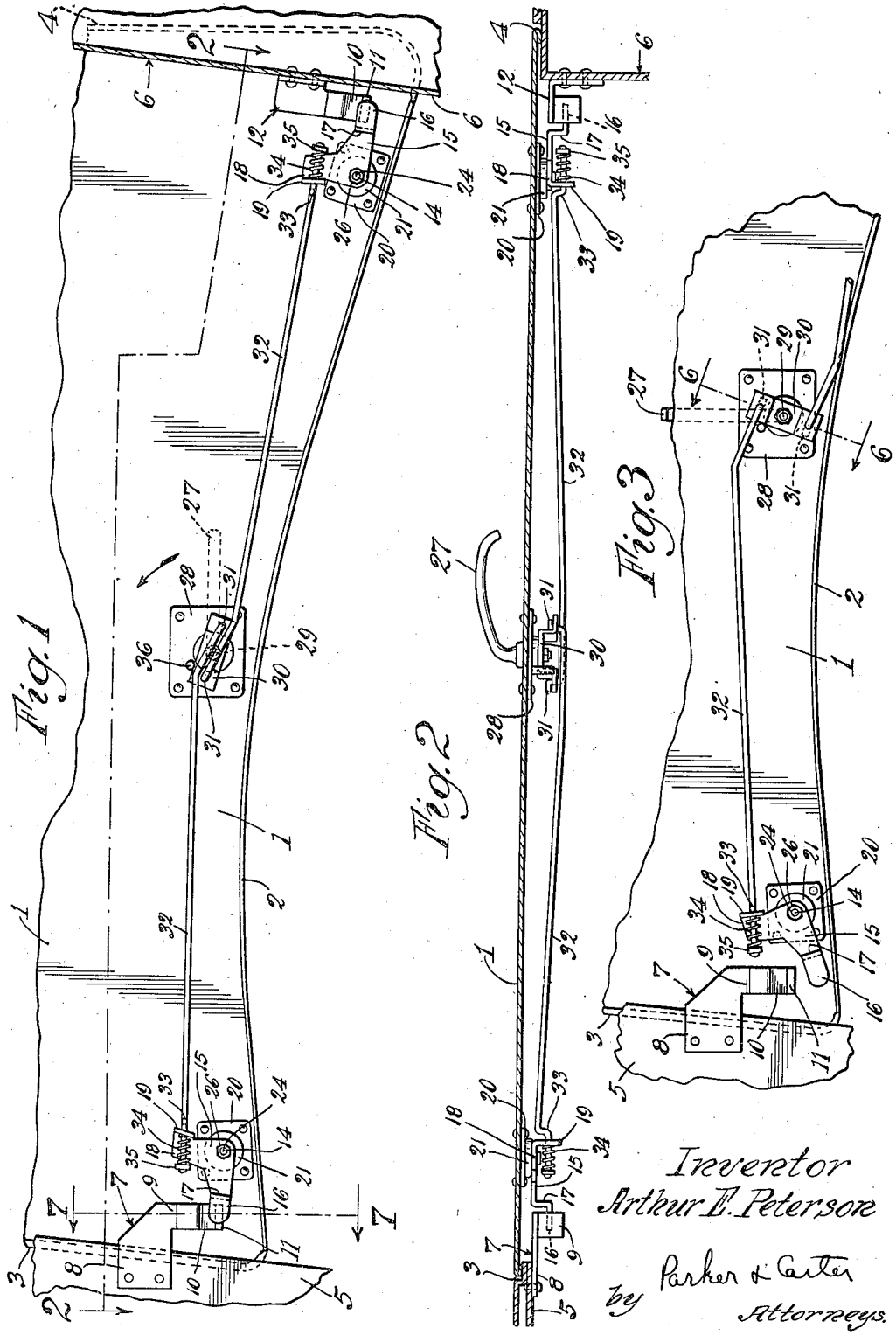
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HOOD LATCH

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Inventor
Arthur E. Peterson
by Parker & Carter
Attorneys.

