June 9, 1942. A. J. RHODES 2,285,682

HOOD LATCHING MEANS

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FIG.1.

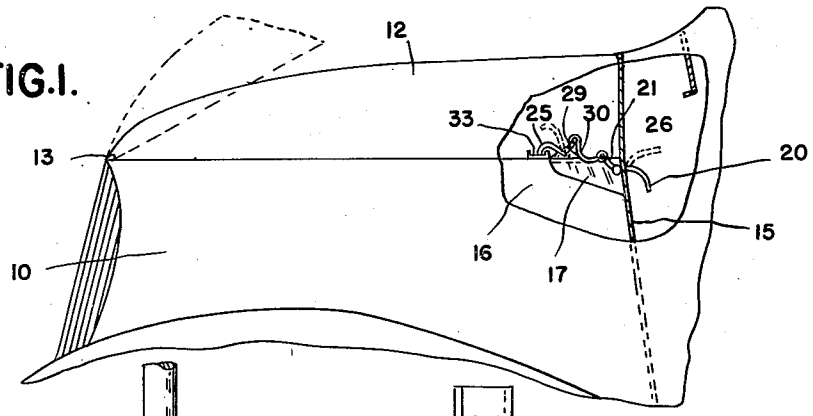
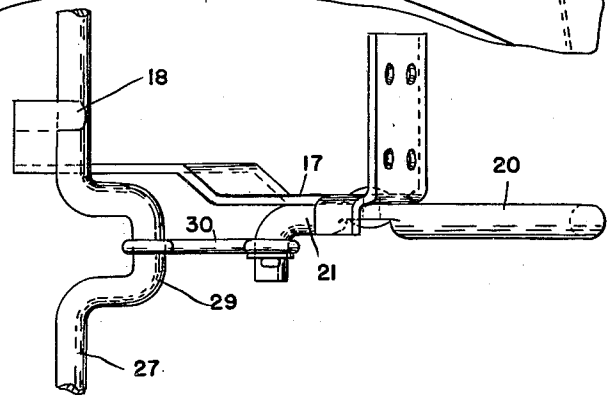


FIG.3.



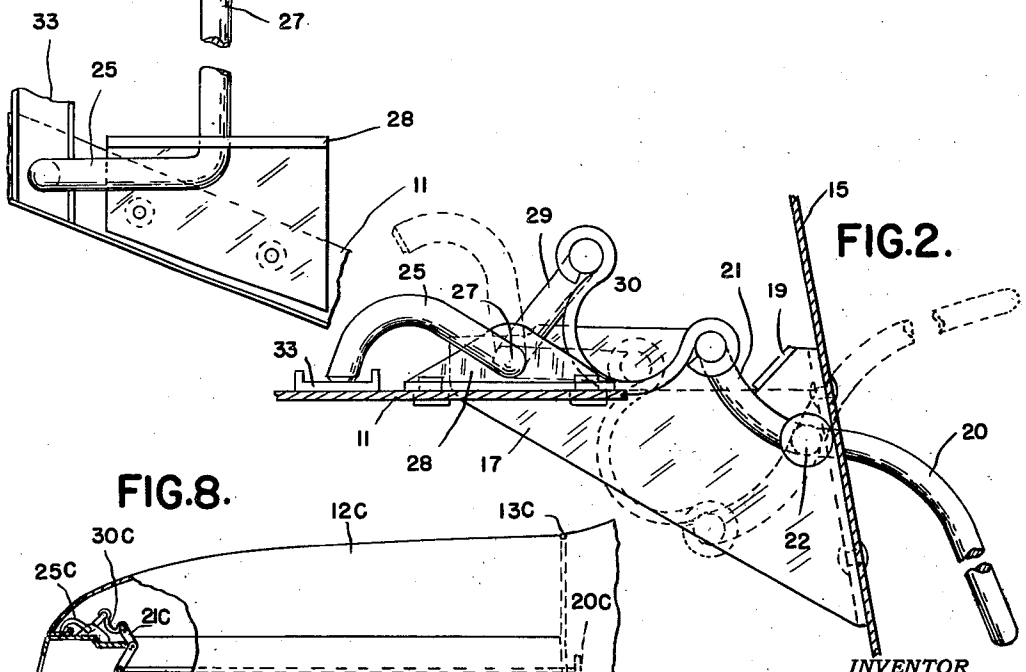


FIG.2.

FIG.8.

