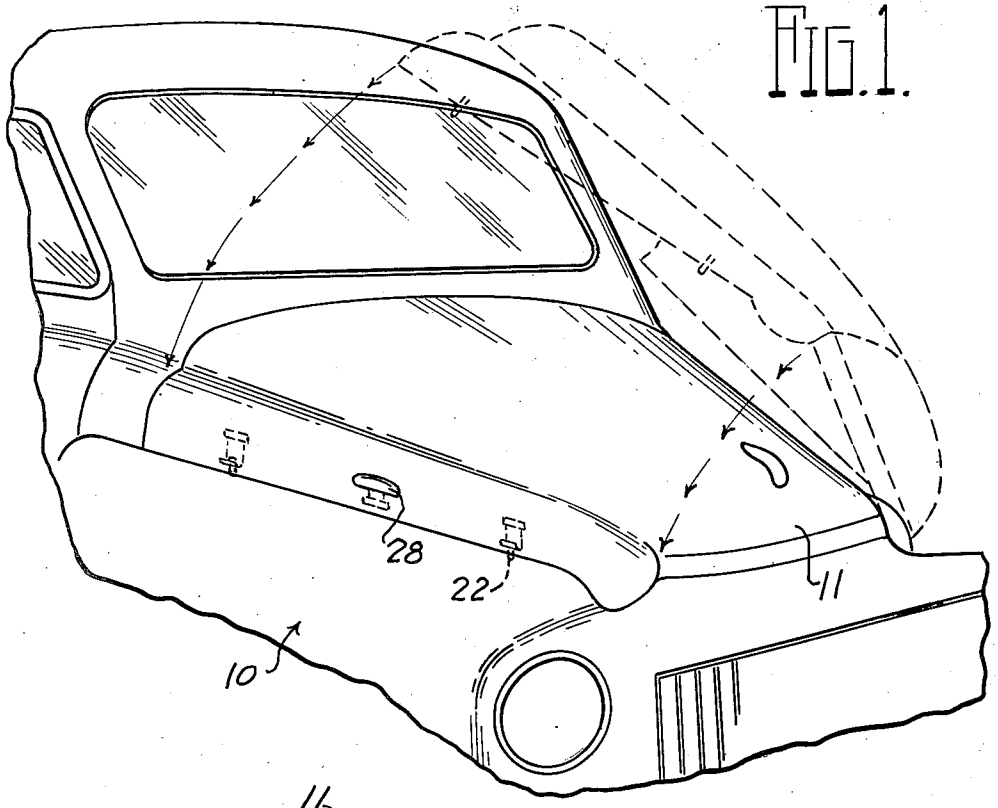
Dec. 9, 1952 C. E. McCORMICK 2,620,889

COMBINED HINGE AND LATCH MECHANISM FOR MOTOR CAR HOODS

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FIG. 1.



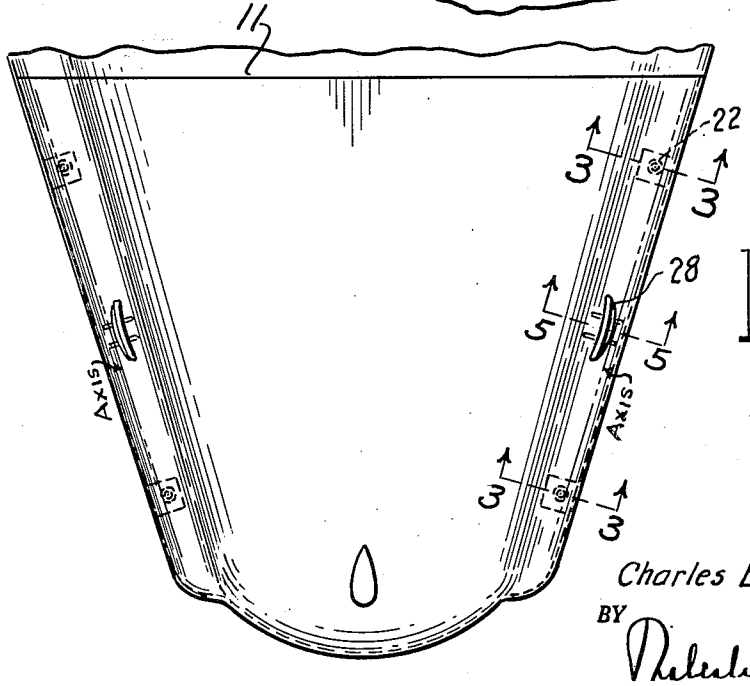


FIG. 2.