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Fig. 4

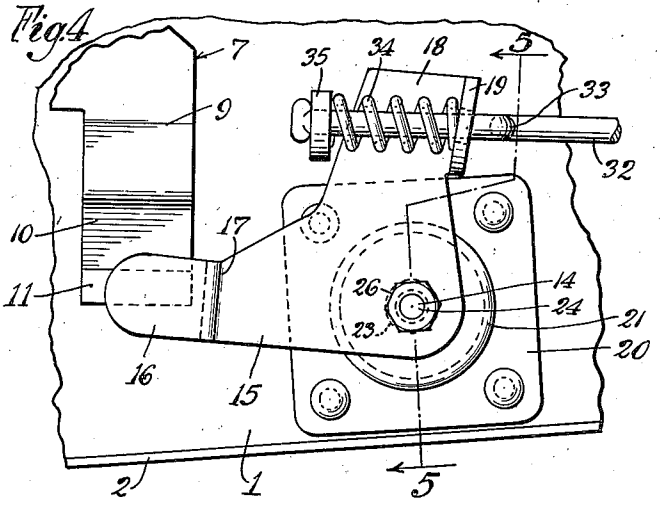


Fig. 5

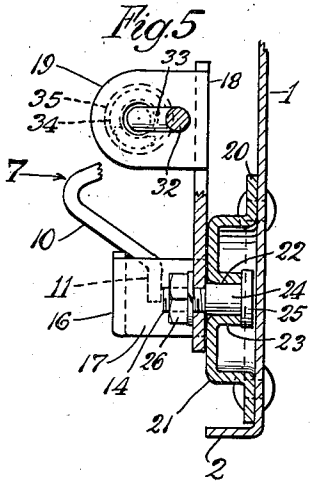


Fig. 6

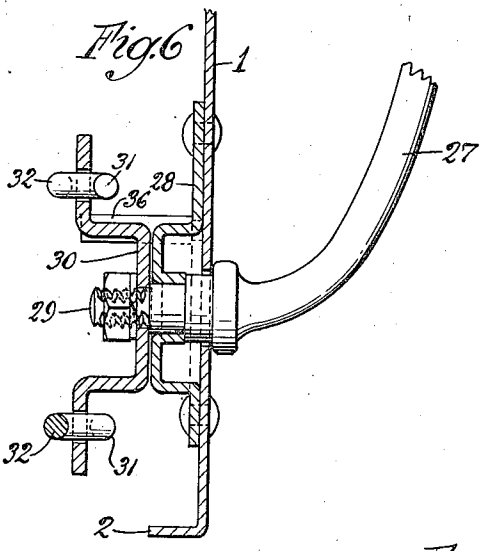


Fig. 7

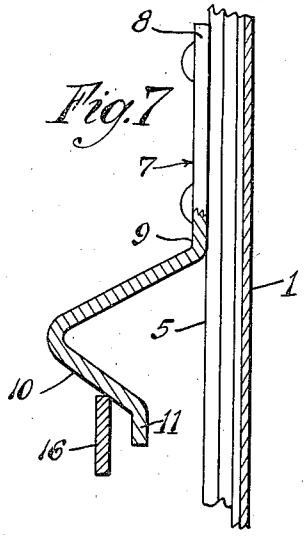


Fig. 8

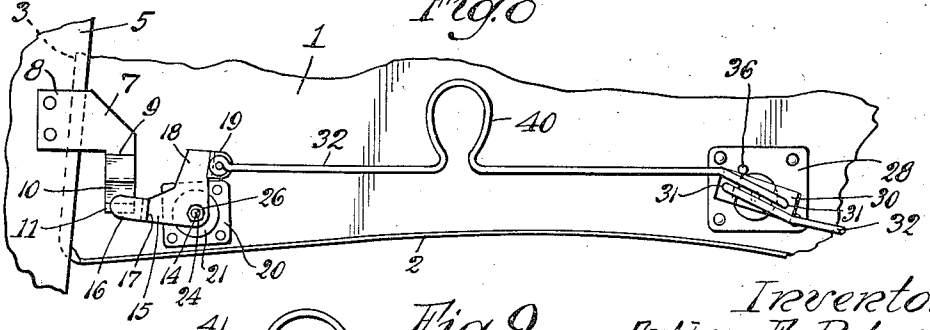
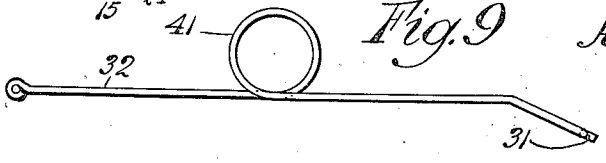


