Nov. 24, 1942. A. J. RHODES 2,302,957

LATCH CONSTRUCTION

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FIG.1.

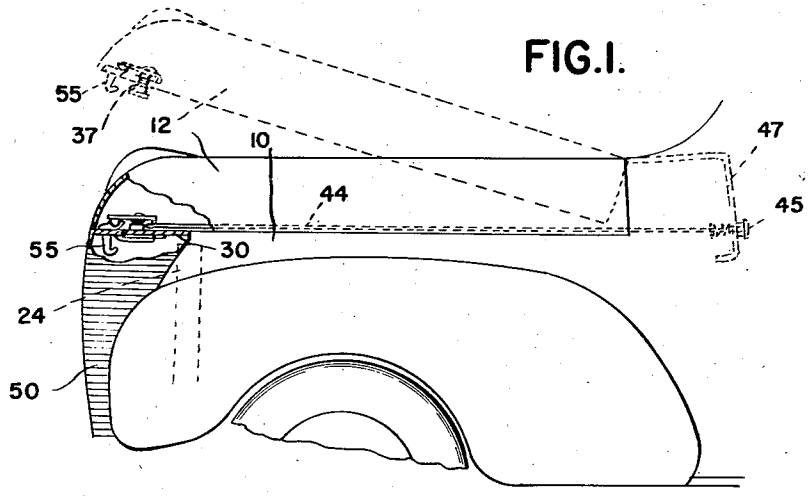


FIG.2.

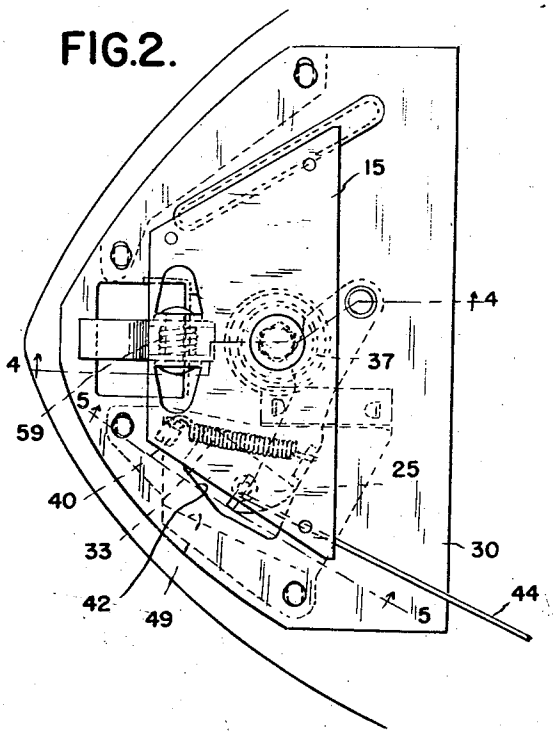
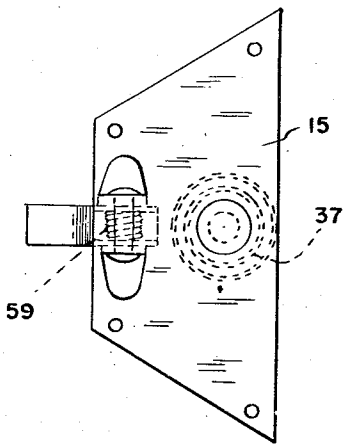


FIG.6.



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FIG.3.

