Feb. 3, 1925. 1,525,135

B. Q. JONES

LATCH

Filed July 12, 1924 2 Sheets-Sheet 1

Fig. 1.

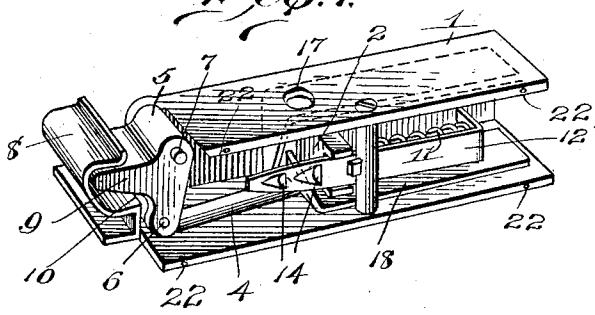


Fig. 2.

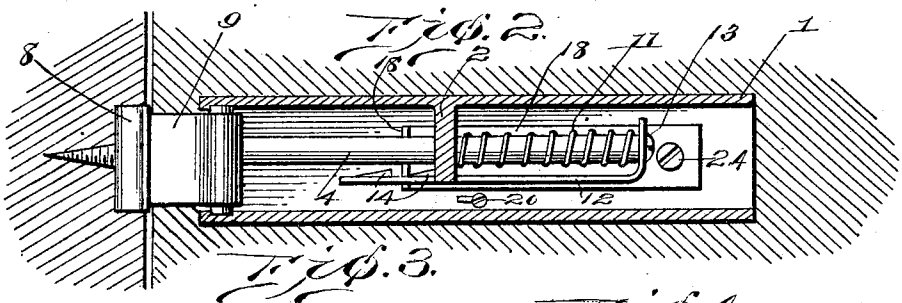


Fig. 3.

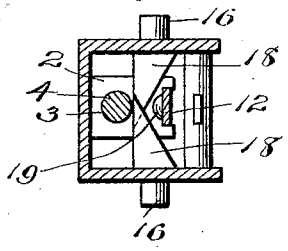
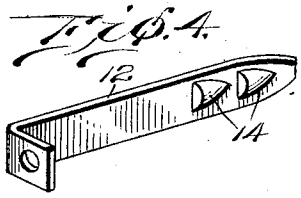


Fig. 4.



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Filed July 12, 1924 2 Sheets-Sheet 2

Fig. 5.

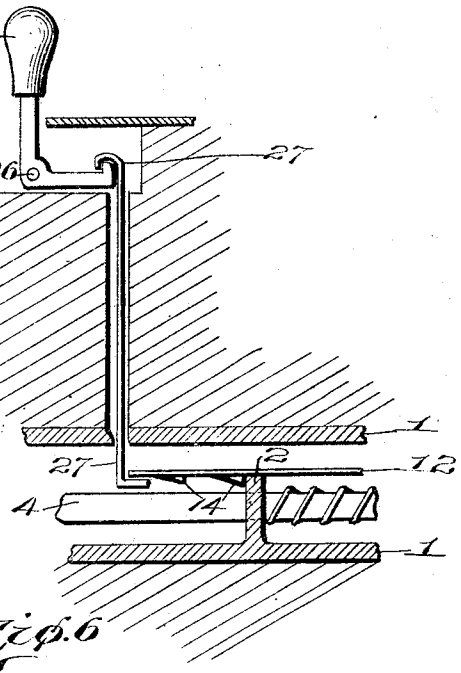
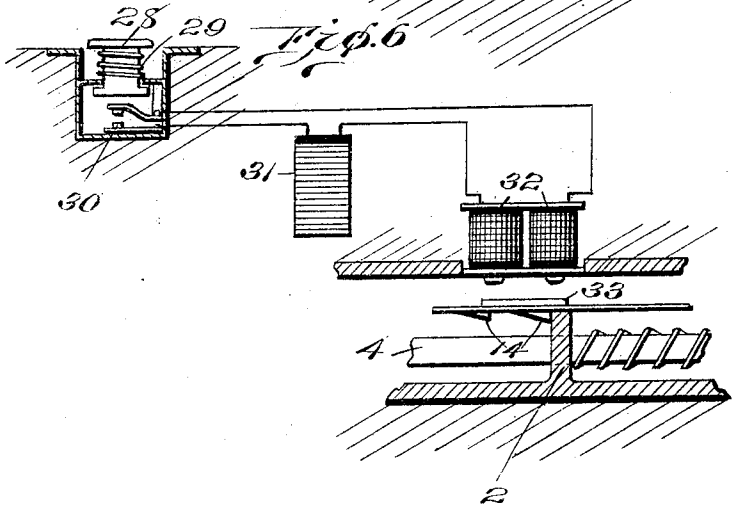


Fig. 6



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UNITED STATES PATENT OFFICE.

BYRON Q. JONES, OF WASHINGTON, DISTRICT OF COLUMBIA.

LATCH.

Application filed July 12, 1924. Serial No. 725,621.

To all whom it may concern:

Be it known that I, BYRON Q. JONES, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Latches, of which the following is a specification.

This invention relates to latches in general, the broad object in view being to produce a latch that can be operated without the provision of door knobs or other latch projections, such latch being particularly adapted for use in doors or lids of an aircraft. The latch constructed in accordance with my invention cannot jar open but must be positively unlatched by operation of the unlatching mechanism. The latch may be operated by means of partly concealed buttons, simple levers, or by means of remote controls.

Further objects and advantages will be more fully set forth in the attached specification, in the claims, and in the drawings, in which:

Fig. 1 is a perspective view of the latch enclosed in a housing, some of the walls being broken away for clearness.

