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1,803,609

AUTOMOBILE DOOR LOCK HANDLE

Filed May 7, 1928

2 Sheets-Sheet 1

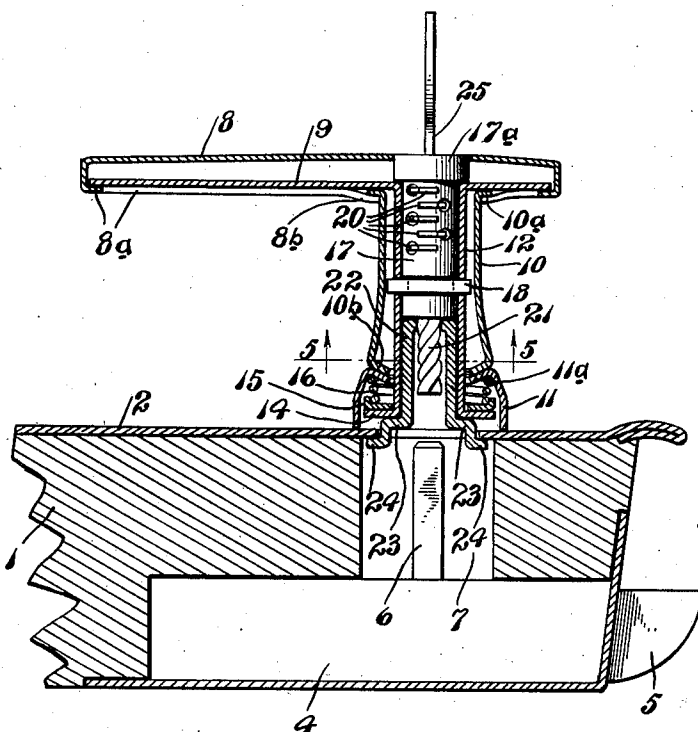


Fig. 1.

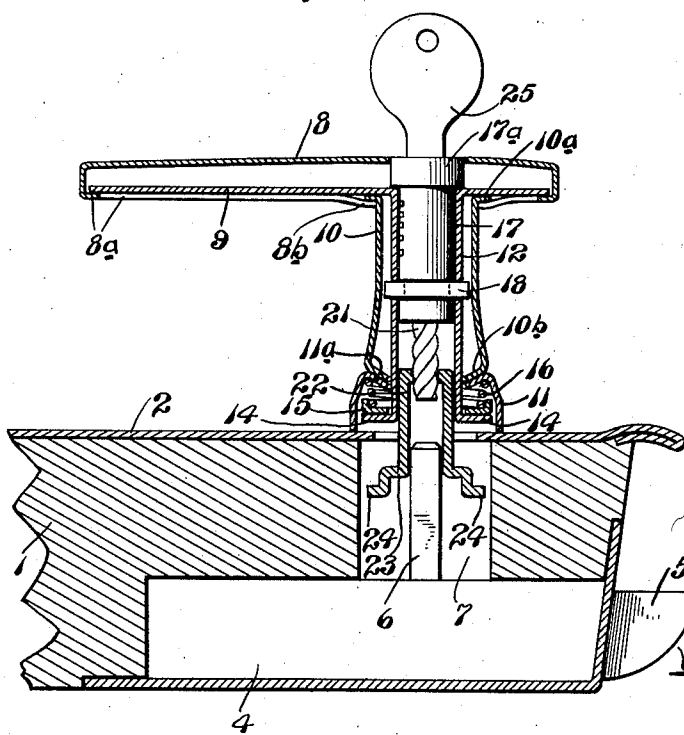


Fig. 2.

