Feb. 28, 1933. E. N. JACOBI 1,899,418

HANDLE

Filed June 27, 1929

Fig. 1

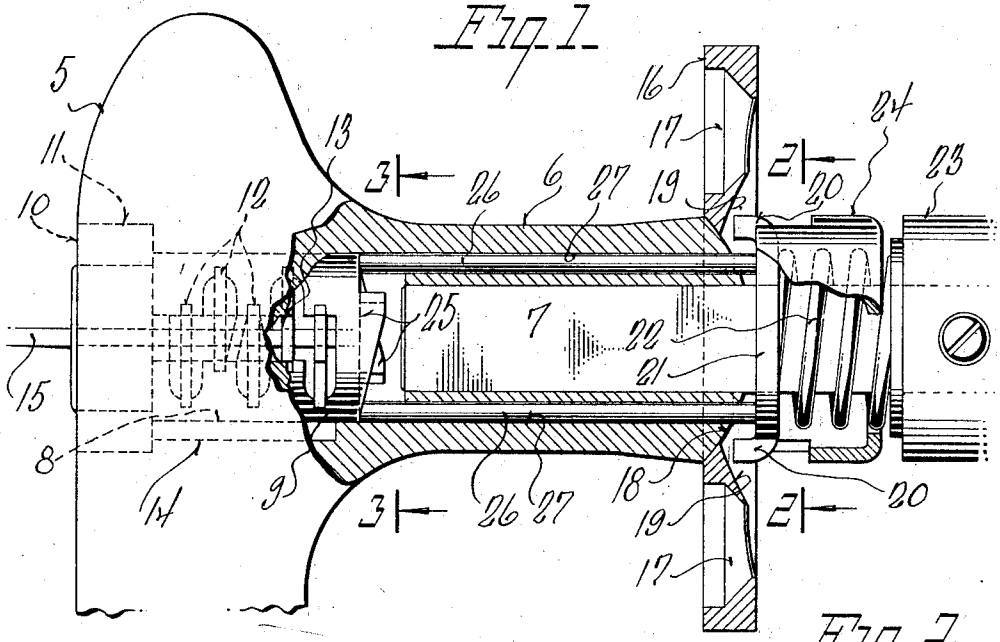


Fig. 2

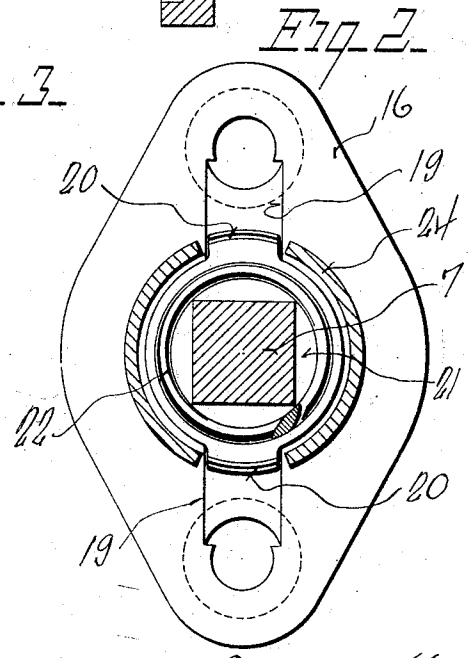


Fig. 3

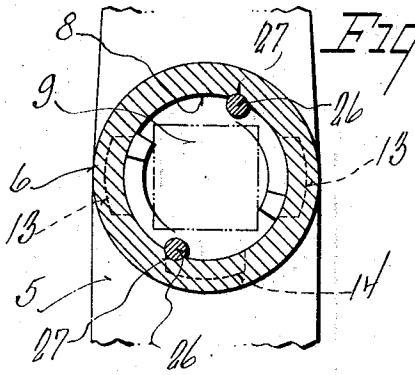
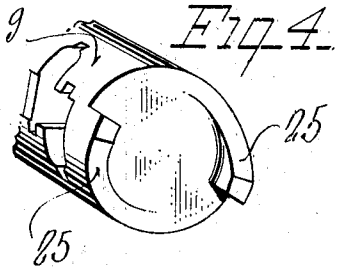


Fig. 4



Witness
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UNITED STATES PATENT OFFICE

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HANDLE

Application filed June 27, 1929. Serial No. 374,203.

This invention relates to certain new and useful improvements in handles and refers more particularly to vehicle door handles.

Handles of this type are usually provided with a square stem which actuates the lock mechanism of the door, and the entire handle is restrained against rotation when locked by having an element carried thereby engaged with recesses or the like formed in an escutcheon plate fixed to the outer face of the door. Very often the portion of the door to which the escutcheon plate is fixed is not in a true vertical plane and as it is desirable that the axis of the handle be perfectly horizontal, the escutcheon plate assumes an angle with respect to the axis of the handle, and heretofore when this condition existed difficulties were encountered in the proper alignment of the handle carried element with the escutcheon plate.

It is, therefore, an object of this invention to provide an improved handle construction wherein a considerable degree of angularity between the escutcheon plate and the axis of the handle is accommodated without complicating the design of the handle in any way.

Another object of this invention resides in the provision of a handle carried element normally engageable with the escutcheon plate to restrain movement of the handle and means formed on the inner end of the usual lock cylinder whereby rotation of the lock cylinder moves the handle carried element out of engagement with the escutcheon plate.

