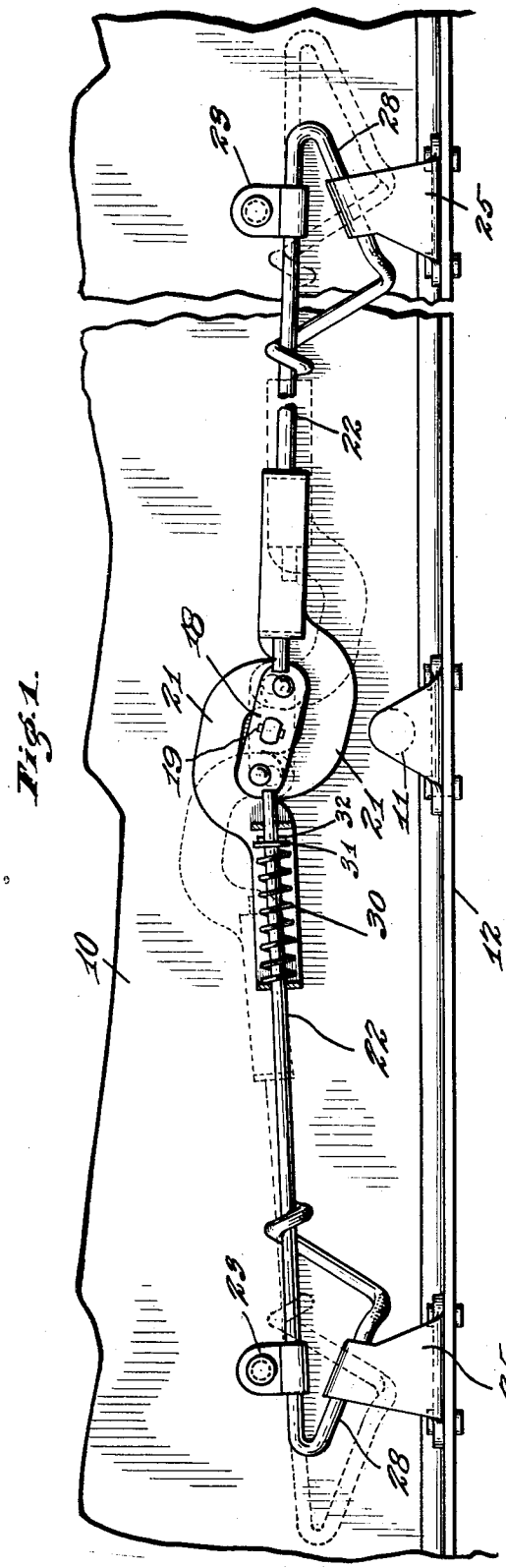
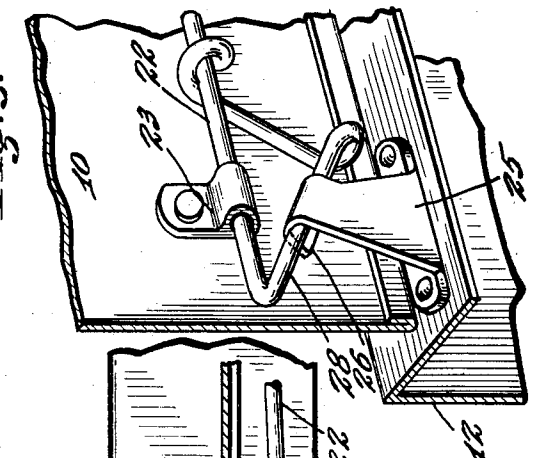
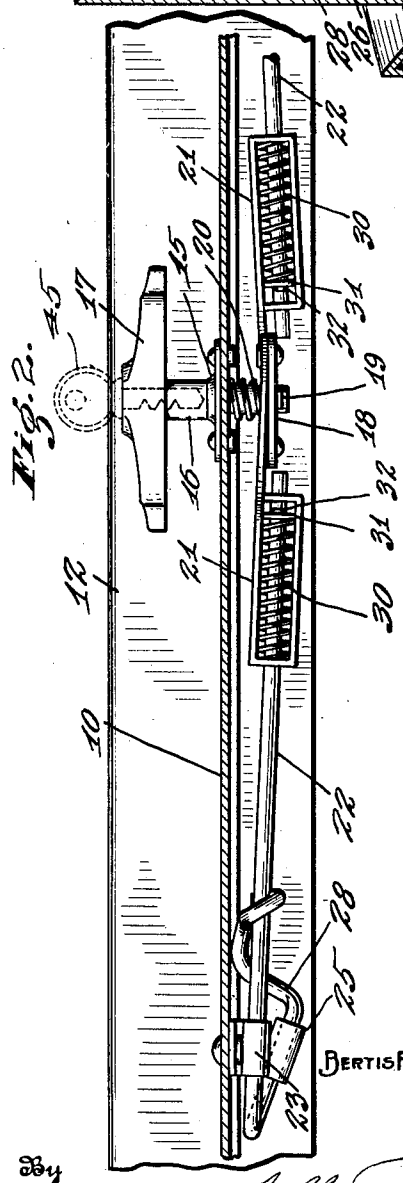
Oct. 3, 1933. B. F. HAMILTON 1,929,371

