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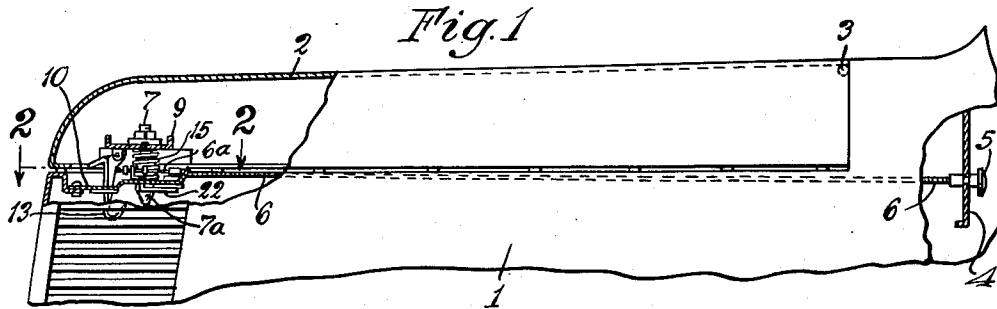
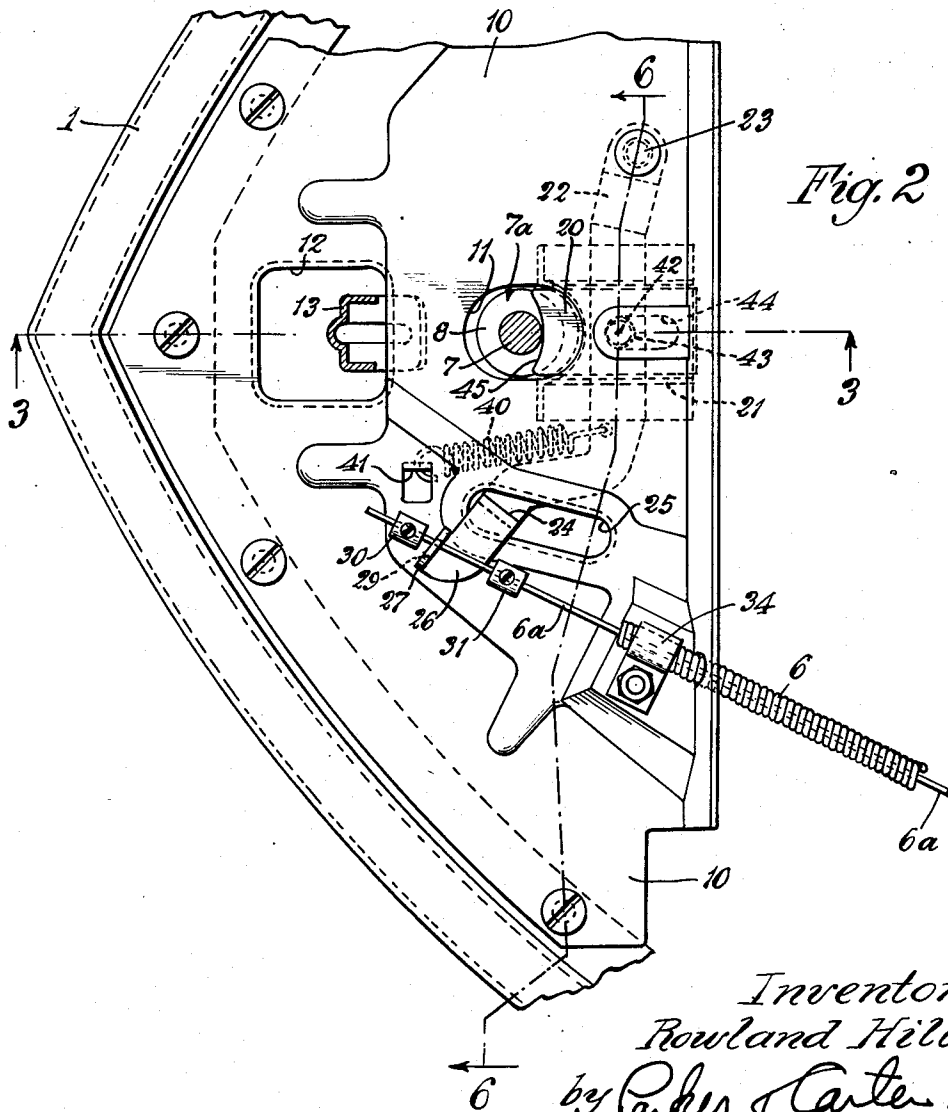
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2,316,692

