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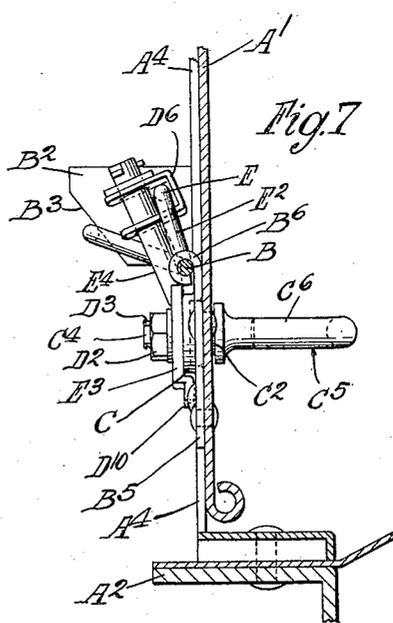
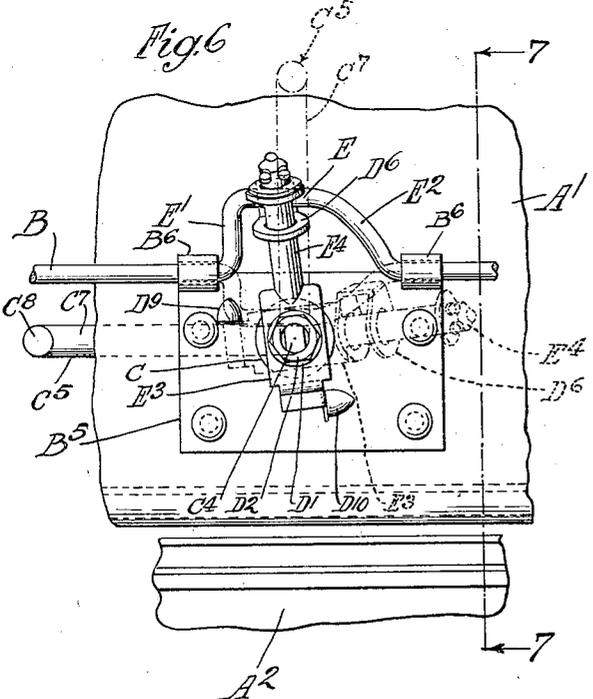
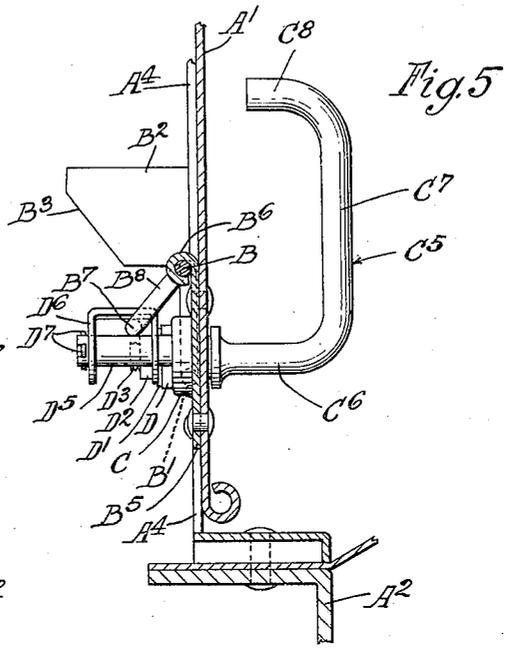
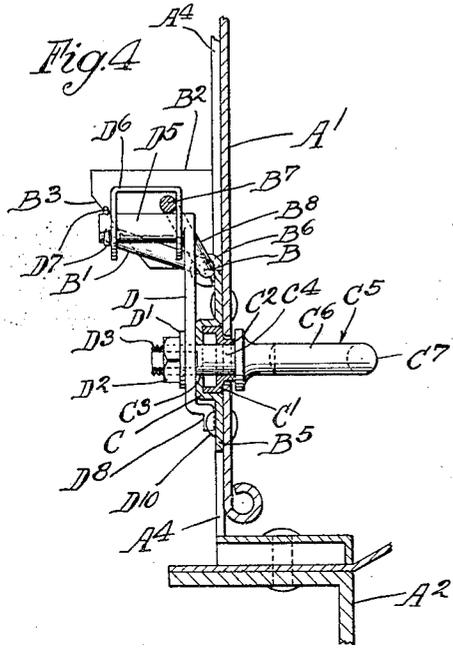
N. A. MEARS ET AL

