Sept. 21, 1937. A. CLAUD-MANTLE 2,093,465

AUTOMOBILE DOOR LATCH AND STRIKE PLATE

Filed Sept. 7, 1935

Fig. 1.

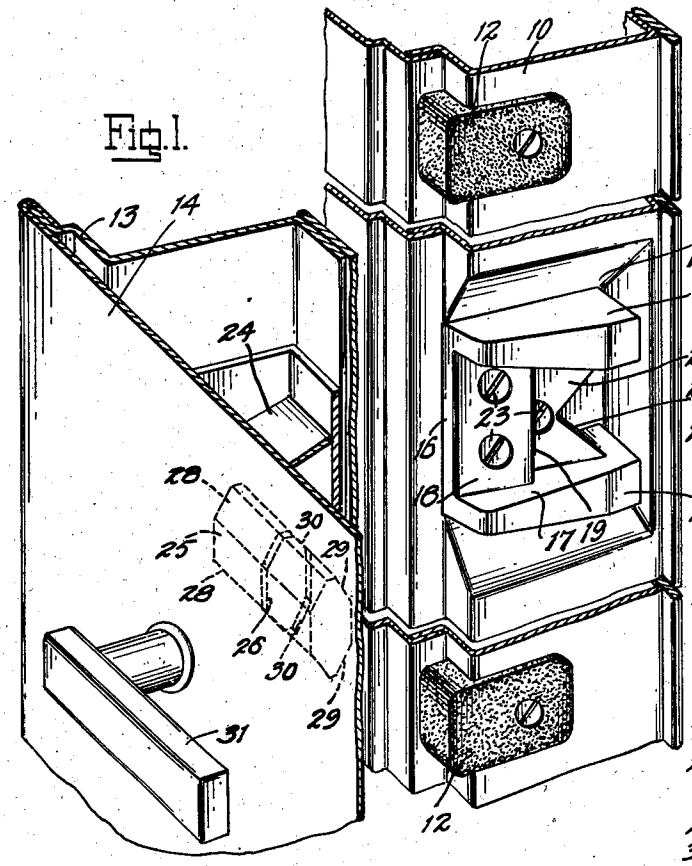


Fig. 2.

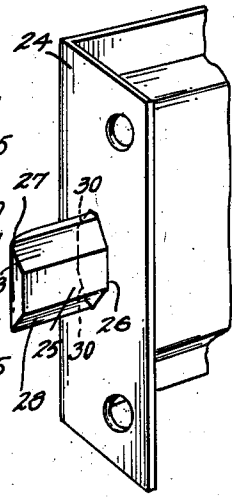


Fig. 9.

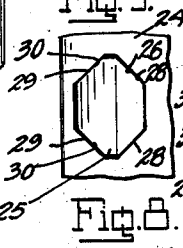


Fig. 10.



Fig. 3.

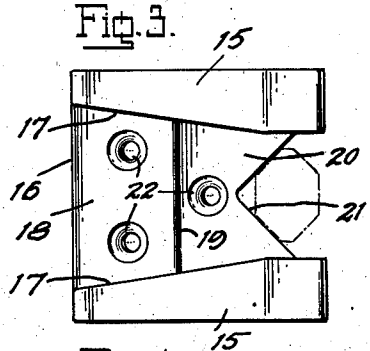


Fig. 4.

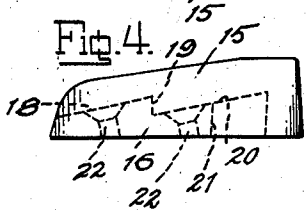


Fig. 5.

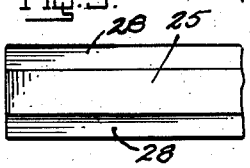


Fig. 6.

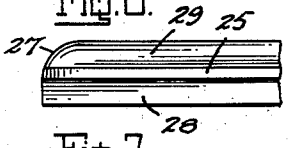


Fig. 7.

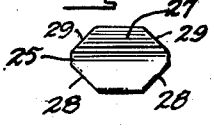
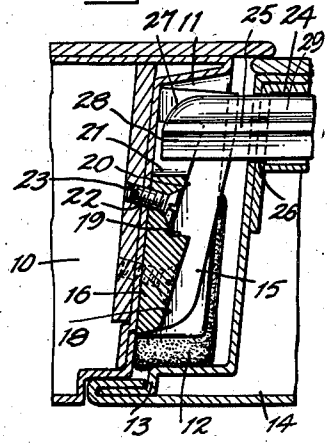


Fig. 8.



