June 13, 1950 E. D. WILLIAMS 2,511,522

LOCKING DEVICE

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FIG. 1.

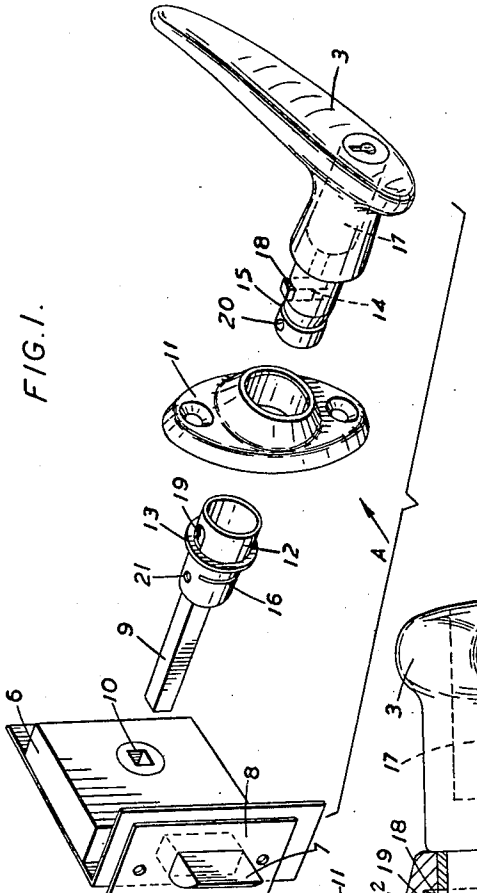
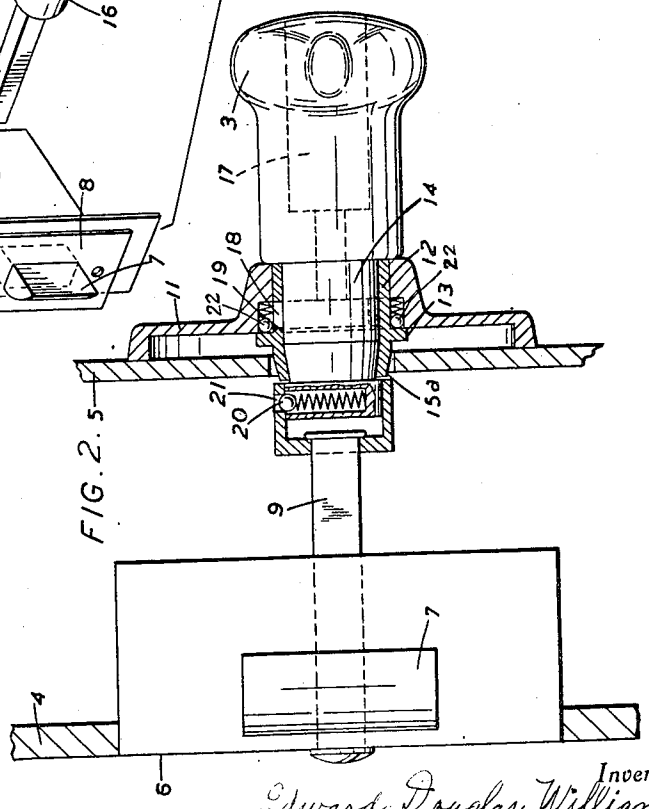


FIG. 2.



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LOCKING DEVICE

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5 Claims. (Cl. 70—221)

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The present invention relates to door locking devices or the like having an operating handle which is adapted to actuate a latching or locking element and including key operated mechanism which when operated prevents opening of the door or like movable part.

In known types of door lock the key operated mechanism is often arranged in the handle itself and actuates a locking pin which cooperates with a relatively fixed part, such as a support or guide for the handle, to lock the handle in relation to the said fixed part thereby locking the door or other movable part; in this case it is relatively easy to force the locking device and gain access merely by applying sufficient leverage to the handle; this results in general in stripping the locking pin but enables the door to be opened. These locking devices are frequently fitted to motor cars but the invention is not limited to locking devices for car doors and it may be applied to other purposes.

In accordance with the present invention a locking device includes key operated mechanism which is adapted to connect the handle to an operating spindle for the latching or locking element in the "released" condition of the lock to permit the handle to operate the latching or locking element but in the "locked" condition the handle is free to rotate without any connection with the spindle. By this arrangement any attempt to force the lock is frustrated since, in what may be termed the "locked" condition, the handle simply turns idly and is not operatively connected to the latching or locking element.

The present invention also embraces a method of converting an existing locking device to include the features of the invention as will be explained in greater detail hereinafter.

Reference will first be made to the accompanying drawings illustrating a preferred form of lock suitable for motor car doors, this form of the invention being described by way of example only and in which:

Fig. 1 is a general perspective view of the parts of the lock, the several parts being shown spaced apart, and

Fig. 2 is a cross section of the locking device in assembled condition fixed to a motor car door or the like, this view being taken looking in the direction of the arrow A, Fig. 1.

