail in perspective of the mounting plate for supporting the movable latch members;

Fig. 8 is a detail in perspective showing a detail of one of the movable latch or keeper members;

Fig. 9 is a detail in perspective of the keeper member illustrated in Fig. 8 as viewed from the opposite side;

Fig. 10 is a detail in perspective of one of the incline support members for the keeper member; and

Fig. 11 is a detail in perspective showing one of the operating levers.

Heretofore, one conventional form of door latch construction used in connection with motor vehicle doors has utilized a keeper or strike plate having a pair of spaced abutments or stops projecting outwardly from a side face adjoining the door jamb and adapted to cooperate with the side portion of the retractible bolt member carried by the door in which the spring pressure behind the bolt was used to hold the latter against the stop and retain the door in a closed or partially closed position. However, in the use of this prior type of latch mechanism the latching effect was not entirely reliable due to the necessity of slamming the door to bring the latch parts in a latched position. In such a case, the jarring action produced when the bolt was shot caused the bolt to ricochet from the rear abutment and be received by the forward stop so that the door was loosely held in position to prevent it from opening. This was objectionable since the bolt was not firmly forced against the stop member so that the door was capable of weaving up and down to produce rattling of the latch parts upon twisting motion of the motor vehicle frame and body. In order to avoid such difficulties and provide an improved latch construction which will not be subject to loosening or rattling, I have provided a latch adapted to be mounted on a door jamb into which the bolt member protrudes, the latch having keeper means which will engage at least two sides of the

normally projecting bolt and be moved thereby into clamping engagement therewith to firmly grip and hold the same in response to the lateral movement of the bolt; and in order to accomplish these advantageous results I have provided a plurality of relatively movable clamping members mounted for sliding movement towards and from the bolt and arranged to be operated by means disposed in the path of travel of the bolt and adapted to contact with the latter to cause them to slide and tightly engage and be clamped against the bearing surface of the bolt upon the lateral closing movement of the bolt. Furthermore, I have provided the bearing surfaces of the clamping members and the cooperating bolt parts with complemental tapered portions which will provide a wedging action to force the clamping member more tightly against the bolt upon outward lateral movement thereof. In order to accommodate for any twisting of the vehicle body and frame I have provided yieldable means for supporting the clamping members, and the bolt member is so constructed as to be capable of rocking while in a positively clamped relation to permit adjustment of the latch mechanism relative to the movements of the door jamb. To accommodate for wear in the various parts of the latch mechanism I have further provided resilient means connecting the clamping members and their respective operating elements in order to provide a yielding or take-up action thereof; and the following is a detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawings, 10 designates the latch or keeper casing which may be made of suitable material, such as pressed metal, cast metal, formed to the desired shape, and within which are mounted the latch parts. In the specific latch construction illustrated in the drawings, the casing 10 is shown as being of generally rectangular shape and of a channel-like construction comprising a base or bottom plate 12 having a pair of oppositely disposed spaced side walls 13 and 14 which are formed integrally with the base plate 12 and bent upwardly at generally right angles to the plane thereof. The front and ends of the casing 10 are open, and the bottom plate 12 is provided with holes 15 which are suitably counter-sunk and adapted to receive the heads of suitable fasteners, such as screws or rivets, for securing the latch structure to the jamb portion of the vehicle body. The side walls 13 and 14 of the casing 10 extend longitudinally along the entire length of the base plate 12, and the terminal extremity of each side wall is provided with a laterally projecting flange 16 extending inwardly therefrom which is formed with suitable threaded apertures 17 for the reception of screws 18 whereby a front cover plate or housing box 19 may be detachably mounted and secured to the casing 10 to enclose the latch mechanism. The medial portion of the side wall 13 of the base plate 12, the adjacent forward side wall of the casing 10, and the front cover plate 19 are each cut away to form a transverse slot or opening 20 for the reception and entrance of the bolt member 21. The bolt 21 is indicated in Fig. 4 as being attached to and normally projecting from the free edge of the vehicle door 22, which is shown in dot and dash outline, and the bolt is so arranged that it may be laterally retracted and withdrawn side-wise by sliding movement from the bolt opening 20 in the latch casing 10 by any suitable means, such as the plate 23, operated by any suitable mechanism as is well known in the usual door latch constructions for imparting a sliding and retractive movement to the bolt to unlatch and open the door.