HOOD LATCH

Filed June 28, 1930 2 Sheets-Sheet 1







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HOOD LATCH

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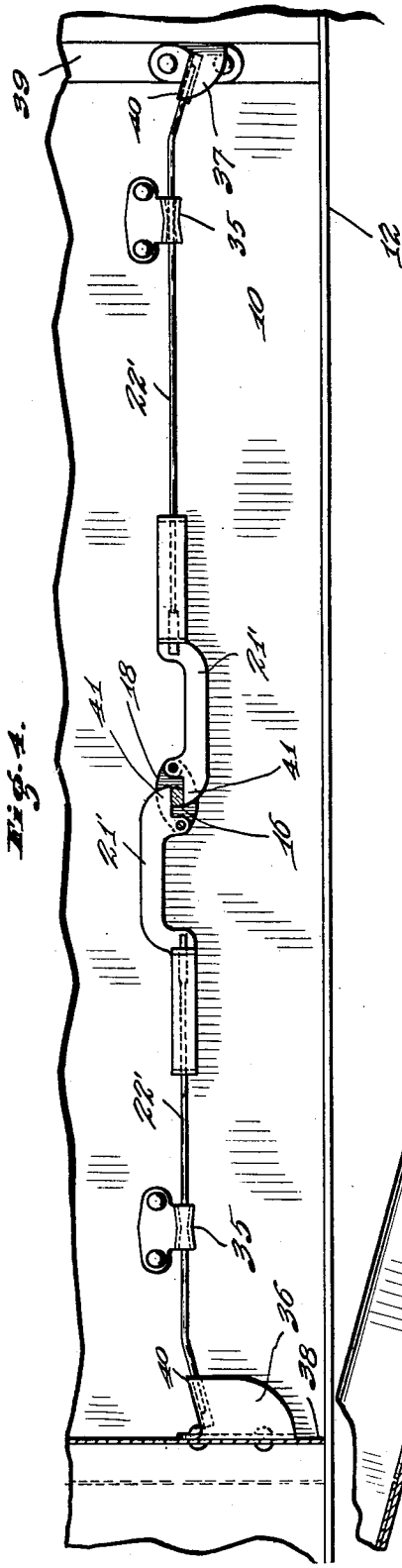


Fig. 4.