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2 Sheets-Sheet 2

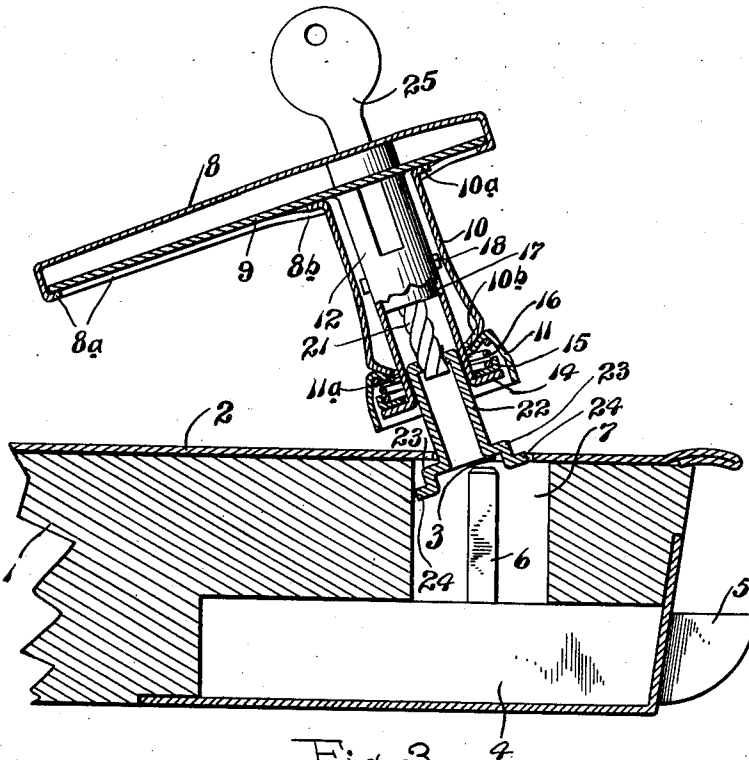


Fig. 3.

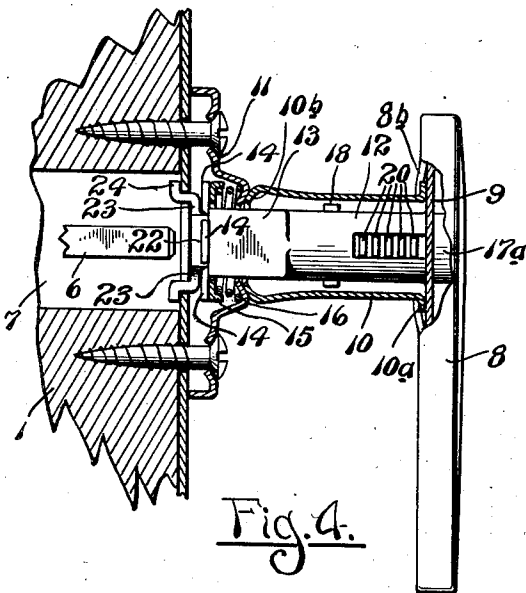


Fig. 4.

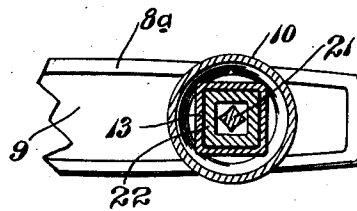


Fig. 5.

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AUTOMOBILE DOOR LOCK HANDLE

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This invention relates to a locking mechanism for door latch handles and is more particularly concerned with devices of this character which may be used on automobile doors. It is a primary object and purpose of the present invention to associate an operating handle with a door latch and provide the same with a key operated means whereby the operating handle may be connected with or disconnected from the latch so as to selectively render the latch bolt operative or inoperative on turning movement of the handle. The handle may, when disconnected turn free without in any way affecting the latch bolt and this in effect serves to lock the door against opening.

A further object of the invention is to provide a device and mechanism of this character which may be very economically produced, all of the parts being of comparatively simple manufacture, readily and easily assembled with resultant very low cost of manufacture as compared with door handles and locks heretofore commonly used on automobile doors.

A still further object of the invention is to provide a handle of the character described which, while it is secured to the door by means of removable screws, any removal of the screws at the time that the handle is disconnected from the latch bolt automatically renders the handle incapable of removal from the door so that access to the operating shank which is immediately connected with the bolt, cannot be had to open the door; yet at the same time by key operating the device so that if the parts occupy a position such that when assembled the handle will be directly connected with said shank, it is easy to remove or attach the handle to the door, making it a very simple and easy problem to assemble the latch handle to the door and at the same time providing a secure means to prevent disconnection of the handle from the door when it is disconnected from the latch.

This prevents any entrance into the automobile through a removal of the latch handle by withdrawing the screws which attach it to the door.

With the above and many other objects in

view, all of which will be apparent as understanding of the invention is had, I have made the improved construction described in the following description and illustrated in the accompanying drawing, in which,

Fig. 1 is a substantially full sized horizontal section through the locking handle of my invention, the same shown applied to a door and in inoperative or withdrawn relation with respect to the latch bolt operating shank.

Fig. 2 is a similar section showing the handle connected to the shank.

Fig. 3 is a section similar to those shown in Figs. 1 and 2, illustrating the method by which the handle is applied to or disconnected from the door and the latch bolt shank.