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FIG. 3.

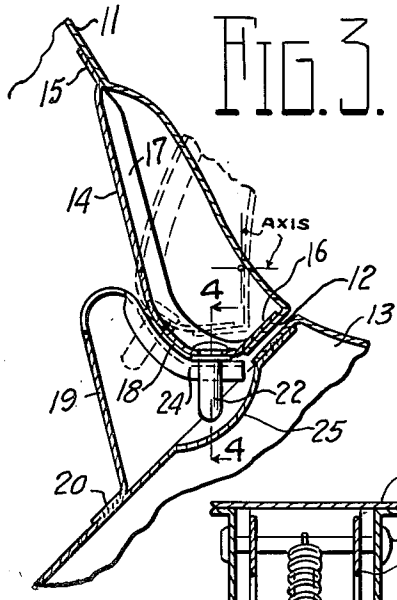


FIG. 4.

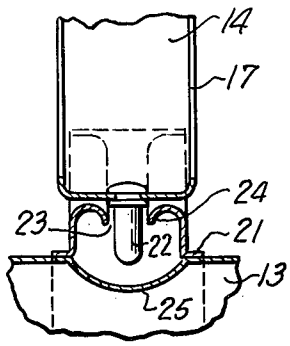


FIG. 7.

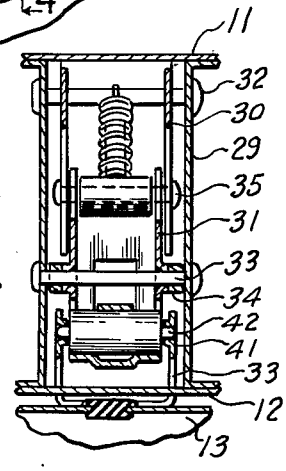


FIG. 6.

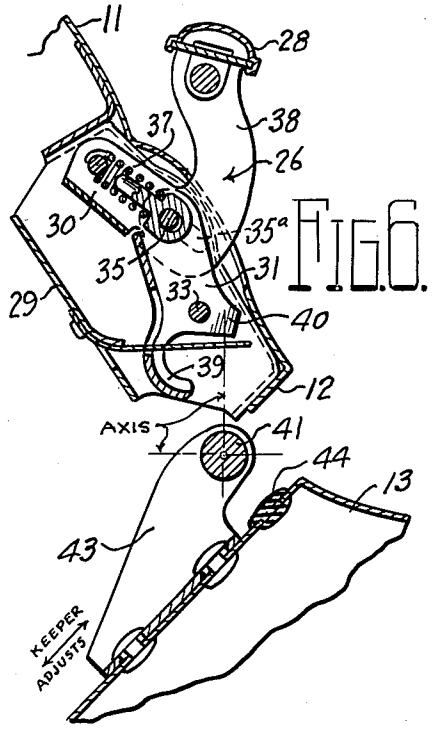
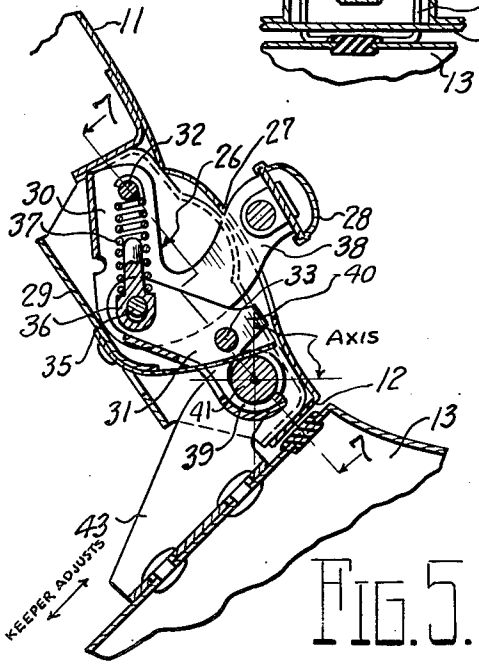


FIG. 5.