HOOD LATCH ASSEMBLY WITH SLIDING BOLT

Filed March 31, 1941

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

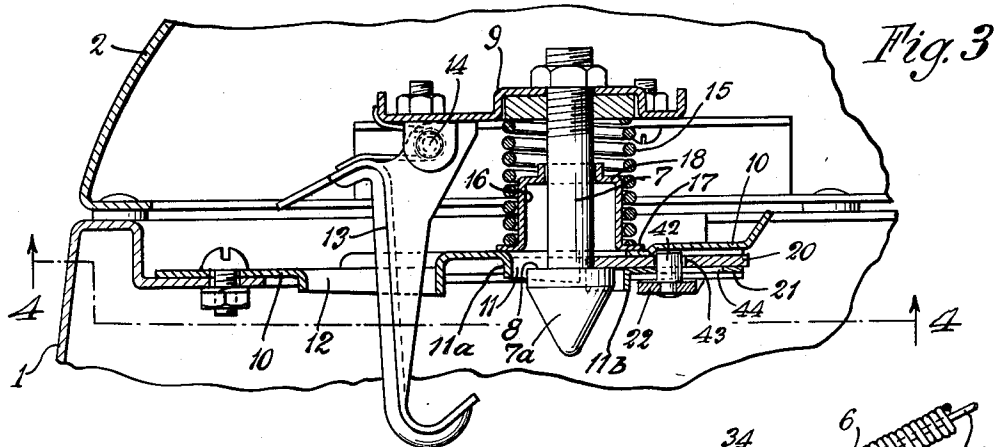


Fig. 3

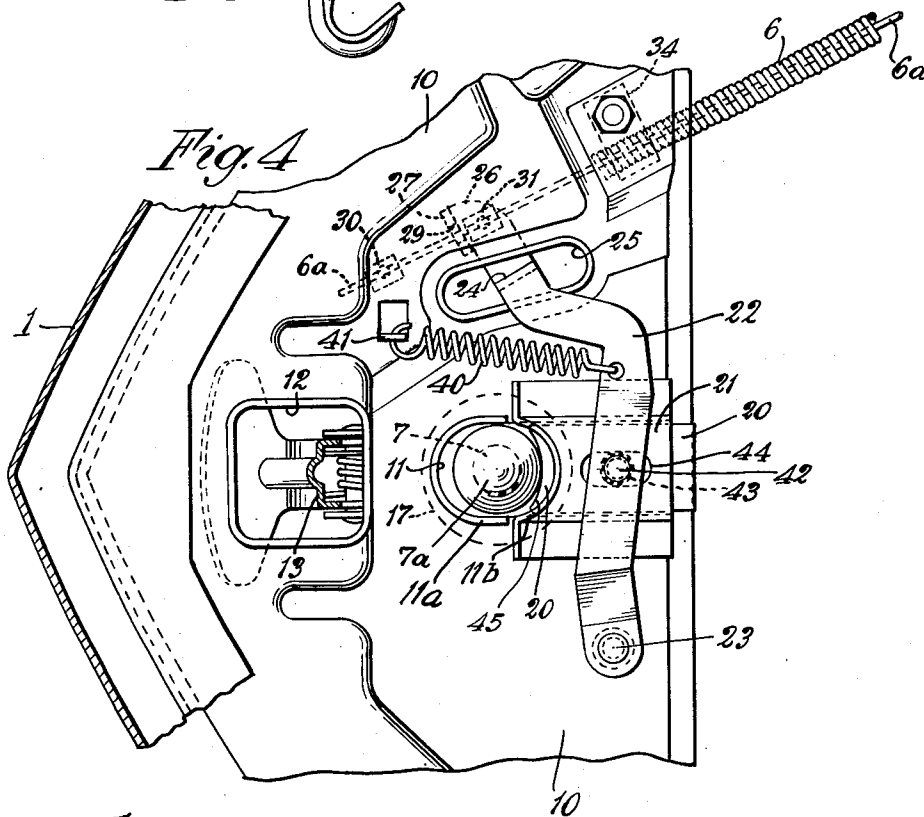


Fig. 4

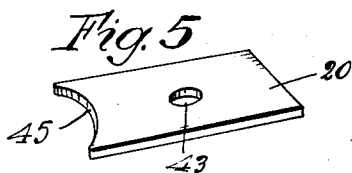


Fig. 5

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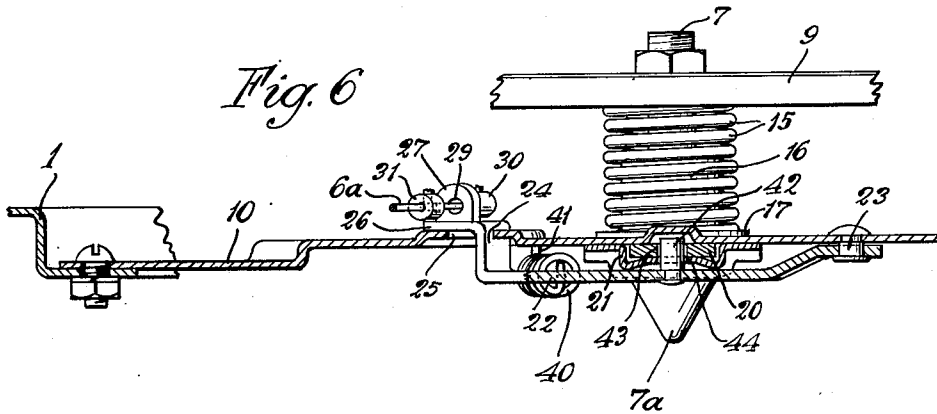
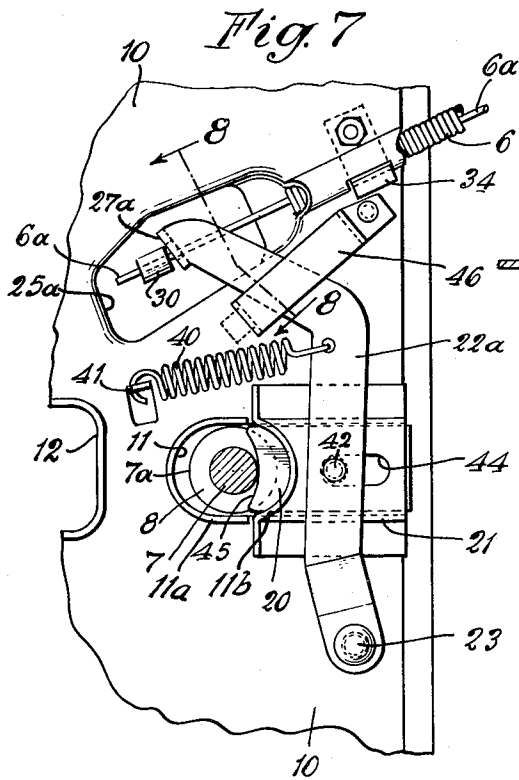
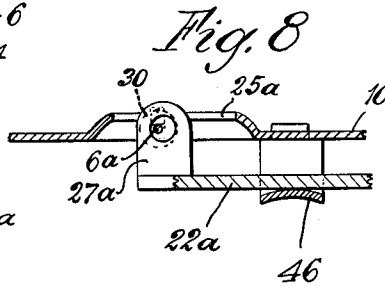
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HOOD LATCH ASSEMBLY WITH SLIDING BOLT

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3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,316,692

## HOOD LATCH ASSEMBLY WITH SLIDING BOLT

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Application March 31, 1941, Serial No. 386,105

3 Claims. (Cl. 292—171)

My invention relates to an improvement in hood latch assemblies particularly applicable to hood latches applied to alligator type hoods in which the hood closure is hinged or movably mounted at its rear end in such fashion that the forward end may be swung up to give access to the parts within the hood.

