June 14, 1932. D. P. HYNES 1,863,340

HOOD LATCH

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Fig. 1.

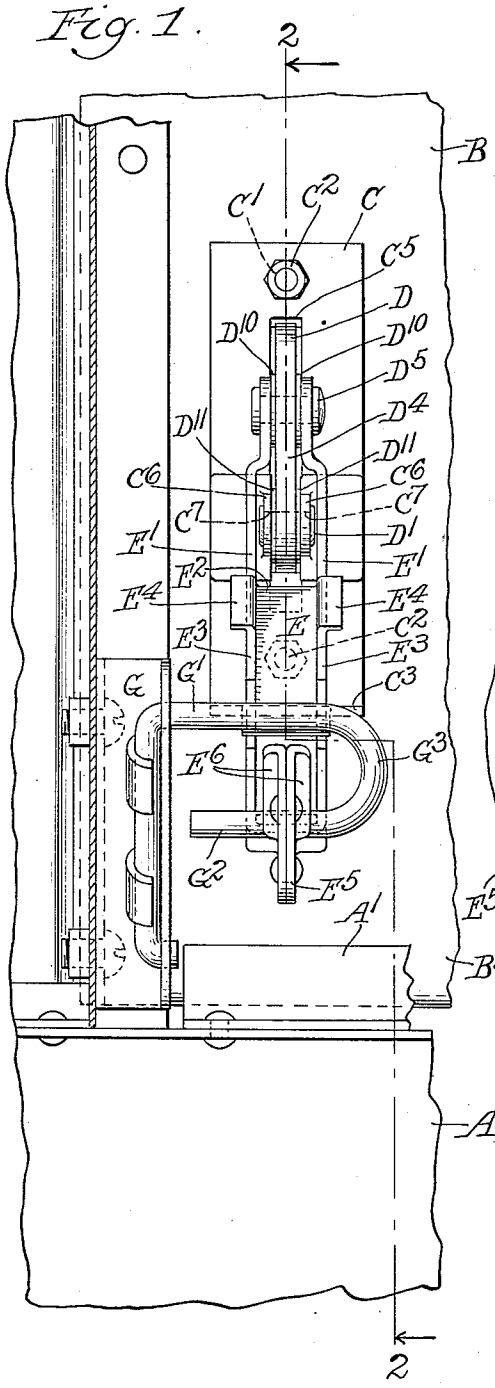
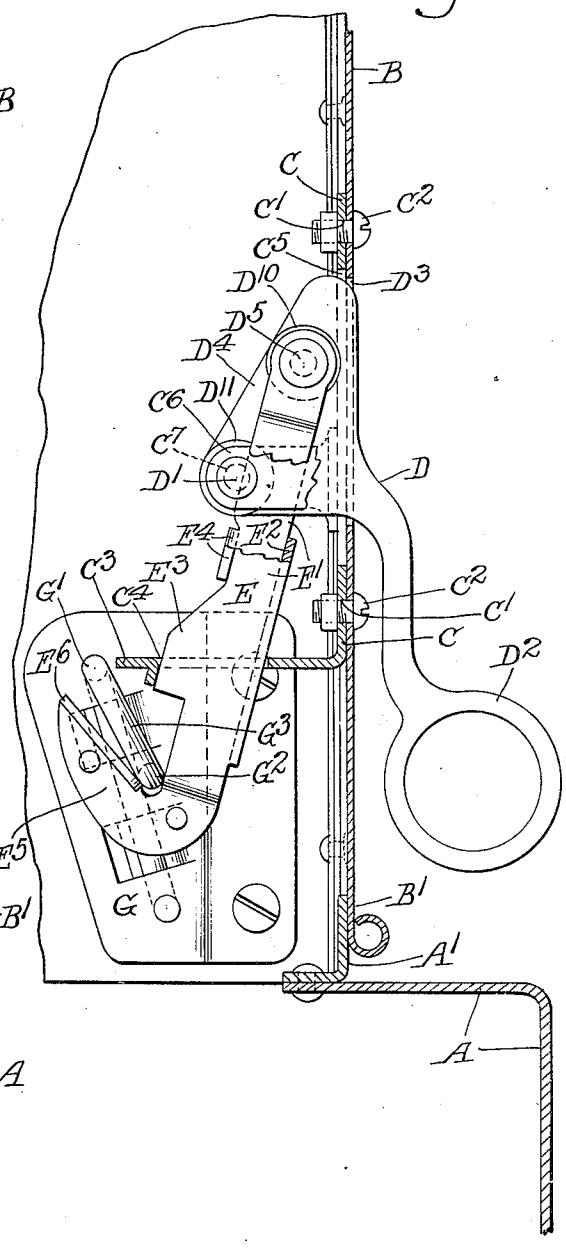