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COMBINED HINGE AND LATCH MECHANISM FOR MOTOR CAR HOODS

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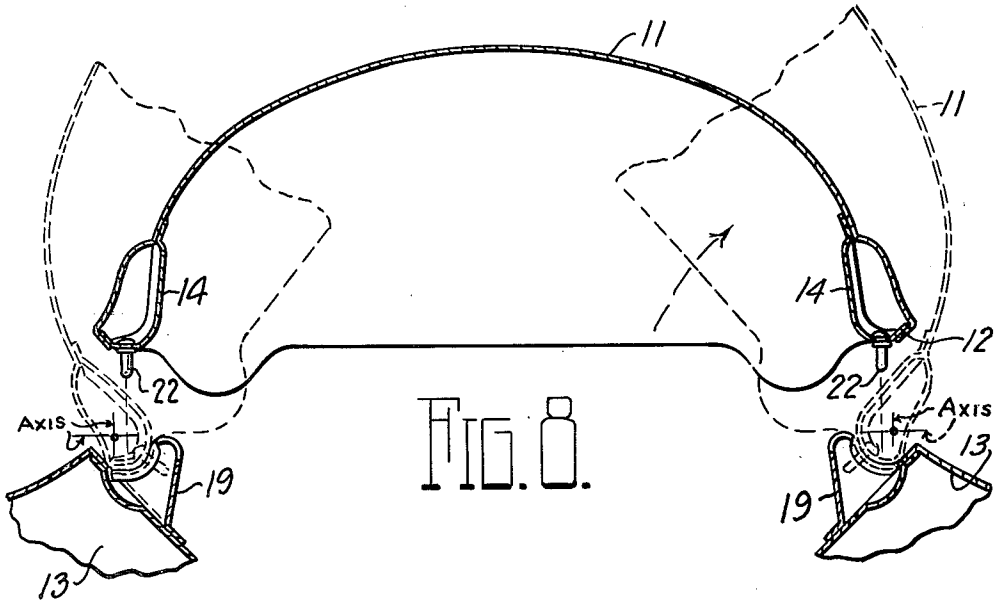


FIG. 8.

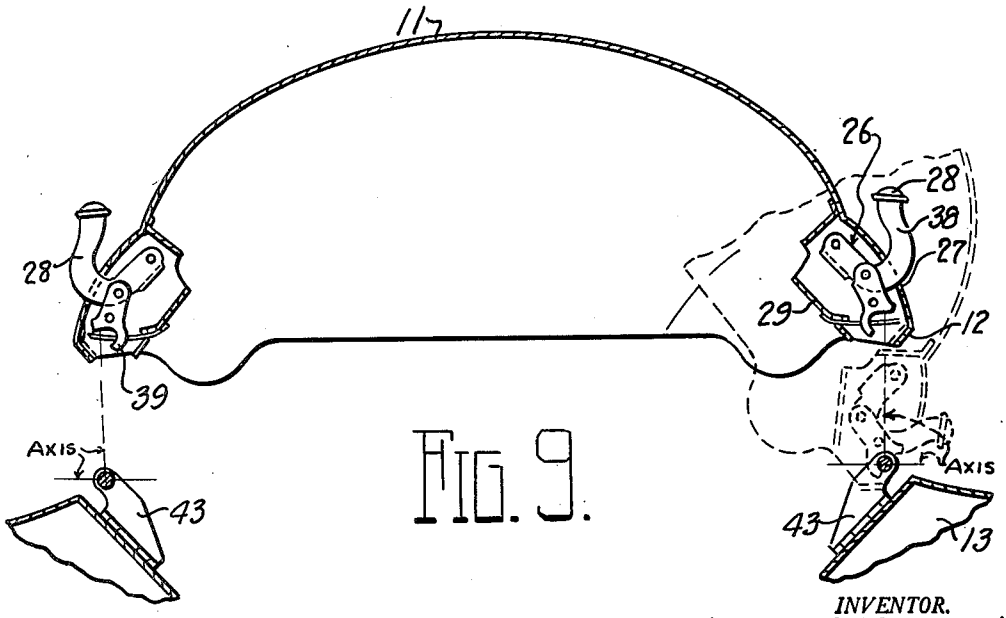


FIG. 9.

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UNITED STATES PATENT OFFICE

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COMBINED HINGE AND LATCH MECHANISM FOR MOTOR CAR HOODS

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Application July 24, 1951, Serial No. 238,209

6 Claims. (Cl. 180—69)

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This invention relates to hoods for motor cars but more particularly to hoods adapted to be swung to open position from either side, or to be lifted entirely from the support, as may be desired.