Fig. 4 is a fragmentary section in a vertical plane, and

Fig. 5 is a transverse section on the plane 5-5 of Fig. 1 looking in the direction indicated by the arrows.

Like reference characters refer to like parts in the different figures of the drawings.

The automobile door to which the device is applied may be of any conventional construction having the interior bracing or body 1 covered at its outer side by a sheet metal facing 2 thru which, at one point near the free vertical edge of the door, a circular opening 3 is made. The latch 4 which is connected to the door is of any old and well known or conventional construction having a projecting latch bolt 5 which may be reciprocated by turning a shank 6. The shank 6 is located in a cylindrical opening 7 made through the door, the axis of which substantially coincides with the center of the opening 3 previously described.

The handle means for operating the latch bolt located at the outside of the door includes a grip body 8 of suitable material which is a flat elongated housing having an outer side and ends and sides bent inwardly at right angles thereto, and inner intumed lips 8a against which, inside of the housing, an elongated metal plate 9 bears. An outer substantially cylindrical sleeve or ferrule 10

of suitable material at its outer end is formed with a continuous annular flange 10a which bears against the inner side of the plate 9, while the flange 8a of the grip housing passes underneath opposite sides of the flange 10a to hold the same in secure relation to said housing, as indicated at 8b. The ferrule 10 at its inner end is formed downwardly and inwardly making the inclined ledge 10b which is received in a depression in the outer side of an escutcheon plate 11 bearing snugly against a downwardly and inwardly inclined seat 11a on said escutcheon. This construction however may be of any commercial character, such as die casting, machined castings, composition, rubber, etc.

A lock cylinder cylindrical sleeve 12 is connected to or formed integral with the plate 9, lies lengthwise of and within the ferrule 10, passes through an opening in the escutcheon plate 11 and at its inner end is provided with a plurality of outwardly extending ears 14. The inner end portion of the sleeve 12 is shaped to be substantially square in cross section, as indicated at 13 in Figs. 4 and 5. A cup-like washer 15 lies over the ears 14 and receives one end of a short coiled compression spring 16, the opposite end of which bears against the escutcheon plate 11 as fully shown in Figs. 1 to 4 inclusive. The spring under compression draws the plate 9 snugly against the outer end of the ferrule 10 and forces the inner end of the ferrule into snug engagement with the seat 11a of the escutcheon plate, eliminating all tendency to noise and rattle.

A lock cylinder 17 of any well known commercial form extends into the outer end of the sleeve 12 at its outer end having a head 17a bearing against the plate 9 and substantially flush with the outer side of the handle housing 8. The lock cylinder is retained in the sleeve 12 by a retaining spring 18 as used in ordinary commercial forms of locks of this type. The lock cylinder carries a plurality of tumblers 20 which pass through it at one side and which may be operated by the insertion of a key into the outer end of a cylinder to free the cylinder for rotation with respect to the sleeve 12, but normally the tumblers engage with the sleeve in such manner as to prevent any rotation of the cylinder 17 with respect to said sleeve.

From the inner end of the lock cylinder 17 a worm or screw 21 extends lengthwise of the sleeve 12 and particularly through its squared portion 13. This screw passes through a suitable opening in the end of a connecting member 22 formed square in outline to fit the inner end portion 13 of sleeve 12, closed at its outer end except for the opening through which the screw 21 passes and open at its inner end for reception of the square shank 6 of the door latch. At the inner end of the connecting member two ears

23 are formed at opposite sides of said member, the same being of the shape shown in the various figures of the drawings and terminating at their end in lips 24. The distance from the outer edge of one lip 24 to the other is greater than the diameter of the opening 3.

The escutcheon plate 11 is secured to the outer side of the door by means of screws as shown in Fig. 4 and the connecting member 22 is in direct alinement with the shank 6. When the key 25 is inserted in the outer end of the locking cylinder 17 the cylinder is free to rotate with respect to the sleeve 12. Turning the key turns the cylinder and causes the connecting member 22 to traverse the length of the screw 21. When the key is turned in one direction the connecting member is drawn outward to the position shown in Fig. 1, whereupon it is completely disconnected from the shank 6. On turning the key in the opposite direction the connecting member is caused to slide inward to the position shown in Fig. 2 with the result that the connecting member telescopes over the shank 6 and the handle is connected with said shank so that turning movement of the handle turns the shank and moves the latch bolt 5. It is apparent that in the position of the parts shown in Fig. 1, the handle may be freely turned but no operation of the latch bolt will take place.

