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J. LEDWINKA

LATCH MECHANISM

Filed June 30, 1923

2 Sheets-Sheet 1

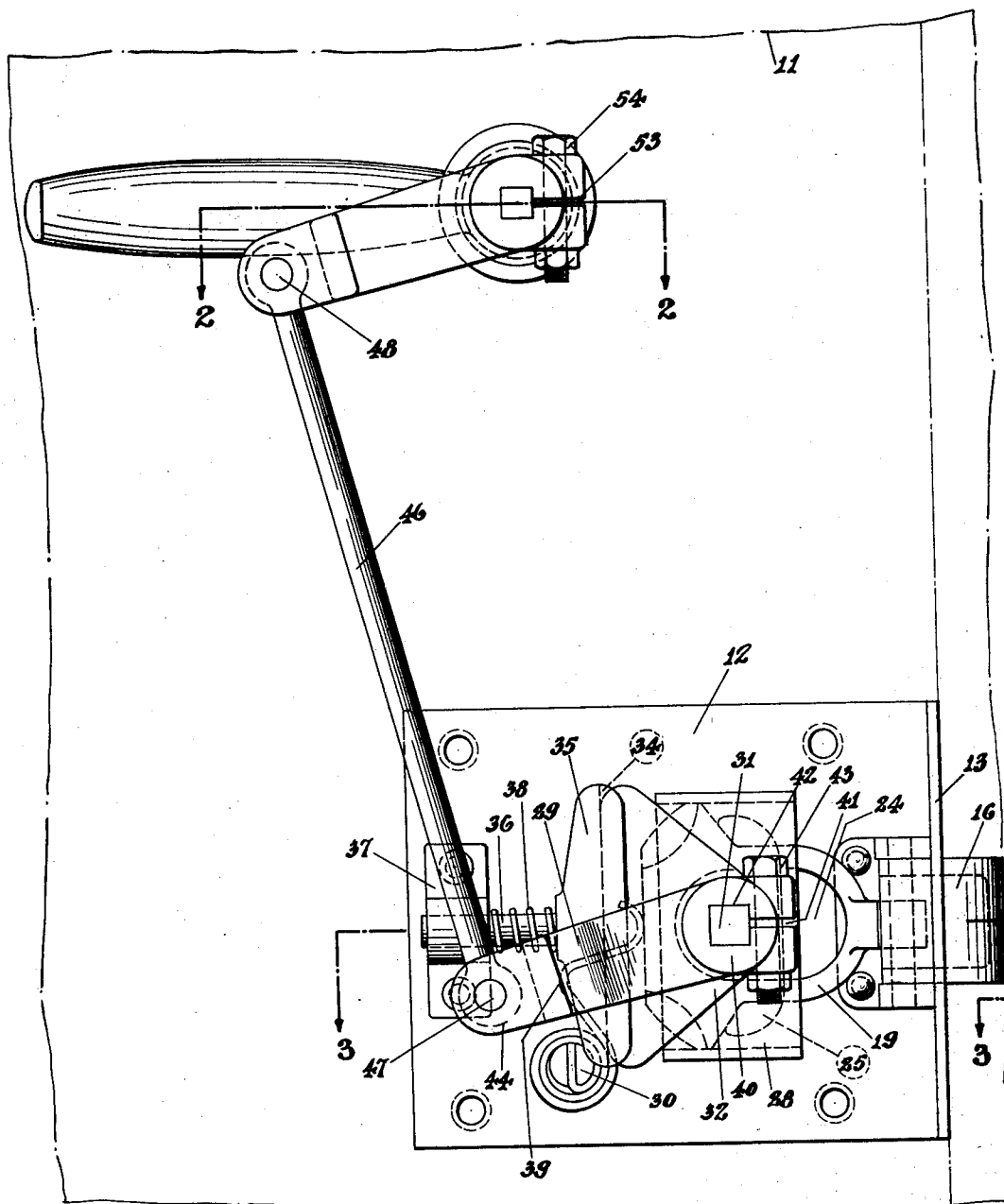


Fig 1

WITNESS:-
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2 Sheets-Sheet 2

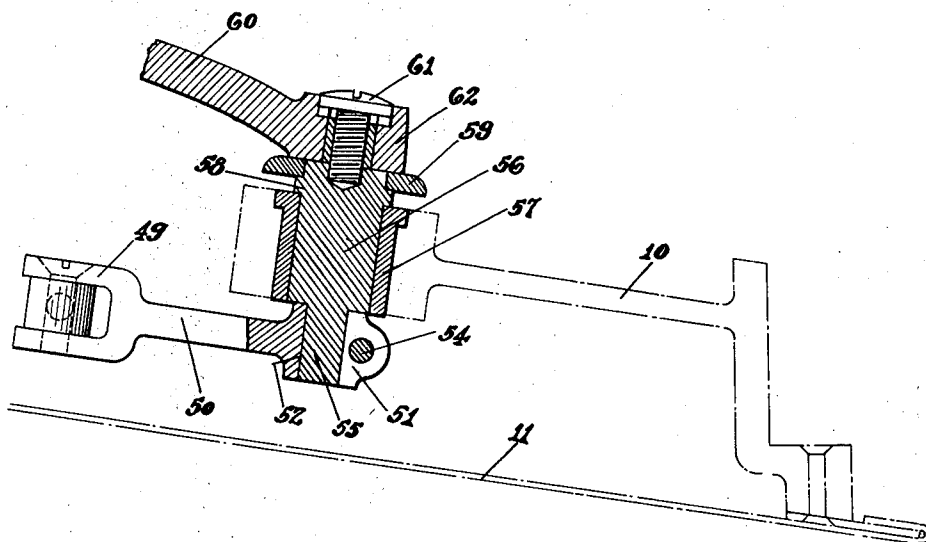


Fig 2

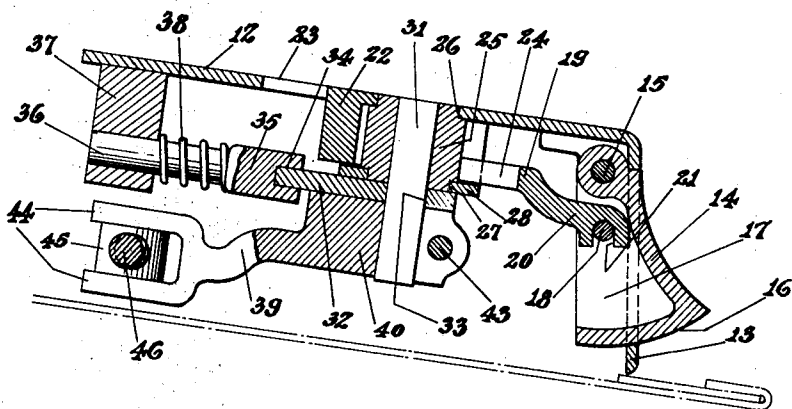


Fig 3

WITNESS:-

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UNITED STATES PATENT OFFICE.

JOSEPH LEDWINKA, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO EDWARD G. BUDD MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LATCH MECHANISM.

Application filed June 30, 1923. Serial No. 648,681.

This invention relates to improvements in latch mechanism and has to do, more particularly, with latch mechanism adapted for use with doors of automobile bodies.

5 The principal object of my present invention is to provide improved means for actuating a latch mechanism from a point near the upper edge of the door so that, for instance, the pull handle used for closing the door may also be used for actuating the latch mechanism in opening the door.

10 A further object of my invention is to provide improved means for tensioning the operating handle or latch actuating mechanism which are entirely independent of the usual tensioning means acting to project the bolt.

15 Further objects, and objects relating to details and economies of construction and operation, will definitely appear from the detailed description to follow. In one instance, I accomplish the objects of my invention by the devices and means set forth in the following specification. My invention is clearly defined and pointed out in the appended claims. A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawings, forming a part of this specification, in which:

20 Fig. 1 is a view in front elevation of my improved latch mechanism, applied to an automobile door, portions of the door being indicated by dot and dash lines.

