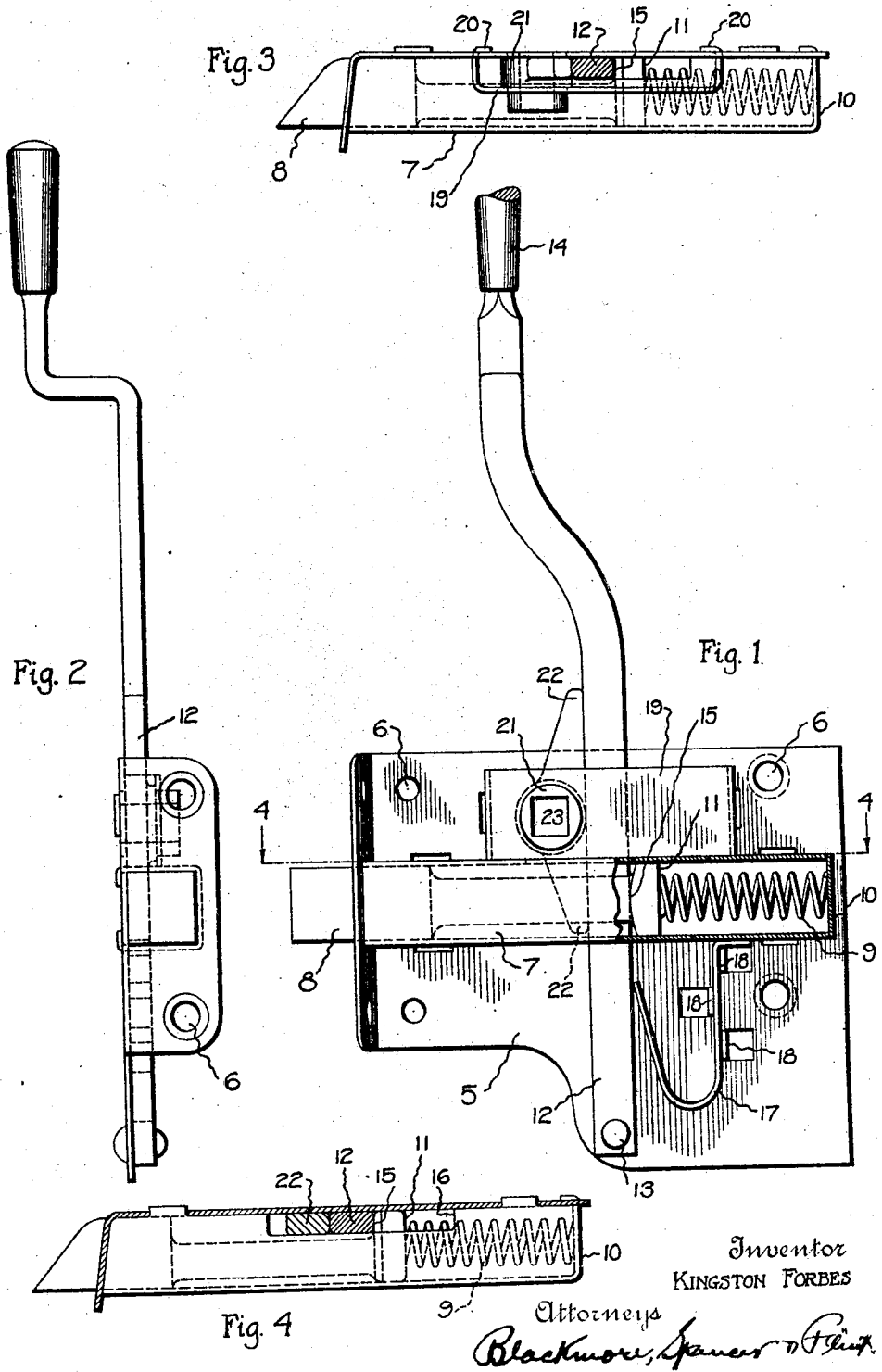


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LATCH DEVICE FOR VEHICLE DOORS.
APPLICATION FILED NOV. 22, 1919.