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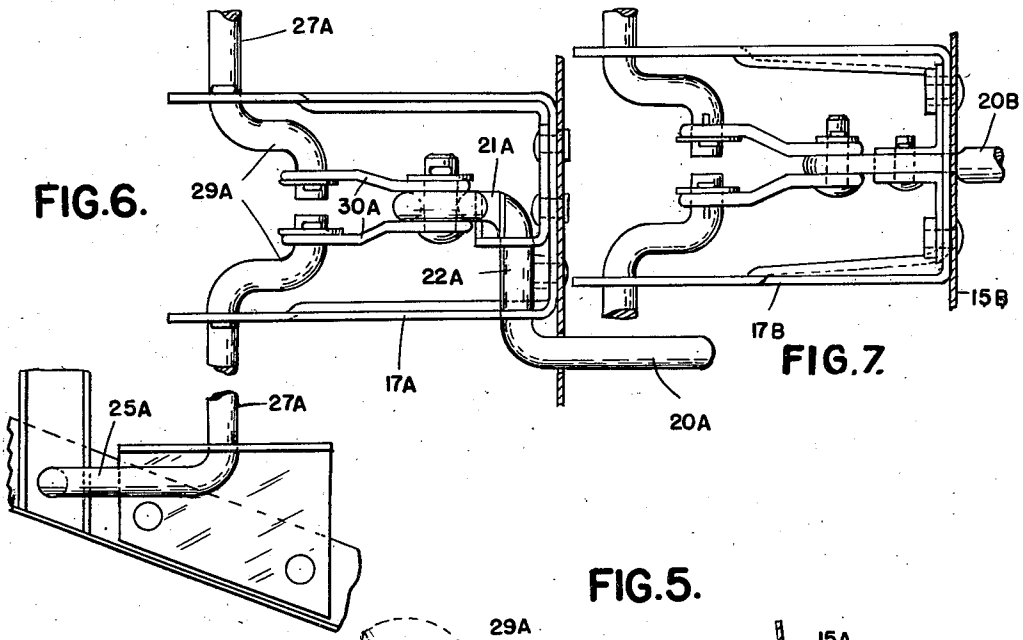


FIG.6.

FIG.7.

FIG.5.

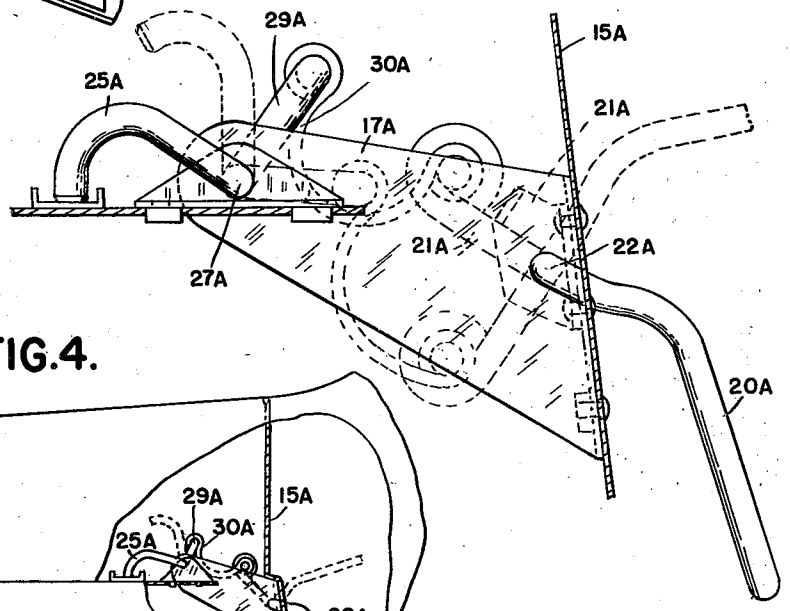
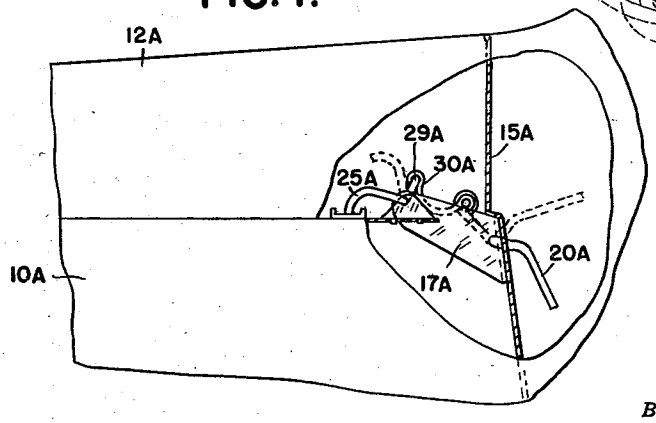


FIG.4.



