G. C. JENSEN.

LONGITUDINALLY MOVABLE LOCKING AND INTERLOCKING BOLT.

APPLICATION FILED AUG. 8, 1918.

1,288,606. Patented Dec. 24, 1918.

Fig. 2.

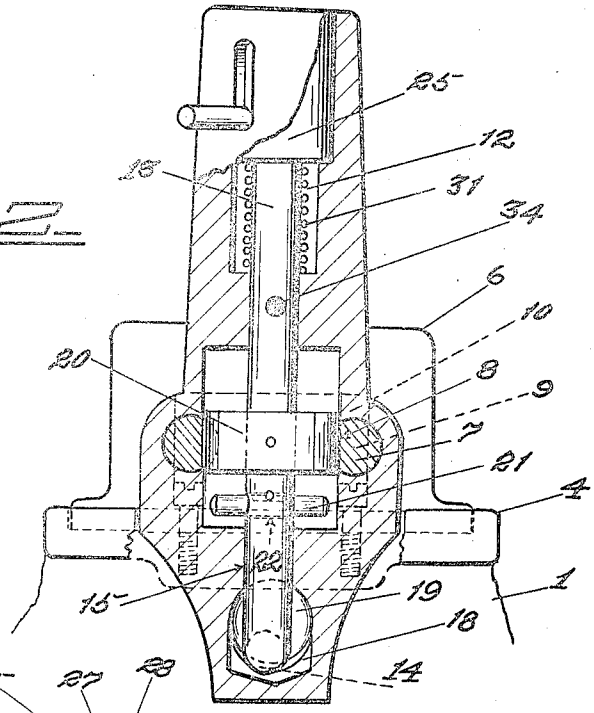
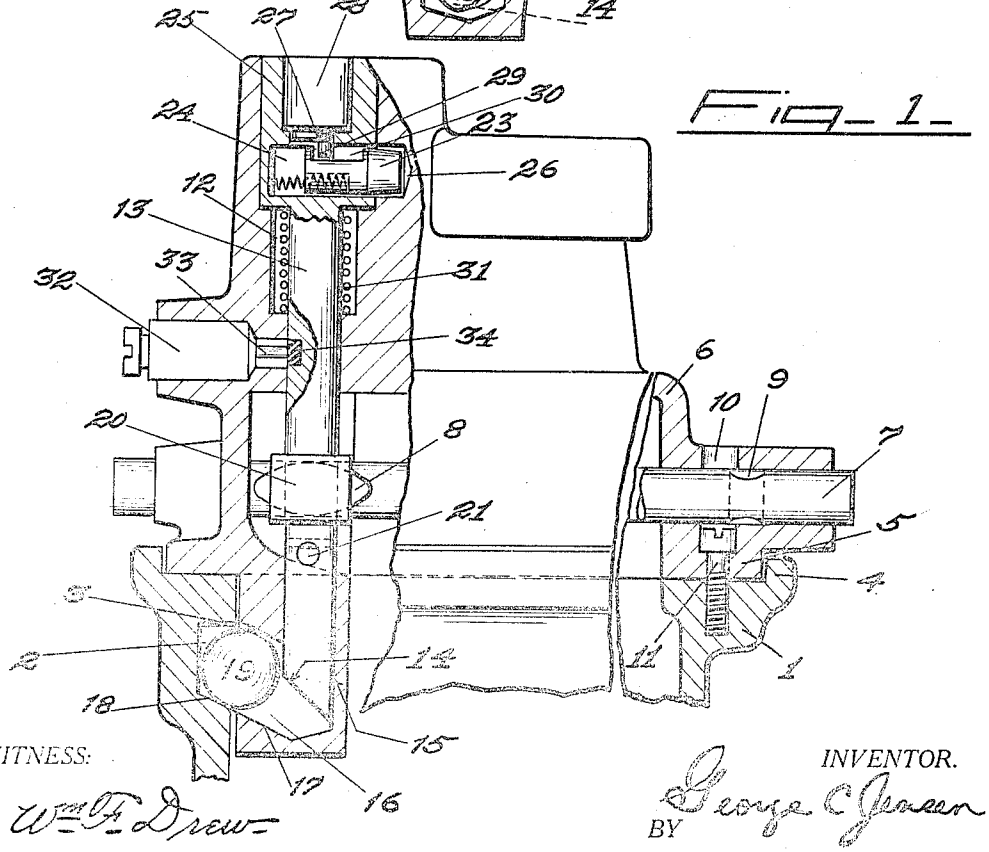


Fig. 1.