1,417,239.

Patented May 23, 1922.



UNITED STATES PATENT OFFICE.

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LATCH DEVICE FOR VEHICLE DOORS.

1,417,239.

Specification of Letters Patent.

Patented May 23, 1922.

Application filed November 22, 1919. Serial No. 339,804.

To all whom it may concern:

Be it known that I, KINGSTON FORBES, a citizen of the United States, and a resident of Flint, county of Genesee, and State of Michigan, have invented certain new and useful Improvements in Latch Devices for Vehicle Doors, of which the following is a full, clear, concise, and exact description, such as will enable others skilled in the art to which the invention relates to make and use the same, reference being made therein to the accompanying drawings, which form a part of this specification.

My invention relates to latch devices for the doors of vehicles such as automobiles, cabs, etc., the purpose of the same being to permit the door to be opened either by an occupant within the vehicle, or by a person upon the outside thereof; so that a person about to enter the vehicle may open the door from the outside without reaching over and into the interior thereof, or an attendant may open the door without reaching into the vehicle. At the same time an occupant of the vehicle may operate the latch device from the interior of the vehicle, and without reaching over the top of and down along the outside of the door when the same is to be opened.

The object of my invention is to provide improved latch operating mechanism of the general type above referred to which will be simpler in construction and more effective for the purpose for which it is designed than has heretofore been the case in latch mechanism for vehicle doors in which the idea of providing for the opening of the door either from the inside or from the outside of the vehicle is present.

Referring now to 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 latch for vehicle doors in side elevation for the most part, certain portions thereof, however, being broken away in part to show features of interior construction.

Figure 2 is a view showing my invention in elevation.

Figure 3 is a view showing the same in plan, the operating lever being cut off to avoid confusion.

Figure 4 is a view showing a section upon a horizontal plane indicated by the line 4, 4, Figure 1, looking down.

My improved latch device comprises a main latch plate 5 which serves as a support for the various operating parts and mechanisms of the device, the same being provided with suitable holes 6 to facilitate the attachment of the device to the body portion or frame of the vehicle door with which it is to be used.

Supported by the latch plate 5 and secured thereto by lugs extending through holes in the plate and bent down onto the surface thereof opposite said guide is a hollow bolt guide 7 of box like form extending throughout substantially the entire length of the plate, and the reference numeral 8 designates a locking bolt movable within and longitudinally of the bolt guide and guided in its movements by the side walls of the said guide. A coil spring 9 is located within the bolt guide 7 and acts between a closed end 10 thereof and the inner end 11 of the bolt 8, the dimensions of the bolt being obviously such that it fits closely within and is guided in its movements by the inner surface of the said guide.

The bolt 8 is reduced in size at its middle portion so as to provide a space intermediate the ends thereof in which a pivotally supported operating lever 12 operates, said lever being pivotally supported from the latch plate adjacent the lower end thereof as at 13 and extending upwardly beyond the same, and the upper end of which lever is shaped to provide or is equipped with an operating handle 14 for operating said lever. This lever extends transverse to the bolt 8, as clearly shown, and an intermediate portion thereof engages an abutment 15 provided by a laterally extending portion of the inner end or head 11 at the right-hand end of the bolt, as best shown in Figures 3 and 4.

The upper and lower walls of the bolt guide 7 are cut away as shown at 16 to thereby provide a slot or space of sufficient extent to permit the lever 12 to operate therein and move the bolt to the right to thereby disengage its free end from the apertured plate with which it co-operates, as is usual in locking devices. Said lever 12 is acted upon by a U-shaped spring 17 held in place by bent up portions 18 of the latch plate, and which spring tends to move the said lever to the left, referring to Figure 1.

