Nov. 19, 1940. E. F. KING 2,222,105

DOOR HANDLE AND LOCK

Filed May 1, 1939

Fig. 1.

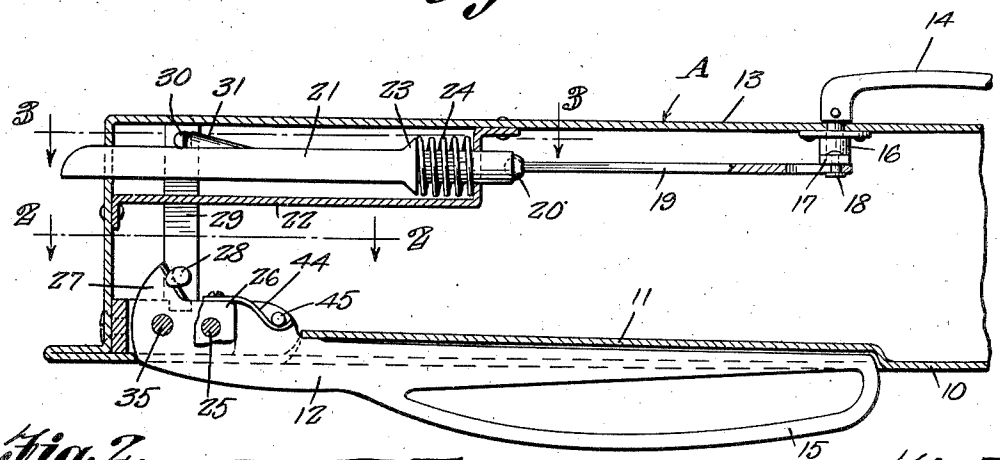



Fig. 2.

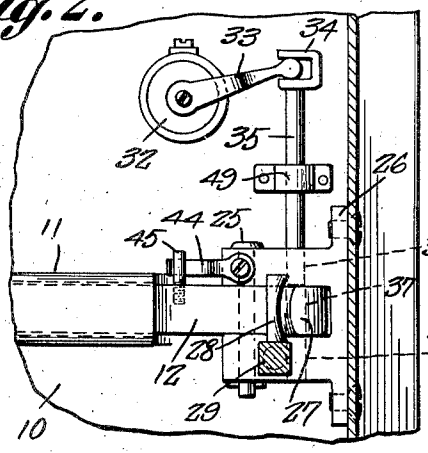



Fig. 6.

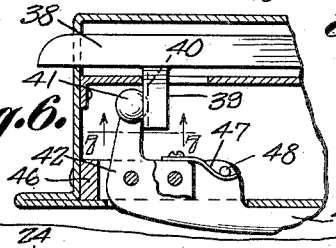



Fig. 7.



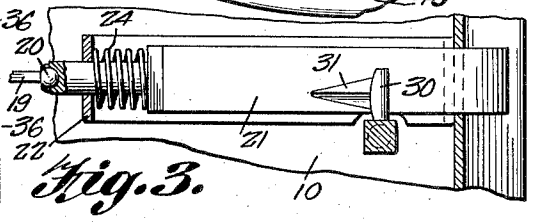




Fig. 3.

Fig. 4.

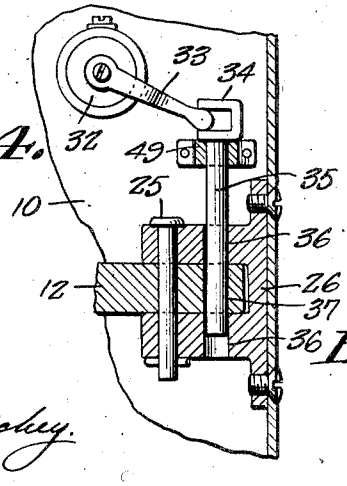
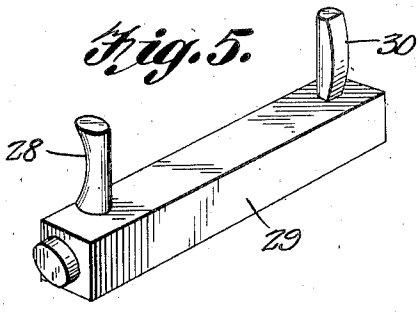



Fig. 5.




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WITNESS

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# UNITED STATES PATENT OFFICE

2,222,105

## DOOR HANDLE AND LOCK

Ernam F. King, San Diego, Calif.

Application May 1, 1939, Serial No. 271,137

2 Claims. (Cl. 70—146)

The invention relates to a door handle and lock and more especially to a lock and handle assembly for motor vehicle doors.

The primary object of the invention is the provision of an assembly of this character, wherein a throw bolt can be locked in a thrown position so as to fasten a door closed and this bolt is controlled by handles arranged both at the inside and outside of the door, the assembly being of novel construction so that the bolt can be readily thrown to a released position for the unlocking of the door and when in a locking position will be held secure to avoid the opening of the door.

Another object of the invention is the provision of an assembly of this character, wherein the construction thereof is novel in its entirety and is adaptable for the concealment of the latching and locking mechanism within the door body while handles for operating the same are exposed both inside and outside of the door for manual operation.

A further object of the invention is the provision of an assembly of this character, which is simple in its construction, thoroughly reliable and efficient in operation, possessed of few parts yet strong, durable, and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawing, which discloses the preferred and modified forms of embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a fragmentary horizontal sectional view taken through a door for a motor vehicle showing the lock and handle assembly constructed in accordance with the invention applied.

Figure 2 is a fragmentary sectional view taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a fragmentary vertical longitudinal sectional view showing in detail the lock per se.

