April 5, 1932. N. A. MEARS 1,852,995

HOOD LATCH

Filed Nov. 7, 1930 2 Sheets-Sheet 1

Fig. 1

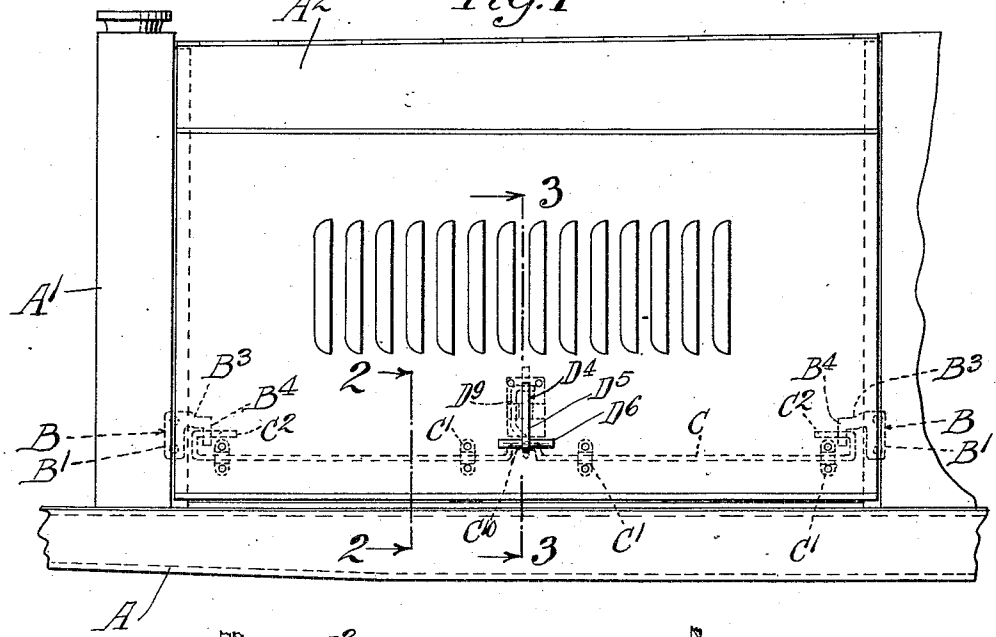


Fig. 2

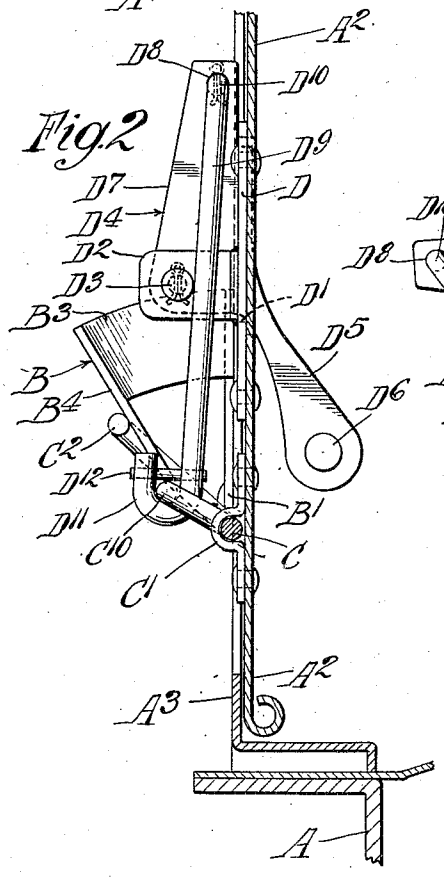
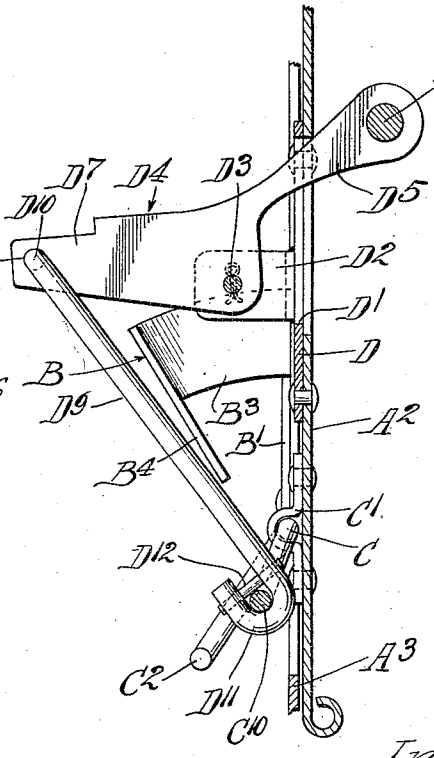


Fig. 3



Inventor
Norton A. Mears
by Parker & Carter
Attorneys.

