W. H. FARR.

AUTOMATICALLY OPERATING HOOD DOOR FASTENING DEVICE.

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1,335,958. **Patented Apr. 6, 1920.**

Fig. 1

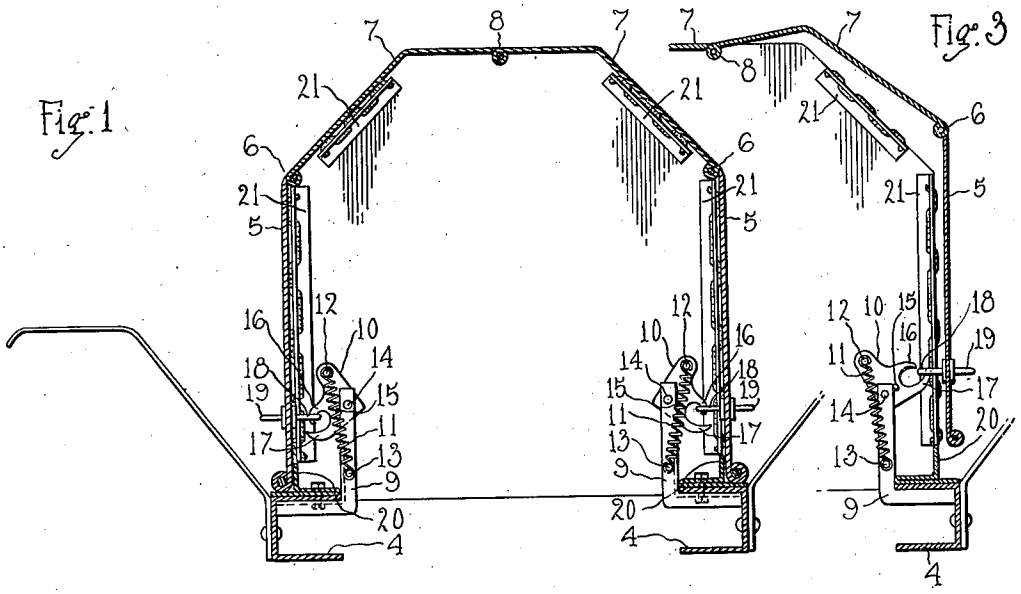
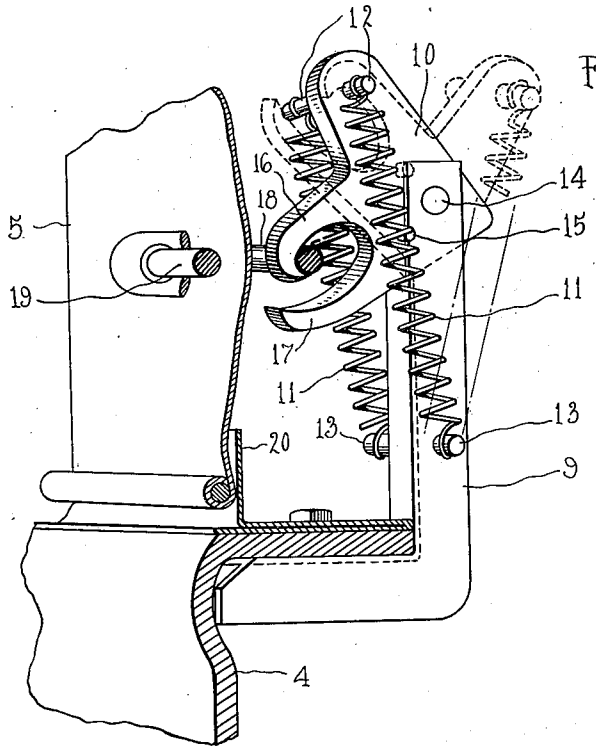


Fig. 3

Fig. 2.



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AUTOMATICALLY-OPERATING HOOD-DOOR-FASTENING DEVICE.

1,335,958. Specification of Letters Patent. Patented Apr. 6, 1920.

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To all whom it may concern:

Be it known that I, WARREN H. FARR, a citizen of the United States, and resident of New York city, New York county, State of New York, have invented certain new and useful Improvements in Automatically-Operating Hood-Door-Fastening Devices, of which the following is a specification.