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HOOD LATCHING MEANS

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Application May 31, 1938, Serial No. 211,086

3 Claims. (Cl. 292—214)

This invention relates to latching devices for closures, being particularly concerned with securing mechanism for closures which must be tightly held in closed position, against all possibility of looseness or rattling. Although shown installed upon a motor vehicle to latch the hood thereof, it will be appreciated that the invention is not limited to such use.

An important object is to provide such latching means which is of very simple and inexpensive construction, which constantly urges the closure more tightly toward closed position and imposes tension upon all parts of the latch mechanism as well as upon the closure itself, yet which is very quickly and easily operable both to release the closure and to secure it.

Another object is to provide such latching mechanism adapted to furnish centralized or remote control of a plurality of holding portions spaced from each other.

A further object is to provide such remotely controllable latching means adapted to impose tension upon all portions held by the several latching means, which tension is transmitted from the control point, the greater portion of the mechanism being located at such point.

Still another object is the provision of latching means adapted to impose such closing tension upon a door, lid or other closure at a plurality of spaced points, regardless of any distortion due to warping or weaving, or disalignment of any character.

Other objects and advantages will be apparent from the following description wherein reference is made to the accompanying drawings illustrating preferred embodiments of the invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Figure 1 is a side elevational view, partly broken away, of the front portion of a motor vehicle, showing latching mechanism constructed in accordance with the present invention and installed to provide securing means for the engine compartment hood.

Figure 2 is an enlarged side elevational view of the mechanism, with the vehicle portions to which it is attached shown in section.

Figure 3 is a plan view of the mechanism, also partly broken away and removed from the dash panel.

Figure 4 is a view similar to Figure 1 showing a somewhat modified construction.

Figure 5 is a side view thereof similar to Figure 2.

Figure 6 is a plan view thereof similar to Figure 3.

Figure 7 is a view similar to Figure 6 showing another modification, and

Figure 8 is a view similar to Figure 1, showing still another modification.

Referring now to the drawings, reference character **10** designates the hood of a motorcar, which is provided with a lid section **12** hinged at its front, as at **13**. The hood encloses an engine compartment **16**, which is separated from the remainder of the vehicle by a dash panel **15**.

The latching means is arranged at the rear or free edge of the lid section and carried by a bracket **17** attached to the dash panel and projecting into the engine compartment. The operating handle **20** for the latch mechanism projects through the dash panel to be conveniently operable from within the passenger compartment **26**. The operating handle is journaled on the bracket **17** and an integral actuating arm **21** extends forwardly into the engine compartment and is swingable in a vertical plane by movement of the handle **20**.

A pair of holding fingers **25** are integrally carried at the ends of a transverse rock shaft **27** journaled in brackets **28** carried upon opposite sides of the hood frame portion **11**, which reinforces the top of the hood wall, along the edge met by the lid when the latter is closed. A crank section **29** formed in the rock shaft is connected to the arm **21** by a spring link **30**, of generally U-shape, whose function will presently be described. A transverse brace element **33** connecting opposite sides of the lid section is so located as to be engageable by the holding fingers **25** when the lid is closed and the fingers are urged downwardly thereagainst, in the manner shown in Figure 2, by movement of the handle downwardly to the position shown in full lines in that view.

A forward extension of the bracket **17** partly encircles the rock shaft, as indicated at **18**, to provide a bearing and to prevent unwanted deflection of the shaft under the tension exerted by the spring link **30**. The spring link is so proportioned that its legs are urged together when the handle **20** is lowered. It then, in tending to reexpand, forces the fingers **25** toward locked position. In such locked position the axis of connection of the spring link to arm **21** lies above a line drawn between its axis of connection to the crank **29** and the fulcrum of actuating lever **21**. The latter is held by an integral stop lug **19** carried by the bracket **17** to limit upward

movement of the arm. An over-center action is thus provided, due to the fact that the swinging axis of the free end of the actuating lever must pass through and below such line during opening movement, the spring link being further compressed until such line is crossed and then allowed to expand, after which further downward movement of the lever (effected by lifting the handle) results in drawing down the crank and lifting the fingers 25 to free the lid, the element 30 then acting purely as a link. The open position is indicated in dotted lines in Figure 2.