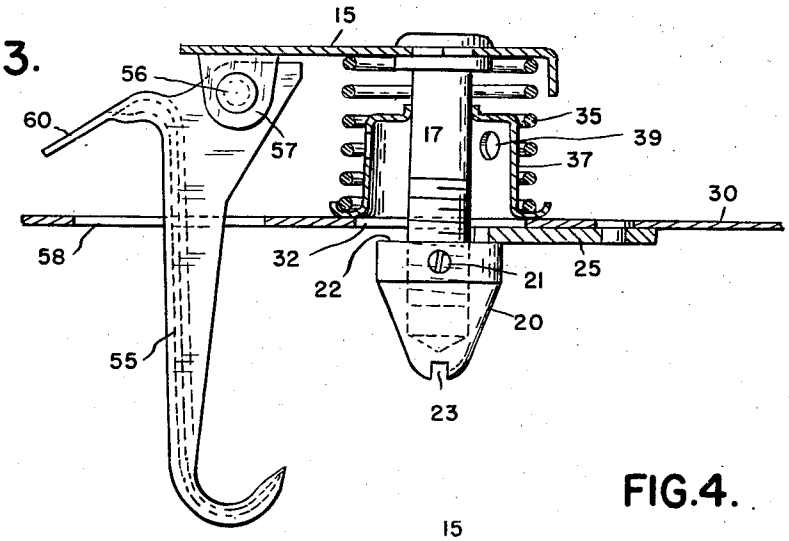


FIG.4.

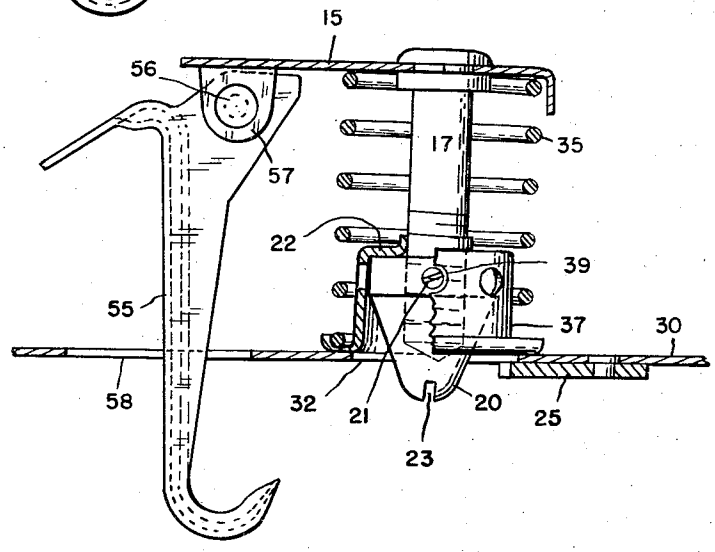
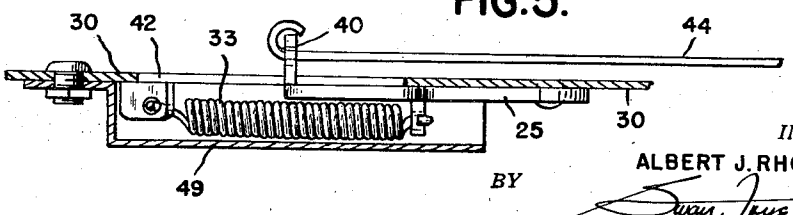


FIG.5.



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Patented Nov. 24, 1942 2,302,957

UNITED STATES PATENT OFFICE

2,302,957

LATCH CONSTRUCTION

Albert J. Rhodes, Pontiac, Mich., assignor to American Forging & Socket Company, Pontiac, Mich., a corporation of Michigan

Application May 23, 1940, Serial No. 336,782

4 Claims. (Cl. 292—340)

This invention relates to latch mechanisms and equivalent holding devices, being particularly, although not exclusively, adapted for use in latching the hoods of motor vehicles.

An important object of the invention is to provide an improved and simplified hood latch, incorporating safety catch mechanism in conjunction with a main latch, the safety catch mechanism being automatically called into play upon release of the main catch, and preventing complete release of the hood, or other held portion, save when deliberately manipulated in a manner which is only possible when the vehicle is at rest.

The invention aims to provide a hood latch construction of the indicated character constituting an improvement upon the structures disclosed in the copending applications of Walter S. Saunders, Serial Nos. 139,778 and 139,779, filed April 29, 1937, now U. S. Letters Patent Nos. 2,199,467 and 2,199,468, respectively, dated May 7, 1940.

Another object is to provide a double latch assembly of the character indicated which is simpler and less expensive in construction, and also quicker and simpler to install than known devices of this class.