Fig. 9



Inventor
Arthur E. Peterson
by Parker & Carter
Attorneys

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Fig. 10

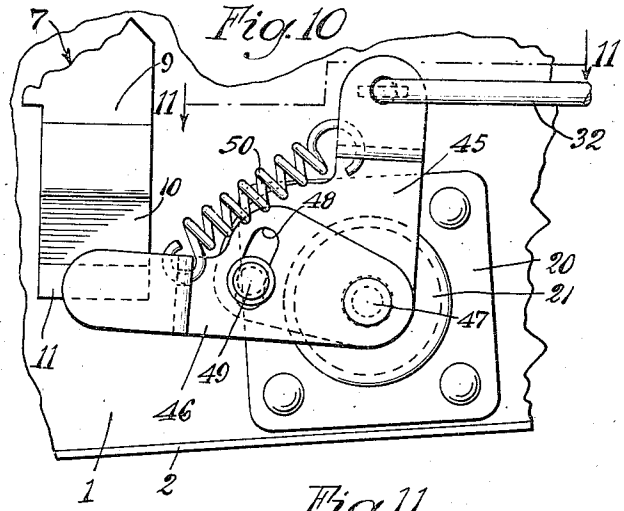


Fig. 12

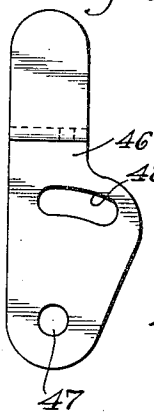


Fig. 13

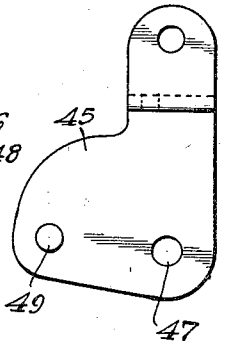


Fig. 16

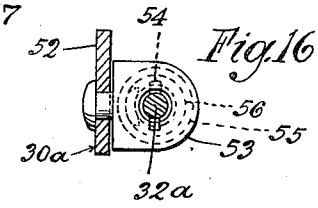
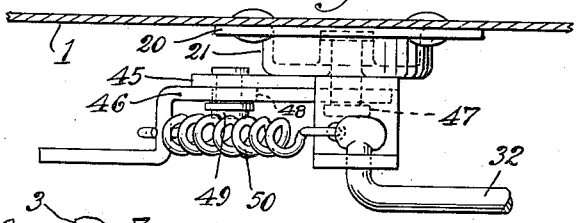


Fig. 11



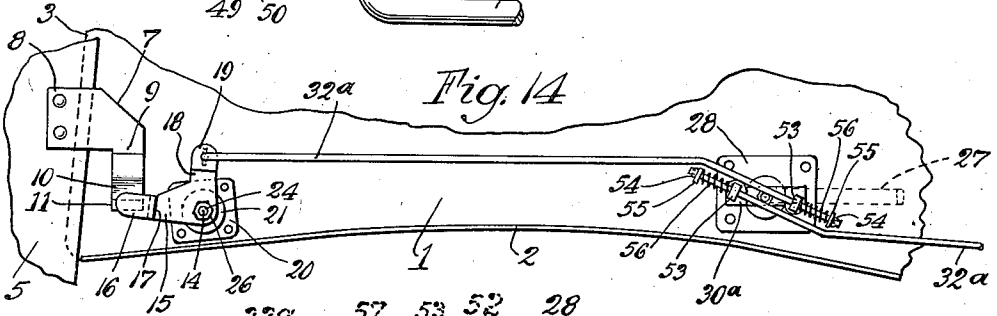
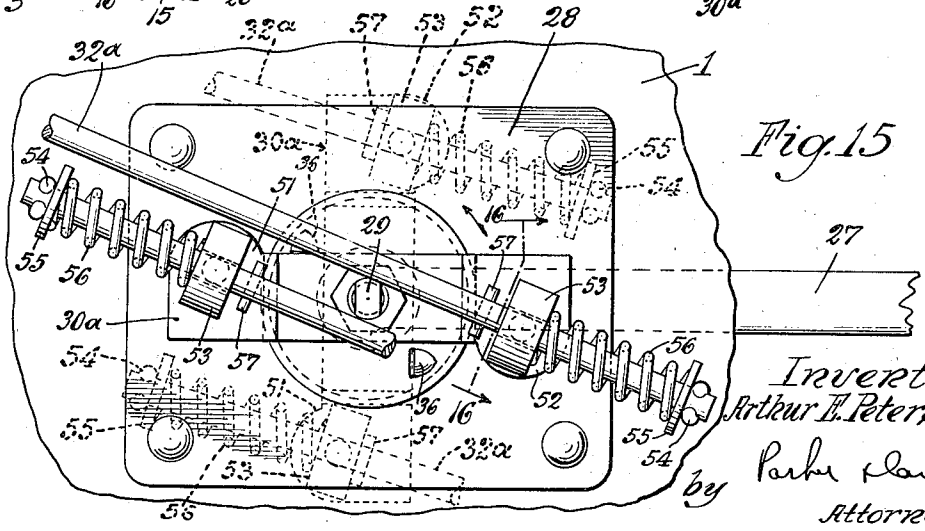