INVENTOR

ARTHUR CLAUD-MANTLE.

BY

ATTORNEY

Patented Sept. 21, 1937 2,093,465

UNITED STATES PATENT OFFICE

2,093,465

AUTOMOBILE DOOR LATCH AND STRIKE PLATE

Arthur Claud-Mantle, Trumbull, Conn., assignor to The Bassick Company, Bridgeport, Conn., a corporation of Connecticut

Application September 7, 1935, Serial No. 39,548

10 Claims. (Cl. 292—340)

The present invention relates to an automobile door latch and strike plate, and has for an object to provide a latch which will not only securely hold the door in closed position, but will also support it vertically against any tendency to vibrate or become displaced in a vertical direction, and at the same time will align the door in a predetermined relation with the door post. It has been the practice heretofore to provide, in addition to the usual latch, a dovetail device for the purpose of holding the door against vertical movement, this dovetail device usually consisting of a pair of wedge blocks which are spring pressed. It is proposed in the present invention to provide a strike plate having the normal function of being engaged by the latch bolt to retain the door closed, and further to provide wedging means forming part of and cooperating between the strike and bolt for the purpose of vertically aligning the door and preventing vertical movement. It is also proposed to provide wedging means cooperating between the latch casing and the bolt and which in cooperating with the wedging means cooperating between the bolt and strike plate prevents any relative movement between the latch casing and the strike plate. It is further proposed to provide such a latch and strike plate structure in which the usual rubber bumpers provided upon the door post, for the purpose of retaining the bolt in tight relation with the strike plate, will also function to cause the wedging surfaces to cooperate under pressure.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawing, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawing:

Fig. 1 is a perspective view, partially broken away, showing the strike plate according to the invention mounted upon the door post, and showing the door about to close in relation thereto.

Fig. 2 is a perspective view of the latch casing, partially broken away, showing the latch bolt according to the invention.

Fig. 3 is a plan view of the strike plate.

Fig. 4 is a side elevation thereof.

Fig. 5 is a side elevation of the latch bolt.

Fig. 6 is a top plan view thereof.

Fig. 7 is a front end view.

Fig. 8 is a horizontal sectional view showing the latch bolt in latching engagement with the strike.

Fig. 9 is a front end view of the bolt and a portion of the latch casing.

Fig. 10 is a front end view of a modified form of bolt according to the invention, and a portion of the latch casing.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the door post 10 which may be of any suitable construction and which is illustrated as of sheet metal, is provided with a recess 11 in which the strike plate is adapted to be secured, and is provided at suitable distances above and below the recess 11 with rubber bumpers 12—12, these bumpers adapted in the closed position of the door to be engaged and compressed by the flange 13 of the door 14.

The strike plate according to the invention, comprises side walls 15—15 and a base wall 16 connecting the side walls, the inner surfaces 17 of the side walls being inclined so that they converge inwardly to provide a wide entrance for the bolt which guides the bolt into substantially centralized relation. The upper surface of the base is provided with an inclined strike surface 18 and a latch retaining shoulder 19 at the inner end of the surface 18, which is adapted to act as a safety catch in the event that the door is not entirely closed, and is further provided with a second inclined strike surface 20 the inner end of which is provided with a V-shaped bolt engaging surface or shoulder 21, which is adapted to be engaged by the bolt in its latching position, as will presently more fully appear. The surfaces of the shoulder 21 are preferably at a 90° angle to each other. Screw holes 22 are provided in the base for the purpose of securing the strike plate in the recess 11 by means of screws 23.

The latch 24 is secured in the door 14 in the usual manner. The spring pressed latch bolt 25 has projecting and retracting movement through an opening 26 in the latch casing and is provided at its nose end and at its inner side with a rounded strike engaging surface 27 which upon closing of the door is adapted to engage the strike surfaces 18 and 20 to cause the bolt to retract agianst its spring pressure, the bolt being projected by spring pressure as it moves past the strike surfaces 18 and 20. At the forward side of the bolt, and which engages the V-shaped shoulder 21 of the strike plate, there are provided beveled surfaces 28—28 having the same angularity as the wedging surfaces of the shoulder 21 and which are adapted to engage these surfaces in the latched position. At the rearward side the bolt is provided with beveled surfaces 29—29 which are engaged by inclined surfaces 30—30

formed in the bolt opening 26. The latch is provided with the usual bolt retracting handle 31.