April 5, 1932. N. A. MEARS 1,852,995

HOOD LATCH

Filed Nov. 7, 1930 2 Sheets-Sheet 2

Fig. 4

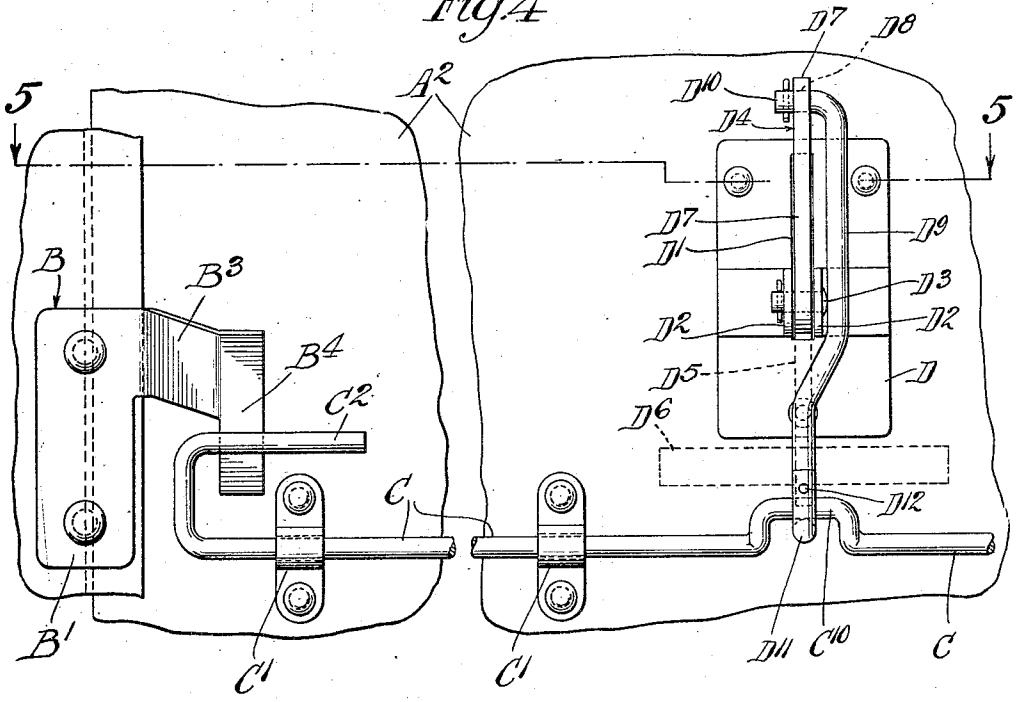
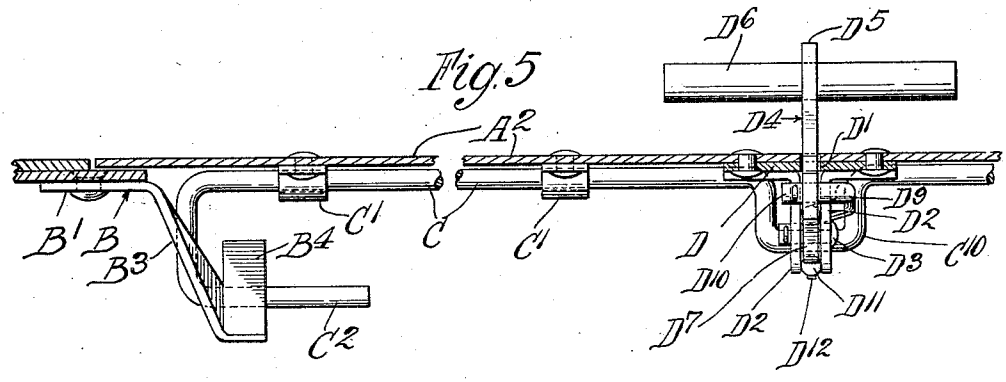


Fig. 5



Inventor
Norton A. Mears
by Parker & Carter
Attorneys

Patented Apr. 5, 1932 1,852,995

UNITED STATES PATENT OFFICE

NORTON A. MEARS, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO FORGING & MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

HOOD LATCH

Application filed November 7, 1930. Serial No. 493,947.