Fig. 2 is a vertical sectional view of the latch.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is a detail perspective of the sear spring.

Fig. 5 is a sectional view of a modification of the latch operated by remote control.

Fig. 6 is a diagrammatic view corresponding to Fig. 5.

Referring to the drawings more particularly by reference numerals, a box or housing 1 adapted to contain the latch mechanism per se is contained in a socket in either the movable or the fixed member of a door or lid and is provided with a cover (not shown) attached thereto by means of the screw holes 22 by means of ordinary wood screws. The housing contains a wall or projection 2 which is provided with a bore 3 through which loosely passes a latch operating rod 4 which is pivotally engaged with the bell crank 5 by means of a rivet or bolt 6. The bell crank 5 is pivoted by means of a bolt or stud 7 to holes provided for the receipt of these studs or bolts in the box or housing.

In the latched position, the tongue or projection 9 of the bell crank 5 is engaged in the keeper 8 and is held in engagement therewith by the projections 14 on a sear spring 12 which is attached to the end of the operating rod 4 by means of a screw 13. The projections, of which there are two in number in the embodiment shown, in engagement against the edge of the wall 2 of the housing, prevent any movement of the operating rod 4 to the right in the position shown in Fig. 2 to release the latch. A spiral spring 11 engages with the wall 2 at one end and with the end of the sear spring 12 at the other so as to normally exert a force tending to move the operating rod 4 to the right to release the latch. If the projections 14 are moved out of engagement with the wall 2, the spring immediately operates to move the bell crank to an inoperative position. The sear spring 12 normally maintains a projection 14 ready at any moment to engage with the wall 2 so that when the door is closed, the bell crank 5 is acted upon through the medium of the lip 10 causing the bell crank to rotate about the pivot 7 pulling the operating rod forward and compressing the operating spring 11. The provision of two projections 14 permit the device to be latched in more than one position depending upon the degree at which the bell crank has been operated. The provision of a half latched position as just described prevents the door from opening through careless closing when the door is not fully closed.

The sear spring 12 is adapted to be moved so as to withdraw the projections 14 from engagement with the wall 2, in a downward direction from the position shown in Fig. 2, by means of camming springs 18 arranged on opposite sides of the sear spring 12. These camming springs are fastened by means of screws or rivets 24 at their rear ends to the sides of the box, sufficient space being provided between the sides of the box and the sides of the wall 2 to permit of the tripping of the sear spring by the camming ends, which are bent so as to extend inwardly, and engage with the sides of the sear spring. A trigger button 16 passing through the holes 17 in the walls of the box provide means for the operation of the trigger springs 18 by pressing against it at a point removed from the point of attachment to the box. When either trigger

spring is pushed in, the sear spring is immediately raised against the resistance of the engagement of the projection 14 with the wall 2, the projection being disengaged thus causing the unlatching of the device.

The latch may be locked so that the trigger button or buttons are rendered inoperative by means of a tumbler 20 provided in one of the walls of the box. The tumbler is provided with a stud which can be rotated by means of a suitable key into a position immediately back of the sear spring 12 so that when the sear is in its engaging position, it is prevented from being raised and the projections 14 are maintained in engagement with the wall 2.

Additional means may be provided for the tripping of the sear spring 12 which may take the form of a device to engage with the end of this spring so as to pull the latter away from engagement with the wall 2. Referring to Fig. 5, the sear 12 is tripped by means of an operating lever 25 pivoted at 26 at a point close to the surface of the door or other member to which it is applied. Lever 25 is provided with a bell crank arm adapted to engage with a link 27 provided with a hook at its upper end as shown, and provided with a lower bent portion adapted to engage the end of the sear spring 12 to operate the same upon the movement of the lever 25.

The device may be operated remotely by a mechanism as shown in Fig. 6 in which an electric button 28 is pressed outwardly by a coiled spring 29 and, when pressed inwardly manually, is adapted to close an electrical contact 30 connected in a circuit provided with a battery 31 in series with an electromagnet 32, the pole piece of which is an armature 33 provided on the sear spring 12. It will be obvious that when current passes through the electromagnet due to a closure of the circuit, the armature is attracted and the sear spring 12 operated so that the projections 14 are disengaged from the wall 2 and the latch released.

I claim:

1. In a latching device, a keeper, a bell crank adapted to engage therewith, an operating rod for moving said bell crank, a spring normally acting to withdraw said bell crank from said keeper, sear means for maintaining said bell crank in engagement with said keeper, and mechanism for operating said sear means.

2. In a latching device, a keeper, a lever adapted to engage therewith, an operating rod for moving said lever, a spring normally acting to withdraw said lever from said keeper, sear means for maintaining said lever in engagement with said keeper, and a spring for camming said sear means to release said lever.

3. In a latching device, a keeper, a bell crank adapted to engage therewith, an operating rod pivoted to said bell crank, a spring engaging said rod, and acting thereon to withdraw said bell crank from said keeper, a sear with a projection thereon for maintaining said bell crank in engagement with said keeper, and a cam for releasing said sear.

4. In a latch device, a keeper, a housing adjacent thereto, a bell crank lever provided with a tongue adapted to engage with said keeper, a pivot for said bell crank lever in said housing, an operating rod slidingly mounted in said housing and pivoted to said bell crank lever, a spiral spring engaging said rod and acting thereon to withdraw said bell crank lever from said keeper, a sear spring attached to the end of said rod and provided with a plurality of projections for engagement with a stationary part of said housing, and a plurality of releasing springs located on opposite sides of said operating rod and attached to said housing for camming said sear spring to release said projections, and means for operating said releasing springs.

In testimony whereof I affix my signature.

BYRON Q. JONES.