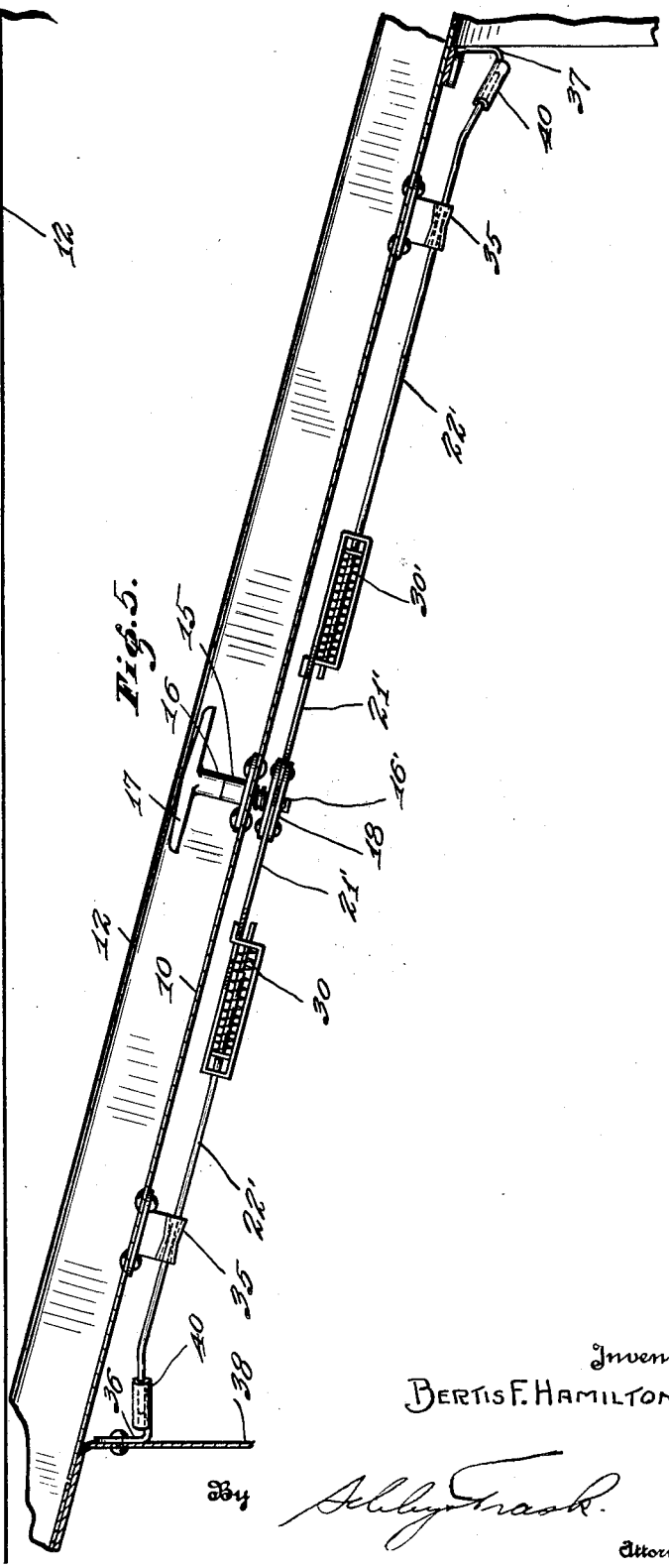


Fig. 5.

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HOOD LATCH

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Application June 28, 1930. Serial No. 464,503

4 Claims. (Cl. 292—7)

It is the object of my invention to produce a simple and effective hood-latch for holding in closed position the hood of an automobile. More specifically, it is my object to produce such a latching mechanism in which a pair of latches spaced along the side of the hood and located within the hood will be operated by a single control member operable from without the hood when the hood is closed. Other objects of my invention are to produce a hood latching mechanism which may be constructed at low cost and which will not get out of order or become broken in use.