One purpose is the provision of an improved sliding bolt.

Another purpose is the provision of an improved means for actuating the sliding bolt.

Another purpose is the provision of an improved latch structure operable by remote control within the car.

Other purposes will appear from time to time in the course of the specification and claims.

I illustrate my invention more or less diagrammatically in the accompanying drawings wherein:

Fig. 1 is a side elevation with parts in vertical section;

Fig. 2 is a section on an enlarged scale on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a section taken on the line 4—4 of Fig. 2, the parts being in a different position;

Fig. 5 is a detail of the latch;

Fig. 6 is a section on the line 6—6 of Fig. 2;

Fig. 7 is a detail of a variant form of the device; and

Fig. 8 is a section on the line 8—8 of Fig. 7.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, 1 generally indicates an automobile hood, and 2 a hood closure, which may be hinged or otherwise movably secured at its rear end, a hinge 3 being diagrammatically illustrated. It will be understood, however, that in general some type of multiple or lever arm hinged structure may be employed. Since the details of the hinge do not of themselves form part of the present invention, the hinge 3 will be considered as merely a diagrammatic illustration of a hinge for movably supporting the rear end of the closure 2.

4 illustrates an instrument panel, upon which may be mounted any suitable control button 5, connected to the wire structure 6, whereby, as will later appear, a pull on the button 5 actuates the below described latch. Referring for example to Fig. 3, 7 illustrates a combined centering member and latch keeper, which may for example have a spearhead 7a terminating at its upper end in a latching ledge 8. The spearhead shaft 7 may be secured to a plate or support 9, which in turn is

mounted in any suitable manner upon the closure 2. A lower plate or support, generally indicated as 10, is mounted in any suitable fashion on the hood 1, in vertical alignment with the support 9. It is apertured as at 11 to receive the end of the spearhead and is further apertured as at 12 to permit the penetration therethrough of a safety latch 13, pivoted as at 14 upon the support 9. The safety latch does not of itself form part of the present invention and will not be further described.

15 is a spring, herein shown as coiled about the keeper stem 7 and compressed between the support 9 and a cup 16, and which has a bottom flange 17 adapted to engage the upper face of the support 10. It will be understood that when the closure 2 is in raised position, the cup 16 is thrust by the spring downwardly about the head 7a, and its upper flange 18 serves as a stop for limiting its further downward movement along the stem 7. When the parts are in the closed position, the spring 15 is compressed, and when the below described latch structure is released, it is effective to raise the closure 2 a slight distance above the hood 1 and to raise the latch ledge 8 of the spearhead 7a up out of alignment with the latch bolt 20, which is slidably movable in any suitable guide 21, formed or mounted in the lower side of the support 10. The raising of the closure 2 is also effective to permit the operator to reach in and manually release the safety catch 13, which would otherwise engage a side of the aperture 12 and prevent any further lifting of the closure 2. It will be noted that the inner end of the guide 21 is arcuately formed to conform generally to the aperture 11 through the plate 10, this arcuate edge having a downwardly turned flange 11b. This flange, with a correspondingly downwardly turned flange 11a, surrounds the aperture 11, with a guiding sleeve adapted to engage and center the spearhead 7a on the keeper stem 7.

In order to actuate the latch bolt 20 I provide the following structure: A lever 22 is pivoted, as at 23, to the bottom of the support or plate 10. It has a bent end 24, which extends through an aperture 25 in the plate 10. It has a portion 26 located on the opposite or upper side of the plate, having at its end an upwardly turned ear or flange 27. The flange is provided with an aperture 28, through which passes the end of the wire 6a, the wire having spaced abutments thereon 30 and 31, which may, if desired, be made adjustable on the wire and are separated by a sufficient distance to permit a substantial movement of the lever without a corresponding movement

of the wire, under circumstances which will below be discussed. The conduit 6, through which the wire 6a extends, is locked or secured in position on the base 10 for example by the clamp 34.