35 Fig. 2 is a transverse, sectional view, taken on the line 2—2 of Fig. 1, and

Fig. 3 is a transverse, sectional view, taken on the line 3—3 of Fig. 1.

40 In the drawings, the same reference numerals refer to the same parts throughout the several views and the sectional views are taken looking in the direction of the arrows at the ends of the section lines.

45 This invention is an improvement upon the latch mechanisms illustrated, described and claimed in my copending applications for latch mechanism, Serial Nos. 496,042 and 533,847, filed August 27, 1921, and February 3, 1922, respectively, and the latch mecha-

nism forming the subject of the present specification embodies a number of the features disclosed and claimed in said pending applications.

It is usually desirable to mount the latch mechanism about midway between the top and bottom edges of the door, in order to secure the best result and maintain the door closed under the various stresses and strains to which it is subjected in use. On the other hand, it is desirable to actuate the latch mechanism to retract the bolt by means of a handle located near the upper edge of the door, so that it may be conveniently grasped by the operator. In many cases, it is desirable to use the same handle as a pull-handle for use in closing the door and an operating handle for actuating the mechanism to retract the bolt and such a pull-handle should be located near the upper edge of the door. I have provided very simple means suitable for use in connection with latch mechanism of the type illustrated in my pending applications, above referred to, for actuating the latch mechanism from a handle located near the upper edge of the door. The actuating handle may be fixed to a stud suitably journaled in the door, near the upper edge thereof, and which may have fixed to it a lever arm connected by a link with another lever arm which may be fixed on the roll-back spindle, by means of which the roll-back may be rocked, in one direction or the other, to retract the latch bolt. It is desirable to provide means for tensioning this actuating mechanism which is quite independent of the usual spring acting to project the bolt, so that such actuating mechanism will be automatically restored to normal position when the hand of the operator is removed from the operating handle. I may accomplish this tensioning of the actuating mechanism by means of a member or plate fixed to rotate with the roll-back spindle and acting upon a spring-pressed plunger which is slidably mounted and pressed by its spring toward the roll-back spindle.

Referring to the numbered parts of the

accompanying drawings, in which I have illustrated a latch mechanism constituting one embodiment of my invention and in which the parts of the door are indicated by dotted lines, it will be seen that the latch mechanism is mounted upon the door frame, 10, and concealed by the door panel, 11, which is applied to said frame. The latch plate, 12, has a laterally-extending flange, 13, at one edge thereof, in which there is an opening to permit the passage of the swinging latch bolt, 14. This latch bolt, 14, is pivotally mounted on the latch plate, at 15, swings through the opening in the flange, 15 13, and is provided with a curved end wall, 16, substantially concentric with the pivotal axis of the latch bolt, and with a recess in the rear face of the latch bolt, as indicated at 17. The follower, 19, is slidably mounted on the latch plate, 12, the forward end, 20, of said follower being offset away from the latch plate and having a notch, 21, which engages the pin, 18, extending across the recess, 17, of the latch bolt. The body portion of the follower, 19, is spaced from the latch plate, 12, but it has a lug, 22, which slides in a slot, 23, formed in the latch plate, so as to guide the follower in its straight-line movement. The body portion of the follower, 19, is considerably wider than the part, 20, thereof, and is provided with an opening, 24, through which the roll-back, 25, extends. The roll-back, 25, is journaled, at 26, in the base plate, 12, and, at 27, in a bridge, 28, which is secured to the latch plate and extends over the roll-back and the follower, as shown in Figs. 1 and 3. The roll back, 25, is provided with ears which engage suitable shoulders on the follower, as indicated in dotted lines in Fig. 1 and as shown in my copending applications, above referred to. A spring, 29, secured to a post, 30, carried by the latch plate, engages the rear end of the follower and yieldingly presses it toward the flange, 13, so as to project the swinging latch bolt, 14, through the opening in said flange. The latch construction which I have just described, is substantially that shown in my said copending applications, Serial Nos. 496,042 and 533,847. The roll-back, 25, has an actuating spindle, 31, which is preferably square in cross section and fits in a corresponding bore in the roll-back. A triangular plate, 32, has a square opening, 33, through which the roll-back spindle, 31, extends. A spring pressed plunger, having a head, 35, and a stem, 36, is slidably mounted on the latch plate, the stem, 36, being guided in a bracket, 37, fastened to the latch plate, 12. A spring, 38, is interposed, around the stem, 36, between said bracket, 37, and the head of the spring-pressed plunger. A groove, 34, is formed in the head, 35, of this plunger and this groove receives the base edge of the triangu-