Still another object is to provide in such a latch assembly improved adjusting means for compensating for variations in the sheet metal structure of the vehicle, and for taking up lost motion such as that which develops as a result of wear.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawings illustrating a preferred embodiment of my invention, and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Figure 1 is a somewhat diagrammatic side elevational view of the front portion of the hood of a motor vehicle provided with a hood latching means constructed in accordance with the present invention, portions of the hood and radiator grille being broken away to disclose the positioning of the latch assembly.

Figure 2 is a plan view of that portion of the latch mechanism which is carried by the fixed part of the vehicle structure, the lid or bonnet section being raised.

Figure 3 is a vertical longitudinal central section of the latch mechanism and adjacent supporting portions of the vehicle structure, showing the parts in the positions they occupy when the lid is fully closed and latched.

Figure 4 is a sectional view similar to Figure 3 but showing the main catch released and the safety catch blocking full opening movement of the lid.

Figure 5 is a vertical section taken substantially on the line 5—5 of Figure 2 and looking in the direction of the arrows.

Figure 6 is a plan view of that portion of the latch assembly which is carried by the lid section, showing the same removed from the lid.

Referring to the drawings, it will be seen that a vehicle body having a front engine-enclosing hood of more or less conventional arrangement is illustrated in Figure 1. The fixed hood portion 10 forms the main enclosure for the engine compartment, which is accessible through a lid 12, hinged to the vehicle at its back edge and adapted to be lifted from the front.

A gusset plate 15, mounted within the nose of the lid section, and serving also as a reenforcement, carries a relatively heavy stud 17 projecting downwardly therefrom, riveted or otherwise secured in place. The portion of the stud which extends through the gusset plate is preferably flattened upon at least one side, to lock it against turning. The lower end of the stud is threaded, and carries a substantially conic head 20 forming a keeper. The keeper is threaded upon the stud and adapted to be locked against turning by means of a set screw 21. The substantially conic shape of the keeper will be seen to provide a shoulder, 22, at right angles to the stud, while its threaded mounting allows adjustment thereof simply by loosening set screw 21 to permit rotation of the keeper.

To the under side of a cooperating plate 30, secured to the fixed portion of the vehicle structure and apertured as at 32 in position to permit the keeper head 20 to project therethrough, is pivoted a swinging sheet metal bolt 25. Bolt 25 is normally drawn into locked overengagement with the shoulder 22 of the keeper by means of a spring 33. This mechanism is positioned forwardly of the radiator 24 and behind the front grille 50. Bolt 25 would accordingly be accessible by means of an implement thrust through the grille, were it not guarded by the shield 49.

A spring 35, encircling stud 17, resists closing movement of the lid, and lifts the same sufficiently to free the keeper head 20 from the bolt 25 whenever the latter is released. Spring 35 is positioned by and bears against an inverted cup 37, slidable upon the stud. The lower edge of the cup is flanged to form a seat for the spring, and such flange, being too large to pass through the opening 32, serves as an abutment to restrain the lower end of the spring and cause the same to be compressed as the lid is pressed downwardly to force the keeper through the opening 32. An opening 39 is formed in cup 37 to permit a screw driver to be thrust therethrough into engagement with the set screw 21, and the lower extremity of the keeper head 20 is also slotted, as indicated at 23, to allow the same to be conveniently turned when the set screw is loosened, as

well as rounded to assist camming the bolt. Cup 37 is rotatable upon the stud, to permit alignment of the opening 39 with set screw 21.

A lug 40 is turned up from one edge of the bolt 25, and projects through a slot 42 in plate 30. A flexible cable 44, attached to the lug and connected to a conveniently positioned button 45 located upon the instrument panel 47 of the vehicle, enables the bolt 25 to be released at will.

The shield 49 is formed of sheet metal and secured to the plate 30, underlying the bolt 25 and spring 33, to prevent picking the latch by means of an implement thrust through the front grille 50.