An object is to produce a mounting for the hoods of motor cars by which the hood is securely and positively retained in its closed position with the edge portions guidingly supported, and, when desired, one side or the other may be released so that the hood can be readily swung about the other side, the respective latch and guide supports serving as a hinge means.

Another object is to produce a simple and efficient hood latch mechanism which is efficient and positive in operation, sturdy and reliable in construction, inexpensive to produce on a quantity basis, simple to install and has the feature of cooperating with its keeper to serve as a hinge to enable swinging movement of the hood.

Other objects and advantages will hereinafter appear, and for purposes of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawings, in which

Figure 1 is a front end perspective view of a motor car showing the hood in its closed or latched position, the hood being shown in broken lines in an open position;

Figure 2 is a top plan view of the hood shown in Figure 1;

Figure 3 is an enlarged vertical sectional elevation on either of the lines 3—3 of Figure 2, showing a guiding and locating pin in the position assumed when the hood is in its closed position;

Figure 4 is a fragmentary sectional view on the line 4—4 of Figure 3;

Figure 5 is an enlarged fragmentary sectional view on the line 5—5 of Figure 2, showing the latch mechanism in latched position;

Figure 6 is a fragmentary sectional view somewhat similar to Figure 5, showing the latch mechanism in its unlatched position and separated from the enclosure carried keeper;

Figure 7 is a fragmentary sectional view on the line 7—7 of Figure 5;

Figure 8 is a transverse sectional view of the hood and fragment of the support therefor, the hood being shown in full lines bodily spaced from the supports, broken line portions illustrating the hinge movement of the hood on each side, this view showing the locating and guiding pins and the supports therefor; and

Figure 9 is another transverse sectional view of the hood and supports showing particularly latch mechanisms and their respective keepers.

The illustrated embodiment of the invention

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comprises a motor car 10 having a one-piece hood 11. At the lower longitudinal edges of the hood are inwardly extending flanges 12 which are supported upon enclosures 13 which may be a portion of a fender splash panel or other part of the engine enclosure. Preferably at the rear and front end portions and on each side of the hood are brackets 14, each bracket consisting of a sheet metal plate fixed as by welding 15 at its upper end and extending downwardly and outwardly and terminating in a flange 16 which is welded to the upper side of the inturned flange 12. As shown in Figure 4, the side edges are upwardly flanged as indicated at 17 and the inner wall of the bracket adjacent the lower portion has an upward and inward curvature and this curvature corresponds substantially to a supporting wall 18 of a bracket 19 which, as shown in Figure 3, has a flange 20 welded to the adjacent enclosure and side flanges 21 which are also welded in position.

Fixed to and depending from the bracket 14 is a guiding and locating projection or pin 22 which is adapted to project into an elongate slot 23 formed in the curved wall portion 18 of the bracket 19. The metal on opposite sides of the slot is turned down as indicated at 24 to assist in the movement of the pin 22 therein. As will more clearly appear hereinafter, when the hood is swung to open position, the pins 22 on one side will slide within their slots 23 thereby guiding the movement of the hood, the slot 23 being of ample length to accommodate this movement. Directly beneath each pin 22, the metal of the enclosure 13 is cupped inwardly as indicated at 25.

From the above description, it will be clear that a pair of depending locating and guiding pins 22 are arranged in spaced relation, one pair being arranged on each side adjacent the front end portion of the hood and the other pair on each side adjacent the rear end portion of the hood, each pair of brackets 14 and 19 seating one within the other, the contacting walls or surfaces being curvilinear which not only provides satisfactory supporting surfaces but also cooperate in the swinging movement of the hood on one side or the other, as will hereinafter appear.

Approximately midway between each pair of brackets 14 and 19 is a combined latch and hinge mechanism generally indicated at 26. Each latch is supported on the inside of the hood 11 except that projecting through a slot 27 in the hood, is an operating handle 28. For supporting the latch is a sheet metal housing 29 which is secured as by welding to the inside of the hood 11 and the

upper surface of the inturned flange 12. The housing is generally U-shaped in cross section and arranged inside of the housing are sheet metal toggle arms 30 and 31 which are U-shaped in cross section with the arm 31 fitting between the sides of the arm 30. The arm 30 is pivotally connected at its upper end on a rivet 32 carried by the housing 29 and the arm 31 is pivoted on a rivet 33 slightly beyond center and nearer the free end thereof. Spacers 34 on the rivet 33 are interposed between the housing 29 and the outer sides of the arm 31. The adjacent ends of the arms are pivoted together by a rivet 35, the same passing through an elongate slot 35a in each side of the arm 30. Mounted loosely on the rivet 35 between the sides of the arm 31 is a spring mounting and guide pin 36 against which a helically coiled spring 37 fits, and over which the spring extends, the opposite end of the spring being hooked over the central portion of the rivet 32. Integral with the arm 30 and extending at substantially right angles thereto is an arm 38 on the outer end of which is secured the operating handle 28.