The locking device shown has a handle 3 on the outside of the door, inner and outer panels of which are shown at 4, 5, Fig. 2. The handle 3 is arranged to operate a latching or locking unit 6 on the inside of the door or in the body of the door, a slidable bolt or latch 7 of which engages a latch plate 8 in the door frame in the closed position of the door. The bolt or latch 7 may be subjected to a spring in the normal manner, these parts being preferably so arranged that the door is self latching on closing. The operation of the latching or locking unit 6 from outside of the door is effected by a squared spindle 9 extending from the handle assembly and entering a squared aperture 10 in a rotatable follower in the unit 6 and connecting with the latch or bolt 7 in any convenient manner.

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In the known arrangements of locking devices of this character the handle 3 is adapted to be locked to an escutcheon or rose 11 by means of a radially movable pin on the handle assembly which enters notches or recesses in the bore of the escutcheon; in the arrangement of the present invention the handle is rotatably mounted in a sleeve 12 itself also rotatable in the escutcheon 11 secured to the outside of the door, said sleeve having an intermediate flange 13 adapted to seat against the rear of the escutcheon (Fig. 2) to restrict the axial movement thereof between the escutcheon and the outside panel 5 of the door.

The inside end of said sleeve 12 is connected to or carries the squared spindle 9; this spindle may be integral with the sleeve or the two parts may be separate and in rotatable engagement one with the other, for example by forming the end of the sleeve 12 with a squared aperture to take the outer end of the spindle which is preferably enlarged at the end to prevent removal of the spindle from the sleeve. By allowing sufficient play the spindle 9 and sleeve 12 are self-aligning.

The handle 3 is provided with a reduced stem portion 14 to fit closely within the sleeve, said stem having a circumferential groove 15 to engage coacting portions in the sleeve to prevent axial movement of the handle within the sleeve. Said portions may be produced by deforming the material as shown at 15a (Fig. 2) at weakened portions formed by transverse saw cuts 16 therein.

The key operated mechanism may comprise a cylinder lock structure 17 located within the handle 3 at its outer end and adapted to project or retract radially a locking pin 18 in the reduced portion of the handle stem. This locking pin is adapted to engage an aperture 19 in the sleeve 12 in the "free" position of the lock to effect driving connection between the handle 3 and sleeve 12 whereby operation of the handle is transmitted through spindle 9 to the unit 6 and the door or other movable part can be opened by withdrawing latch 7. When it is desired to "lock" the door the

key is used to cause the key operated mechanism 17 to retract the locking pin 18 which comes out of engagement with the sleeve 12 and hence the handle becomes ineffective to operate the spindle 9 and is free to rotate with no connection with the spindle or with the locking element.

A locating spring-loaded pin, ball or other equivalent means 20 may be provided in the part 14 of the handle to engage a suitable recess 21 in the sleeve 12 to assist in locating the handle 3 in that rotary position in which the key operated mechanism is adapted to project the locking pin 18 into the aperture 19 in the sleeve; that is to say as the handle is rotated a "click" will be felt in that position in which the key can be used to open the door.

To take up end play of the sleeve 12 a pair of oppositely disposed, axially directed spring pressed balls 22 may be arranged in the escutcheon 11 as shown on Fig. 2, the said balls being adapted to press against the flange 13 of sleeve 12.

What I claim is:

1. A device for operating a latch securing a movable member comprising an operating handle, a sleeve in which said operating handle is freely rotatable, an escutcheon forming a journal for said sleeve, deformable portions on said sleeve engageable with a groove in the handle, key operated mechanism associated with the handle, a radially movable pin in said handle adapted to be engaged with said sleeve, said pin being operated by the key operated mechanism, and a connection between said sleeve and the latch.

2. A device for operating a latch securing a movable member comprising an operating handle having a reduced stem portion, a sleeve in which said stem is freely rotatable, deformable portions on said sleeve engageable with a groove in said stem, a peripheral flange on said sleeve, an escutcheon to mount said sleeve in a freely rotatable manner, spring means in said escutcheon bearing on said sleeve, key operated mechanism associated with the handle, a radially movable pin in said stem adapted to be engaged with said sleeve, said pin being operated by the key operated mechanism, and a connection between said sleeve and the latch.

3. A door latch operating device comprising an operating handle having a reduced stem portion,

a sleeve in which said stem is freely rotatable, deformable portions on said sleeve engageable with a groove in said stem, an escutcheon adapted to be fixed to the door and providing a journal for the sleeve, a flange on said sleeve to locate same between the escutcheon and the door, a spring ball locating device on said stem engageable with a recess in the sleeve, key operated mechanism associated with the handle, a radially movable pin in said stem adapted to be engaged with an aperture in said sleeve, said pin being operated by the key operated mechanism, and a connection between said sleeve and the latch.

4. A conversion assembly for an existing door latch including an escutcheon, comprising a sleeve designed to rotate freely within the escutcheon, a handle unit adapted to rotate freely within said sleeve, deformable portions on the sleeve to engage a groove in said handle unit, said handle unit including connecting means between handle and latch, key operated mechanism in said handle and means operated by said key mechanism and adapted to form a connection between the handle and the sleeve.

5. A conversion assembly for an existing door latch including a handle, comprising a sleeve and an escutcheon, the sleeve being adapted to rotate freely within the escutcheon and said sleeve being designed to cooperate with the existing handle, connecting means on said sleeve for connecting with the latch, deformable portions on the sleeve to engage a groove in the handle, and means in said sleeve designed to cooperate with the locking pin on the handle to form the driving connection between the handle and the latch.

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