WITNESS:

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LONGITUDINALLY-MOVABLE LOCKING AND INTERLOCKING BOLT.

1,288,606. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed August 8, 1918. Serial No. 248,865.

To all whom it may concern:

Be it known that I, GEORGE C. JENSEN, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Longitudinally-Movable Locking and Interlocking Bolts, of which the following is a specification.

This invention relates to a locking construction for shifter devices, also to an interlock for shifter devices and to a means for locking covers on transmission cases, it being a modified construction of that illustrated in my co-pending application executed on the 5th day of July, 1918.

The principal objects of this invention are to provide a longitudinally movable locking bolt adapted when moved into one position to lock the shifter devices from operative movement and to lock the cover to the transmission case and when in another position to provide an interlock for the shifter devices whereby the same are retained in their set position.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Figure 1 is a view in broken side elevation of the preferred embodiment of my invention.

Fig. 2 is a broken vertical sectional view of the same illustrating the locking bolt.

In the drawings 1 indicates a suitable transmission case provided in one end wall with a depression 2 having an overhanging flange 3, and in this transmission case are adapted for positioning power transmitting gears of any well-known type, not shown.

The upper edge of the case 1 is provided with an annular upstanding flange 4, and on the said case within said flange is adapted to rest the supporting edge 5 of a case cover or closure 6. The flange 4 preventing the insertion of an instrument between the meeting edges of the cover and case for prying the same apart.

Longitudinally movable within alined bores at opposite ends of the cover 6 are the parallel spaced shifter devices 7, illustrated in the form of rods, said devices being provided adjacent one end and opposite each other with stops 8. The devices 7 are each provided adjacent their opposite ends with a vertical bore 9 adapted to register with a similar bore 10, formed within the end wall of the cover 6 and intersecting the path of movement of the shifter devices, said bores 10 adapted for receiving a headed retaining screw 11 passed through the bores 9 which unite or attach one end of the cover member to the case. The bores 9 are so disposed that the same are out of alinement with the bores 10 when the stops 8 are disposed opposite each other, thereby precluding the removal of the retaining screws 11 in their engaged position.

The cover 6 is formed with a vertically extended bore 12 therein within which is mounted for longitudinal movement the locking bolt 13 which extends between the shifter devices 7 at a point between the stops 8 when the same lie opposite each other. The lower end of the bolt 13 is beveled as at 14 and is received in a guide 15 immediately below the bore 12, the guide having a recess 16 therein, the lower wall surface 17 of which is upwardly inclined and registers with the lower inclined wall surface 18 of the recess 2 when the cover is positioned on the case. A locking ball 19 is positioned within the recess 16 and is adapted on the depression of the bolt 13 to be forced upwardly over said inclined surface 17 thereof and to be partially received within the recess 2 thereby locking one end of the cover from removal from the case 1. The retracting of the bolt 13 permits the dropping by gravity of the ball 19 into the recess 16.

The locking bolt 13 carries an elongated locking member 20, projecting sufficiently beyond the bolt as to be received within the stops 8 on the longitudinal movement of the bolt in one direction thereby locking the shifter devices from operative movement.

An interlocking pin or device 21 is disposed in a plane parallel with the member 20 immediately below the same and is freely movable within an opening 22 within the bolt, said pin being adapted on the release or retraction of the locking bolt to lie opposite said stops 8 and on the movement of one of said shifter devices to have its opposite

end received in the stop of the opposite shifter device thereby precluding movement of said shifter devices until such time as both devices are in a position where said stops are opposite each other.