At the left-hand side of the rivet 33 (Figure 5) and providing a projecting end for the arm 31 is a latching hook 39 and projecting laterally from the right-hand side of the rivet 33 is a projection or arm 40 which is adapted to abut against the keeper to rock the toggle sufficiently to enable the coil spring 37 abruptly to snap the hook 39 into engagement with the keeper. It will be observed that the arm 40 projects substantially beyond the free end of the hook 39 so that when the hood is slammed, the projecting arm 40 will engage the keeper to achieve this movement of the toggle.

The keeper for the latch is in the form of a cylindrical elongate roller 41 which has trunnions 42 rotatably mounted in bearings in a U-shaped bracket 43 fastened to the enclosure 13, the fasteners passing through elongate holes to afford up and down adjustment (Figure 5). As shown in Figure 6, when the latch is in its unlatched position, the arm 40 is so positioned that when the hood is slammed, it will first engage the keeper roller 41 and cause the arm 31 to swing in a counterclockwise direction. As soon as the parts are slightly beyond center, the coil spring 37 will immediately cause the hook to embrace the roller 41 in the position shown in Figure 5. When the latch is in its latched position and the opposite side unlatched, it will be understood that the hood 11 can be swung hingedly, the roller 41 serving as the hinge. As shown, such movement is limited by a rubber button 44 on the enclosure 13 which is engaged by the adjacent hood flange 12.

One important feature of this invention resides in the arrangement of the axis of the roller 41 in its relation to the curvatures of the curved bracket walls 14 and 18. These axes are coincident and accordingly, the rocking or hinge movement of the hood can be readily achieved without difficulty, the guide pins moving in their elongate slots 23 readily, so that not only can the hood be swung readily to open position but in a guided and controlled manner. It will be further recognized that the movement of the handle 28 to unlatch the hood is the movement normal to raising the hood. It will be manifest that the upward movement of the handle 28 serves to rock the latch to its open position so that the hood can be lifted. Upon lowering of the hood, one or both of the projecting arms 40 of the toggle (depending upon whether the hood is lowered as a unit or hingedly rocked about one side or the other), engage with the respective keepers automatically revolving the toggles to effect latching of the hood. In the event that the weight of the hood fails to effect such automatic operation, the normal downward movement of the handle 28 rocks the latch to effect proper engagement with the keeper.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. In a mounting for a side pivoted automobile hood upwardly swingable from either side relative to the fixed part of an engine enclosure at the respective sides, the side margins of the hood each being provided with in front and rear positions and at spaced points guiding and centering projections, a bracket for each projection having an inwardly and upwardly curved inner wall, brackets on the said enclosure having inner walls curved inwardly and upwardly to conform to and receive respectively the inner walls of said first brackets, each said last inner wall having an elongate slot to receive a projection in the closed position of the hood and to enable limited swinging movements of the hood, a cylindrical latch keeper between each pair of said last brackets and fixed to said enclosure, the axis of each cylinder being substantially coincident with the axis of the curvature of said inner bracket walls, a latch mechanism at each side of the hood having a curved hook for releasable engagement with the respective keeper whereby when one latch mechanism is engaged with its keeper and the other disengaged the hood may be swung about the engaged keeper as a hinge, and means for actuating each latch mechanism.

2. In a mounting for a side pivoted automobile hood upwardly swingable from either side relative to the fixed part of an engine enclosure at the respective sides, the side margins of the hood each being provided with in front and rear positions and at spaced points guiding and centering projections, a bracket for each projection having an inwardly and upwardly curved inner wall, brackets on the said enclosure having inner walls curved inwardly and upwardly to conform to and receive respectively the inner walls of said first brackets, each said last inner wall having an elongate slot to receive a projection in the closed position of the hood and to enable limited swinging movements of the hood, a cylindrical latch keeper between each pair of said last brackets and fixed to said enclosure, the axis of each cylinder being substantially coincident with the axis of the curvature of said inner bracket walls, a latch mechanism at each side of the hood having a spring-tensioned arm provided with a hook at the free end, means associated with each hook for automatically engaging the respective keeper and rocking the hood to embrace the keeper, as by slamming the hood.