The bolt member 21 may be of any suitable construction, however, as shown in the drawings it is preferably so shaped as to provide inclined edges 25 and 26 on the transverse sides of the bolt to conform substantially to the shape of the keeper parts which they engage within the casing 10 to be gripped thereby, as will be hereinafter described. In some instances, it may be desirable to provide a bolt construction which will permit the tapered edges 25 and 26 to rock with reference to other mating portions of the latch mechanism and also yield with the vehicle body movements so as to adjust and align the respective tapered bearing portions and compensate for twisting of the vehicle body and frame. In such a case, the arrangement will be as illustrated in Figs. 1 to 5 inclusive, wherein it is shown as comprising a bracket or support 28 which is provided with a pair of spaced, integral, tongue members 29 and 30 projecting outwardly from the outer or front face of the bracket, the contour of the leading end portion of the tongue 30 being curved or rounded as indicated at 31.

A flange 32 of suitable shape projects outwardly from the rear or inner face of the bracket 28 to which the movable bolt operating plate 23 is suitably connected, as by means of rivets 33, for operation of the bolt member 21. Swivelly mounted on a stud 35 in the space between the tongues 29 and 30 respectively, is the rock member 36 having a central portion 37 of partially curved or cylindrical form and two oppositely disposed side abutment members 38 and 39 integrally formed therewith, the members 38 and 39 having inwardly converging side walls which extend radially outwardly from the central portion 37. The lateral or inner end faces 40 and 41 of the tongue 29 and those indicated at 42 and 43 on the tongue 30 are preferably tapered to conform to the tapered side walls 44, 45, 46 and 47 respectively, on the abutment members 38 and 39 respectively. Also, the lateral edges of the abutment members 38 and 39 carry the inclined or tapered surfaces 25 and 26 which are to be engaged and held by the latch or keeper members within the casing 10.

In order to firmly grip and clamp the inclined sides 25 and 26 of the bolt member 21 after it enters the bolt opening 20 in the casing 10 and the cover plate 19, and to hold the bolt in a positively latched position in the keeper box, the keeper means comprises a pair of opposed, movable clamping blocks 50 and 51 which project in the path of travel of the bolt 21 and are slidably mounted for relative movement towards and from one another upon a support or plate member 52, the latter being adapted to fit within and be positioned inside of the casing 10. The support member 52 comprises a bottom plate 53 of elongated shape having upturned ends 54 and 55 and open sides, the ends 54 and 55 being formed integrally with the bottom plate 53 and bent upwardly at generally right angles to the plane thereof. The mid-portion of the bottom plate 53 is perforated to provide a set of spaced elongated struts 56 and 57 which are depressed below the plane of the bottom plate and extend longitudinally therealong to form rib-like members projecting downwardly from the under-

side thereof and mate with complementary shaped slots 58 and 59 formed in the bottom plate 12 of the casing 10 for aligning the support 52 therein. The length of the struts 56 and 57 is preferably made shorter than that of the slots 58 and 59 in the plate 12 so that the support plate 52 carrying the clamping blocks 50 and 51 may yield and slide longitudinally of the casing 10 in response to any twisting motion of the vehicle body. Suitable resilient means, such as leaf or compression springs 60 may be placed between terminal ends 54 and 55 of the plate 53 and the adjacent end walls of the casing 10 in order to provide for the yielding movement of the keeper support plate 53. If desired, resilient rubber blocks may be utilized to accomplish this result in place of the springs 60. The corners of the terminal end walls 54 and 55 may be undercut sufficiently to permit passage thereof under the flanges 16 of casing 10 during yielding of the keeper support plate 52.

The clamping blocks 50 and 51 are provided with oppositely inclined edges 61 and 62 which will engage and grip the edge surfaces 25 and 26 respectively, on the bolt member 21. The blocks 50 and 51 are provided with tapered surfaces 63 and 64 at their base portions and are supported in bearing engagement for movement along the guiding surface of the incline members 65 and 66 which are fixedly mounted by means of a series of pins 67 projecting outwardly from the side face thereof, as shown in Fig. 10, and adapted to extend into suitable holes 68 formed in the base plate 53 of the keeper support 52. The taper of the guiding surface of the members 65 and 66 is about 15 degrees to the horizontal while that of the edge of the keeper clamping blocks which engage the bolt portions 25 and 26 is about 5 degrees from the horizontal.

