June 11, 1940. A. E. PETERSON 2,203,876

HOOD LATCH

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Fig. 1

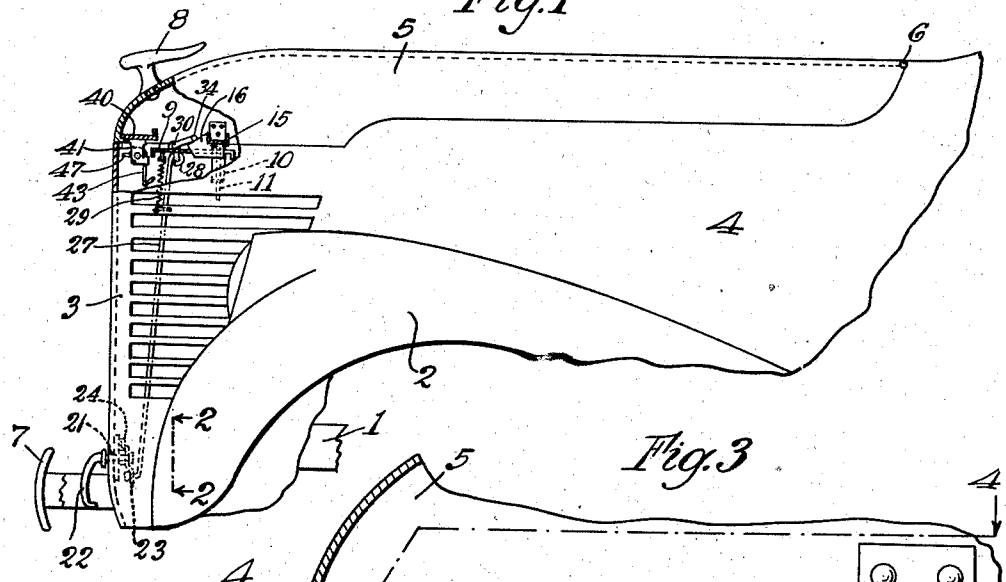


Fig. 3

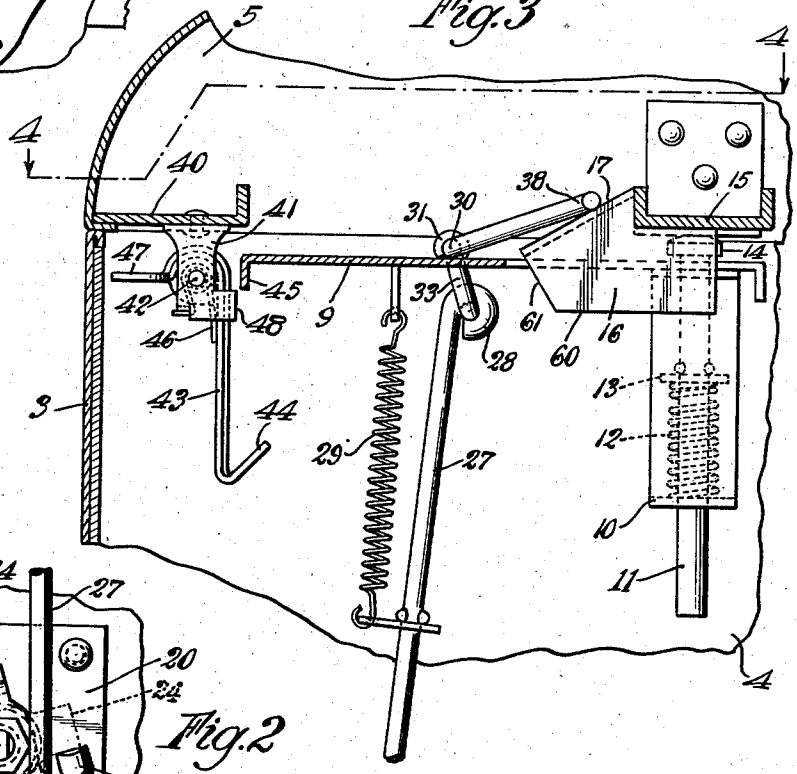
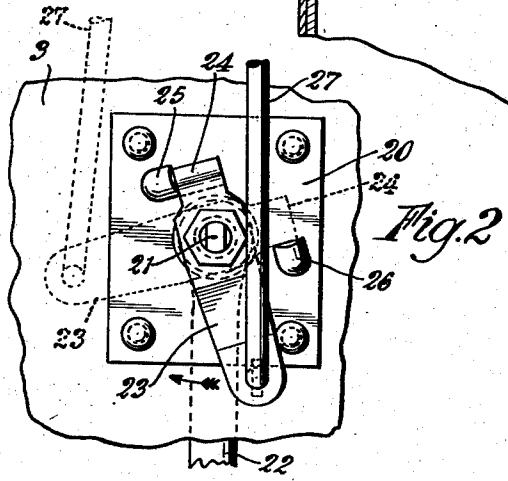


