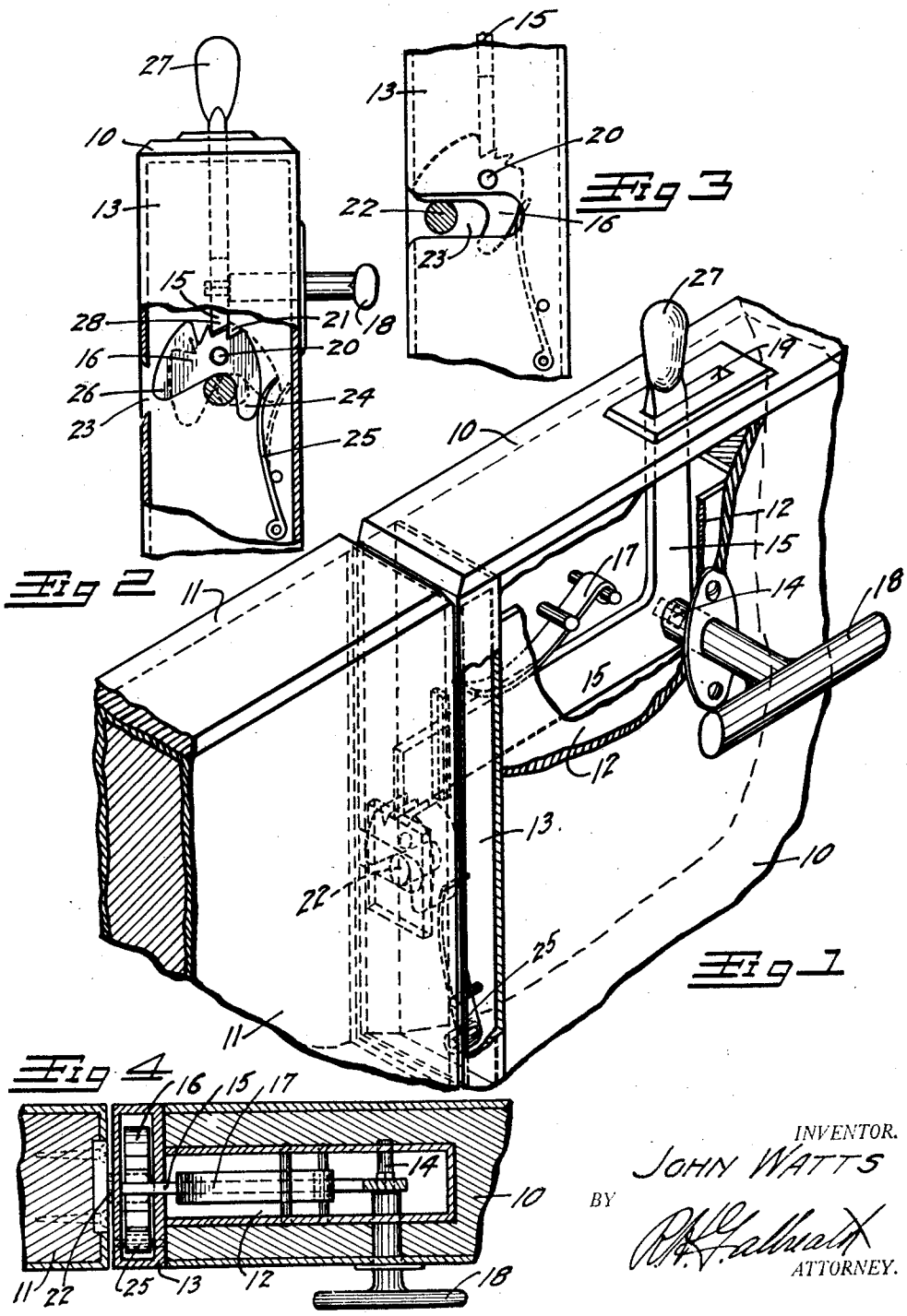
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J. WATTS

DOOR LATCH

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DOOR LATCH.

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To all whom it may concern:

Be it known that I, JOHN WATTS, a citizen of the United States residing at Walsenburg, in the county of Huerfano and State of Colorado, have invented certain new and useful Improvements in Door Latches of which the following is a specification.

This invention relates to devices for catching and securing a door in the closed position and while more particularly valuable for the doors of an automobile will also be found useful in many other applications.

The principal object of the invention is to provide a door latch which will act to relieve the hinges from supporting the entire weight of the door. This feature makes the invention particularly applicable for use on an automobile, since the door is supported from both edges and is therefore relieved of the strains, incident to the movements of the car, which usually result in loosened and strained hinges and poorly fitting doors.

Another object is to provide a latch which will secure the door against movement regardless of whether it has been forced to the fully closed position.

Still another object resides in the provision of a latch which will make it impossible for the door or latch to rattle or vibrate even though the door may not have been fully closed.

A further object is to provide a latch which will force the door open the instant the latch catch is released and which will act as a shock absorber to bring the door to a gradual and quiet stop.

A still further object is to provide a latch which will make it impossible for the door to be left unlatched in the closed position.

Other objects and advantages reside in the detail construction of the invention which result in simplicity, economy and efficiency and which will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a fragmentary perspective view of a portion of a door and its jamb, partly broken away to show the interior construction thereof,

Fig. 2 is an edge elevation of the door at the latch, partly broken away to show the latch tumbler, showing the position of the latch tumbler when the door is in the partially closed position. In broken lines in this view the position of the tumbler in the fully closed position is shown.

