Feb. 16, 1932. F. BEAL 1,845,646

DOORLOCK

Filed May 21, 1930 2 Sheets-Sheet 1

Fig. 1

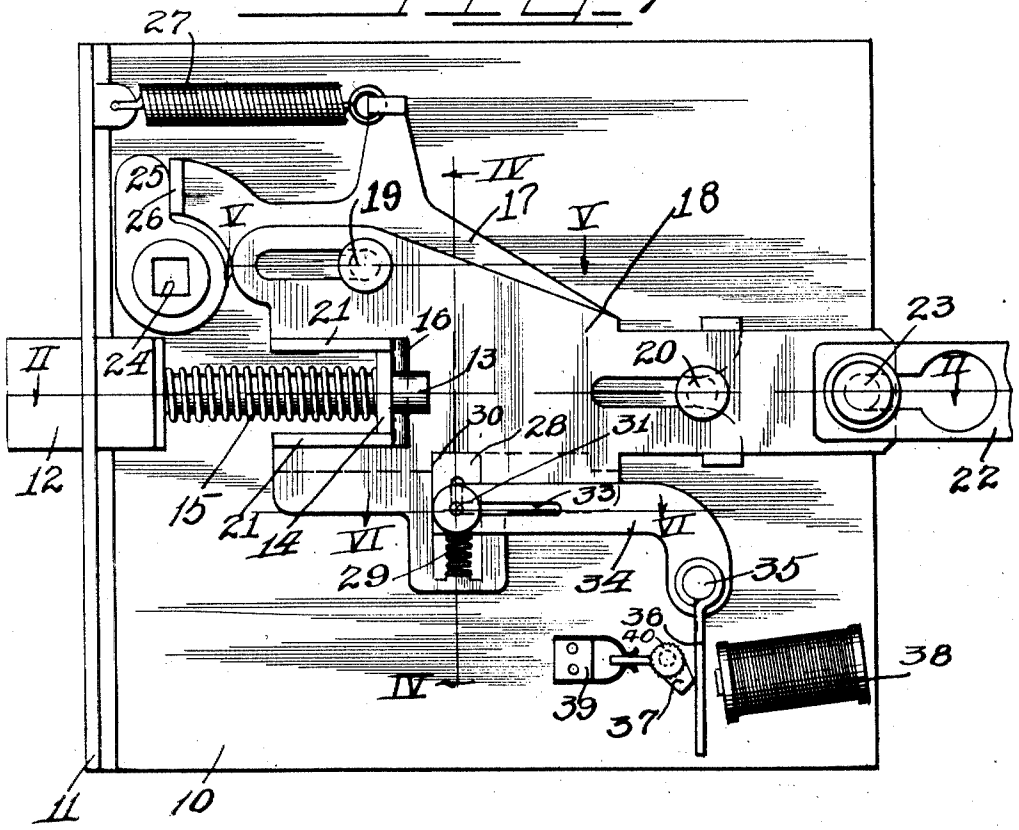
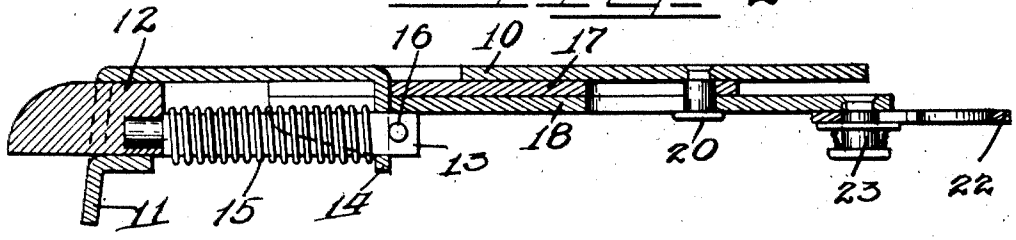


Fig. 2



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Feb. 16, 1932. F. BEAL 1,845,646