Fig. 2



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Fig. 4

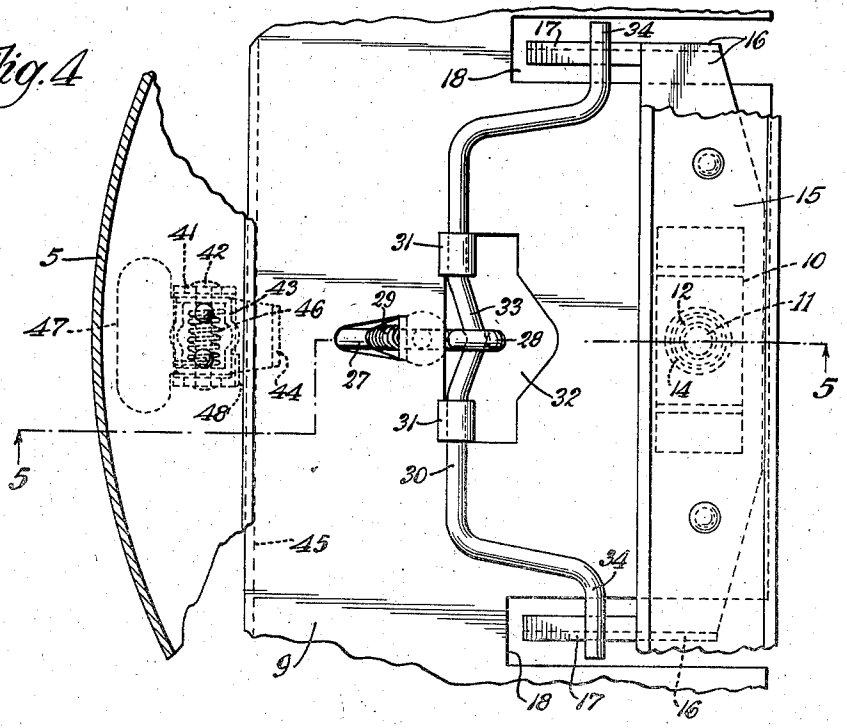
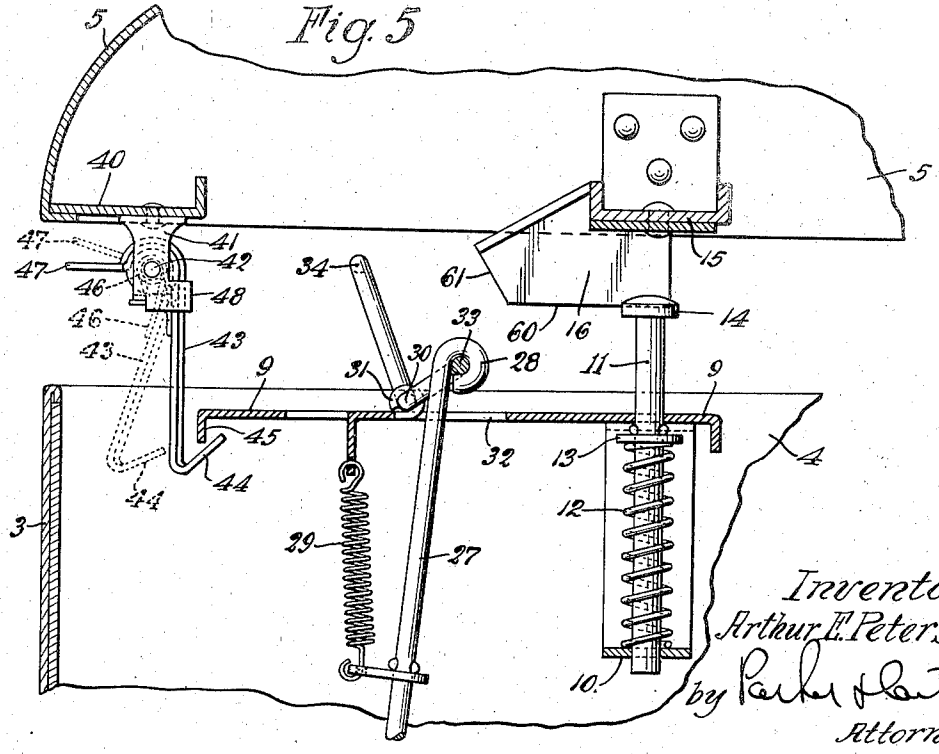


