G. W. WELLS.

LATCH FOR DOORS.

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1,184,498. Patented May 23, 1916.

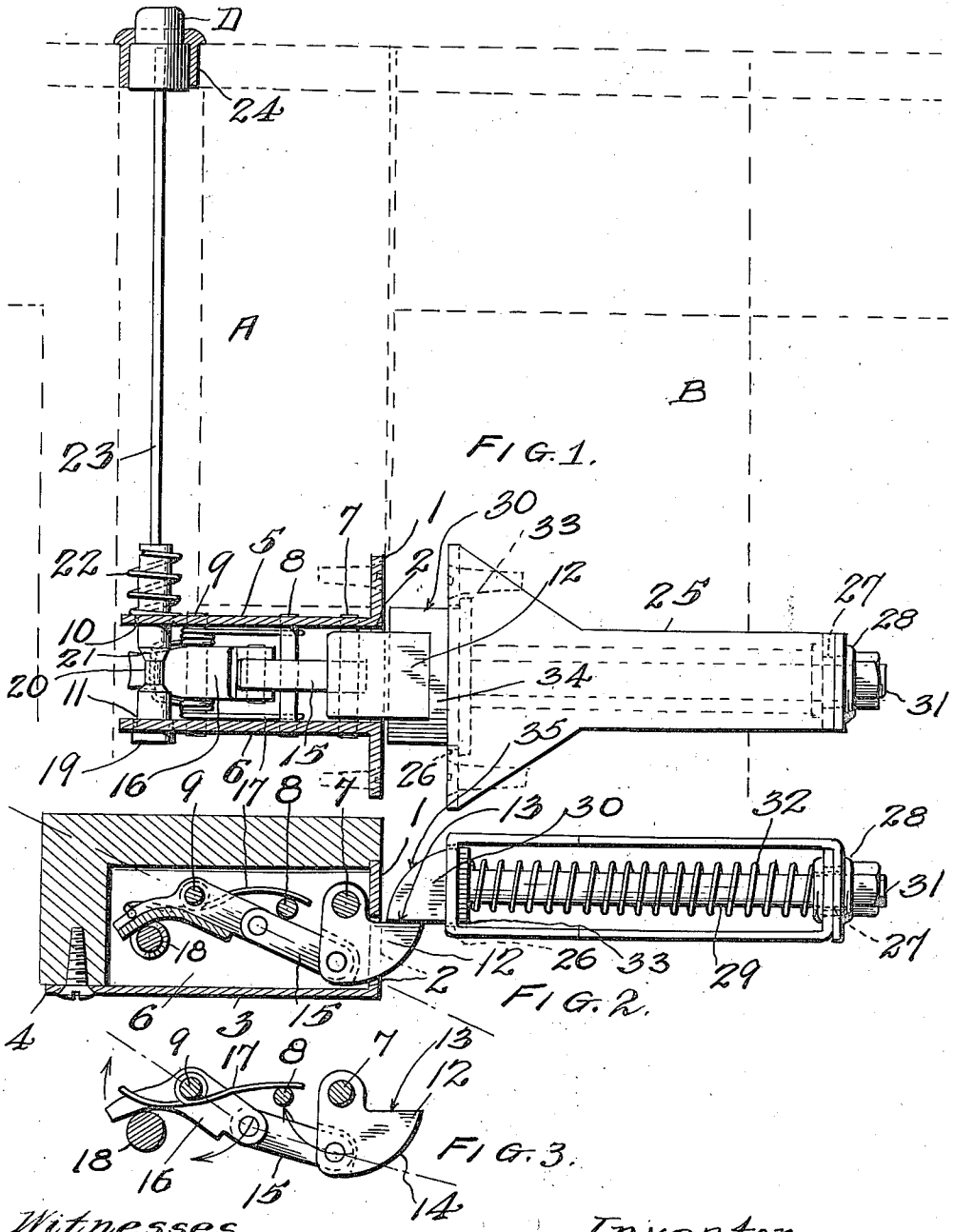


FIG. 1.

FIG. 2.

FIG. 3.

Witnesses

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LATCH FOR DOORS.

1,184,498. Specification of Letters Patent. Patented May 23, 1916.

Application filed December 7, 1914. Serial No. 875,880.

To all whom it may concern:

Be it known that I, GEORGE W. WELLS, a citizen of the United States, residing at Amesbury, in the county of Essex and State of Massachusetts, have invented a new and useful Latch for Doors, of which the following is a specification.

The object of the invention is the provision of a latch especially adapted for use in connection with a vehicle door and jamb, the latch bolt and means for releasing the same preferably being so combined with the door that a light pressure of the hand in grasping the door will release the bolt from the catch and allow the door to swing upon its hinges to an open position; and the catch, the latch bolt and operating means in connection with the same being so constructed and combined that the door when closed will be automatically and securely latched in position.