1,907,431

HOOD LATCH

Filed June 29, 1931

3 Sheets-Sheet 2



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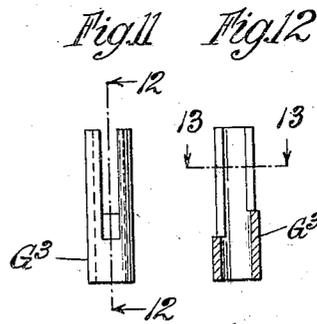
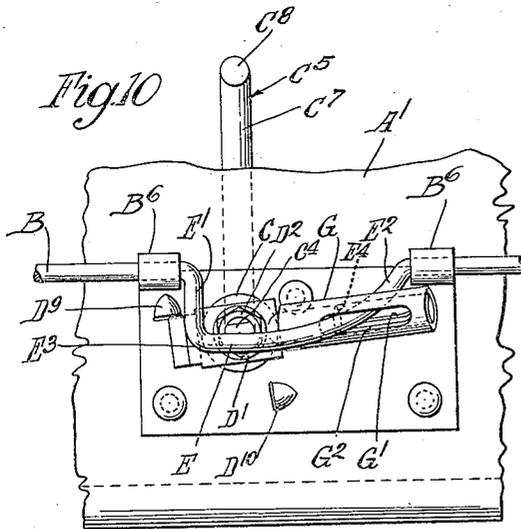
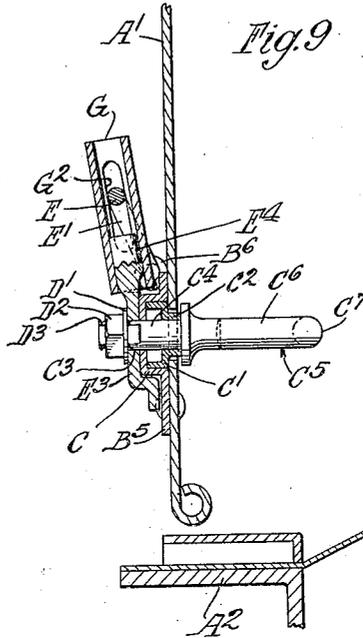
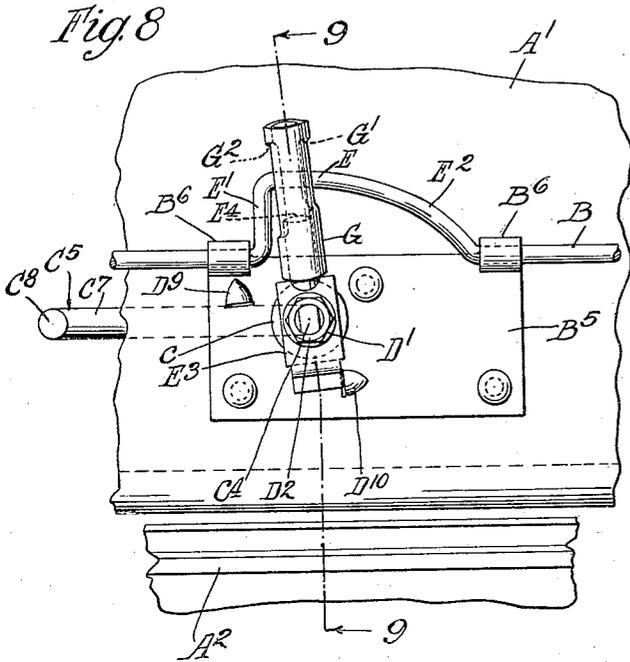
N. A. MEARS ET AL

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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HOOD LATCH

Application filed June 29, 1931. Serial No. 547,494.

Our invention relates to locking or latching means for closures and is herein shown as applied to automobile hood closure of the usual double hinged variety. One purpose is the provision of simple and easily operated means for holding such a closure in closed position. Another object is the provision of means which draw the closure downwardly and inwardly against its abutment on the frame of the automobile. Another object is the provision of simple and strong means for simultaneously actuating a plurality of hood latches. Other objects will appear from time to time in the course of the specification and drawings.