Fig. 2.



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Fig. 4.

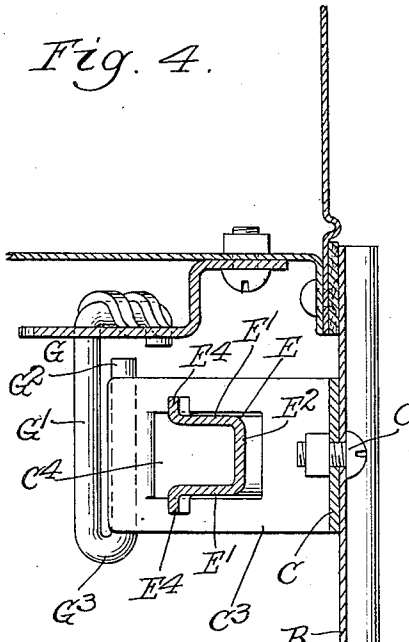
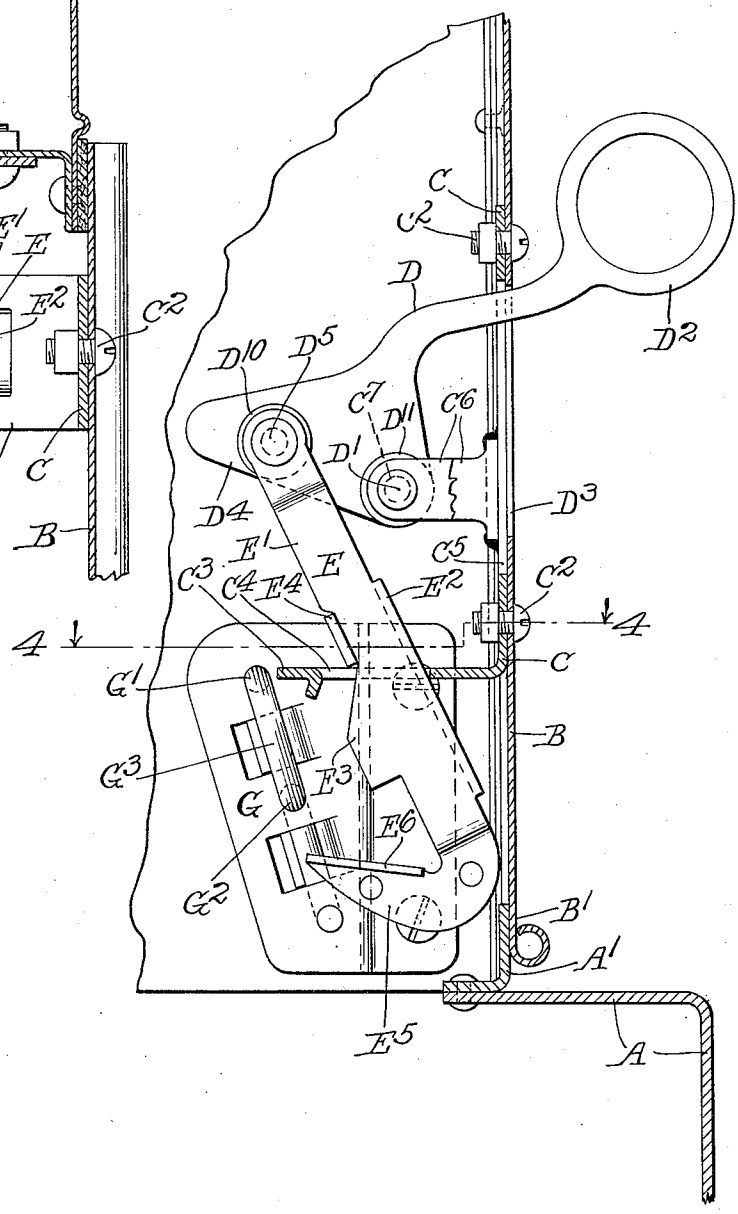