Fig. 3 is a similar view, not broken away, showing the position of the tumbler when the door is open.

Fig. 4 is a cross sectional view of the door and jamb taken on the line 4—4, Fig. 1.

Let the numeral 10 designate a door of the automobile type and the numeral 11 the jamb thereof. The latch mechanism is contained in a T shaped housing comprising a part 12, which is inset into the edge of the door, and a part 13, which lies flush with the door edge.

A handle shaft 14 extends through the part 12 of the housing and carries, secured thereon, a bell crank lever 15 which extends horizontally into the part 13 of the housing and coacts with a pivoted tumbler 16. A spring 17 serves to hold the lever 15 against the tumbler 16.

The lever 15 may be operated in any desired manner depending upon the particular installation upon which it is to be used. In the drawing a handle 18 is secured to the handle shaft 14, by means of which the lever 15 may be operated from the outside of the automobile. For operating the lever from the inside of the car, one leg of the lever 15 is extended upward through a slot 19 in the top of the door terminating in a handle 27. The lever 15 could be extended through an arcuate slot in the inner face of the door where it is not desirable to have the handle 27 on the top of the door.

The tumbler 16 is pivoted in the housing on a pin 20 upon which it revolves. The general shape of the tumbler 16 is an inverted V and it is provided, on its upper edge, with an arcuate series of ratchet shaped notches 21, in which the lower edge of the extremity of the lever 15 is received.

The extremity of the lever 15 is beveled, as shown at 28 to act as a ratchet pawl in the notches 21. In the drawing three notches 21 are shown, one for the open position, one for the half closed position, and one for the fully closed position. The number of notches could be increased however, should it be desired to have a greater range of positions for latching the door.

A stud 22 is secured to the edge of the door jamb 11 at the proper height to contact with the tumbler 16. A slot 23 is formed in the face of the housing 13 to admit of the passage of the stud 22 into contact with the tumbler 16.

As the door is forced to the closed position, the stud 22 travels into the slot 23, as shown in Fig. 3, and contacts with a leg 24 of the tumbler 16 forcing it back against the action of a spring 25. As the leg 24 of the tumbler 16 travels inward the other leg 26 of the inverted V travels downward in the rear of the stud 22, and when the full line position of Fig. 2 has been reached, the lever 15 will snap into the middle one of the notches 21 and lock the tumbler from returning to its former position.

Should the door be left in this position, it will be securely held from opening by the leg 26 of the tumbler 16, which will prevent the stud 22 from passing out of the slot 23. This position is what might be termed an emergency catch since its only function is to securely latch the door even though it might have accidentally been only partially closed.

As the door is forced to the fully closed position, the tumbler 16 will revolve to the dotted line position of Fig. 2, when the lever 15 will snap into the last notch 21 and securely lock the door closed.

When it is desired to release the door, the lever 15 is raised from the notches 21, by any of the various handles, and the spring 25 will revolve the rocker 16 to the position of Fig. 3 and in doing so will force the door away from the stud 22. This is valuable feature for since the latch will force the door open the instant the tumbler is released, it will not only assist the operator in opening the door but will make it impossible for the door to remain in the closed position unless it is securely latched.

It will be noted that as the tumbler 16 slides over the stud 22, the weight of the door is brought to bear upon the stud, which will then support the door from any downward strains such as might be caused by a person sitting on the door. It will also be noted that after the stud 22 has traveled into the tumbler 16, it has no space in which to vibrate and cause the latch to rattle.

As the door is swung to the closed position, it must act against the spring 25 which acts as a shock absorber and brings the door to a gradual quiet stop.

The terminus of the slot 23 would act as a final stop for the door.

While a specific form of the invention has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:—

1. A door latch comprising a stud adapted to be secured to the door jamb; a pivoted tumbler shaped to slide over the top of and around said stud when the door is closed and transmit the weight of said door to said stud, said tumbler having notches in its periphery; a spring acting to force said tumbler to the open position; a vertically movable lever engaging said notches and holding said tumbler in the closed position and means for operating said lever.

2. A door latch comprising a stud adapted to be secured to the door jamb; a pivoted tumbler shaped to slide over the top of and around said stud when the door is closed and transmit the weight of said door to said stud, said tumbler having notches in its periphery; a spring acting to force said tumbler to the open position; a vertically movable lever engaging said notches and holding said tumbler in the closed position; a spring acting on said lever to hold same in said notches and means for operating said lever.

3. A door latch comprising a stud adapted to be secured to the door jamb; a housing adapted to be secured to the door; a slot in said housing to receive said stud; a tumbler pivoted in said housing above said slot, said tumbler being shaped to slide over the top of and around said stud when the door is closed and transmit the weight of said door to said stud, said tumbler having ratchet teeth in its periphery; a vertically movable pawl coacting with said ratchet teeth to hold said tumbler in the closed position; a spring acting to hold said tumbler in the open position and means for releasing said pawl from said teeth.

4. A door latch comprising an inverted U-shaped tumbler carried by a door and pivoted to rotate in a vertical plane and said stud fixed in the jamb of said door and arranged to pass under and into said U-shaped tumbler and support the weight of a door through said tumbler; notches formed in the top of said tumbler and a lever pivoted to operate in vertical plane normal to the plane of said tumbler, said lever being shaped at its one extremity to engage in said notches and provided at its other extremity with operating means.

In testimony whereof, I affix my signature.

JOHN WATTS.