My invention relates to hood door fastening devices designed to hold the doors of hoods within which the engines of self propelled vehicles are located, and through which access may be had to the engine, in a closed condition, and to yieldably hold them closed in order to thereby prevent noise due to impact between the edges of the doors and suitable fixed stops against which said edges abut when the doors are closed, the movement of the doors being due to vibration of the vehicle as will be appreciated.

The object of my invention is to provide an improved hood door fastening and securing device which will be entirely automatic in its operation; so that force applied to the door to open the same will release or unlock the fastening device and permit the door to be opened, and the mere act of closing the door will operate the fastening elements of the device and bring the same into operative holding relation or engagement with the door to thereby hold the same in its closed position.

A further object of my invention is to provide a fastening device for the doors of automobile hoods in which the operative elements will be located entirely within the hood, and will therefore be inaccessible from the exterior thereof thereby lessening the probability of injury to the fastening mechanism. Such a location of the fastening mechanism within the hood also provides a neater appearing construction, as no element necessary to the locking function is located outside the hood; the only element concerned with the opening of the hood to expose the engine being a handle or handles upon the door which are to be grasped by the operator of the vehicle when it is desired to unlock a hood door and gain access to the engine.

With the above and other objects of invention in view, my invention consists in an improved hood door fastening device illustrated in the accompanying drawing and hereinafter described and claimed, and in such variations and modifications thereof, within the scope of the concluding claims, as will be obvious to those skilled in the art to which my invention relates.

In the drawing accompanying and forming a part of this specification and wherein the preferred embodiment of my invention is illustrated:

Figure 1 is a view showing my improved hood fastening device as applied to the two doors of the hood of an automobile, the fastening devices being shown in side elevation.

Fig. 2 is a fragmentary perspective view showing my improved hood fastening device.

Fig. 3 is a fragmentary view illustrating the operation of my device and showing the same in a position different from that in which it is shown in Figs. 1 and 2.

Referring to the drawing, the reference numerals 4, 4 designate the two side members of the frame of an automobile or similar self propelled vehicle from which the engine which operates the same, as well as other elements of the vehicle are supported; and 5, 5 designate the two side or vertically arranged doors of the hood which incloses the engine, not shown. The doors are pivotally connected at their upper ends 6, 6 with top sections 7, 7 pivotally supported at the center of the hood, as shown at 8, so that the doors may be moved vertically and swung upward about their pivotal connections 6 in opening the hood to expose the engine; each door 5 being capable of being swung back about the pivotal connection 6 onto the top section 7, and the two swung back and out of the way toward the other side of the hood, as is usual in hood construction.

The reference numerals 9, 9 designate two supporting brackets which are themselves secured to a fixed support, such for example as to the side frame members 4, and which brackets in turn serve as supports for the operating elements of my improved hood fastening device.

It will be appreciated that each of the side doors 5 will be provided with one or more fastening devices all of which are alike in construction and operation, and, in the following description, the fastening devices will be referred to in the singular, it being appreciated that all of the fastening de-

vices used in connection with a single hood will or may be identical in construction with one another.

Pivotally supported at the upper end of the supporting bracket 9 is an oscillating latch member 10, said latch member being held in the two extreme positions in which it is shown in Figs. 1 and 3 by a spring 11, the ends of which are connected one with an upwardly extending arm of the latch member at 12 and the other with the bracket 9 at the point 13. Preferably two such springs as above described are associated with each separate latch member as shown in Fig. 2, in which case they are located one upon each side of said member and of the bracket 9. Such an arrangement of springs secures a better balance of the oscillating member and of the locking mechanism as a whole, although so far as the general features of operation of my invention are concerned a single spring may be used.

The spring in question swings from one side to the other of the pivotal connection 14 between the latch member 10 and the bracket 9, as will be understood from, Figs. 1 and 3, and acts to hold the oscillating latch member in whichever of the two extreme positions shown it may be in at any particular time. The swinging movement of the latch member is limited by suitable stops, such, for example, as are provided by the pin 15 carried by said latch member and which engages a side edge of the bracket 9 in each of the two extreme positions which the said latch member may occupy.