Fig. 3.



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UNITED STATES PATENT OFFICE

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HOOD LATCH

Application filed September 8, 1930. Serial No. 480,355.

My invention relates to a latch or closing means. One application thereof is as a hood latch for an automobile hood closure. One object is the provision of such a latch or closure which shall be efficient and positive in its action and which shall be easily actuated. Another object is the provision of a latch or locking device which shall yieldingly draw a lower edge of a hood closure downwardly and inwardly toward a limiting abutment. Another object is the provision of a closure which includes an interior locking device and an exterior control member adapted also to lift the closure to which the locking device is applied. Other objects 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

Figure 1 is an inside view illustrating the device in locking position;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a similar section showing the parts in unlocked position; and

Figure 4 is a section on the line 4—4 of Figure 3.

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

Referring to the drawings, A generally indicates a frame of an automobile which is provided with an upwardly extending abutment A^1. B indicates a side of an automobile hood closure, the lower edge B^1 of which is adapted to be opposed exteriorly to the abutment A^1. Mounted on the inner face of the hood closure B is the lock assembly plate or support generally indicated as C. It may have the apertures C^1 whereby it may be riveted, or bolted as at C^2, to the inner face of the hood. It includes also, at its lower end, an inwardly projecting flange C^3 provided with an aperture C^4. Its upper portion is apertured, as at C^5, and adjacent said aperture are the flanges C^6 apertured in alignment, as at C^7.

Rotatably mounted upon the flanges C^6 is the lever generally indicated as D. It may be mounted upon a pivot pin D^1 passing through the apertures C^7. It includes an exteriorly extending lever arm, or handle portion D^2 which passes outwardly through the aperture C^5 and through a corresponding or aligning aperture D^3 in the hood itself. D^4 indicates an inner lever arm, the two arms forming in effect a bell crank lever. Pivoted to the outer end of the lever D^4, as upon the pin or pins D^5, is the latch bolt assembly generally indicated as E. It may include the two side pieces E^1 connected at their edge, as at E^2. E^3 indicate guide members or cams associated with, and herein shown as formed integrally with the side pieces E^1. E^4 are stop lugs laterally extending from the side members E, adapted to limit the downward movement of the hook assembly, when the device is in the position shown in Figure 3. The bottoms of the side members are brought together to form a hook E^5, which includes the relatively extended and inclined surface E^6. The aperture C^4 is preferably about the same width as the latch assembly, but of somewhat greater length. When the parts are in the position in which they are shown in Figure 2, namely in locking position, the guides E^3 engage one end of the aperture and the latch engages, or is crossed to the other thereby obviating all annoying rattle between the latch and guide parts. But when the hook is in unlocked position, the guide E^3 lies at a level below that of the flange C^3, and the latch assembly may move along the length of the aperture, being stopped in its downward movement by the lugs E^4.

G generally indicates a locking abutment positioned within the hood. I have herein shown it as a yielding member such as a strand of heavy resilient wire including an upper portion G^1 and a lower, or hook engaging portion G^2, the two being connected by the bend G^3. The result is a locking abutment which is in effect a spring, and which provides a yielding connection between the hook E^5 and the automobile body. The resilient member, as shown in Figs. 1 and 3, may be secured to the bracket G by a plurality of integral tongues struck out of the body of the bracket and clamped into firm

engagement with one end of the resilient member.