Fig. 14

Fig. 15



Inventor
Arthur E. Peterson
by Parker Carter
Attorneys.

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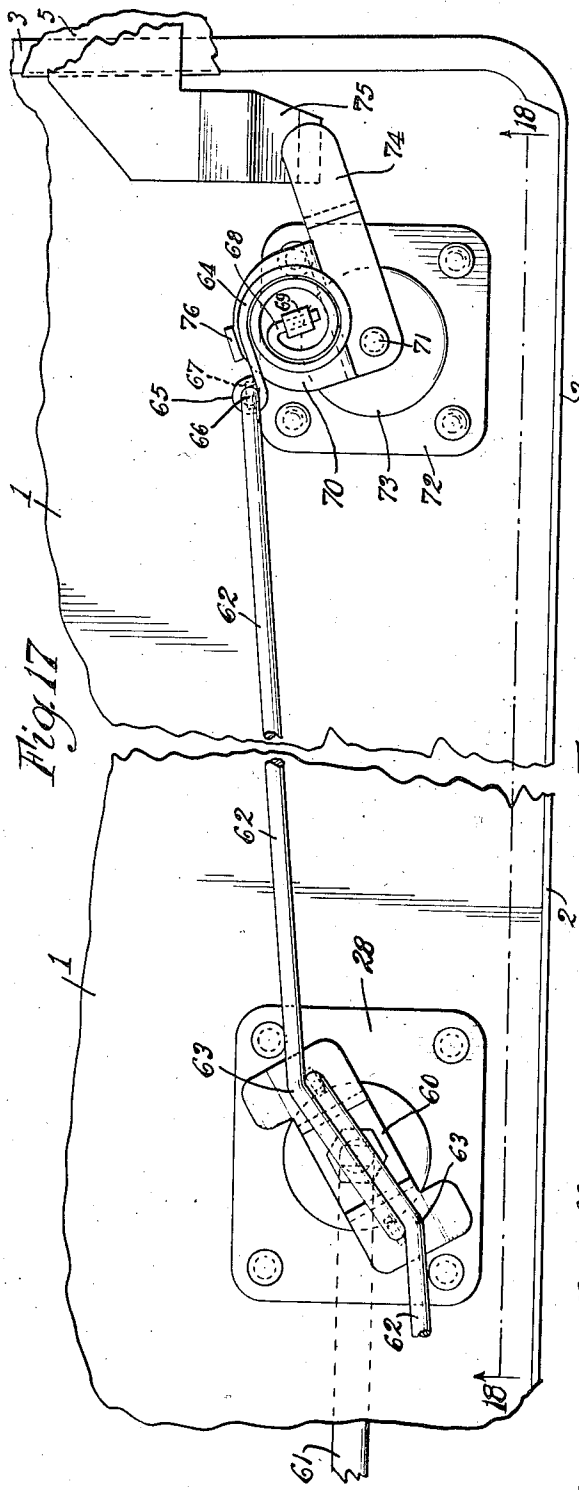


Fig. 17

Fig. 18

Inventor
Arthur E. Peterson
by Parker Carter
Attorneys.