In order that the bolt 21 will be gripped automatically by the clamping members 50 and 51 as it enters the recess 20, a pair of operating levers 70 and 71 are provided for moving the clamping members, one for each member, and the levers are mounted for swinging movement in slots 72 and 73 formed in the clamping blocks 50 and 51, respectively. The levers 70 and 71 are pivotally mounted on suitable pins 74 and 75 respectively, which extend into the slots 72 and 73 and are fixedly fastened to the base plate 53 and project therefrom through elongated slots 77 and 78 formed in the respective side walls of the clamping blocks 50 and 51 adjacent the base plate 53. Pins 80 and 81 are mounted in the sloted side wall of the blocks 50 and 51 and are adapted to extend into elongated slots 82 and 83, respectively, which are formed in the base plate 53, and serve for the purpose of maintaining and guiding the blocks 50 and 51 laterally along the same angular path of sliding movement toward and from the respective clamping surfaces 25 and 26 carried by the bolt member 21.

The operating levers 70 and 71 are identical in construction and as illustrated in Fig. 11, the lever 71 comprises a plate member 85 of a generally arcuate shaped body having a concave inner edge 86 and a convex outer edge 87 with a projecting tang 88 formed integral with the latter edge and extending outwardly therefrom. The edge 88a of the tang 88 is concave and shaped to provide a guiding surface for engaging the bolt portions 25 and 26. Formed at the heel part 89 of the plate member 85 is an aperture 90 which is adapted to fit over the stud 75 and pivot thereon. An elongated arcuate slot 91 is formed in the front part of the body of the plate 85 into which extend pins 92 or 93 which are connected to the clamping blocks 50 and 51 respectively, to slidably move the clamping blocks up and down the adjacent incline guiding surfaces 94 and 95 on the incline members 65 and 66 respectively, so as to cause relative movement of the clamping blocks toward and from each other. The members 65 and 66 are provided with recesses 96 and 97 respectively, to receive the projecting front body part of the plate 85 carrying the arcuate slot 91 as the levers 70 and 71 swing about the pivot pins 74 and 75. The pins 92 and 93 each pass through the arcuate slot 91 in each of the levers 70 and 71 respectively, while the terminal ends of the pin 93 are mounted in a pair of bearing blocks 98 each of which is yieldably arranged in a recess 99 in the clamping block 51 for sliding movement therein. A spring 100 interposed between the bearing blocks 98 and the adjacent side wall of the recess 99 serves to urge the block 98 against the pin 93 so as to take-up for wear in the keeper parts and also to press the pin 93 against the adjacent edges of the arcuate slot 91. Similarly, the pin 92 is mounted for yielding movement in the clamping block 50.

In the operation of the latch, it will be observed that as the vehicle door is swung toward a closed position the tapered surfaces 25 and 26 of the bolt member 21 will contact with the forward edges of the clamping blocks 50 and 51 to spread them apart sufficiently to provide a throat entrance which will permit them to enter the recess 20. As the bolt enters it will engage the opposed guiding surfaces 88a of the keeper operating levers 70 and 71 so as to move the clamping blocks 50 and 51 in which these levers are mounted along the guiding surface of the incline members 65 and 66 respectively, so as to engage the tapered surfaces 61 and 62 of the blocks with the tapered surfaces 25 and 26 respectively, of the bolt 21. Thus, as the lever 71 swings around the pin 75 as a pivot, the front part of the plate body 85 moves downwardly into the recess 97 in the incline member 66 to cause the sides of the arcuate slot 91 to press against the pin 93 which is mounted in the block 98 to laterally move the clamping block 51 in the direction toward the bolt 21. It will be apparent that the further the bolt 21 moves inwardly into the bolt recess 20 the more the clamping blocks 50 and 51 will be moved outwardly by the spreading action of the bolt 21 on the keeper levers 70 and 71. Hence, the construction is such that the grip of the clamping blocks 50 and 51 takes hold on the bolt all the way in swinging the door to a latched and closed position, and the bolt 21 is prevented from moving outwardly when once gripped as the door is being further closed. To open the door and release the bolt, the bolt 21 is retracted or withdrawn sidewise from within the keeper blocks 50 and 51 in a direction substantially in the plane of the door.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, and spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement

both outwardly and towards said bolt to engage and hold the latter against movement in one direction.

2. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement both outwardly and towards said bolt to engage and hold the latter against movement in one direction, and pivoted opposed bolt engaging elements projecting into the path of travel of said bolt and movable thereby as the bolt moves therebetween to actuate said clamping wedge members and slidably move the latter into binding engagement with said bolt.

3. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement both outwardly and towards said bolt to engage and hold the latter against movement in one direction, and pivoted opposed bolt engaging elements mounted for swinging movement in passages formed in said clamping wedge members, said pivoted elements projecting into the path of travel of said bolt and movable thereby as the bolt moves therebetween to actuate said clamping wedge members and slidably move the latter into binding engagement with said bolt.

4. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement both outwardly and towards said bolt to engage and hold the latter against movement in one direction, pivoted opposed bolt engaging elements projecting into the path of travel of said bolt and movable thereby as the bolt moves therebetween, and cam means cooperating with said pivoted bolt engaging elements and said wedge members to cause sliding movement of the latter into clamping engagement with said bolt.

5. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement both outwardly and towards said bolt to engage and hold the latter against movement in one direction, and pivoted opposed bolt engaging elements projecting into the path of travel of said bolt and movable thereby as the bolt moves therebetween to actuate said clamping wedge members and slidably move the latter into binding engagement with said bolt, said bolt engaging elements having the bolt contacting portions of arcuate contour, arcuate slots of a shape cooperating with said arcuate surfaces for moving said wedge members uniformly as the bolt enters between and moves along said arcuate-shaped members.

6. A keeper device for the latch bolt of a door comprising a casing, a support therein presenting spaced inclined surfaces, spaced opposed wedge-shaped clamping members slidable in said casing along said inclined surfaces for movement both outwardly and towards said bolt to engage and hold the latter against movement in one direction, pivoted opposed bolt engaging elements projecting into the path of travel of said bolt and movable thereby as the bolt moves therebetween to actuate said clamping wedge members and slidably move the latter into binding engagement with said bolt, and resilient means permitting said support to move vertically in said casing whereby said support may adjust itself relative to said bolt.

7. A keeper device for a latch bolt comprising a pair of members in spaced relation providing a wedge shaped opening, and means responsive to the entering of a latch bolt at the narrow end of said wedge shaped opening to actuate said members toward each other into engagement with the bolt.

8. A keeper device for a latch bolt comprising a pair of members in spaced relation providing a wedge shaped opening, and non-resilient means responsive to the entering of a latch bolt at the narrow end of said wedge shaped opening to actuate said members toward each other into engagement with the bolt.

9. A keeper device for a latch bolt comprising a pair of bodily movable slidable members in spaced relation providing a wedge shaped opening, and means responsive to the entering of a latch bolt at the narrow end of said wedge shaped opening to slide the members outwardly toward the bolt and at the same time to actuate said members toward each other into engagement with the bolt.

10. A keeper device for a latch bolt comprising a pair of members in spaced relation and shaped on their bolt engaging edges to provide a wedge shaped opening, guiding surfaces cooperating with the other portions of the members to cause the members to move toward each other upon sliding movement of the members along said surfaces, and means responsive to the entering of a latch bolt in said wedge shaped opening to slide said members relative to said guiding surfaces.

11. A keeper device for a latch bolt comprising a pair of members in spaced relation and shaped on their edges nearest each other to provide a wedge shaped opening, guiding surfaces cooperating with the edges of the members distant from each other to cause the members to move toward each other upon sliding movement of the members along said surfaces, and means responsive to the entering of a latch bolt in said wedge shaped opening to slide said members relative to said guiding surfaces.

12. A keeper device for the latch bolt of a door, comprising spaced clamping means carried by the the keeper movable outwardly towards the bolt as the same moves into the space between said clamping means, and means in the path of travel of the bolt and movable by the bolt to operate said clamping means and cause the latter to move both outwardly and towards the bolt into clamping engagement therewith to firmly grip and hold the same against movement in one direction.

13. A keeper device for the latch bolt of a door, comprising spaced clamping means carried by the keeper and movable outwardly towards the bolt as the same moves into the space between said clamping means, and movable means projecting in the path of travel of the bolt and actuated by the bolt as the same moves between said spaced means to operate said clamping means and cause the latter to move outwardly and towards the bolt into clamping engagement therewith to firmly grip and hold the same against movement in one direction.

14. A keeper device for the latch bolt of a door, comprising spaced clamping means carried by the keeper and outwardly movable towards the bolt as the same moves into the space

between said clamping means, and spaced pivoted means in the path of travel of the bolt and actuated by the movement of said bolt therebetween to operate said clamping means and cause the latter to move outwardly and towards the bolt into clamping engagement therewith to firmly grip and hold the same against movement in one direction.