DOORLOCK

Filed May 21, 1930 2 Sheets-Sheet 2

Fig. 3

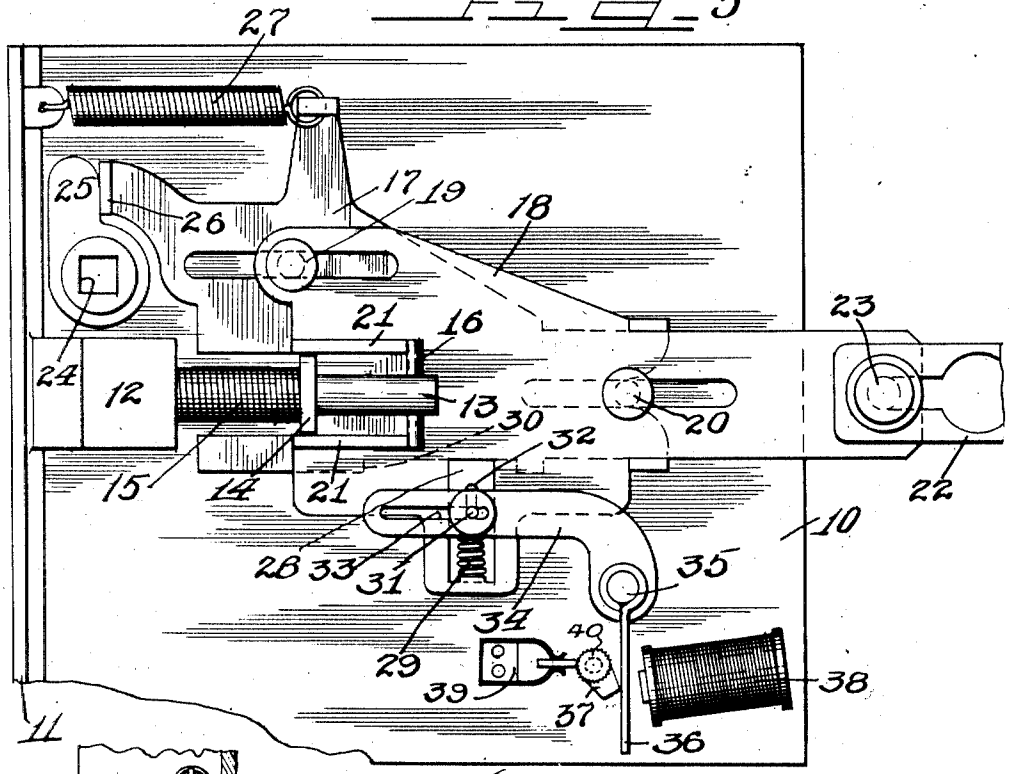


Fig. 4

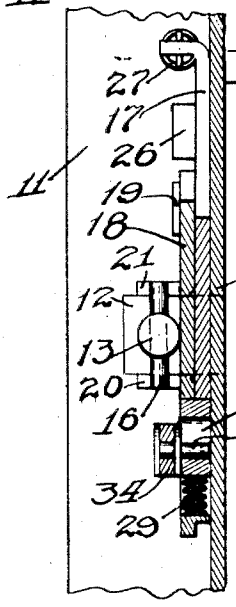


Fig. 5

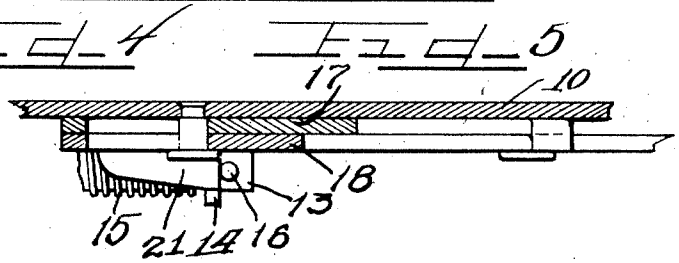
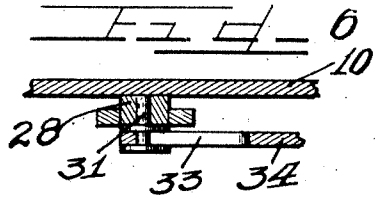


Fig. 6



Inventor
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Patented Feb. 16, 1932

1,845,646

UNITED STATES PATENT OFFICE

FAY BEAL, OF KOKOMO, INDIANA, ASSIGNOR TO KINGSTON PRODUCTS CORPORATION, OF KOKOMO, INDIANA, A CORPORATION OF INDIANA

DOORLOCK

Application filed May 21, 1930. Serial No. 454,240.