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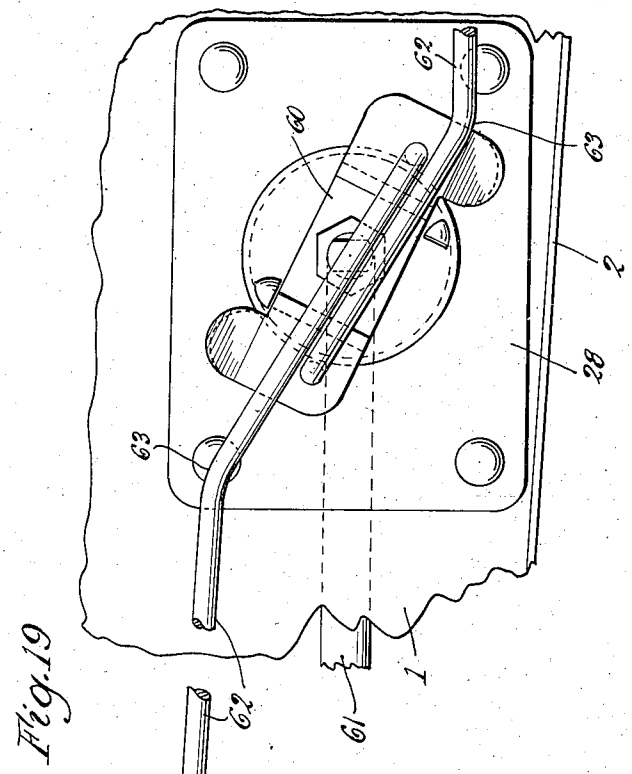


Fig. 19

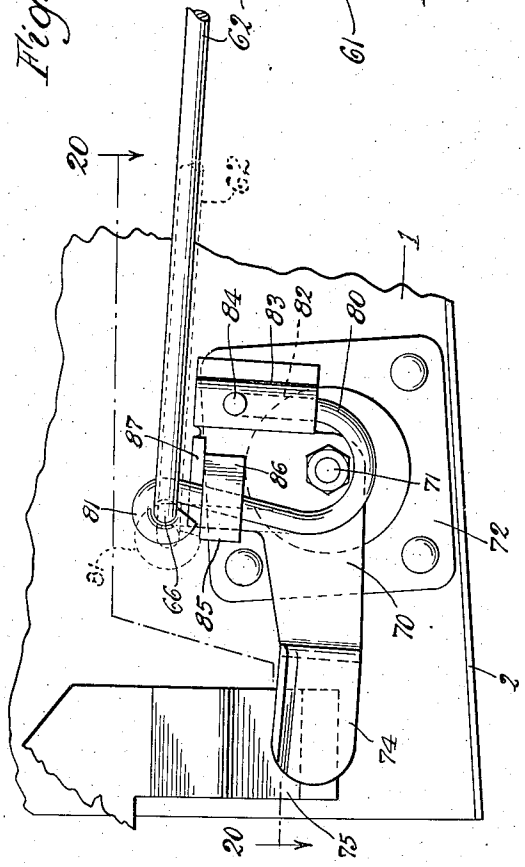
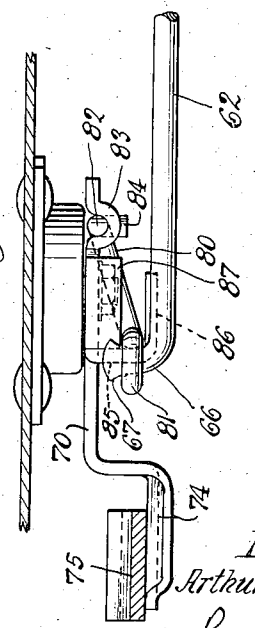


Fig. 20



Inventor
Arthur E. Peterson
by Parker Plante
Attorneys.

Patented Feb. 7, 1939 2,146,700

UNITED STATES PATENT OFFICE

2,146,700

HOOD LATCH

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

Application January 23, 1937, Serial No. 121,944

5 Claims. (Cl. 292—48)

My invention relates to an improvement in hood latches and has for one purpose the provision of an approved hood latch mechanism adaptable, for example, for latching the hood closure of automobiles.

Another purpose is the provision of improved means for drawing hinged automobile hood closures downwardly and inwardly in tight and substantially rattle-proof engagement with the adjacent parts of the vehicle.