To an extent, the present invention resembles that illustrated and described in my co-pending application Serial No. 451,614, filed May 12, 1930, the chief difference between the mechanisms illustrated and the two applications residing in the construction of the latches, the latch-control mechanism being substantially the same in both this application and in my earlier one. In my prior application, the latch-parts mounted on the hood-side were adapted to be swung in a plane perpendicular to the hood into and out of engagement with stationary latch-parts mounted on the automobile frame. In the present application the latch-parts carried by the hood are moved into and out of engagement by movement in a plane parallel to the hood, with the latch-parts mounted on or supported from the frame.

The accompanying drawings illustrate my invention: Fig. 1 is an elevation of my latching mechanism as seen from within the hood; Fig. 2 is a horizontal section through the hood-side above the latching mechanism, showing the latching mechanism in plan; Fig. 3 is a fragmental perspective view illustrating details of construction of one of the latches; and Figs. 4 and 5 are views respectively similar to Figs. 1 and 2, but illustrating a modified form of construction.

In all figures of the drawings, the hood is shown in closed position with the hood-side 10 in contact with a stop 11 supported from the frame 12 of the auttomobile. The precise construction of the hood and its associated stops is immaterial to my invention, the arrangement shown in the drawings being merely illustrative.

In carrying out my invention, I mounted on the hood-side 10 a bearing 15 in which there is rotatably supported an operating member 16 which extends through the hood-side and at its outer end is provided with an operating handle 17 by means of which it may be rotated. The handle 17 may also be used to raise the hood after the latches have been released.

On the inner end of the operating member 16 is mounted a cross bar 18 which is arranged to rotate with the operating member. As in my co-pending application above referred to, the inner end of the operating member 16 is conveniently flattened on opposite sides, the cross bar 18 being provided with an elongated hole for receiving the flattened end of the operating member. A pin 19 may be employed to hold the cross bar 18 in place on the operating member, and a compression spring 20 acting between the cross bar 18 and the hood-side 10 may be employed to take up lost motion and to prevent vibration and noise.

Pivotally attached to each end of the cross bar 18, I provide a member 21 in which a rod 22 is mounted for longitudinal sliding movement. The outer ends of the rods 22 may be supported in guides 23 which are pivotally secured to the hood-side 10 in order to provide the slight swinging movement which is necessary to permit the angular displacement of the rods 22 that accompanies rotation of the operating member 16 and cross bar 18.

Adjacent the guides 23, there are supported from the frame 12 of the automobile two brackets 25 the upper ends of which are bent over toward the hood-side to provide lips 26, best shown in Fig. 3.

The rods 22 are provided with means for engaging the lips 26, such means conveniently being provided by the material of the rod itself which, beyond the associated guide 23, is bent to provide a downwardly extending inclined arm 28. Desirably, the rod is again bent at the lower end of the arm 28 and extends upwardly and is affixed to the body portion of the rod 22 in order to provide rigid support for the lower end of the inclined arm 28. Desirably, the arm 28 of the rod is inclined away from the hood-side 10 as well as downwardly, and the lip 26 is shaped to fit the arm.

Between each of the rods 22 and its associated member 21, there acts a compression spring 30 tending to force the rod 22 toward the operating member 16. Relative movement of the rod 22 and its associated member 21 under the influence of the spring 30 is conveniently limited by means of co-operating abutments 31 and 32 on the member and rod.

The dotted lines in Fig. 1 indicate the position occupied by the latching mechanism when the latch is released. The inclined arms 28 are dis-

posed outwardly beyond the lips 26, so that the lips do not interfere with opening movement of the hood-side 10. To latch the mechanism, the operating handle 17 is rotated to cause clockwise rotation of the cross bar 18; and, as will be apparent, this rotation of the cross bar causes the rods 22 to be drawn inwardly until the arms 28 engage the underside of the lips 26. After this engagement is effected, continued rotation of the cross bar 18 stresses the springs 30; so that if one of the arms 28 engages its associated bracket-lip 26 before the other, the continued rotation of the operating member 16 necessary to effect engagement of the other arm 28 and lip 26 will not be prevented.