The latch member 10 is provided with two arms or jaws 16, 17 located adjacent but spaced apart from one another to provide an opening between them, the upper arm of said latch member being adapted to perform the locking function of holding the side doors in their closed position. The lower of said arms, which is considerably longer than the upper arm and projects beyond the end thereof, is provided for the purpose of operating the oscillating latch member, as will hereinafter appear.

The door is provided with a fastening member located upon its inner side and shown as in the form of a loop 18, but which may in fact be of any form or construction so long as it coöperates with the swinging latch member and with the jaws and arms thereof to operate the latch member and hold the door closed as hereinafter explained.

The fastening member or loop 18 is preferably located at a somewhat lower level than the horizontal plane of the pivotal support 14, and the relative arrangement of the parts is such that the upper jaw 16 of the latch member extends over the top of and engages the loop when the door is to be locked in its closed condition, as clearly shown in Figs. 1 and 2 of the drawing, in which position of the parts the springs 11 will hold the free end of the jaw 16 in engagement with the loop 18. Preferably the free outer end of the jaw 16 is formed into a hook which extends downward over the inner side of the loop 18, which construction obviously increases the holding action of the locking mechanism; as outward movement of the door about the pivotal connection 6 will be the more effectively prevented by the engagement between the hook and the inner surface of the loop or equivalent fastening member with which the end of the jaw in question engages.

As above explained the lower jaw 17 is materially longer than the upper jaw 16 and extends beyond the same, as clearly shown in the drawing, the purpose of making the lower jaw longer than the upper being to provide a construction in which downward movement of the door will cause the loop 18 to engage directly with the lower jaw and swing the latch member about its pivotal support 14 as the door is closed. During this closing movement the springs 11 are obviously moved past the pivotal support 14, after which the springs will complete the movement of the latch member and bring the jaw 16 thereof into locking engagement with the loop 18 as above explained.

The doors 5 are opened and closed by suitable handles 19, and a stop 20 is located adjacent the lower end of the door to thereby limit the inward movement of said lower edge. Other stop members 21 are also provided along the side edges of the doors, and along the side edges of the stop sections 7, to thereby limit the movement of the side edges of these last mentioned members. When the hood is closed the lower ends of the doors 5 rest against the stops 20, and the side edges of said doors and of the top section rests against the stops 21, as shown in Fig. 1 of the drawing. The springs 11 are obviously under tension when the hood is closed and act to hold the edges of the doors and top section above referred to in contact with the stops to thereby prevent rattling due to impact between the edges of the door and the stops, as will be appreciated.

In view of the premises it will be appreciated that when the parts are in the positions in which they are illustrated in Figs. 1 and 2 in which the doors are closed and held in that condition outward movement of the lower free ends of the doors will be prevented by the conjoint action of the spring 11 and the free outer end of the upper jaw 16; the holding action against outward movement being obviously greatly augmented by the preferred hook shaped form of the outer end of the jaw. The jaw illustrated is in fact of such form that the

door could not be opened by a direct outward or horizontal pull applied thereto through the handle 19, or at least the form of the jaw shown is such as to offer great resistance to the opening of the door by a direct horizontal pull.

The spring 11 in addition obviously acts to oppose upward movement of the door due, for example, to roughness in the road over which the vehicle is being driven; thus yieldably holding the door in its closed condition and acting to prevent noise due to impact between the edges of the door and the bottom and side stops 20, 21 against which the edges of the door and of the top section abut when the hood is closed. This spring holding action obviously prevents the slamming of the doors against the stops in question, thus eliminating noise due to vibration of the vehicle, as will be appreciated.

While as above explained, the upper jaw 16 of the latch member prevents outward movement of the lower edge of the door the latch member does not at all interfere with the opening of the door and, upon grasping the handle 19 and pulling in an upward, or in an upward and outward direction, the latch member will be swung upon its pivotal support 14 and moved into a position in which it is shown in Fig. 3, and in dotted lines in Fig. 2; the movement of the said latch member being completed by the spring 11 after it has been swung to such an extent that the spring passes the pivotal point 14, in which position it is held by the spring until the door is to be closed.