Another purpose is the provision of improved means for yieldingly thrusting hood latch members into securing position in response to the actuation of an exterior handle.

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 elevation of the hood latch structure;

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

Figure 3 is a partial inside elevation similar to Figure 1 illustrating parts in different position;

Figure 4 is an enlarged detail of part of the structure shown in Figure 1;

Figure 5 is a section taken on line 5—5 of Figure 4;

Figure 6 is an enlarged section taken on line 6—6 of Figure 3;

Figure 7 is an enlarged section taken on line 7—7 of Figure 1;

Figure 8 is a partial inside elevation of a variant form;

Figure 9 is a plan view of a locking rod illustrating a further variation;

Figure 10 is a partial inside elevation illustrating a modified form of a locking member;

Figure 11 is a section on the line 11—11 of Figure 10;

Figures 12 and 13 are detail views of parts illustrated in the modified form of Figure 10;

Figure 14 is a partial inside elevation of a still further variation of a hood latch structure;

Figure 15 is an enlarged view of a portion of the device illustrated in Figure 14;

Figure 16 is a section taken on line 16—16 of Figure 15;

Figure 17 is a view of a variant form of the device;

Figure 18 is a section on the line 18—18 of Figure 17;

Figure 19 illustrates a variant form of latch connection; and

Figure 20 is a section on the line 20—20 of Figure 19.

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

Referring to the drawings and first to the form of Figures 1 and following, 1 generally indicates the closure proper which includes a lower edge 2, a forward edge 3, and a rear edge 4. 5 indicates a portion of the automobile radiator or other adjacent part and 6 a portion of the cowl or other adjacent part of the vehicle. 7 indicates a locking bracket mounted on the radiator or other adjacent part and including for example a base portion 8 and an arm 9 which includes an offset inclined cam portion 10, terminating in an extension 11 generally parallel with the body of the bracket 7. A similar bracket generally indicated as 12 is mounted on the cowl or other adjacent part.

Pivoted at each end of the closure 1, for example as at 14, is a locking member which generally resembles in form a bell crank lever. The member may be generally described as including a body portion 15, an outwardly latching offset 16 connected to the body 15 as by the angular portion 17, and a second lever 18 having an apertured ear 19. The member is pivotally mounted upon a base plate generally indicated as 20, which may be suitably secured to the closure 1. Member 20 may include an offset generally cylindrical portion 21 with an aperture 22 bounded by an inwardly extending flange 23. Any suitable pin 24 may be employed to secure the parts in rotatable relationship headed as at 25 and 26. The head 26 may, for example, be a lock nut threaded upon one end of the pin 24.

In order to impart locking and unlocking movement to the members 15, of which one is mounted at each end of the hood clusure, I provide an exterior handle 27. It is mounted upon a suitable base plate 28 and is provided with an inwardly extending portion 29 secured to which is a lever 30. Pivoted at each end of the lever is the offset portion 31 of a locking rod 32. Each said rod extends from one end of the lever to one of the locking cranks 15, passing through the eye of the apertured ear 19. Note that the rod may be provided with an offset member 33 opposed to the eye of apertured ear 19 to limit relative movement. A washer or spot welded lug may be used. On the opposite side of the member 19 from the member 33 is a spring 34 compressed between the ear 19 and any suitable head or ter-

minal portion 35 of the rod 32. As will be seen in Figures 1 and 4, when the parts are in locking position, each locking rod 32 extends to the end of the lever 30 opposite to the latch member 15 to which it is secured. If the handle 27 is rotated from the locking position of Figure 1 to the unlocking position of Figure 3, the result is that the members 33 press against the lugs 19 of the member 15 and positively rotate the said locking members from locking to unlocked position. The movement is positive. Any suitable stop 36 may be employed for limiting rotation of the lever 30. When the parts are moved in the opposite direction, the heads 35 of the locking rods 32 compress the springs 34 against the lugs 19 and rotate the locking or latching members 15 into latching position. However, in this case, the spring provides a spring or yielding take-up which prevents rattling and adapts itself for variations in size and disposition of parts and also serves as a take-up for wear. Furthermore, the heads 35 may be formed as adjustable nuts, if desired, so that the spring compression of the springs 34 may be adjusted or varied.