Clockwise rotation of the cross-bar 18 is conveniently limited by shaping the members 21 in such a manner that the end of the one of them will engage the side of the other. The parts are so disposed that the pivotal connection between each of the members 21 and the cross bar 18 crosses its dead-center position before the limit of clockwise rotation of the cross bar 18 is reached. As a result, when the cross bar 18 is at the clockwise limit of its rotation, or in the full-line position illustrated in Fig. 1, the springs 30, which have been stressed during the last portion of the rotation of the cross bar, tend to retain the cross bar at the limit of its clockwise rotation, with the end of one of the members 21 engaging the side of the other.

When the mechanism is latched, the two arms 28 are held firmly in contact with their associated bracket-lips 26 by means of the force exerted on the rods 22 through the action of the springs 30. Because of the downward inclination of the arms 28 in the direction in which the spring 30 acts, the hood-side 10 is drawn downwardly, and because of the outward inclination of the portions 28 in the same direction, the hood-side is held firmly in contact with the stop 11.

To release the latch, it is only necessary to operate the handle 17 to cause counter-clockwise rotation of the cross bar 18 from the full-line position shown in Fig. 1. Until the pivotal connections between the cross bar and the members 21 cross their respective dead-center positions, no outward movement of the rods 22 takes place; but after the dead-center position is crossed, continued rotation of the cross bar 18 in the counter-clockwise direction moves the rods 22 outwardly, and eventually they will reach the dotted-line position illustrated in Fig. 1, in which position the arms 28 are disposed outwardly beyond the bracket-lips 26. Thereafter, the hood may be raised.

In the modification of my invention illustrated in Figs. 4 and 5, the operating member 16, handle 17, and cross bar 18 are substantially the same as those used in the construction illustrated in Figs. 1, 2, and 3. Pivotally attached to the cross bar 18 at diametrically opposite points are members 21′ which slidably receive rods 22′. The outward ends of the rods 22′ are supported by guides 35 which are similar in purpose to although different in construction from the guides 23 illustrated in Figs. 1, 2, and 3. That is, the guides 35 are rigidly secured to the hood-side 10, and each of them is bell-mouthed at opposite ends in order to permit the angular movement of the associated rod 22′ which occurs as a result of the rotation of the cross bar 18.

For the purpose of co-operating with the ends of the rods 22′ to hold the hood in closed position, I provide brackets 36 and 37 supported from the automobile frame as by being mounted respectively upon the dash-board 38 of the automobile and upon the shell 39 of the radiator. Each of the brackets 36 and 37 is provided with a lip 40 which is adapted to engage the outer end of the adjacent rod 22′.

In the structure illustrated in Figs. 4 and 5 the latching of the hood is effected by outward movement of the rods 22′ instead of by inward movement as in the construction shown in Figs. 1, 2, and 3. The free ends of the rods 22′, therefore, are bent to extend downwardly and outwardly away from the hood-size 10 and the ears 40 are similarly inclined, in order that the latching movement of the rods 22′ may serve to draw the hood both downwardly and inwardly.

Springs 30′, similar to the springs 30 illustrated in Figs. 1, 2, and 3, operate between the members 21′ and the rods 22′; but the springs 30′ tend to force their associated rods 22′ outwardly away from the operating member 16 instead of inwardly as do the springs 30. The ends of the members 21′ are provided with extending fingers 41 either or both of which may engage the operating member 16 to limit rotation of the operating member in a counter-clockwise direction (Fig. 4).

When the device illustrated in Figs. 4 and 5 is latched, the parts occupy the positions shown in those figures. That is, the springs 30′ are compressed and therefore tend to force the rods 22′ outwardly into firm engagement with the ears 40, thus serving to hold the hood in closed position. When the device is latched, the force exerted on the members 21′ by the springs 30′ tends to rotate the operating member 16 and cross bar 18 in a counter-clockwise direction (Fig. 4), but such rotation is prevented by reason of the engagement of the fingers 41 with the operating member 16. To release the latch, the handle 17 is operated to cause clockwise rotation of the cross bar 18, and this rotation serves to withdraw the ends of the rods 22′ from engagement with the ears 40 to permit the hood to be raised.