lar plate, 32, which is fixed to rotate with the roll-back spindle, 31.

A lever arm, 39, has a hub, 40, provided with a square opening to fit the roll-back spindle, 31, and split, at 41, so that it may be clamped on the roll-back spindle by tightening the bolt, 43. The outer end of this lever arm is forked, at 44, and connected by the pin, 47, to the lower end of the connecting link, 46. The upper end of said connecting link, 46, is connected, by the pin, 48, to the forked end, 49, of another lever arm, 50, which is fastened to the stud shaft to which the handle is connected. This stud shaft has a cylindrical portion, 56, journaled in a bushing, 57, carried in the frame, 10, of the door. The inner end, 55, of this shaft is squared and fits in a square opening, 52, formed in the boss, 51, at the inner end of the lever arm, 50. This boss is split, at 53, so that it may be clamped on the square portion, 55, of the stud shaft, by tightening up on the bolt, 54. The outer end of the stud shaft has an annular shoulder, 58, which engages the outer end of the bushing, 57, and a washer, 59, fits on the outer end of the stud shaft and against the outer surface of said annular shoulder. The handle, 60, has a boss, 62, at its inner end, which fits against the end of the shaft and the washer, 59, and is secured thereto by the screw, 61, which screws into the end of the stud shaft and fastens the handle rigidly thereto. This handle is curved, as shown in Figs. 1 and 2, so that it serves as a pull handle, for use in closing the door, as well as for rotating the roll-back to retract the latch.

It will be seen that the latch plate and the mechanism carried thereby may be located midway between the top and bottom edges of the door, so as to be in the best position for keeping the door closed tightly under the stresses and strains set up in use. The handle, 60, however, may be located near the upper edge of the door, so as to be conveniently grasped by the operator. By means of this handle, 60, the stud shaft, 56, may be rotated and this motion is transmitted to the roll-back spindle, 31, through the lever arm, 50, link, 46, and lever arm, 39. In this way, the roll-back, 25, may be rotated to retract the latch bolt. The spring, 29, acts on the follower and normally projects the latch bolt. The roll-back and the actuating connections therefor are held, under tension, in normal position and are returned to normal position after they have been moved therefrom by the spring pressure device, consisting of the plate, 32, fixed to the spindle, 31, and the spring-pressed plunger, 35, which engages the base edge of said plate. It will be noted that, as the spindle, 31, is rotated, in either direction from the normal position shown in Fig. 1, the plunger, 35, is forced rearwardly, against the pressure of the

spring, 38, and, when the force tending to rotate the roll-back spindle is removed, the spring, 38, will at once restore the parts to their normal position.

5 I am aware that the embodiment of my invention illustrated in the accompanying drawings may be changed considerably without departing from the spirit of my invention and, therefore, I claim my invention

10 broadly, as indicated by the appended claims. Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A latch mechanism comprising a latch 15 bolt, a roll-back for retracting said latch bolt, a roll-back spindle for rotating the roll-back, an arm fixed to said spindle, a suitably journaled handle, and connections between said handle and said arm.

20 2. A latch mechanism comprising a latch bolt, a roll-back for retracting said bolt, an arm fixed to rotate with said roll-back, a suitably journaled stud shaft, an operating handle secured thereto, an arm fastened to 25 said stud shaft, and a link connecting said arm with the arm fixed to the roll-back.

3. A latch mechanism comprising a latch 30 bolt, a roll-back for retracting said bolt, a spindle for rotating said roll-back, a suitably journaled stud shaft, an operating handle fastened thereto, arms secured to said stud shaft and spindle, respectively, and a link connecting said arms.