Fig. 5



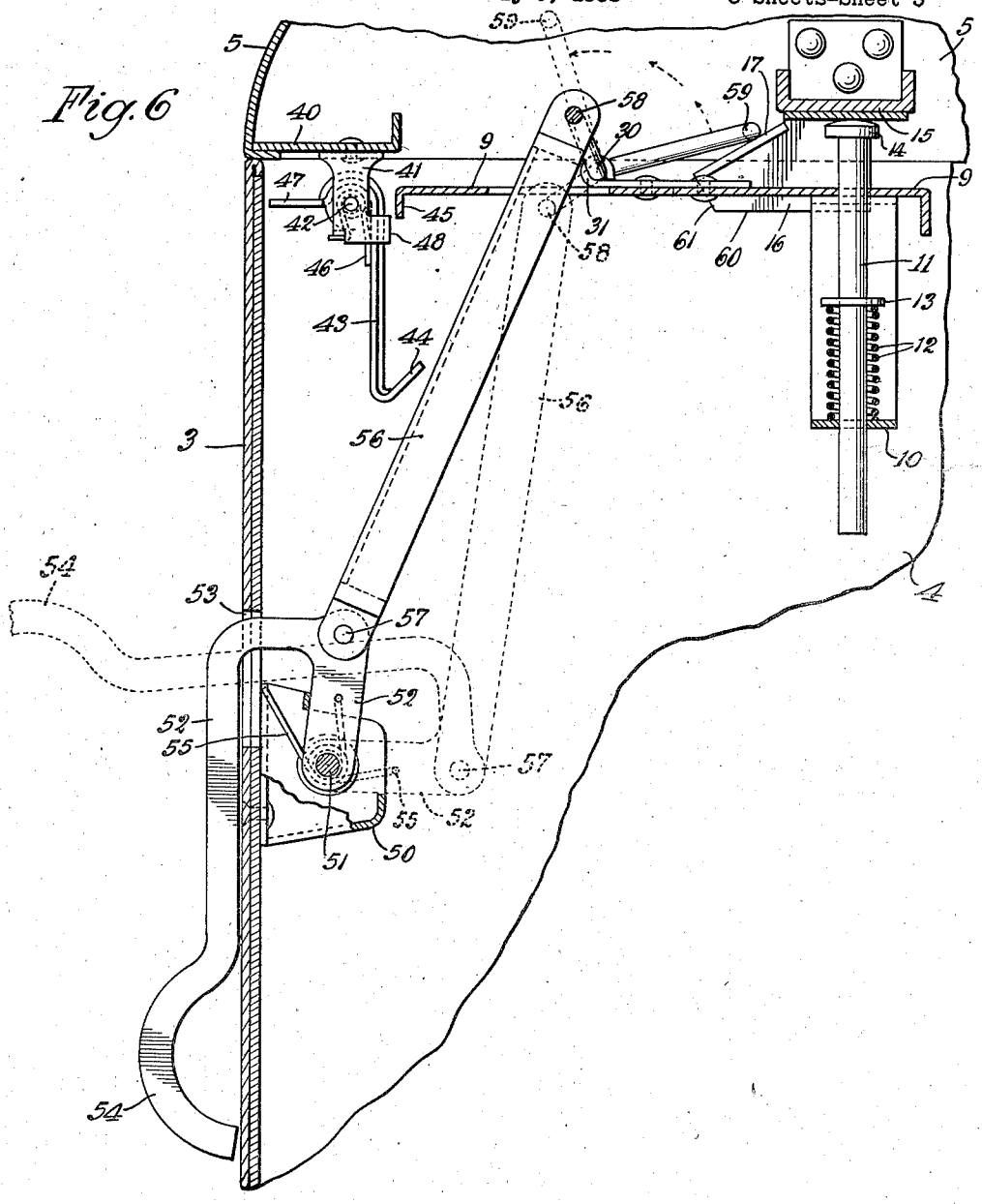
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HOOD LATCH

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Fig. 6



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Patented June 11, 1940

2,203,876

UNITED STATES PATENT OFFICE

2,203,876

HOOD LATCH

Arthur E. Peterson, Chicago, Ill., assignor to Chicago Forging & Manufacturing Co., Chicago, Ill., a corporation of Illinois

Application July 9, 1938, Serial No. 218,375

3 Claims. (Cl. 292—11)

My invention relates to hood latches for automotive vehicles and the like, and has for one object to provide a new and improved form of hood latch wherein automatic auxiliary means are provided in cooperation with the manually controlled means for preventing or limiting the opening of the vehicle hood.