Figure 5 is a perspective view of the striking element of the assembly.

Figure 6 is a fragmentary sectional view similar to Figure 1 showing a slight modification.

Figure 7 is a sectional view taken on the line 7—7 of Figure 6 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, particularly Figures 1 to 5, inclusive, A designates generally a portion of a motor vehicle door, being constructed from sheet metal and of hollow type while in the outer side 10 of this door A is a depression 11 accommodating an outside handle 12 while journaled in the inner side 13 of said door is the inside handle 14 of such door. The handle 12 is of the loop type, as at 15, while the handle 14 is of the crank type.

The handle 14 at its stud journal 16 is formed with a throw arm 17 having pin and slot connections at 18 to a link 19 which has universal connection at 20 with a spring-projected latching bolt 21 adapted as is usual to engage a keeper in the door frame for the fastening of the door A in a closed position. This bolt is accommodated within a housing 22 built within the hollow of the door A and is formed with a shoulder 23 against which is seated a coiled expansion spring 24, the latter being also seated against the housing 22. This spring 24 functions to move the bolt to latching position yet allowing retraction of the bolt on the turning of the crank handle 14 or the operation of the handle 12, respectively.

The handle 12 is swingable in a horizontal direction or at right angles to the outer side of the door 10 on a pivot 25 for said handle and this pivot is supported in a bearing bracket 26 fixedly secured in the hollow of the door A at the proper point for the successful operation of said handle. The handle 12 in the operation thereof is partially accommodated within the depression 11 constituting a seat therefor and its loop 15 is disposed for hand gripping thereof.

The handle 12 is provided with a kicking nose 27 engageable with a striker pin 28 on a rocking member 29, which is journaled within the hollow A of the door and disposed crosswise with relation to the throw bolt 21, the journaling of said member 29 being had in the outer and inner sides 10 and 13 of said door A. This member 29 is provided with a kicking lug 30 engageable with an abutment 31 on the bolt 21. Thus when the handle 12 is swung outwardly away from the door A, its nose 27 engages with the striker pin 28 rocking the member 29 and the lug 30 acts upon the abutment 31 retracting the bolt 21 against the resistance of the spring 24 and in this way the door is unlatched. This bolt 21 can be retracted by turning the crank handle 14, as should be clearly apparent from Figure 1 of the drawing.

When the handle 12 at the outer side of the door is operated to retract the bolt 21, the handle 14 remains passive, this being accomplished by the connection 18 between the arm 17 and the link 19.

Fitted in the outer side 10 of the door above the handle 12 is a key-operated cylinder lock 32, its turning barrel actuates a swinging arm 33 which is loosely engaged in a fork 34 formed on a locking bolt 35 and this bolt engages with the handle 12, being guided through openings 36 and 37 in the bearing bracket 26 and the said handle 12, respectively, so that the handle 12 will be locked against movement.

The locking bolt 35 is released on the operation of the lock 32 by a key (not shown) in the conventional manner. The bolt 35 is thrown by the arm 33 both to locking and unlocking positions with relation to the handle 12 and is held in its extreme position through tumbler action of the cylinder lock.

In Figures 6 and 7 of the drawing there is shown a modification of the invention wherein the latching bolt 38 is formed with a lug 39 having a depressed tracking surface 40 for a ball terminal 41 of a bell crank end 42 on the outside operating handle 43 so that when this handle is swung in one direction the bolt 38 will move to unlatching position.

The bearing bracket 26 carries a leaf spring 44 against which plays a pin 45 carried by the handle 12 and this spring functions to retract the handle 12 into the seat 11 in the outer side 10 of the door A. The bearing bracket 46 for the handle 43 carries a leaf spring 47 engaging the pin 48. The spring 47 functions in the same manner as the spring 44.

The bolt 35 is guided in its movement by a guide 49 secured interiorly of the door A.

The operation of the door handle and lock assembly is thought to be clearly obvious from the foregoing taken in connection with the accompanying drawing and of course it is understood that changes, modifications and variations are contemplated as fall properly within the scope of the appended claims.

What is claimed is:

1. A handle and lock assembly for a door having a recess in one face of said door, comprising a spring-projected latching bolt slidably fitting said door and having an abutment, a rocking member disposed within the door crosswise with relation to said bolt and having striker pin and kicking lug projections, respectively, thereon, the kicking lug being arranged for engagement with the said abutment, a lever constituting a handle fitting said recess and pivotally supported therein, a noselike cam formed on said lever and active upon the striker pin for the turning of the rocking member and activation of the kicking lug to effect retracting of the projected bolt on outward swinging of the said lever, a pin fixed to the lever remote from the nose, and a leaf spring fixed within the door next to said last-mentioned pin for overriding the latter and holding the lever seated within the recess.

2. A handle and lock assembly for a door having a recess in one face of said door, comprising a spring-projected latching bolt slidably fitting said door and having an abutment, a rocking member disposed within the door crosswise with relation to said bolt and having striker pin and kicking lug projections, respectively, thereon, the kicking lug being arranged for engagement with the said abutment, a lever constituting a handle fitting said recess and pivotally supported therein, a noselike cam formed on said lever and active upon the striker pin for the turning of the rocking member and activation of the kicking lug to effect retracting of the projected bolt on outward swinging of the said lever, a pin fixed to the lever remote from the nose, a leaf spring fixed within the door next to said last-mentioned pin for overriding the latter and holding the lever seated within the recess, a locking bolt slidably engageable with the said lever for holding the same fast in seated position within the recess, and a key-operated cylinder lock fitting said door and having a turn barrel connection with the locking bolt for moving the same to locking and unlocking positions.

ERNAM F. KING.