The fact that the lower jaw 17 projects beyond the extremity of the upper jaw 16 provides a construction in which the end of the lower jaw will be engaged by the loop 18 as the door is returned to its closed condition, and the oscillating latch member swung from the position in which it is shown in Fig. 3 into the locking or holding position in which it is shown in Figs. 1 and 2 as the door moves into its final position, the end of the movement of the latch member being obviously accomplished by the spring 11 as heretofore explained.

The upper jaw being shorter than the lower jaw the extremity thereof will not ordinarily be engaged by the loop 18 during the closing of the door. If, however, the upper jaw projects to any material extent into the path of movement which the loop may take during the closing of the door the form of such jaw is such that the loop will ordinarily be deflected sufficiently to permit it to slide past the extremity of the jaw and engage the lower jaw without swinging the latch member past its central position and permitting the spring 11 to move the same into the final position in which it is shown in Figs. 1 and 2; and if during the closing of the door, as may happen under unusual conditions, the loop 18 should engage the upper jaw in such a way and to such an extent as to swing the latch member past its center and cause it to assume the final position shown in Figs. 1 and 2, then the form of the loop or equivalent holding member which contacts with the upper jaw, and the inclination of the underside of the upper jaw at its extremity, are such that the latch member will be deflected slightly in a reverse direction against the action of the spring as the door is closed, thus permitting the loop to pass under the end of the upper jaw as the door moves into its final closed position. After the loop has passed by the extremity of the jaw the spring 11 will obviously return the latch member into the position it occupied before being swung backward by the action of the loop, thus locking the door in its closed condition. It therefore follows that while the oscillating latch member is normally operated by engagement between the loop 18 and lower jaw 17 thereof, the parts will nevertheless operate and assume the locked position in which they are shown in Figs. 1 and 2 after the door is closed, even should the loop under abnormal conditions engage with the upper jaw of the said latch member.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a hood door fastening device of the class described, a supporting bracket; a pivotally supported oscillating latch member carried by said bracket and having an upper jaw hook-shaped in form at its free outer end, and a lower jaw disposed adjacent and extending beyond the end of said upper jaw; a spring operatively connected with said latch member and acting to yieldably hold the same in each of its two extreme positions; and a loop carried by the inner surface of the door and located below the level of the pivotal connection between said bracket and said oscillating latch member, and which loop is so arranged as to engage the lower of said jaws as the door is closed to thereby swing the latch mechanism into its locking or holding position, in which it is engaged by the hook-shaped end aforesaid of said upper jaw.

2. In a hood door fastening device of the class described; a supporting bracket; a pivotally supported oscillating latch member carried by said bracket and having an upper jaw hook-shaped in form at its free outer end, and a lower jaw disposed adjacent and extending beyond the end of said upper jaw; a spring operatively connected with said latch member and acting to yieldably hold the same in each of its two extreme positions; and a fastening member located upon the inside of the door and which member is

so arranged as to engage the lower of said jaws as the door is closed to thereby swing said latch member into its locking or holding position, and to be engaged by the hook shaped end of said upper jaw when said latch member is in its locking position.

3. In a hood door fastening device of the class described, a supporting bracket; a pivotally supported oscillating latch member carried by said bracket; a spring operatively connected with said latch member and acting to yieldably hold the same in each of its two extreme positions; an upper jaw carried by said oscillating latch member and adapted to engage a fastening member located upon the inside of the door to thereby hold the door in a closed condition; and a lower jaw carried by said oscillating latch member and disposed adjacent and extending beyond the end of said upper jaw, and adapted to be engaged by the fastening member aforesaid to thereby swing said latch member upon its supporting pivot and accomplish the locking of the door in its closed condition.

4. In a hood door fastening device of the class described, a supporting bracket; and a pivotally supported spring operated oscillating latch member carried by said bracket and having an upper jaw adapted to engage a fastening member carried by the door to thereby hold the same in a closed condition, and a lower jaw disposed adjacent and extending beyond the end of said upper jaw and adapted to be engaged by the fastening member aforesaid to thereby swing said latch member upon its supporting pivot and accomplish the locking of the door in its closed condition.

In testimony whereof I affix my signature.

WARREN H. FARR.