The lever 22 is normally held in the full line position of Fig. 2, by the spring 40, one end of which is secured to the lever 22 and the other to an offset ear 41 of the plate 10. The slide 20 is normally thrust into the latching position in which it is shown in Fig. 2 through a connection with the lever, which may include for example a pin 42, extending from the lever and seated in an aperture 43 of the slide 20. Preferably the aperture is slightly larger than the pin, to prevent any clamping through the arc through which the pin passes when the lever 22 is moved. Also, there may be a perceptibly slight clearance between the edges of the latch plate or bolt 20 and the opposed sides of the guide 21. Also, the overlying portion of the guide 21 is provided with an elongated aperture 44 to permit the passage of the pin therethrough from the lever into the aperture in the bolt 20. It will be understood, of course, that whereas I prefer to employ a pin or trunnion on the lever, the position of the parts might be reversed, and a projection on the bolt itself might be employed, penetrating the aperture in the lever, or otherwise interfitting with the lever. However, I find the present structure preferable for ease in assembly, as in assembling the device all that is necessary is to insert the bolt 20 endwise into the guide 21, with its aperture 43 aligned with the aperture 44 of the guide. Then the lever 22 is put in position, with its pin 42 passing through the aperture in the guide and penetrating the aperture in the slide. The lever may then be riveted or otherwise secured to the base 10, and this provides a permanent means of preventing unintended escape of the bolt 20. Also, in the first form illustrated, the outer end of the lever which passes through the aperture 25 rests on top of the plate, which provides a further supporting means. Preferably the inner end of the bolt or slide 20 may have an arcuate edge, indicated at 45, for interpenetration with the shoulder 8 of the conic member 1a of the keeper.

Referring to the forms of Figs. 7 and 8, I employ a similar lever 22a, with a similar relationship with the slide. However, instead of recurving the end of the lever, as in the case of Figs. 1 and following, I leave the entire length of the lever below the plate 10, and provide if necessary a guiding strap or loop 46 for preventing any undue movement of the outer end thereof. Note also that in the form of Figs. 7 and 8 the ear 27a lies within the aperture 25a of the plate 10, in alignment with the end of the wire 6a.

It will be realized that, whereas I have described and illustrated a practical and operative device, nevertheless many changes may be made in the size, shape, number and disposition of parts without departing from the spirit of my invention. I therefore wish my description and drawings to be taken as in a broad sense illustrative or diagrammatic, rather than as limiting me to my precise showing.

The use and operation of my invention are as follows:

I have provided means for readily moving the latch bolt or slide 20 to release position by a pull on a manual handle 5 within the vehicle, which controls the wire 6a or any suitable mechanical element. I illustrate the latch bolt as, however, movable independently of the movement of the

wire and handle, since in both forms of the device the end of the lever 22 or 22a is given a measure of play between the abutments 30 and 31 on the wire. Either or both of these abutments may be adjustable, of course, for example by the set screws shown. In operation the parts are so adjusted that the spring 40 normally holds the lever 22, which I may call a latching lever, in latching position, with the slide or bolt in the latching position. If it is desired to release the bolt, the operator need only pull on the handle 5, which urges the abutment 30 of the wire 6a against the ear 27 of the lever 22, and the lever is withdrawn. As the lever is pinned or trunnioned to the slide 20, the result is the movement of the slide 20 to withdrawn position.

As above pointed out, the clearances between the interpenetrating parts of bolt and lever and between the bolt and its guide are such that there is no cramping of the parts. On the other hand, when the operator wishes to lower the hood, the conic member 1a of the keeper cams the latch bolt 20 back into release position, and with it moves the lever 22 or 22a, extending the spring 40. Then, as soon as the bolt is in keeper position, the spring 40 is effective to move the unlatching lever of the latch or bolt back into the latching position.