Referring to Figures 4, 5, and 7, it will be observed that when the members 15 are rotated into locking position they press against the offset portion 10 of the arms 9 and tend not merely to draw the closure 1 downwardly, but to draw or cam it also inwardly against whatever abutments are employed to receive it, such as the adjacent parts of the radiator 5 and the cowl 6. Note that the stop pin limits rotation of the lever 30 and handle 27 in an unlocking position. When the parts are in the locking position, the pivotal connections 31 of the locking rods 32 have rotated past center of the pivot of the lever 30 and thus lock the various members.

Referring to Figure 8, I may employ, instead of the spring 34, the interposition of a yielding or flexible portion of the shaft 32. I, therefore, illustrate in Figure 8 merely a pivotal connection between the ends of the rods 32 and the lugs 19, but provide a bent or offset portion 40 which serves to increase the difference or yield of the rod 32. In Figure 9 I illustrate a further form of this loop, in the form of a complete loop indicated as 41. I illustrate a further modification in Figures 10 to 13, in which, instead of the simple or unitary members 15, I illustrate compound locking or latching members with relatively yieldably mounted component members. I illustrate, for example, the two members 45, 46 pivoted together as at 47, one being provided with an arcuate slot 48 concentric with the center at 47, and the other with a penetrating pin 49, which moves in the slot 48 and which, with it, limits the relative movements of the parts 45 and 46 to a predetermined arc. The spring 50 is secured at each end to one of the said members 45 and 46, and tends to draw them together with the parts as shown in Figure 10. It will be understood that in that case when the parts are moved from locking to unlocking position by the rods 32, the result is a positive movement of the locking member 46 out of locking position. On the other hand, when the parts are moved from unlocking to locking position, the spring 50 permits a relative give of the parts 45 and 46 which has an effect generally equivalent to the effect of the spring 34 of the form of Figure 1. Thus, the latching members are positively moved out of latching or locking position, but are moved into locking position in such fashion as to permit a spring give or take-up.

It will be understood, also, that I may employ using take-up spring means associated with the opposite or inner ends of the rods 32. I illustrate, for example, in Figures 14 to 16 in association with the lever 30*a*, terminal portions or offsets 51, 52. Pivotally mounted upon these members or offsets 51 and 52 are apertured ears 53 through which pass the ends of the rods 32*a*. Each such rod may be provided with a terminal portion or abutment 54, provided with a washer 55, and springs 56, compressed between the washers 55 and the ears 53. 57 indicates any suitable pin or distorted portion adapted to limit the penetration of the rod 32*a* into or through the ear 53. The other end of the rod 32*a* may be pivoted to a simple lever 15 without any spring connection. It will be understood that the springs 56 operate to obtain substantially the same result as is described in connection with the forms above discussed. Namely, that when the latching members are moved into latching position, they are yieldingly thrust and can give and take up rattle. When they are moved out of latching position, they are positively moved.

Referring to the form of Figures 17 and 18, 60 generally indicates an inside double crank actuated by the outside handle 61. Pivoted at each end of the crank 60 are rods 62 which may be crooked or angled as at 63. At their outer ends they have secured to them flat coiled springs 64 provided with an eye 65 through which passes the offset end 66 of the rod 62. The rods may be expanded as at 67, to prevent escape from the spring. The inner end of the spring includes a straight portion 68 which penetrates in any suitable eye or enclosing portion 69 on the latch crank 70 pivoted as at 71 to any suitable base plate 72 having an upwardly extended central offset 73. 74 indicates the latch portion of the crank 70 which engages any suitable fixed latch abutment 75.

It will be understood that the coil spring 64 provides a measure of flexibility or give which compensates for any inequalities in size and unevenness in wear. The spring is kept in the position in which it is shown, for example by the outwardly extending ear or projection 76 on the crank 70. Thus it has the effect of a rigid member when the rod 62 is thrust in unlocking direction, but is a flexible or yielding connection when the rod 62 is drawn in a locking direction.