3. In a mounting for a side pivoted automobile hood upwardly swingable from either side relative to the fixed part of an engine enclosure at the respective sides, the side margins of the hood each being provided with in front and rear positions and at spaced points guiding and centering projections, a bracket for each projection having an inwardly and upwardly curved inner wall, brackets on the said enclosure having inner walls curved inwardly and upwardly to conform to and

receive respectively the inner walls of said first brackets, each said last inner wall having an elongate slot to receive a projection in the closed position of the hood and to enable limited swinging movements of the hood, a cylindrical latch keeper between each pair of said last brackets and fixed to said enclosure, the axis of each cylinder being substantially coincident with the axis of the curvature of said inner bracket walls, a spring-tensioned latch at each side of the hood having a curved hook for engagement with the cylindrical keeper, a shoulder adjacent the hook and movable therewith, said shoulder being engageable with the keeper upon slamming the hood to cause the hook to embrace the keeper, and an actuating handle for said latch on the outside of the hood.

4. In a mounting for a side pivoted automobile hood upwardly swingable from either side relative to the fixed part of an engine enclosure at the respective sides, the side margins of the hood each being provided with in front and rear positions and at spaced points guiding and centering projections, a bracket for each projection having an inwardly and upwardly curved inner wall, brackets on the said enclosure having inner walls curved inwardly and upwardly to conform to and receive respectively the inner walls of said first brackets, each said last inner wall having an elongate slot to receive a projection in the closed position of the hood and to enable limited swinging movements of the hood, a cylindrical roller providing a latch keeper between each pair of said last brackets and fixed to said enclosure, the axis of each roller being substantially coincident with the axis of the curvature of said inner bracket walls, a latch mechanism at each side of the hood having a curved hook for releasable engagement with the respective keeper whereby when one latch mechanism is engaged with its keeper and the other disengaged the hood may be swung about the engaged keeper as a hinge, a cushioned stop on the enclosure adjacent each keeper against which the adjacent side margin of the hood abuts, and means for actuating each latch mechanism.

5. In a mounting for a side pivoted automobile hood upwardly swingable from either side relative to the fixed part of an engine enclosure at the respective sides, the side margins of the hood each being provided with in front and rear positions and at spaced points guiding and centering projections, a bracket for each projection having an inwardly and upwardly curved inner wall, brackets on the said enclosure having inner walls curved inwardly and upwardly to conform to and receive respectively the inner walls of said first brackets, each said last inner wall having an elongate slot to receive a projection in the closed position of the hood and to enable limited swinging movements of the hood, a cylindrical latch keeper between each pair of said last brackets and fixed to said enclosure, the axis of each cylinder being substantially coincident with the axis of the curvature of said inner bracket walls, a latch mechanism at each side of the hood having a curved hook for releasable engagement with the respective keeper whereby when one latch mechanism is engaged with its keeper and the other disengaged the hood may be swung about the engaged keeper as a hinge, an operating handle for each latch on the outside of the hood, and an operative connection between each handle and the adjacent latch mechanism whereby downward movement of the handle as in hood closing movement swings the hook to keeper embracing position and upward movement of the handle swings the hook away from keeper engaging position.

6. Latch mechanism for motor car hoods, comprising a sheet metal housing, a pair of spring-tensioned toggle arms within said housing, each toggle arm comprising a sheet metal stamping U-shaped in cross section, one arm fitting within the other arm, a pin constituting a pivotal connection between said arms, a pivotal mounting for the outer end portion of one toggle arm, a bell crank handle arm projecting laterally from the inner end portion of said last arm, said handle carrying toggle arm being provided with elongate slot means to receive said pin, a spring device interposed between said pin and the pivotal mounting for the outer end of the handle carrying toggle arm, a laterally extending hook on the outer end of the other toggle arm, a pivotal mounting for said other toggle arm spaced inwardly and laterally from the hook, and an actuating projection on said other toggle arm adjacent said hook and on the opposite side of the pivotal mounting thereof, said projection being adapted to be engaged by a keeper in closing the hood to impart movement to the respective arm for rocking the hook into keeper engagement.

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