Another object of my invention is to provide auxiliary locking means which prevent limited opening of the vehicle hood and to provide for such auxiliary means a manually disengagement means accessible to the operator only after a partial opening of the hood.

Other objects of the invention will appear from time to time in the specification.

My invention is especially adapted for use in connection with that type of vehicle hood which is hinged at a point back of the front end of the vehicle, the hinged axis being generally transverse to the vehicle axis, and wherein the hood latch and the means for manipulating are located at the front of the vehicle.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 is a side elevation in part section of the hood latch and associated parts.

Figure 2 is an elevation of part of the latch control mechanism looking in the direction of the arrows on Figure 1.

Figure 3 is a section similar to Figure 1 on an enlarged scale.

Figure 4 is a detail part section along the line 4—4 of Figure 3.

Figure 5 is a section along the line 5—5 of Figure 4 with parts in different position.

Figure 6 is a section somewhat similar to section 3 showing a modified form.

Like parts are indicated by like characters in the drawings. Referring to the drawings, 1 is an automobile frame. 2 is a fender. 3 is the grill enclosing the front of the engine. 4 is the side panel of the engine housing, which may form a rearward extension of the grill. 5 is the hood pivoted at 6 at its rear end on a hinge extending transversely of the vehicle and supported on the side panels 4. 7 is the vehicle bumper. 8 is an ornamental handle on the hood. 9 is a latch supporting frame or plate extending across between the side panels 4 and the grill 3. This frame is fixed in position, and terminates short of the front of the grill. Depending downwardly from the frame 9 is a stirrup 10. 11 is a hood lifting plunger, slidable in the stirrup and the frame 9. 12 is a hood lifting spring encircling the plunger 11 and abutting at one end on the stirrup 10, at the other end on a washer 13 rigidly mounted on the plunger. 14 is the head of the plunger 11 and is adapted to engage a plate 15 which extends across the underside of the hood 5 and supports at either end latch abutments 16, having inclined latch members 17. These abutments are adapted to penetrate apertures 18 at either end of the frame 9.

20 is a handle supporting bracket mounted on the rear side of the grill 3. Pivoted in it, is a latch handle rockshaft 21, which carries on its outer end a latch handle 22 masked by the bumper 7. Rigidly mounted on the rear end of the rockshaft 21 is a latch lever 23, having an extension lug 24, its movement being limited between the stops 25 and 26 on the bracket 20. 27 is a connecting rod pivoted at one end on the lever 23 and terminating in an eyelet 28. 29 is a tension spring anchored at one end on the frame 9 and at the other end on the connecting rod 27. 30 is the latch crank mounted for rotation in bearing 31 on each side of an aperture 32 in the frame 9. The central offset portion 33 of the crank 30 is engaged by the eyelet 28. The two outer ends of the crank 30 terminate in latch arms 34, which are adapted, when the hood is in the closed position, to engage the latch members 17 to lock the hood in closed position. This is shown in Figures 2 and 3 where the parts are shown in locked position. In this position a line joining the points of a connection of the rod 27 with the crank 23 and the crank 33 is to the right of the center of rotation of the rockshaft 21 so that the tension on the rod 27 holds the parts in stable locked position with the lug 24 against the stop 25.

When the lever 23 and connecting rod 27 are in the position shown in dotted lines in Figure 2, the rod 27 is held up by the spring 29 and the latch crank 30 is yieldingly held in the unlocked position shown in Figure 5. The spring 29 thus tends to always hold the latch crank in the full unlocked position except when the latch is fully locked.

The purpose of the spring 12 and plunger 11 is to raise the hood slightly when it is unlocked so as to permit the operator to put his hand beneath the hood to raise it into a full open position.

Advantage is taken of the fact that the operator must use his hand to raise the hood to provide means for controlling the automatic hood latch.