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

Figure 1 is a side elevation;

Figure 2 is a partial interior elevation on an enlarged scale;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a section on the line 5—5 of Figure 2;

Figure 6 is a view, similar to Figure 2, of a variation;

Figure 7 is a section on the line 7—7 of Figure 6;

Figure 8 is a view, similar to Figures 2 and 6, of a variant form;

Figure 9 is a section on the line 9—9 of Figure 8;

Figure 10 is a view, similar to Figure 8, with parts in a different position;

Figure 11 is a detail of a connecting member;

Figure 12 is a section on the line 12—12 of Figure 11; and

Figure 13 is a section on the line 13—13 of Figure 12.

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

Referring to the drawings, A generally indicates the automobile body, and A¹ the double hinged hood member or closure. A² indicates the vehicle frame and A³ A⁴ indicate terminal abutments for the ends of the hood.

Mounted upon the inner face of the hood is a rock shaft generally indicated as B, having the terminal cranks B¹ adapted to engage locking members or keepers B² which have the faces or edges B³ inclined upwardly and inwardly in relation to the hood closure. The rock shaft may be mounted to rotate in terminal bearing members or sleeves B⁴. B⁵ indicates a central unitary bearing and assembly supporting plate which may have formed integrally therewith the bearing sleeves B⁶ for the intermediate portion of the rock shaft B. The rock shaft is offset, between the bearings B⁶ to provide a crank portion which includes the rectilinear member B⁷ and the portions B⁸ which connect it to the rest of the rock shaft.

The plate B⁵ is shown as including the apertured cup C which receives a penetrating cup C¹ having a reduced portion C² aligned with the aperture C³ of the cup C. Rotatable in the portions C² C³ is a handle shaft C⁴ which may be secured to or have associated therewith a handle generally indicated as C⁵ which includes a portion C⁶ co-axial with the shaft C⁴, a handle portion C⁷ generally parallel with the face of the closure and an inwardly recurved end portion C⁸.

Held against rotation in relation with the shaft C⁴ is the crank arm D shown as abutting against the inner face of the cup C. It may be held for example by the washer D¹ and the nut D² screwthreaded on the inner end D³ of the shaft C⁴. The crank D is provided with an inwardly extending crank pin D⁵ adapted to engage the offset portion B⁷ of the rock shaft. In order to maintain the two at all times in operative relationship we provide the connector member D⁶ rotatable on the crank pin D⁵ and held from escape therefrom as by the pinched out portions D⁷. The opposite end of the crank is forwardly bent as at D⁸ to abut against the face of the plate B⁵. The plate is provided with outstanding limit members D⁹ D¹⁰, whereby the rotation of the crank D and thus of the handle C⁵ is limited to a predetermined arc, for example in the neighborhood of 90°. It will be noted that the center of rotation of

the shaft C⁴ is offset from axis of rotation of the rock shaft B for a substantial distance. In the present form it is shown as substantially below the axis of rotation of the rock shaft, but it might be above it. One result obtained by this disposition is that a longer crank is used, its effective length being greater than the effective length of the crank portions B⁸ of the rock shaft. Thus rotation of the handle through a given arc causes a rotation of the rock shaft through a greater arc.

Referring to the form of Figures 6 and 7 we illustrate intermediate crank or offset portion of the rock shaft B which includes a portion E which is connected at one end by the radial member E¹ with the rock shaft B. At its other end it is connected as by the curved or arcuate portion E² with the rock shaft B. This arcuate portion may be generally concentric with the axis of rotation of the shaft C⁴. In order to maintain an actuating connection between the handle and the intermediate crank offset of the rock shaft we provide a plate E³ mounted on the shaft C⁴. From the plate inclines a pin E⁴, herein shown as rectilinear by inwardly inclining. The connector D⁶ is mounted on the pin E⁴, thus dispensing with the crank pin D⁵ shown in Figure 4.

Referring to the form of Figures 8, 9 and 10, the offset crank portion is similarly formed, although variations in form and proportion may be necessary. In the place of the connector member D⁶ is employed a tubular connector G which rotates about the pin E⁴. It may be slotted on opposite sides as at G¹ G², for permitting the passage there-through of the intermediate crank portion of the rock shaft B. In the particular proportional parts herein shown it may be desirable to have the two slots of unequal length.

Referring to Figures 11, 12 and 13, we illustrate a variant connector G³, similar to the connector G and with the slots G¹ G² continuing to the end of the connector. Under some conditions this form is preferable but the connector G is in general stronger, as the cylindrical ends of the tube serve as reinforcements, wherein the tube G³ is thus reinforced or strengthened at only one end.