The invention consists in certain novelties of construction and combinations of parts as herein set forth and claimed.

The accompanying drawings illustrate one embodiment of the invention in connection with a well known type of vehicle door, the same being constructed and applied according to the best mode of procedure so far devised for the purpose. However, the invention may be applied to other than vehicle doors and by other modes involving unsubstantial changes in construction and in the location of parts.

Figure 1 is an enlarged view of the latch bolt releasing means, the bolt and the catch in elevation as seen when looking at the inner surface of the door, the casing for the latch bolt being in vertical section and the door and jamb being indicated by dotted lines. Fig. 2 is a section of Fig. 1 on a horizontal plane through the casing and a top view of the catch and its casing, the latch bolt being shown in its latched position. Fig. 3 shows the latch bolt in an unlocked position.

Referring to the figures, the letter A designates a well known type of vehicle door, having hinges B B, an automatic latching mechanism C seated in the door, and a push button releasing means D projecting at the top edge of the door.

E designates the door jamb having the catch mechanism F seated therein and in line with the latch mechanism when the door is closed.

A casing for the latch mechanism comprises the face plate 1 with an opening 2 for the bolt, a face wall 3 with a perforated extension 4 to receive a screw, and the top and bottom wings 5 and 6, the said wings being united by fixed pins 7, 8 and 9 and their rear ends provided with holes 10 and 11.

The latch bolt 12 is pivoted on pin 7 so it can rotate as far as the pin 8 which limits its travel. The bolt has a plane surface 13 and a curved surface 14 and it is pivotally connected by a link 15 to a lever 16, which latter is pivoted intermediate its ends to the pin 9, as shown. A spring 17 is looped, wound around the pin 9, the free ends located in contact with the pin 8, and the looped end passed over the free end of lever 16 so the tension of the spring will hold the link 15 and the pivoted end of the lever in line, thus maintaining the latch bolt 12 so it cannot turn without breaking the joint.

To provide for releasing the latch bolt a reciprocating rod or bar 18 having a head 19 and a circular recess 20 with a beveled surface 21 which can act as a plunger is located in the holes 10 and 11 and held in place by a helical spring 22 having its top end secured in a slot in the rod or bar and its lower end engaging the top wing 5 of the casing. The free end of the lever 16 normally bears against the beveled surface 21 within the recess 20 and the depression of the rod or bar 18 against the tension of the spring obviously will rotate the lever upon its pivot and cause the parts to occupy the relative positions shown by Fig. 3 which allow the latch bolt 12 to rotate on its pivot backwardly into the casing. The dotted lines through the pin 9 and the pivots which connect the link with the bolt and lever in Figs. 2 and 3 will make clear the latched and released positions of the bolt.

The bar or rod 18 can be moved by any suitable means, and in this instance a push rod 23 connects the bar 18 with a push button D located so it projects slightly above the top edge of the door. The button is seated within a socket 24 so it cannot be detached from the outside. Pressing upon the push button causes the parts to take the relative positions shown in Fig. 3. Remove the pressure and spring 22 retracts the plunger bar 18 so the parts will occupy the relative positions shown by Fig. 2.

The catch mechanism F in the jamb comprises a casing 25 having an opening 26 at

one end and an opening 27 at the opposite end through a uniting eyelet 28; a reciprocating bolt 29 with a head 30 within the openings in the casing, the bolt being threaded at the end 31 and provided with a nut; and a spring 32 upon the bolt and bearing against the flange 33 which is larger than the hole 26, thus limiting the outward movement of the head 30. This head has a plane surface 34 adapted to engage the plane surface of the latch bolt and a curved surface 35 adapted to engage the curved surface of the latch bolt.

The hand being placed upon the push button releases the latch bolt and a slight pressure turns the door upon its hinges. Removing the pressure upon the push button allows the spring to secure the latch bolt, and upon swinging the door to a closed position the rigid latch bolt strikes the head of the catch bolt and forces it back against the tension of the spring so the latch bolt can pass the catch bolt and the door become fastened.

While I have shown the latch mechanism on the door and the catch mechanism on the jamb, they may be oppositely located when so desired. The invention may also be embodied in connection with other than vehicle doors. Furthermore, the location of the releasing means may be changed without constituting a substantial departure. However, the example of the embodiment of the invention shown and described is by the simplest and best mode of procedure I have so far devised.

What I claim is:

1. In a door latch, a movable door member and a stationary jamb member, a bolt, means including a movable element for normally holding said bolt rigidly in latching position, means for moving said element to released position, and a spring for holding said bolt yieldably in latching position when said element is released and for returning said element to normal position, carried by one of said members, and means carried by the other of said members engaging and operating to retract the bolt when the door is opened.