In latching the device, the handle 17 is rotated in a counter-clockwise direction. This rotation forces the rods 22′ outwardly into engagement with the lips 40 on the brackets 36 and 37. Should either rod 22′ engage its associated bracket before the rod does, the spring 30′ yields and permits rotation of the operating member 16 to be continued until such other rod 22′ engages its associated bracket ear. Continued rotation of the operating member 16 stresses both springs 30′ until the points of pivotal connection between the cross bar 18 and the respective members 21′ cross their dead-center position and reach the position illustrated in Fig. 4 where, as pointed out above, the springs 30′ operate to hold the device in latched position.

As I have indicated in Figs. 4 and 5, the inner ends of the rods 22′ are desirably flattened or otherwise made of non-circular cross-section and are received in similarly shaped guides on the members 21′. This prevents the rods 22′ from turning about their respective axes and insures that their outer ends will properly engage the ears 40. This feature may be incorporated in the device of Figs. 1, 2, and 3; but it is not so necessary in that device because the weight of the eyes at the outer ends of the rods 22 tends to maintain them in proper position.

If desired, I may incorporate in either illustrated modification of my invention a lock, as indicated in dotted lines in Fig. 2. The lock may conveniently be of the type employed in the

handles of automobile doors, being associated with the operating member 16 and controllable by the key 45.

I claim as my invention:

1. A latching device for an automobile hood, comprising an operating member rotatably supported in the hood-side and extending therethrough, two brackets supported from the automobile frame in spaced relation within the hood, a guide mounted on the hood-side adjacent each bracket, two rods respectively slidable in said guides, each of said rods beyond its associated guide being bent back upon itself to provide a bracket-engaging arm which is inclined downwardly and away from the hood-side, members in which said rods are respectively slidably received, said members being pivotally attached at eccentric points to said operating member, a spring acting between each of said rod-receiving members and its associated rod and tending to force such rod toward said operating member, the parts being arranged so that the points of pivotal attachment of said rod-receiving members and said operating member cross their dead-center positions when the operating member is rotated in a direction to move the rods into latched position, and means for limiting movement of the operating member in such direction.

2. A latching device for an automobile hood, comprising an operating member rotatably supported in the hood-side and extending therethrough, two brackets supported from the automobile frame in spaced relation within the hood, a guide mounted on the hood-side adjacent each bracket, two rods respectively slidable in said guides, each of said rods beyond its associated guide being bent back upon itself to provide a bracket-engaging arm which is inclined downwardly and away from the hood-side, members in which said rods are respectively slidably received, said members being pivotally attached at eccentric points to said operating member, and a spring acting between each of said rod-receiving members and its associated rod and tending to force such rod toward said operating member.

3. A latch for an automobile hood, comprising a rod movably supported from the hood-side and slidable longitudinally thereof, a bracket supported from the automobile frame in position to be engaged by said rod, the bracket-engaging portion of said rod being bent laterally to incline downwardly and away from the hood in the direction in which the latch member is moved to engage the bracket.

4. A latching device for an automobile hood, comprising two brackets supported from the automobile frame in spaced relation within the hood, two rods mounted for generally longitudinal sliding movement within said hood into and out of engagement with said brackets, an operating member rotatably supported in the hood-side between said brackets, members in which said rods are respectively slidably received, said members being pivotally attached at eccentric points to said operating member, a spring acting between each of said rod-receiving members and its associated rod and tending to force such rod toward engagement with its associated bracket, the parts being arranged so that the points of pivotal attachment of said rod-receiving members and said operating member cross their dead-center positions when the operating member is rotated in a direction to move the rods into latched position, and means for limiting movement of the operating member in such direction.

BERTIS F. HAMILTON.