It will be realized that whereas we have described and 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 our invention. We, therefore, wish our drawings to be taken as in a broad sense illustrative and diagrammatic rather than as limiting us to the precise detail of the present showing.

The use and operation of our invention are as follows:

In securing the hinged hood portions of automobiles and plates, securing means are

desirable which hold the hood firmly in position, which draw the lower edge of the hood downwardly, to hold it tight, and which also draw it inwardly or prevent it from outward movement. We have provided means for effecting these results which are simple and efficient and which respond to the movement of a single handle member. This handle member, being preferably situated midway between the ends of the hood, not only serves to control the hood latching means, but also serves as a handle for lifting the hood when the latches are disengaged. We preferably employ a handle of somewhat elongated form, to serve conveniently as a lifting as well as a turning means. In the form herein shown we so proportion the parts that the handle C⁵ is in generally horizontal position when the latches are engaged and is in generally vertical position when they are disengaged. We find it convenient to limit the rotation of the handle to an arc in the neighborhood of 90°, preferably slightly more than 90°. The proportion of the parts is such that when the latches are engaged the cranks D or E⁴ are somewhat beyond dead center, held by the abutment D¹⁰. The spring or torsional distortion of the rock shaft is sufficient to hold the parts locked in the position in which they are shown, for example in Figure 2. Owing to the greater length of the crank of the handle, the effective movement of the arc of the rock shaft is substantially greater than the arc of movement of the handle.

The engagement of the terminal crank members B¹ of the rock shaft with the inclined surfaces B³ of the abutments B² effects a cam action which tends automatically to compensate for wear and for variations in the relative position of the parts due to irregularities in manufacture or assembly.

We claim:

1. Actuating means for rotating a horizontally axised rock shaft of an automobile hood closure latch, which include a crank offset intermediate the ends of the rock shaft, a handle exterior to the hood, a handle shaft mounted upon the hood closure for rotation about an axis generally perpendicular to the face of the closure, said axis being substantially downwardly removed from the longitudinal axis of the rock shaft, a crank rotating with said handle shaft and within the closure and a connecting member rotatably positioned upon said crank and rotatable about an axis extending longitudinally of said crank, said member having an operative connection with the offset crank portion of the rock shaft, the effective radial length of the handle shaft crank exceeding the effective radial length of the crank offset of the rock shaft by an amount sufficient to obtain a substantial amplification between

the rotary movements of the handle shaft and rock shaft.

2. Actuating means for rotating a horizontally axised rock shaft of an automobile hood closure latch, which include a crank
5 offset intermediate the ends of the rock shaft, a handle exterior to the hood, a handle shaft mounted upon the hood closure for rotation about an axis generally perpendicular to the
10 face of the closure, said axis being substantially downwardly removed from the longitudinal axis of the rock shaft, a crank rotating with said handle shaft and within the closure and a connecting member rotatably
15 positioned upon said crank and rotatable about an axis extending longitudinally of said crank, said member having an operative connection with the offset crank portion of the rock shaft, the effective radial length
20 of the handle shaft crank substantially exceeding the effective radial length of the crank offset of the rock shaft, said crank offset including a portion extending radially generally at right angles to the rock shaft
25 and a generally arcuate portion connecting the outer end of said radial portion with the rock shaft.

3. Actuating means for rotating a horizontally axised rock shaft of an automobile
30 hood closure latch, which include a crank offset intermediate the ends of the rock shaft, a handle exterior to the hood, a handle shaft mounted upon the hood closure for rotation about an axis generally perpendicular to
35 the face of the closure, said axis being downwardly removed from the longitudinal axis of the rock shaft an amount substantially equal to the effective radial extension of the crank offset of the rock shaft, a crank rotating with said handle shaft and within the
40 closure and a connecting member rotatably positioned upon said crank and having an operative connection with the offset crank portion of the rock shaft, said connecting
45 member being rotatable about an axis generally coincident with the radial extension of said crank whereby a rotation of substantially 90 degrees of the handle shaft will cause a substantially 180 degree rotation of
50 the rock shaft.

Signed at Chicago, county of Cook, and State of Illinois, this 24th day of June, 1931.

NORTON A. MEARS.
DIBRELL P. HYNES.

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