2. In a door latch, a bolt, means including a movable element for normally holding said bolt rigidly in latching position, means for moving said element to released position, and a spring coöperating with and directly engaging said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position.

3. In a door latch, a movable door member and a stationary jamb member, a bolt, means including a movable element for normally holding said bolt rigidly in latching position, means for moving said element to released position, and a spring coöperating with said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position, carried by one of said members, and means carried by the other of said members engaging and operating to retract the bolt when the door is opened.

4. In a door latch, a bolt, means including a movable element for normally holding said bolt rigidly in latching position, said element being pivotally engaged with said bolt and movable pivotally to released position, means for moving said element to released position, and a spring coöperating with and directly engaging said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position.

5. In a door latch, a movable door member and a stationary jamb member, a bolt, means including a movable element for normally holding said bolt rigidly in latching position, said element being pivotally engaged with said bolt and movable pivotally to released position, means for moving said element to released position, and a spring coöperating with said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position, carried by one of said members, and means carried by the other of said members engaging and operating to retract the bolt when the door is opened.

6. In a door latch, a bolt, means for holding said bolt rigidly in latching position, including normally alined toggle levers one of which is pivotally engaged at its outer end with said bolt, hand-operated means for bowing said levers upon their outer pivots as centers, and a spring coöperating with said toggle levers for holding the bolt yieldably in latching position when said toggle levers are bowed and for returning said toggle levers to alined position.

7. In a door latch, a movable door member and a stationary jamb member, a bolt, means for holding said bolt rigidly in latching position, including normally alined toggle levers one of which is pivotally engaged at its outer end with said bolt, hand-operated means for bowing said levers upon their outer pivots as centers, and a spring coöperating with said toggle levers for holding the bolt yieldably in latching position when said toggle levers are bowed and for returning said toggle levers to alined position, carried by one of said members, and means carried by the other of said members engaging and operating to retract the latch when the door is opened.

8. In a door latch, a pivoted bolt, means for holding said bolt rigidly in latching position including a stop, normally alined toggle levers and a spring normally holding

one of said levers against said stop, a hand-operated spring-pressed plunger engaging the other of said levers for bowing the levers away from said stop and putting the spring under greater tension to hold the bolt yieldably in latching position, the spring acting to restore the retracted bolt and the toggle levers to normal position upon release of said plunger.

9. In a door latch, a movable door member and a stationary jamb member, a pivoted bolt, means for holding said bolt rigidly in latching position including a stop, alined toggle levers and a spring normally holding one of said levers against said stop, and a hand-operated spring-pressed plunger engaging the other of said levers for bowing the levers away from said stop and putting the spring under greater tension to hold the bolt yieldably in latching position, carried by one of the members, and a spring-pressed catch carried by the other of the members and engaging and operating to retract the bolt when the door is opened, the spring acting to restore the retracted bolt and the toggle levers to normal position upon release of said plunger.

10. In a door latch, a pivoted bolt, means including a movable element pivotally engaged with said bolt at one side of the pivot thereof for normally holding the bolt rigidly in latching position, means for moving said element to released position, and a spring for holding said bolt yieldably in latching position when said element is released and for returning said element to normal position.

11. In a door latch, a movable door member and a stationary jamb member, a pivoted bolt, means including a movable element pivotally engaged with said bolt at one side of the pivot thereof for normally holding the bolt rigidly in latching position, means for moving said element to released position, and a spring for holding said bolt yieldably in latching position when said element is released and for returning said element to normal position, carried by one of said members, and means carried by the other of the members engaging and operating to retract the bolt when the door is opened.

12. In a door latch, a pivoted bolt, means including a movable element pivotally engaged with said bolt at one side of the pivot thereof for normally holding the bolt rigidly in latching position, means for moving said element to released position, and a spring cooperating with and directly engaging said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position.

13. In a door latch, a movable door member and a stationary jamb member, a pivoted bolt having a flat face and a beveled face, means including a movable element pivotally engaged with said bolt at one side of the pivot thereof for normally holding the bolt rigidly in latching position, means for moving said element to released position, and a spring coöperating with and directly engaging said element for holding the bolt yieldably in latching position when said element is released and for returning said element to normal position, carried by one of the members, and means carried by the other of said members including a head having a flat face and a beveled face engaging and operating to retract the bolt when the door is opened.

14. In a door latch, a pivoted bolt, means for holding said bolt rigidly in latching position, including alined toggle levers one of which is pivotally engaged at its outer end with said bolt at one side of the pivot thereof, hand operated means for bowing said levers upon their outer pivots as centers, and a spring coöperating with and directly engaging said toggle levers for holding the bolt yieldably in latching position when said toggle levers are bowed and for returning the toggle levers to alined position.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. WELLS.

Witnesses:
JAMES H. WALKER,
HENRY MILLER.