40 is a supporting plate on the under side of the hood extending across the front thereof and immediately behind that part of the hood which

overlies the grill 3. Depending downward from this plate is a bracket 41, carrying a pivot pin 42 upon which is rotatably mounted an auxiliary latch hook 43 having an upwardly and inwardly rotated hook portion 44 in opposition to a flange 45 on the frame 9.

46 is a coil spring about the pin 42, adapted to yieldably rotate the latch hook 43 in a counter-clock-wise direction as viewed in Figures 3 and 5 so as to yieldably maintain the hook in such position that it will always engage the flange 45 if the hood is lifted accidentally. 48 is a stop yoke mounted on the bracket 41 to limit the inward movement of the auxiliary hook.

Extending forwardly from the hook 43 is a handle piece 47 normally parallel with the plate 40 but so positioned with respect to that plate that the operator when he puts his hand under the hood to lift it will rotate the plate and swing the auxiliary latch into the inoperative position shown in dotted lines in Figure 5 to permit opening of the hood.

The solid lines shown to the left of Fig. 5 show the parts as they would be if the positive operated latch let go and wind pressure resulting from the forward movement of the vehicle would lift the hood to a point where the auxiliary latching would engage. In normal operation when the positive latch is released, the auxiliary latch hook 43 hangs freely and the hood 5 is raised by the plunger head 15, and the auxiliary latch 43 may be easily swung back to released position.

In the modified form shown in Figure 6 everything is the same except for the means for operating the main latch. In this case there is a bracket 50 on the inside of the grill 3. In this bracket there is a pivot pin 51 which carries a U shaped lever 52, the longer arm extending outwardly through a slot 53 in the grill and terminating in a hand piece 54. The lever is pivoted at the end of the short arm of the U. 55 is a coil spring associated with the bracket 50, the pin 51 and the lever 52 adapted yieldably to rotate the lever in a clock-wise direction into the dotted line or open position.

56 is a push rod pivoted at 57 on the lever 52 and at its other end on the off set portion 58 of the latch crank 30. The angular portion of the latch engaging arms 59 and the offset part 58 is somewhat different than the arms 34 of the offset 33 so that in the form shown in Figure 6 the latch is held in the locked position by the toggle action of compression member 56 and the short arm of the lever. To unlock, the handle 54 must be rotated in a clock-wise direction to bring 57 to the right of the line joining pins 51 and 58, under which circumstances the spring 55 will normally completely open the latch, bringing the handle 54 up into the dotted line position.

While the normally controlled positive rotating means when released is held normally in the unopened position and altogether out of register with the latch abutment means on the hood thus insuring that the latch will not accidentally get into the locking position when its opposite abutment is absent, nevertheless to guard against improper manipulation of the lock, if the latch member 34 is in the locking position before the hood is closed the latch member will engage the under edge 60 of the latch abutment and so prevent closing of the hood. If on the other hand, the hood is partially closed when an effort is made to operate the handle latch, one of two things will happen. Either the member 34 will engage the surface 17 and cam the hood completely closed, or else the member 34 will engage the inclined edge 61 of the latch abutment and force the hood open as the member 34 passes down to its normal rotating position. In either case the operator will have ample warning and notice of the fact that the latch has not operated to lock the hood in closed position.

I claim:

1. In a safety catch for automobile hoods, a latch member within the hood, means for normally urging said latch member to securing position, and manual means, inaccessible to the operator when the hood is closed, for moving said latch member to release position when the hood is partly open including a member adapted for actuation in response to the movement of the hand of the operator in the normal act of lifting the hood.

2. In a safety catch for automobile hoods, a latch member within the hood, yielding means for urging it normally to securing position, stop means for limiting its movement and for holding it fixed at a predetermined position, and a handle member adapted, when engaged by the hand of the operator, to move the latch member, against said yielding means, to release position, said handle member being positioned adjacent and within the edge of the hood, and being adapted to be contacted by the operator's hand in the normal act of lifting the hood, the handle member being inaccessible to the operator when the hood is in closed position.

3. In association with a pivoted hood section adapted to be secured in closed position by a primary latch mechanism, a secondary safety catch comprising an interiorly mounted element normally inaccessible from the exterior when the hood is closed and adapted to become operative to retain the hood in partially open position upon release of the primary latch mechanism, and including a catch portion and a manipulating part which, when exposed, may be operated from the exterior through the partial opening created upon release of the primary latch mechanism and the effective latching of the secondary catch, said part being so disposed as to be responsive to release said catch upon contact by an operator with a pressure in the direction which would cause normal opening movement of the hood about its pivot.

ARTHUR E. PETERSON.