This invention relates more particularly to vehicle door latches or locks adapted to be unlocked from the interior of the vehicle at any time, and providing an externally operable mechanism which can be engaged or disengaged from the inside unlocking mechanism to effect locking of the vehicle door against entrance.

It is an object of this invention to provide independent externally and internally movable mechanisms, the internally movable mechanism being arranged to directly retract the latch bolt while the externally movable mechanism is linked at will to the internally movable mechanism to act thereon to effect the retraction of the latch bolt.

It is another object of this invention to provide suitable internally operated mechanism to link the externally movable mechanism to the internally movable mechanism to permit external unlocking of the latch.

It is another object of this invention to provide a vehicle door lock of comparatively thin and inexpensive structure wherein the minimum number of simple parts are used, and wherein individual parts are required to have only a simple motion, reducing the liability of derangement of the lock mechanism.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a plan view of a lock or latch structure embodying features of this invention.

Figure 2 is a section on the line II—II of Figure 1 showing the latch and actuating mechanism therefor.

Figure 3 is a view similar to Figure 1 showing the latch retracted by the operation of the inside operating linkage.

Figure 4 is a vertical section on the line IV—IV of Figure 1.

Figure 5 is a horizontal section on the line V—V of Figure 1.

Figure 6 is a horizontal section on the line VI—VI of Figure 1.

As shown on the drawings:

The embodiment of this invention chosen for illustrative purposes is particularly designed for use on vehicular closures and the like where the lock or latch is desired to be releasable from the inside at all times but to be locked at will against external entry. In vehicular service it is customary to apply the lock mechanism to the inside of the door framing, to be later covered by upholstery or the like, instead of in a mortice in the closure. Due to such a method of mounting in the closure, the lock mechanism is preferably positioned on a smooth backed plate 10 having a facing flange 11 covering the exposed latching edge which engages with the door pillar carrying a usual strike plate. The back of the plate 10 presents a smooth foundation for the usual upholstery. In Figures 1 and 3 the plate 10 is shown in the background, hence in each case the figure corresponds to a phantom view through the door from the outside when the lock is mounted therein.

A beveled latch 12 projects through a suitable aperture in the flange 11 and has a stem 13 slidably mounted in a lug 14 struck up from the base plate 10. A spring 15 is interposed between the latch and the lug, and a pin 16 passes through the stem 13 on the rear side of the lug 15 to limit the outward movement of the latch. With this arrangement, commonly called a spring latch, the door can be closed without requiring the operation of the lock mechanism to retract the latch.

A plate 17 is reciprocably mounted on the base and a second outer plate 18 is mounted thereover, both plates being limited in movement by pins 19 and 20 mounted on the base 10 and projecting through slots in the two plates. The two plates 17 and 18, when considered alone, are independently reciprocable. The outer or second plate 18 has turned up ears 21 on either side of the latch guide lug 14 and adapted to engage the ends of the pin 16 in the latch stem 13. Thus a movement of the outer plate 18 to the right in Figure 1 will retract the latch 12 as shown in Figure 3.

Suitable control means may be provided on the inside of the door to retract the plate 18, such means including a suitable draw bar 22 engaging a pin 23 secured to the plate 18. This mechanism is operatable at all times regardless of the mechanism affecting the external operation of the lock.

The plate 17 has no direct connection with the latch mechanism but is engageable at will with the plate 18 so that a movement to the right of the plate 17 will then shift the plate 18 likewise, carrying the latch 12 therewith. The usual external door handle is provided with a square shank engageable with a square aperture 24 in a cam 25 the clockwise rotation of which acts against a turned up lug 26 on the plate 17 to shift the latter to the right, a spring 27 being provided to return the plate to its normal position as shown. This mechanism is independent of the plate 18 and latch 12 so that it can be freely operated whether or not it is linked to the plate 18 to retract the latch.