My invention relates to an improvement in securing means and has for one purpose the provision of securing means adapted for employment to close the hood of an automobile, although a like mechanism may be applicable for different purposes. One object of my invention is the provision of a hood latch, the latch of which shall be positioned within the hood, but which shall be operable from the exterior of the hood. Another object is the provision of a simplified and efficient hood latch of the above type which shall be cheap and easy to manufacture and efficient in service. 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 a side elevation;

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

Figure 3 is a section on the line 3—3 of Figure 1 with the parts in different position;

Figure 4 is an inside view; and

Figure 5 is a section on the line 5—5 of Figure 4.

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

Referring to the drawings, A generally indicates an automobile frame member, A^1 the radiator and A^2 any suitable hinged hood closure, the lower edge of which may abut against the flange A^3, as shown for example in Figure 2.

Mounted on the automobile frame, adjacent the ends of the closure A^2, are the locking abutments B B, each of which includes a base portion B^1 and an inclined forward extension or flange B^3 in the end of which is an inclined abutment portion B^4. The abutment portion B^4 is positioned substantially within the plane of the closure A^2 and is inclined upwardly and inwardly in relation thereto.

C generally indicates a locking rod rotatably mounted upon the inner face of the closure A^2. It may be mounted, for example, in the intermediate and terminal bearings C^1. It is herein shown as having recurved ends C^2, which recurved ends are adapted to be opposed to the inclined abutments B^4. It will be understood that when the rod C is rotated in a clockwise direction, referring to the position of the parts in Figures 2 and 3, this rotation causes the offset or recurved portion C^2 of the rod to engage the inclined abutment member B^4, which engagement tends to draw the closure A^2 downwardly toward the frame A and inwardly against the abutment A^3. The torsion or spring action of the rod provides a yielding locking effect. In normal use this yielding characteristic of the rod is sufficient to provide enough excess pressure to compensate for wear. The rod is also preferably sufficiently flexible to compensate an assembly for variations in size, shape and position of parts.

In order to impart to the rod the necessary rotation, and in order to permit its control from without the hood, I provide the following structure: D generally indicates a plate or base which may be secured to the inner face of the closure A^2. It is centrally apertured as at D^1 and it is provided with brackets D^2 D^2 on each side of said aperture, to which brackets may be pivoted, as at D^3, the lever generally indicated as D^4. This lever includes an outer arm D^5 which constitutes the handle outwardly projecting through the slot or aperture D^1 and provided with any suitable exterior handle member D^6. An inner part or arm D^7 of the lever is connected with said handle and apertured as at D^8 to receive the end D^{10} of a link or part D^9, the opposite end of which is in rotatable engagement with the offset or crank portion C^{10} of the shaft C. This rotatable engagement may be maintained by forming a curved or crooked portion D^{11} at the end of the link D^9 and closing the path of the crook as by the pin D^{12}. The parts are so proportioned that when the handle D^6 is positioned in locking position, the pivotal connection, as at D^8, between the arm D^7 and the link D^9 will be positioned exterior to a line or plane passing through the pivotal connection between the link D^9 and the crank C^{10}, and the pivot point D^3. This shall be clear from Figure 2 which shows the parts in locking position. The result is a positive locking action, as the arm D^7 has passed

across the center into locking position and is held there by the spring action of the rod C and the yielding engagement of the offset portions C^2 with the inclined abutments B^4.

The use and operation of my invention are as follows:

In the use of the device it will be understood that when the operator lifts the handle D^6, its first effect is to break the lock by moving the point D^8 inwardly in relation to the pivot D^3. The rod C is then rotated in counter clockwise direction which frees the offsets C^2 from locking engagement with the abutments B^4. A further lifting upon the handle D^6 is then effective to lift the hood as a whole upwardly from the frame A and upwardly and, if necessary, slightly outwardly from the flange A^3. Preferably the parts are so proportioned that the offsets C^2 are rotated substantially out of vertical alignment with the abutments B^4. On returning the hood to closed position, the weight of the hood will keep the parts in unlocked position until the hood itself is lowered as far as it will go. The operator then exerts a positive downward pressure on the handle D^6 which serves to rotate the members C^2 into locking position against the abutments B^4, and finally to move the arm D^7 into the full locking position in which it is shown in Figure 2.