A hook-type safety catch 55, formed of sheet metal, is pivoted on a pin 56 mounted in lugs 57 pressed downwardly from the plate 15. The safety catch hook will be seen to be located directly in front of the main catch, and to be projectible through an opening 58 in plate 30. A torsion spring 59 wrapped about the pin 56 yieldably swings the hook to the rear, so that it normally underlies the plate 30 and blocks rising movement of the lid, even though the main latch bolt 25 be released. A finger portion 60 integral with the hook 55 and located above the plate 30 projects forwardly to a convenient position which allows the hook to be tripped to released position by a person standing in front of the vehicle and gripping the lid in the natural manner, to lift it, although of course it is impossible thus to release the safety catch hook and lift the lid until the main latch has been released, permitting the lid to open partially, to the extent indicated in Figure 4. Such partial opening makes possible access to the interior and the safety catch.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. In locking means for an automobile hood having hingedly connected members with latch-part mounting members on the respective hood members, one of said mounting members being vertically superposed over the other when the hood is in closed position, a combined centering member and keeper mounted on and vertically rotatably adjustable in relation to one of said mounting members, the other mounting member being apertured to receive said keeper in guiding relationship, said keeper including a stem and a head, said head having a portion, adjacent the outer end of the stem, of substantially greater diameter than the stem, and having downwardly and inwardly converging walls, a thrust member mounted on and guided by said keeper, and yielding means adapted to urge said thrust member against said opposite latch-part mounting member whereby, when the keeper is released, the thrust member is adapted to lift the upper hinged member, said thrust member being in the form of a cup surrounding said head, and having an inwardly extending upper flange adapted to engage said head, said head having adjacent its tip, a tool receiving aperture, said aperture being freely exposed at all positions of the cup.

2. In locking means for an automobile hood having hingedly connected members with latch-part mounting members on the respective hood members, one of said mounting members being vertically superposed over the other when the hood is in closed position, a combined centering member and keeper mounted on and vertically rotatably adjustable in relation to one of said mounting members, the other mounting member being apertured to receive said keeper in guiding relationship, said keeper including a stem and a head, said head having a portion, adjacent the outer end of the stem, of substantially greater diameter than the stem, and having downwardly and inwardly converging walls, a thrust member mounted on and guided by said keeper, and yielding means adapted to urge said thrust member against said opposite latch-part mounting member whereby, when the keeper is released, the thrust member is adapted to lift the upper hinged member, said thrust member being in the form of a cup surrounding said head, and having an inwardly extending upper flange adapted to engage said head, said head having adjacent its tip, a tool receiving aperture, said aperture being freely exposed at all positions of the cup, its top extending below the bottom of the cup, at all positions of the cup.

3. In locking means for an automobile hood having hingedly connected members with latch-part mounting members on the respective hood members, one of said mounting members being vertically superposed over the other when the hood is in closed position, a combined centering member and keeper mounted on and vertically rotatably adjustable in relation to one of said mounting members, the other mounting member being apertured to receive said keeper in guiding relationship, said keeper including a stem and a head, said head having a portion, adjacent the outer end of the stem, of substantially greater diameter than the stem, and having downwardly and inwardly converging walls, a thrust member mounted on and guided by said keeper, and yielding means adapted to urge said thrust member against said opposite latch part mounting member whereby, when the keeper is released, the thrust member is adapted to lift the upper hinged member, said thrust member being in the form of a cup surrounding said head, and having an inwardly extending upper flange adapted to engage said head, said head having adjacent its tip, a tool receiving aperture, said aperture being freely exposed at all positions of the cup, and means for locking said centering member and keeper against unintended rotation.

4. In locking means for an automobile hood having hingedly connected members, with a latch-part mounting element on one of said members, a combined centering member and keeper mounted on and rotatably adjustable in relation to said mounting element, said member including a stem and a generally conic head having a latch receiving ledge at its base, its outer, free end having a tool receiving aperture adapted for rotating the keeper, a cup guided on and adapted substantially to enclose said head, and having a flange adapted to abut against said ledge, the depth of said cup being less than the length of said head from said ledge to the outer free end of the head, said aperture being clear of said cup, and exposed, at all positions of the cup, and yielding means normally tending to seat said cup against said ledge, and about said head.

ALBERT J. RHODES.