A vertically sliding bar 28 is urged upwardly in a guide slot in the outer plate 18 by a spring 29, and in its upper position it engages to the right of a shoulder 30 formed on the lower edge of the plate 17. When so engaged a shift of the plate 17 to the right will carry the plate 18 with it. When the bar 28 is pulled down the plate 17 is free to move but will not affect the plate 18 so that the door will be locked against external retraction of the latch 12.

The spring 29 normally holds the bar 28 in its upper or unlocked position wherein the latch can be retracted by the primary movement of either plate. In order to draw the bar downwardly a pin 31 is engaged between a short vertical slot 32 in the bar 28 and a longer horizontal slot 33 in a lever 34 pivoted at 35, which lever carries a downwardly extending arm 36. One means of accomplishing a counterclockwise rotation of the lever 34 about its pivot 35 is by means of a cam 37, self centered by springs 39, which cam may be manually rotated from within the door by means of a knurled knob, indicated at 40, to retract the bar and thus prevent operation of the lock by the external handle.

A second means for retracting the bar 28, to effect external locking of the door, is shown as an electromagnet 38 which forms part of the invention disclosed in my co-pending application Serial No. 423,632, entitled "Electric door lock", filed January 27, 1930.

In my co-pending application, above referred to, a number of mechanical locks, of the type herein disclosed, may be simultaneously locked or unlocked by electrical impulses from a master lock.

In the operation of the lock of this invention the lever 34 may be drawn downwardly to retract the bar from engagement with the plate 17, which locks the door mechanism against external actuation, without preventing the idle twisting of the door handle and the consequent movement of the plate 17. The short vertical slot 32 in the bar 28 permits upward movement of the bar 34 while the plate 17 may be retracted, the bar 28 thereafter snapping into engagement with the shoulder 30 as soon as the plate 17 is returned to its original position, or alternatively, the plate 18 is shifted to the right by the inside operating mechanism. With the bar 28 engaged against the shoulder 30 the operation of either the inside or outside door controls will act to retract the latch 12. In the case of the outside door control the plate 17 acts to also retract the plate 18 which is in operative engagement with the latch 12.

It will thus be seen that I have provided an improved and simplified lock or latch of the class described wherein the latch is at all times operable to open the door from the inside and is provided with external release means which can be operatively engaged or disconnected from the latch operating mechanism from the inside of the closure.

When the cam arm 37 is turned to push the extending arm 36 to the right the arm 36 is held locked in that position by the cam arm normal thereto, and the sliding bar 28 is then retained in the plate-releasing position so that movement of plate 17 cannot effect movement of the plate 18.

When the cam is turned to the position shown in the drawings it is held self-centered by the springs 39 which are just stiff enough to prevent rotation of the cam by road shock when the car is in motion.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. In a door lock the combination with inner and outer door handles, of a spring impelled latch bolt, a cam connected to the outer handle, a sliding plate connected to the inner handle and operatively engaging the latch bolt for retracting the same, a second plate movable parallel to said sliding plate and operable by the cam connected to the outer handle, a latch carried by one of the said plates and engageable with the other of said plates to link the second plate to the sliding plate, and means operable to retract said latch to disengage said second plate from said first mentioned plate.

2. In a door lock the combination with inner and outer door handles, of a spring-impelled latch bolt, a spring-impelled sliding plate, means connecting the outer handle and said plate to move said plate, a second sliding plate overlying said first-named plate opera-

bly connected to the inner handle and engaging the latch bolt for retracting the bolt, a latch carried by one of said plates movable to engage the other plate to link them together, and means to move the latch.

3. A lock for automobile doors, said lock comprising a back plate, a spring-impelled latch bolt guided slidable on said plate, a spring-impelled plate guided slidable on said first plate, means turnable on said first plate engaging said second plate to move said plate, a third plate overlying said second plate and guided slidable thereon, said third plate being manually slidable and being arranged engaging said latch bolt to retract said bolt, and a manually operable latch carried by one of said slidable plates and engageable with the other of said slidable plates to link them together for conjoint movement.

In testimony whereof I have hereunto subscribed my name at Kokomo, Howard County, Indiana.

FAY BEAL.