Referring to Figures 19 and 20, and relating them for example to Figure 17, in the place of the coil spring 64 I employ a U-shaped spring 80 having an eye 81 at one end which receives the curved end 66 of the rod 62 which is held in position by the enlargement 67. The opposite end 82 of the U-shaped spring is engaged within the offset portion or clip 83 which may be formed integrally with the general latch crank structure, being for example secured to one edge thereof and curled over it. The member 82 may also be provided with an offset end which penetrates an aperture in the latch crank 70 as at 84, thus serving as an anchor. The free end of the spring 80, as illustrated in dotted lines, normally engages a lug 85 integral with the latch crank 70, and is positioned and guided between an elongated lug 87, offset from the latch crank, and a guiding member 86 herein illustrated as forming a part of the lug 85. It will be understood that the structure operates generally as the structure shown in Figures 17 and 18, the U-shaped spring 80 providing a measure of flexi-

bility or give which compensates for any inequalities in size or unevenness in wear.

I claim:

1. In a hood latch adapted for use with the hood closure of an automotive vehicle, a bell crank lever mounted on the interior of said closure for rotation about a generally horizontal axis generally perpendicular to the inner face of said closure, an actuating rod operatively associated with an arm of said bell crank lever, the other arm being adapted to engage an opposed portion of the vehicle, means for imparting longitudinal movement to said rod and for thereby rotating said bell crank lever toward and away from locking position, yielding means interposed between said rod and said bell crank lever and adapted to permit relative movement of said rod and bell crank lever, when the rod is moved in the locking direction, and a positive connection between said rod and said bell crank lever whereby, when said rod is moved in the unlocking direction, it positively engages and moves said bell crank lever into unlocked position.

2. In a hood latch adapted for use with the hood closure of an automotive vehicle, a bell crank lever mounted on the interior of said closure for rotation about a generally horizontal axis generally perpendicular to the inner face of said closure, an actuating rod operatively associated with an arm of said bell crank lever, the other arm being adapted to engage an opposed portion of the vehicle, means for imparting longitudinal movement to said rod and for thereby rotating said bell crank lever, when the rod is moved in the locking direction, and a positive connection between said rod and said bell crank lever whereby, when said rod is moved in the unlocking direction, it positively engages and moves said bell crank lever into unlocked position, the arm of the bell crank lever with which the actuating rod is associated having an apertured flange through which an end of said rod projects, an abutment member on the end of said rod, and a spring compressed between said abutment and said flange.

3. In a hood latch adapted for use with the hood closure of an automotive vehicle, a bell crank lever mounted on the interior of said closure for rotation about a generally horizontal axis generally perpendicular to the inner face of said closure, an actuating rod operatively associated with an arm of said bell crank lever, the other arm being adapted to engage an opposed portion of the vehicle, means for imparting longitudinal movement to said rod and for thereby rotating said bell crank lever toward and away from locking position, yielding means interposed between said rod and said bell crank lever and adapted to permit relative movement of said rod and bell crank lever, when the rod is moved in the locking direction, and a positive connection between said rod and said bell crank lever whereby, when said rod is moved in the unlocking direction, it positively engages and moves said bell crank lever into unlocked position, the arm of the bell crank lever with which the actuating rod is associated having an apertured flange through which an end of said rod projects, an abutment member on the end of said rod, and a spring compressed between said abutment and said flange, said rod having a limiting abutment portion opposed to the side of said flange opposite to that which is engaged by said spring.

4. In a hood latch adapted for use with the hood closure of an automotive vehicle, a bell crank lever mounted on the interior of said closure for rotation about a generally horizontal axis generally perpendicular to the inner face of the closure, an actuating rod operatively associated with an arm of said bell crank lever, means for imparting longitudinal movement to said rod and for thereby rotating said bell crank lever toward and away from locking position in relation to said keeper, and yielding means interposed between said rod and the arm of the bell crank lever with which it is associated.

5. In a hood latch adapted for use with the hood closure of an automotive vehicle, a bell crank lever mounted on the interior of said closure for rotation about a generally horizontal axis generally perpendicular to the inner face of the closure, an actuating rod operatively associated with an arm of said bell crank lever, means for imparting longitudinal movement to said rod and for thereby rotating said bell crank lever toward and away from locking position in relation to said keeper, yielding means interposed between said rod and the arm of the bell crank lever with which it is associated, the arm being apertured to permit the passage therethrough of the end of the rod, and abutment means limiting the penetration of said rod through said aperture.

ARTHUR E. PETERSON.