Carried also by the latch plate 5 is a bracket or support 19 the ends of which are secured at 20 in openings provided in the

latch plate in the same way that the bolt guide is secured to the plate, and which bracket is provided with a bearing for one end of an oscillating bolt actuating member 21; the other or inner end of said member, referring to Figure 1, being supported in a bearing in the latch plate. This latch actuating member 21 is provided with two oppositely extending cam portions 22—22 against which the lever 12 is pressed by the spring 17; and said latch actuating member is provided with a square hole 23 into which the shank of a knob, handle, or other device, through which oscillating motion may be communicated to the said member, extends when the latch device is in use upon a door.

It therefore follows that angular movement in either direction imparted to the oscillating bolt actuating member 21 by the upper or the lower of the cams 22, according to the direction in which angular motion is imparted to the member 21, will force the said lever 12 to the right and swing it about its pivotal support 13, thereby communicating motion to the bolt 8 through the abutment 15.

The handle or other device, whereby the bolt actuating member 21 is operated, is ordinarily located upon the outside of the vehicle door, thus permitting the door to be opened from the exterior of the vehicle. At the same time the occupant of the vehicle by grasping the handle 14 may swing the lever 12 upon its pivotal support 13, thus operating the bolt 8 independently of the auxiliary actuating member 21. It therefore follows that the bolt may be operated and the door released either from the outside or from the inside of the vehicle, and either by the lever 12 or the knob, handle, or other element through which angular movement is communicated to the bolt actuating member 21; and it will be further appreciated that the two springs 9 and 17 acting each independently of the other serve to hold the abutment 15 in engagement with the lever 12 as well also to hold the lever in engagement with the cam members 22—22, thus taking up lost motion in all the parts and preventing the rattling of the device when the same is in use. It will, of course, be appreciated that the bolt may be operated by either the lever 12 or the actuating member 21, each independently of the other, according to which one of said bolt actuating members is grasped and operated by a person about to open the door equipped with my invention.

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

1. In a latch device of the class described, a latch plate; a bolt guide carried by said plate and located adjacent the central portion thereof; a reciprocating spring actuated bolt

slidable in said guide and having an abutment at its inner end; an oscillating operating lever the lower end of which is pivotally connected with said latch plate and which lever extends transverse to said bolt and upward beyond said plate and the free end of which serves as an operating handle, and which lever engages the abutment aforesaid to thereby operate said bolt; an oscillating latch actuating member supported by said latch plate above said bolt guide and having two oppositely disposed cam portions in direct contact throughout their lengths with said lever and either one of which may operate the same, to thereby operate said bolt; and a spring acting to force said operating lever into engagement with said cam portions.

2. In a latch device of the class described, a latch plate; a hollow bolt guide carried by said plate; a reciprocating bolt operable in said guide and having an abutment at its inner end; a spring located within said bolt guide and acting between a closed end thereof and the inner end of said bolt; an oscillating operating lever the lower end of which is pivotally connected with said latch plate and which lever extends upward and transverse to said bolt and beyond said plate, and the free end of which serves as an operating handle, and which lever engages the abutment aforesaid to thereby operate said bolt; an oscillating latch actuating member supported by said latch plate above said bolt guide and having two oppositely disposed cam portions in engagement with said lever, and either one of which cam portions may operate said lever to thereby communicate motion to said bolt; and a spring carried by said latch plate and acting upon said oscillating lever to force the same against the cam portions aforesaid of said oscillating latch actuating member.

3. In a latch device, a spring pressed latch bolt arranged to slide substantially horizontally; an upright hand operable lever having a hand grip at its upper end, said lever being swingable about a substantially horizontal axis located below said latch bolt, and exerting a pressure on said bolt to operate the same; a second hand operable lever angularly movable about a horizontal axis above the axis about which the first-named hand lever swings, said second lever comprising arms extending in opposite directions from its axis and which arms engage directly with said first-named lever to thereby operate the same and communicate movement through it to said latch bolt; and a spring acting upon said second lever to force it into engagement with said first-mentioned lever.

In testimony whereof I affix my signature.

KINGSTON FORBES.