Under most circumstances the abutment 31 may be omitted, as shown in Fig. 7, and the knob 5 is effective to prevent unintended forward movement of the wire 6a. It will be noted that the end of the conduit 6 terminates a sufficient distance from the end of the lever so that the free end of the wire 6a may flex as the end of the lever rotates through its arc. The flexure is slight, but any possible tendency to bind is avoided by terminating the conduit short of the end of the lever. Also, the end of the conduit is secured to the plate 10 and is properly aligned with the end of the lever, and is aligned with the path of movement of the end of the lever, in such fashion that there is a minimum of flexure of the wire. The friction between the wire 6a and the conduit 6 is sufficient also to prevent normally any retrograde movement of the wire when the operator closes the hood as above described. However, the strength of the spring 40 is sufficient to hold the wire in forward position and to draw the wire and the knob 5 into initial position when the unlatching lever and the latch bolt are in latching position. In that case the lever and the bolt all move together in response to the action of the spring 40.

The end of the aperture 44 is effective to receive the pin 42 and to limit the inward movement of the pin and of the bolt 20 toward latching position in response to the action of the spring 40.

I claim:

1. In a latch assembly, a latch support having a keeper receiving aperture located within the body of the support at a point far removed from all the boundaries thereof, a latch bolt of flat sheet metal stock mounted on the lower side of said support, means for guiding it rectilinearly along said support toward and away from said aperture, including a guide element secured to the lower side of said support, and means for actuating said bolt, including an unlatched lever pivoted to the bottom of said support at one side of the path of movement of said bolt, its outer end extending to the other side of the path of movement of said bolt, a member on said lever extending through said guide and into an aperture in said bolt, said guide being provided with an elon-

gated aperture adapted to permit the movement of said bolt and lever toward and away from said keeper receiving aperture, yielding means interposed between the lever and the support and adapted normally to move the lever and bolt toward latching position, and manually operable means for moving the latching lever and the bolt to unlatching position, the end wall of said aperture in the guide being adapted to engage the member on said lever which extends through the guide, and to serve as a limit for limiting the movement of the bolt toward latching position.

2. In a latch assembly for automobiles and the like, a horizontal latch plate apertured intermediate its edges to receive a combined guide and keeper, the aperture of said plate being surrounded on three sides by an integral downturned flange, a guide member secured to the lower side of said plate and conforming generally at one edge to said aperture and having formed along such edge an integral downwardly turned flange, completing with the flange portion of the plate a downwardly extending flange substantially entirely surrounding said aperture, a flat sheet metal bolt interposed between said guide and said plate, said guide having a slot therein, a lever pivoted at one end to said plate and extending across and beneath said guide, a pin on said lever, penetrating said slot and said bolt, the diameter of said pin being less than the width of said slot, whereby binding of the pin against the sides of the slot is prevented, said bolt being of slightly less width than the width of the guide, whereby binding between bolt and guide is prevented, yielding means normally urging said lever and

said bolt toward latching position, with the inner edge of said bolt extending into vertical alignment with said aperture, and manually operable means secured to the outer end of said lever for moving said lever against said yielding means to unlatching position, and guide means for the outer end of said lever adapted to constrain said lever to movement in a plane parallel with the plane of said plate.

10 3. In a latch assembly, a latch supporting plate having an oval, keeper receiving, aperture within the body of and far removed from all the boundaries of the plate, a keeper adapted to penetrate the aperture and move toward and from the plate  
15 in a plane perpendicular to the support and parallel with the longitudinal axis of the aperture, a latch bolt on the side of the plate furthest removed from the direction from which the keeper approaches, means for guiding the bolt along the  
20 plate toward and from the keeper aperture, a latch lever pivoted on, and bent outwardly away from the plate to overlie the guide means, a driving connection between the lever and the latch bolt extending through the guide means, an as-  
25 sembly aperture in the latch supporting plate adjacent the free end of the lever, the free end of the lever being upwardly bent to project through the assembly aperture, a flexible conduit terminating adjacent the assembly aperture and rigidly attached to the plate, the flexible shaft slidable  
30 in the conduit, a connection between it and the end of the lever located substantially in the plane of the assembly aperture.

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