4. A latch mechanism comprising a swing- 35 ing latch bolt, a sliding follower connected to said latch bolt, a rotatable roll-back engageable with said follower to retract the latch bolt, a spindle for actuating said roll-back, an arm fixed to said spindle, a suitably journaled operating handle, and connections 40 between said handle and said arm.

5. A latch mechanism comprising a swing- 45 ing latch bolt, a sliding follower connected to said latch bolt, a rotatable roll-back engageable with said follower for retracting the bolt, a rotatably-mounted pull-handle, and connections between said handle and said roll-back for rotating the latter.

6. The combination with an automobile 50 door, of a pull-handle rotatably mounted near the upper edge of the door, a latch bolt mounted centrally of the free edge of the door, a rotatable roll-back for retracting said latch bolt, and connections between said 55 rotatable pull-handle and said roll-back for actuating the latter.

7. A latch mechanism comprising a latch 60 bolt, a follower connected to said latch bolt, a roll-back for retracting said bolt, spring means acting on said follower for projecting said bolt, a member connected to rotate with the roll-back, and spring means acting on said member to restore the roll-back and actuating connections to normal position. 65

8. A latch mechanism comprising a latch bolt, a follower connected to said latch bolt, a roll-back for retracting said bolt, means for actuating said roll-back including a roll-back spindle, spring means acting upon said 70 follower to project the bolt, a member connected to rotate with said roll-back spindle, and spring means acting on said member to restore the roll-back and actuating connections to normal position. 75

9. A latch mechanism comprising a latch bolt, a roll-back for retracting said latch bolt, means for actuating said roll-back including a roll-back spindle, a member fixed to rotate with said spindle, and a spring- 80 pressed plunger contacting with one edge of said member.

10. A latch mechanism comprising a latch bolt, a roll-back for retracting said bolt, means for actuating said roll-back including 85 a roll-back spindle, a triangular plate fixed to rotate with said spindle, and a spring-pressed plunger contacting with the base edge of said plate.

11. A latch mechanism comprising a latch 90 bolt, a roll-back for retracting said bolt, means for actuating said roll-back including a roll-back spindle, a triangular plate mounted to rotate with said spindle, and a spring-pressed plunger having a slidably 95 mounted stem and a head provided with a groove, the base edge of said plate fitting in the groove of said head.

12. A latch mechanism comprising a latch 100 plate, a latch bolt mounted thereon, a rotatable roll-back for retracting said bolt, a roll-back spindle, a triangular plate fixed to rotate with said spindle, a bracket mounted on said latch plate, a plunger having a stem slidably mounted in said bracket and a head 105 provided with a groove receiving the base edge of said plate, and a spring interposed between the bracket and the head of said plunger.

13. A latch mechanism comprising a latch 110 bolt, a roll-back for retracting said bolt, a spindle for rotating said roll-back, a rotatable stud shaft, a handle secured to said shaft, operating connections between said stud shaft and said spindle, a member fixed 115 to rotate with said spindle, and a spring-pressed plunger contacting with said member to restore the roll-back and actuating connections to normal position.

14. A latch mechanism comprising a 120 swinging latch bolt, a slidably mounted follower connected to said latch bolt, a rotatable roll-back engageable with said follower for retracting said bolt, a spindle for rotating said roll-back, a member fixed to rotate 125 with said spindle, and a spring-pressed plunger contacting with said member to restore said roll-back and actuating connections to normal position.

15. A latch mechanism comprising a 130

swinging latch bolt, a sliding follower connected thereto, a rotatable roll-back engageable with said follower to retract the latch bolt, a spindle for rotating said roll-back, a rotatable stud shaft, an operating handle secured thereto, connections between said stud shaft and said spindle, a triangular plate mounted to rotate with said spindle, and a spring-pressed plunger contacting with the base edge of said plate to restore the roll-back and actuating connections to normal position. 10

In testimony whereof, I affix my signature.
JOSEPH LEDWINKA.