The operation of the invention is as follows:—

The door 14 is closed in the usual manner with sufficient force to cause the rubber bumpers 12—12 to become compressed, the clearance between the shoulder 21 and the latch bolt being sufficient during the moment of compression of the bumpers to permit the bolt to project into engagement with the shoulder 21. As the bumpers expand they press the door and the latch bolt outwardly causing the latch bolt to firmly engage the shoulder 21 under pressure. The inclined surfaces of the shoulder cooperating with the bevels 28—28 of the latch bolt will cause the latch bolt to become automatically aligned with the strike. At the same time the outward pressure on the latch casing will cause the inclined surfaces 30—30 of the opening 26 to engage the beveled surfaces 29—29 of the bolt automatically aligning the latch casing and bolt, and therefore aligning the door in a predetermined position with respect to the strike plate. At the same time the door is effectually held against vertical movement, that would be produced by normal vibration, or other normal causes, by the wedging engagement of the bolt with the wedging shoulder 21 and of the surfaces 29—29 with the surfaces 30—30 under the expanding pressure of the compressed bumpers. Any unusual vertical pressure on the door or post, or that due to excessive weaving action between them, and such as might cause breakage or distortion, if the door were held absolutely rigid, will cause the bolt to slide inwardly and upwardly or downwardly upon the upper or lower inclined strike surfaces 21, through further compression applied to the rubber bumpers and the camming action provided by said inclined strike surfaces. Upon release of such pressure the expanding action of the rubber bumpers and the camming action of the inclined strike surfaces cause the latch bolt and door to again resume its properly aligned position. Any looseness or wear in the bolt opening 26 that would ordinarily result in allowing relative vertical movement is positively compensated and prevented in the closed position of the door by the camming action of the surfaces 29—29 and 30—30.

In Fig. 10 I have shown a modification in which the bolt 25^a is provided at its rearward surface with a U-shaped groove 32, engaged by a V-shaped lug 33 provided in the bolt opening 26^a, and which function in a similar manner to the surfaces 29—29 and 30—30 to prevent relatively vertical movement between the latch casing and the bolt.

I have illustrated and described satisfactory and preferred embodiments of my invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In an automobile door latch, a strike adapted to be carried by the door post and having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, and camming means cooperating between said strike and bolt adapted to align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

2. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, said bolt retaining surface of said strike having camming surfaces adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

3. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the annexed relation of the bolt with the strike, said bolt retaining surface of said strike having a pair of outwardly converging camming means adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

4. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the annexed relation of the bolt with the strike, said bolt retaining surface of said strike having a pair of outwardly converging camming means adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said bolt being unconfined vertically by said strike except by said camming surfaces.

5. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, said bolt retaining surface of said strike having a pair of inclined outwardly converging surfaces adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

6. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door, and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike said bolt retaining surface of said strike

having a pair of inclined outwardly converging surfaces adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means and said bolt having inclined surfaces adapted to seat upon said inclined surfaces of the strike.

7. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, said bolt retaining surfaces of said strike having a pair of inclined outwardly converging surfaces each disposed at the same angle to the vertical plane of the door and adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

8. In an automobile door latch a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, said bolt retaining surface of said strike having a pair of inclined outwardly converging surfaces each disposed at an angle of substantially 45° to the vertical plane of the door and adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

9. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a spring pressed latch bolt adapted to be carried by the door and to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, camming means cooperating between said door and bolt adapted to align said door with respect to said bolt under the pressure of said resilient means, and camming means cooperating between said strike and bolt adapted to align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

10. In an automobile door latch, a strike adapted to be carried by the door post having a bolt retaining surface, a latch casing adapted to be carried by the door and having a bolt opening, a spring pressed latch bolt engaging said opening and adapted to engage said latch retaining surface of the strike, resilient means adapted to cooperate between the post and door to exert outward pressure on said door and bolt in the engaged relation of the bolt with the strike, said bolt opening having a pair of inclined converging surfaces adapted to vertically align said door with respect to said bolt under the pressure of said resilient means, and said bolt retaining surface of said strike having a pair of inclined converging surfaces adapted to vertically align said bolt with respect to said strike under the pressure of said resilient means, said strike having clearance spaces permitting vertical and lateral displacement of said bolt through yielding of said resilient means.

ARTHUR CLAUD-MANTLE.