With the fingers 25 lifted free of the cross bracing and holding element 33, the hood may be raised and lowered at will. When the handle 20 is depressed, to latch the lid, the fingers are first lowered to engage the element 33, such engagement taking place before the end of the actuating lever has reached the aforementioned line. Continued movement of the actuating lever compresses the spring and forces the fingers tightly against the holding bar 33, the spring being compressed and remaining so while the hood is in the latched condition. The spring then holds not only the rock shaft and fingers 25, but also the actuating and handle levers and all working parts firmly in position and against rattling.

In Figures 4, 5 and 6 a somewhat modified construction is shown. The operating handle 20A is journaled in a supporting bracket 17A which is bent to U-form, the pivot portion 22A extending into the space between the side web of the bracket and being bent inwardly inside the bracket to form the actuating lever 21A. The rock shaft is formed in two sections, each having a crank portion 29A within the space between the side webs of the bracket. Separate spring link elements 30A are pivoted to and independently swingable about the end of the actuating lever portion 21A, one such spring link being connected to each of the cranks 29A. The holding fingers may in this fashion be subjected to independent locking tension, and any distortion due to weaving or other causes which might tend to lift one of the fingers cannot loosen or have any effect upon the other finger, which is maintained in tight engagement by its independent spring link.

As shown in Figure 7, the operating handle 20B may project directly through the back web of the U-shaped bracket 17B as well as through the dash panel 15B, rather than being projected through the side of the bracket in the manner shown in Figure 6.

Another modification indicated in Figure 8 shows the ready adaptability of the invention to latching mechanisms located at a considerable distance from the point of operation. In the construction shown in this view, the lid section 12C of the hood 10C is pivoted at the rear, as at the point designated 13C, and the actuating lever 21C is formed as a bellcrank operable by a link 22C extending through the engine compartment and the dash panel 15C and into the passenger compartment, where it carries a handle 20C. Reciprocating the link operates the latch in the manner described, the holding finger 25C being operable through a spring link 30C and bearing downwardly, when the hood is latched, upon an inwardly projecting flange at the front of the lid.

What I claim is:

1. Releasable holding means for a closure or the like, comprising in combination with suitable supporting means, a pair of spaced arms including a driving arm and a driven arm, said arms being rockable about fixed axes, a resilient swinging spring link element of substantially U-shape connecting the free ends of said arms, said link having rigid pivot portions at its ends connecting each end of the link to an end of one of the arms for rocking movement only about a single axis, whereby the link is held against rocking movement about any axis not parallel to the axes of its connection to said arms, a holding portion operable by the driven arm and movable to one position to restrain movement of said closure, and to another position to free the same for movement, and means limiting the movement of said arms, the relaxed length of the link being greater than the distance between the ends of said arms when in the restraining position, whereby the driving arm and said link have an overcenter action, and said link is placed under compression and tends to prevent return movement of both of the arms and of the holding portion when in the restraining position.

2. Releasable holding means for a closure or the like, comprising in combination with suitable supporting means, a pair of spaced arms including a driving arm and a driven arm, said arms being rockable about fixed substantially parallel spaced axes, the driving arm being swingable in a path which carries it through and upon either side of a line drawn between the axes of the arms, and the driven arm being swingable in a path which lies entirely upon one side of said line, a resilient swinging spring link element connecting the free ends of said arms, the relaxed length of said link being greater than the maximum distance between the ends of the arms when both arms lie upon the same side of said line, said link being both compressible and expansible whereby it tends to maintain said driving arm upon whichever side of said line it may lie, a holding portion operable by the driven arm and movable to holding position thereby when said driven arm is moved away from said line, said driven arm and link lying at an angle to one another when the holding portion is moved to released position, whereby the holding portion is actuable in both directions by movement of the driving arm, and when both arms lie upon the same side of said line, said resilient link tends to maintain both arms in said position and to maintain the holding portion in holding postion.

3. Releasable holding means for a closure or the like, comprising in combination with suitable supporting means, a pair of spaced arms including a driving arm and a driven arm, said arms being rockable about fixed axes, a resilient swinging spring link element of substantially U-shape connecting the free ends of said arms, a holding portion operable by one of said arms including a crank connected to said arm and a torsionally resilient shaft connecting the crank to the holding portion, said holding portion being movable to one position to restrain movement of said closure, and to another position to free the same for movement, the other arm and said link having an overcenter action.

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