It will be clear from Fig. 3 that the length of the lever arm D^4 is substantially greater than the length of the central crank offset of the rock shaft C. Referring to Fig. 3 the distance between the points indicated as C and C^{10} is but a small fraction of the distance between the points indicated as D^3 and D^{10}. In practice I prefer to so proportion the parts that a rotation of the upper or handle member D^4, D^5 about the center D^3 through an arc of approximately 90° will rock the rock shaft and its cranks through an arc of about 110°. These are the arcs provided for by the structure as shown in Fig. 3. Without limiting myself precisely to this relationship of arcs or travel of the two parts, I find it a convenient one. In considering the triangle formed by the centers D^3, D^8 and C^{10}, the link D^9 represents the long side or hypotenuse of the triangle. On the other hand, as above set out, the distance from C to C^{10} is far shorter than the distance from D^3 to D^8. In Fig. 3 the distance from C to C^{10} is about one-third the distance from D^3 to D^{10}. This proportion of parts will give to the rock shaft a rotation through an arc substantially in excess of the arc through which the handle D^5 is rotated, in this particular case the arcs being 110° and 90°, respectively. As a result I am able to obtain with a relatively small movement of the handle a movement of the rock shaft sufficiently great to obtain the desired contact between the cam surface B^4 and the crank C^2.

In reference to the cooperation between the members B^4 and C^2, the rotation of the rock shaft which causes the member C^2 to engage the upwardly and inwardly inclined surface B^4 effects a camming action which tends to draw the lower edge of the hood both downwardly and inwardly. It is characteristic of this latch that this camming action is obtained by the provision of a free or sliding connection between the members C^2 and B^4, the crank C^2 never reaching a dead or rigid seat against a fixed stop. This permits it to compensate for differences of variations in size, shape and relation of parts, such as may arise either in the assembly of the car or in the operation of the car.

It will be realized that whereas I have shown a practical and operative device, nevertheless many changes may be made in size, shape, number and disposition of parts without departing from the spirit of my invention. I therefore wish my description and drawings to be taken as in a broad sense illustrative and diagrammatic, rather than as limiting me to my precise specification disclosure.

I claim:

1. A remote control latching device for an automobile hood adapted to draw the lower edge of a double-hinged hood closure downwardly and inwardly into engagement with the opposed portions of the automobile, which includes a rock shaft mounted on the inner face of the closure for rotation about a generally horizontal axis, cranks at a distance from each other connected with said rock shaft, keepers positioned within said closure for engagement with said cranks, a handle remote from said cranks pivoted on the inner side of said closure, the handle pivot being spaced above the axis of rotation of said rock shaft, said handle projecting on the outside of said closure and movable in a plane substantially perpendicular to said closure, a connection from said handle to said rock shaft, said connection made up of parts adapted through their position and arrangement, to, by a single upward movement of said handle in the plane perpendicular to said closure, move said cranks out of engagement with said keepers and substantially out of vertical alignment therewith and move said closure to its open position.

2. A remote control latching device for an automobile hood adapted to draw the lower edge of a double-hinged hood closure downwardly and inwardly into engagement with the opposed portions of the automobile, which includes a rock shaft mounted on the inner face of the closure for rotation about a generally horizontal axis, cranks at a distance from each other connected with said rock shaft, keepers positioned within said closure for engagement with said cranks, a handle remote from said cranks pivoted on the inner side of said closure, the handle piv-

ot being spaced above the axis of rotation of said rock shaft, said handle projecting on the outside of said closure and movable in a plane substantially perpendicular to said closure, a connection from said handle to said rock shaft, said connection made up of parts adapted through their position and arrangement, to, by a single upward movement of said handle in the plane substantially perpendicular to said closure, move said cranks out of engagement with said keepers and substantially out of vertical alignment therewith and move said closure to its open position, and by a reverse movement of said handle in said plane perpendicular to said closure to move said closure to its closed position and move said cranks into locking engagement with said keepers.

Signed at Chicago, county of Cook and State of Illinois, this 4th day of November, 1930.

NORTON A. MEARS.