It will be realized that whereas I have described and shown a practical and operative device, that 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 with my description and drawings to be taken as in a broad sense illustrative or diagrammatic.

The use and operation of my invention are are follows:

In locking automobile hoods, I find it desirable to provide a hood latch which is positive in its action and which tends to draw a lower edge of the hood closure downwardly and inwardly. I find it also desirable to associate with a concealed or inside hood latch an exterior handle or control member which serves to lift the hood after the latch has been released.

It will be seen from a consideration of Figures 2 and 3 that when the hook E^6 is in locking position, the handle D^2 is at the lower extremity of its rotation. The downward movement of the handle D^2 lifts the latch E and moves the hook E^5 outwardly and upwardly to engage and spring the bar or pin G^2. The inclination of the axis or line along which this thrust is directed and the inclination of the hook E^6, tends to draw the lower edge of the hood inwardly against the abutment A^1, as well as downwardly toward the frame A.

When the operator wishes to release the latch and to lift the hood, he merely rotates the lever D^2 into the position in which it is shown in Figure 3. He thereby moves the upper end of the bolt assembly E outwardly and moves its lower end inwardly.

When the lever D^2 is in the position in which it is shown in Figure 3, the hook E^5 is also out of vertical alignment with the member G^2. The operator may then merely continue his lifting movement, and the hood may easily be lifted.

In reference to Figures 2 and 3 and the aperture C^4, I prefer to employ frictional washers D^{10} D^{11} in association with the pivots D^5 and D^1 respectively. Taking the parts in the position in which they are shown in Figure 3, a downward movement of the handle D^2 not only lifts the inner arm D^4 of the lever, but also thrusts the latch assembly forwardly toward the inner end of the aperture C^4. This positively thrusts the hook E^6 beneath the locking abutment G^2, as shown in Figure 2, and further downward movement of the handle D^2 draws the hook upwardly into its locking engagement with the hook. On the other hand, in unlatching the device, when the handle D^2 is raised the frictional washers D^{10} will cause the latch assembly to move first downwardly, and then toward the opposite end of the aperture C^4. Thereby the latch member is first lowered, and then moved laterally away from the abutment or keeper G^2, and a direct upward movement of the hood may be made without interference between latch and abutment. The frictional members D^{11} serve to reduce the probability of unintended movement of the handle D^2. The friction is sufficient to prevent unintended movement but insufficient to hamper intended manual movement of the handle.

Referring to the action of the latch in relation to the keeper, when the hook E^6 is moved from the position in which it is shown in Figure 3 to the position in which it is shown in Figure 2, the initial result of the downward movement of the handle D^2 is to move the hook E^6 laterally until it is beneath and in vertical alignment with the keeper. The frictional washers D^{10} have this effect, since a downward movement of the handle D^2 will throw the hook E^6 forwardly toward the keeper. The aperture C^4 is of sufficient length to permit this free lateral movement of the latch. A continued movement of the handle D^2 locks the hook upwardly against the keeper G^2. In unlocking the latch the first upward movement of the handle D^2 causes a downward movement of the hook E^6, and this downward movement takes place before there is any substantial lateral movement of the hook. As the upward movement of the handle D^2 continues, the hook is moved laterally into the position in which it is shown in Figure 3. The member E^3 serves to guide the upward movement of the latch through the aperture C^4 at the lower portion of the downward stroke or movement of the handle D^2.

I claim:

1. In a hood fastener or the like, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch bolt carried by the hood door and mounted therewithin to swing with and independently of the door toward and away from the keeper, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and to limit its movement toward and away from the door, a lever mounted upon the door and extending on each side thereof, a pivotal connection between the inner arm of said lever and the latch bolt, the outer arm of the lever being adapted to serve as a handle, the latch bolt being mounted for longitudinal and lateral movement in relation to the guiding means, said latch including two side members, the side members being pivoted to the inner arm of the lever, and being connected at their lower ends to form a keeper engaging hook.