Any suitable locking means may be employed for locking the bolt 13 at the limit of its reciprocation in one direction when in engagement with said stops, that illustrated including a spring pressed latch 23, operating in a lateral bore 24 formed in the upper enlarged head or end 25 of the bolt 13 the same being received at its outer end on the depression of the bolt in a notch 26 formed in the wall of the recess 12. The latch is adapted to be retracted on the operation of the locking barrel 27, preferably of the key-controlled type, mounted within the lock casing 28 seated within the upper end of the bolt, the barrel being provided with a cam 29 which extends into a recess 30 in the upper surface of the latch. On the retraction of the latch 23 the bolt 13 is automatically restored to its retracted or unlocked position by a spring 31 coiled about the upper end of the same within the bore 12. If desirable an ignition contact 32 may be carried by the cover 6 and the contact pin 23 thereof is adapted to complete the circuit through the bolt 13 during such time as the shifter devices are in operative or unlocked position, said pin adapted when the bolt is in its locked position to rest on an insulated portion 34 carried by the bolt.

In this construction I have provided a longitudinal movable locking bolt which is capable of positioning to lock the shifter devices from operative movement and the cover on the case or to permit operative movement of said shifter devices one at a time.

Having thus described my invention what I claim as new and desire to be protected by Letters Patent is:

1. In combination with a pair of parallel spaced shifter devices, a longitudinally movable locking bolt extended between the same, means carried by the bolt and adapted on the reciprocation thereof for extending into path of movement of the shifter devices to lock the same from operation, and means carried by the locking bolt and adapted on the reciprocation of the same to release said shifter devices to provide an interlock between said shifter devices and preclude the movement of one during such time as the other is moved from neutral position.

2. In combination with a pair of parallel spaced shifter devices, a case having a removable cover inclosing the same, a longitudinal movable locking bolt extended between said devices and capable of operation to prevent operative movement of said devices, said cover and case each provided with a chamber adapted to register when the cover is positioned on the case, and means within one of said chambers and thrown into operation on the movement of said bolt to lock said shifter devices from movement for overlapping the meeting edges of said cover and case chambers to prevent removal of the cover from the case.

3. In combination with a pair of parallel spaced shifter devices, a case having a removable cover inclosing the same, a longitudinal movable locking bolt extended between said devices and capable of operation to prevent operative movement of said shifter devices, said cover and case each provided with a receiving chamber adapted for registering on the positioning of the cover on the case, the bottom wall of said chamber being inclined downwardly toward the rear wall of said cover, an interlocking ball normally received in the cover chamber and adapted to be engaged by said bolt when in its shifter device locking position and projected into said case chamber on the depression of said locking bolt.

4. In combination with a pair of parallel spaced longitudinally movable shifter devices, a longitudinally movable locking bolt extended between the same, means carried by said bolt and adapted on the longitudinal movement of the same in one direction to lock the same from operative movement, means carried by the bolt and adapted on the operation of the same in a reverse direction to provide an interlock between said shifter devices, and means for locking said bolt in one of said positions.

5. In combination with a pair of parallel spaced longitudinally movable shifter devices, a locking bolt extended between the same and capable of longitudinal movement, means associated with said bolt at different horizontal planes within the length thereof for coöperating with the shifter devices on the movement of said bolt, one of said means being rigid on the bolt and adapted for engaging said shifter devices to lock the same from movement, and the other of said means capable of longitudinal movement transversely of the bolt, and adapted for engagement with the shifter devices to provide an interlock between the same.

6. In combination with a pair of parallel spaced longitudinally movable shifter devices, a case having a removable cover within which said devices operate, a locking bolt extended between said devices and provided with a beveled lower end, a cover locking ball receiving chamber formed in the cover and into which the lower end of said locking bolt extends, a chamber within the case and adapted to register with said cover chamber on the positioning of the cover on the case, means carried by the bolt for engaging said shifter devices to lock the same from movement on the movement of the bolt in one

direction, means for providing an interlock between said devices on the movement of the bolt in the opposite direction, said bolt when said shifter devices are in locked position displacing said ball from said chamber whereby said cover and case are locked from separation.

7. In combination with a longitudinally movable shifter device provided with an opening extended therethrough, a cover and case within which said device operates, means passing through said opening for uniting the cover to the case, a locking bolt capable of positioning to lock said shifter device from operative movement with the opening in said shifter device out of register with said cover securing means, and an additional cover locking means thrown into operation by said bolt on the movement thereof to lock said shifter devices, said last mentioned means capable of automatic release on the release of said bolt from locked engagement with said shifter device.

In testimony whereof I have signed my name to this specification in the presence of a subscribing witness.

GEORGE C. JENSEN.

Witness:
D. B. RICHARDS.