With the parts in the position shown in Fig. 1 or with the connecting member 22 disconnected from the shank 6, removal of the attaching screws used to connect the escutcheon plate to the door results only in loosening the handle structure from the door but it cannot be disconnected so that access may be had to the shank 6; this for the reason that the shoulders of ears 23 have entered the opening 3 and the lips 24 have been brought so closely to the inner side of the metal covering 2 of the door and also so closely to the inner edges of the escutcheon plate that the handle construction cannot be tilted far enough to pass the ears 23 with their terminal lips 24 thru the opening 3. But when the connecting member 22 is in the other position, shown in Fig. 2, and the screws are drawn there is then left sufficient space to tilt the handle construction to one side, as shown in Fig. 3, so that one of the lips 24 can pass thru the opening 3 after which by moving the handle laterally the other ear and lip may be withdrawn.

Such construction renders it possible to readily assemble the handle on the door and to retain it on the door against removal when the door is, in effect, in locked position. If the connecting member 22 is as shown in Fig. 2, there is no object in trying to remove the handle construction as the latch bolt can be freely operated. It is only when an unauthorized person is attempting to gain access to the automobile and cannot do so by reason of the free rotation of the handle without

affecting the latch, that any attempt will be made to remove the handle by drawing the attaching screws. In such case the handle cannot be removed.

The construction described is very practical and operative and is of simple and economical construction, and can be readily applied to automobile doors of modern construction, in which there is very limited space for any mechanism of this character within the door itself. The cost of manufacture is greatly reduced. The assembling is simple and easy and there has been a reduction of the number of parts used to a minimum. The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

Although the invention has been specifically shown and described as applied to an automobile door lock, it is readily adaptable and applicable to other uses with slight modifications of construction, as for example, the connection and disconnection of the so-called shift lever with the gear shifting mechanism of an automobile transmission where a swinging or sliding movement is imparted instead of a rotating movement.

I claim:

1. In combination with a door or the like having a latch mounted thereon, a handle structure mounted on the door and engaged therewith, means mounted in the handle structure for connecting with or disconnecting it from said latch, means for securing the handle structure to the door, and means for preventing disengagement of the handle from the door upon removal of said securing means except when the handle structure is in latch connecting position.

2. In combination with a door having a door latch mounted thereon at its inner side including a latch bolt, and a shank for operating the bolt, said door having an outer facing of metal with an opening therethrough, of a handle structure mounted on the door over said opening, including an elongated sleeve, a cylindrical operating member located in the outer end of the sleeve adapted to receive a key for rotating the same, a connecting member slidably mounted at the inner end portion of the sleeve adapted to telescope over said shank in one position, and means operatively connecting said cylinder and connecting member for moving the connecting member lengthwise of the sleeve, said shank, connecting member and sleeve at their inner end portions having shapes to cause rotative movement of all when the sleeve is rotated with the shank and connecting member connected together, said connecting member at its inner end having means for normally preventing withdrawal of the connecting member through the opening in said facing plate of the door, excepting when the connecting member has

been moved inwardly to a position where it normally engages with said shank.

3. In combination with a door having a latch and a shank for operating the latch, a handle structure on said door comprising, a rotatable hand grip, a connecting member mounted on said grip to rotate therewith and to slide longitudinally of the axis of rotation for connection or disconnection with said latch shank, means mounted in said grip for sliding said connecting member in and out and means on said connecting member engageable with said door to prevent removal of the handle structure from the door when the connecting member is in outer position.

4. In combination with a door having an opening and a latch with an operating shank extending into said opening, and a flange on the door surrounding said opening, a handle structure attached to the door over said opening comprising, a rotatable hand grip, a connecting member mounted in said grip to rotate therewith and slidable into or out of engagement with said shank, lock means mounted in said grip and associated with said connecting member to slide the same inward or outward into or out of engagement with said shank and ears on said connecting member engageable with said flanges on the door to prevent removal of the handle structure when the connecting member is in outer position.

5. In combination with a door having an opening and a door latch having an operating shank extending into said opening and a flange on the door surrounding said opening, a handle structure mounted on the door comprising, a rotatable hand grip, a connecting member mounted on said hand grip and rotating therewith and slidable into or out of engagement with said shank, lock means mounted in said hand grip and associated with said connecting member engageable with said flanges on the door and removable from said flanges only by turning the handle structure at an angle to said door, said ears engaging said flanges when the connecting member is moved to outer position and preventing angular placement of the handle structure relative to the door.

In testimony whereof I affix my signature.
RAYMOND I. GRAF.