2. In a hood fastener or the like, the combination with a hinged door member to be latched, of a keeper yieldingly mounted within the hood, a latch bolt carried by the hood door and mounted therewithin to swing with

and independently of the door toward and away from the keeper, a guiding loop on the interior of the door, adapted to guide the movement of the latch bolt, and to permit a limited lateral swinging movement toward and away from the door, a lever mounted upon the door and extending on each side thereof, an actuating connection between the inner arm of said lever and the latch bolt, the outer arm of the lever being adapted to serve as a handle, the latch bolt being mounted for longitudinal and lateral movement in relation to the guiding means.

3. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch bolt carried by the hood door and mounted therewithin to swing with and independently of the door toward and away from the keeper, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and to limit its movement toward and away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, said latch bolt including side elements pivoted to the lever, the lower portions of said side elements being connected at their lower ends to form a keeper engaging hook.

4. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch bolt carried by the hood door and mounted therewithin to swing with and independently of the door toward and away from the keeper, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and to limit its movement toward and away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, and means for limiting the downward movement of the latch bolt in relation to the guiding means.

5. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch bolt carried by the hood door and mounted therewithin to swing with and independently of the door toward and away from the keeper, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and to limit its movement toward and away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, and additional guiding means, associated with the latch bolt, adapted to cause the latch bolt to swing outwardly toward the inner face of the door member in response to upward movement of the latch bolt in relation to the first-mentioned guiding means.

6. In a hood fastener, a latch adapted for mounting upon a hood door to swing with and independently of the door toward the door, and including a latch bolt mounted for swinging movement away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and latch bolt and guiding means positioned below said handle and lever and in operative relation with the latch bolt, said guiding means defining the limits of swinging movement of the latch bolt toward and away from the inner face of the door and in relation to the keeper.

7. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch carried by the hood door and mounted therewithin to swing with the door, and including a latch bolt mounted for swinging movement independently of the door toward and away from the door, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and including means to limit its movement toward and away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, said latch bolt having its transverse dimension increased intermediate its ends and at a point in coincidence with said guide means, when in a latched position, to define an enlarged portion dimensioned to simultaneously engage the forward and rearward latch-limiting means of the guide when the latch bolt is in latched position, and additional guiding means associated with the latch, adapted to cause the latch bolt to swing outwardly toward the inner face of the door member in response to upward movement of the latch bolt in relation to the first-mentioned guiding means.

8. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch carried by the hood door and mounted therewithin to swing with the door, and including a latch bolt mounted for swinging movement independently of the door toward and away from the door, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and including means to limit its movement toward and away from the

door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, and additional guiding means including a cam surface associated with the latch bolt, adapted to cause the latch bolt to swing outwardly toward the inner face of the door member in response to upward movement of the latch bolt in relation to the first-mentioned guiding means, said cam surface terminating in an enlarged portion of the latch bolt defined by increasing the transverse dimension of the latch bolt intermediate its ends and at a point in coincidence with the guide means when the latch is in latched position, said enlarged portion being dimensioned to simultaneously engage the forward and rearward latch-limiting means of the guide when the latch is in latched position.

9. In a hood fastener, the combination with a hinged door member to be latched, of a keeper mounted within the hood, a latch carried by the hood door and mounted therewithin to swing with the door and including a latch bolt mounted for swinging movement independently of the door toward and away from the door, guiding means on the interior of the door, adapted to guide the movement of the latch bolt, and including means to limit its movement toward and away from the door, a handle structure positioned upon the door and including a lever extending inwardly from the door, a pivotal connection between said lever and the latch bolt, the latch bolt being mounted for longitudinal and lateral free swinging movement in relation to the guiding means, said latch bolt having its transverse dimension increased intermediate its ends and at a point in coincidence with said guide means, when in a latched position, to define an enlarged portion dimensioned to simultaneously engage the forward and rearward latch-limiting means of the guide when the latch is in latched position.

Signed at Chicago county of Cook and State of Illinois, this 6th day of August, 1930.

DIBRELL P. HYNES.