15. A keeper device for the latch bolt of a door, comprising spaced clamping means carried by the keeper and slidably arranged for movement towards and from the bolt, and separable means in the path of travel of the bolt and movable thereby as the bolt moves therebetween to operate said clamping means and cause the latter to move both outwardly and towards the bolt into clamping engagement therewith to firmly grip and hold the same against movement in one direction.

16. A keeper device for the latch bolt of a door, comprising spaced slidable clamping means carried by the keeper and movable outwardly towards the bolt, and movable means associated with said clamping means and projecting into the path of travel of the bolt and movable by the bolt as the same moves between said clamping means to cause the latter to move both outwardly and towards the bolt into clamping engagement against the top and bottom surfaces of the bolt to firmly grip and hold the same.

17. A keeper device for a tapered latch bolt having outwardly converging top and bottom surfaces, spaced clamping means movable outwardly and towards the bolt, said clamping means having complemental tapered portions adapted to engage and bind against the converging surfaces of the bolt when the latter is in a clamped position, and separable means in the path of travel of said bolt and movable thereby as the bolt enters therebetween to operate said clamping means and cause the latter to move towards the bolt into clamping engagement therewith to firmly grip and hold the same.

18. A keeper device for a latch bolt, a support, a pair of clamping members movably mounted in opposed spaced relation on said support, and actuating means disposed in the path of travel of the bolt and swingable relative to said clamping members for moving the latter into clamping engagement with the bolt to firmly grip and clamp the same.

19. A keeper device for a latch bolt, a support, a pair of spaced opposed clamping members movably mounted on said support, and actuating means disposed in the path of travel of the bolt pivotally mounted on said support and swingable relative to said clamping members for moving the latter into clamping engagement with the bolt to firmly grip and clamp the same.

20. A keeper device for a latch bolt, a support, a pair of spaced opposed clamping members movably mounted on said support, and separable means projecting in the path of travel of the bolt and movable thereby as the bolt moves therebetween, said last named means being swingable relative to said clamping members for moving the latter into clamping engagement with the bolt to firmly grip and clamp the same.

21. A keeper device for a retractable bolt, a support, a pair of relatively movable spaced opposed clamping members mounted for sliding movement thereon, a movable operating lever for each clamping member projecting in the path of the bolt to be engaged and moved by the bolt, and means cooperating with said levers and said clamping members for causing movement of the latter into clamping engagement with the sides of the bolt to clamp and grip the same as the bolt moves into position between the clamping members after engaging said levers, the bolt being arranged to swing with the door as it moves into a closed position to be clamped by said clamping members and adapted to be withdrawn therefrom out of binding engagement with said members by retraction in the plane of the door.

22. In a keeper device for the bolt of a motor vehicle door, comprising a casing, a support movably mounted therein, clamping means slidably mounted on said support and movable both outwardly and relatively toward and from each other, pivotally movable means connected to each of said clamping means and projecting in the path of travel of the bolt to be actuated thereby as the bolt moves therebetween to move said clamping means into binding engagement with the top and bottom surface portions of the bolt to firmly grip and clamp the same against movement in one direction, and means for permitting relative yielding movement of said casing and said support to maintain the alignment and latching position of the bolt and said clamping means irrespective of any twisting movement of the vehicle body and frame parts.

23. In a latch device for a motor vehicle door, having a bolt comprising a casing, a support yieldably mounted therein, spaced clamping means slidably mounted on said support and movable both outwardly and relatively toward and from each other, pivoted members connected to said clamping means and projecting in opposed relation in the path of travel of the bolt to be actuated thereby as the bolt moves therebetween to move said clamping means into binding engagement with a pair of surface portions of the bolt to firmly grip and clamp the same, and spring-actuated means to automatically take-up for wear which may develop in said clamping means.

24. In combination a keeper device comprising a pair of members spaced to present between them an opening with a restricted entrance mouth, a bolt for entering said opening having a large entering portion and restricted to provide lesser dimension across it back of said larger portion, and means responsive to the movement of the bolt into the opening to move said members toward each other.

25. In combination a keeper device comprising a pair of members spaced to present between them a tapered opening with a restricted entrance mouth, a tapered bolt with the large end the leading end for entrance into said opening and means responsive to the movement of the bolt into the opening to move said members toward each other.

26. In combination a keeper device comprising a pair of members spaced to present between them a tapered opening with a restricted entrance mouth, a tapered bolt with the large end the leading end for entrance into said opening, the taper of said opening and bolt corresponding, and means responsive to the movement of the bolt into the opening to move said members toward each other.

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