And a more specific object of this invention resides in the provision of helical cams formed on the inner end of the lock cylinder and operably connected with the handle carried element whereby rotation of the lock cylinder moves said element out of engagement with the escutcheon plate to permit unstricted turning of the handle.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a view, partly in elevation and partly in section of a handle construction embodying my invention;

Figure 2 is a cross sectional view taken through Figure 1 on the plane of the line 3—3;

Figure 3 is a cross sectional view taken through Figure 1 on the plane of the line 4—4; and

Figure 4 is a fragmentary perspective view of the inner end of the lock cylinder illustrating the helical cams.

Referring now more particularly to the accompanying drawing, in which like numerals designate like parts throughout the several views, the numeral 5 represents a handle of the type usually employed with automotive vehicle doors having a shank 6 in which a square stem 7 is cast or otherwise secured. A bore 8 projected inwardly from the front of the handle, in axial alignment with the stem 7, rotatably receives a lock cylinder 9 of conventional construction, which is restrained against outward longitudinal movement by any suitable means such as a retaining ring 10 fixed in a counterbore 11. Rotation of the lock cylinder is restrained by tumblers 12 engageable in suitable grooves 13 and 14 communicating with the bore 8, the insertion of a proper key 15 retracting the tumblers within the periphery of the cylinder to permit turning in the usual manner.

The stem 7 projects through an aperture in an escutcheon plate 16 securable to the face of the door, not shown, by screws passed through apertures 17. The periphery of the aperture through which the stem 7 projects is dished inwardly to conform to and receive the rounded end 18 of the handle shank 6 to permit a limited degree of angular misalignment between the handle axis and the escutch-

eon plate to accommodate various types of vehicle doors.

The inner face of the escutcheon plate 16 has milled slots 19 communicating with its central aperture to receive the laterally directed lugs 20 of a washer member 21 non-rotatably mounted on the stem 7 outwardly of the shank 6 to normally restrain relative movement between the handle and the escutcheon plate. An expansive spring 22 confined between the washer member 20 and a collar or the like 23 fixed to the stem 7 yieldably urges the lugs 20 into the milled slots 19, and a suitable hood 24 is slipped over the spring 22 and the washer member 20.

The washer member 21 is moved against the action of the spring 22 to retract the lugs 20 out of the milled slots 19 and permit turning of the handle, by the rotation of the lock cylinder 9 in the following manner. The inner end of the lock cylinder is provided with diametrically opposed helical cams 25 which engage the adjacent ends of a pair of push rods 26 slidably mounted in bores 27 in the handle shank 6 at diametrically opposite points, and outwardly of the stem 7. The outer ends of the push rods 26 engage the inner face of the washer member 21, and thus move it inwardly when the lock cylinder is turned to force its helical cams under the inner ends of the push rods.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent to those skilled in the art to which an invention of the character described appertains, that I provide a novel manner of disengaging the handle carried element from the escutcheon plate which permits considerable angular misalignment between the escutcheon plate and the handle shank to accommodate various types of vehicle doors.

What I claim as my invention is:

1. In a device of the character described, a movable member having an axially extended stem, a stationary member having an opening through which the stem passes, an element having an opening to non-rotatably slidably receive the stem and movable into engagement with the stationary member to restrain movement of said movable member, a lock cylinder carried by the movable member, and means connecting the lock cylinder with said element for sliding the element along the stem out of engagement with the stationary member to permit actuation of the movable member.

2. In a device of the character described, a rotatably mounted member having an axially extended stem, a stationary member forming a bearing for said rotatably mounted member and having an opening through which the stem extends, a locking element non-rotatably slidable on the stem beyond the rotatably mounted member and engageable with the stationary member to restrain relative rotation between said members, a lock cylinder movably carried by the rotatably mounted member, and means connecting the lock cylinder with the locking element and operable upon movement of the lock cylinder to slide the locking element on the stem out of engagement with the stationary member to permit relative rotation between said members.

3. In a device of the character described, a movable member, a stationary member, a locking element having an opening to non-rotatably but slidably receive part of the movable member and operable in one position to interlock said members, a movable lock cylinder, and means connecting the lock cylinder with the locking element to slide the locking element out of said position and free the first of said members for movement upon actuation of the lock cylinder.

4. In a device of the character described, a handle member having an axially aligned stem, an escutcheon plate forming a bearing for the handle member and having an opening through which the stem extends, a locking element having an opening to slidably but non-rotatably receive the handle member stem and engageable with the escutcheon plate to restrain rotation of the handle member, a lock cylinder movable in the handle member, and means connecting the lock cylinder with the locking element and operable upon actuation of the lock cylinder to slide the locking element along the handle member stem and out of engagement with the escutcheon plate to free the handle member for rotation.

5. In a device of the character described a handle member having an axially extended stem fixed thereto, a stationary member through which the stem projects, a locking element having an opening slidably but non-rotatably receiving the stem and engageable with the stationary member to restrain rotation of the handle member, a lock cylinder movable in the handle member, a cam carried by the lock cylinder, and a longitudinally movable pin connecting the cam with the handle element whereby actuation of the lock cylinder slides the locking element along the handle member stem out of engagement with the stationary member to free the handle member for rotation.

6. In a device of the character described, a handle member having an axially extended stem of polygonal cross section, an escutcheon plate having an abutment and an opening through which the stem projects, a locking element non-rotatable but slidable on the handle member polygonal stem and engageable with the escutcheon plate abutment to restrain rotation of the handle member, a lock cylinder rotatable in the handle member, a cam carried by the lock cylinder, and a

pin abutting the cam and the locking element whereby rotation of the lock cylinder moves the pin to slide the locking element along the stem out of engagement with the escutcheon plate abutment to free the handle member for rotation.

7. In a device of the character described, a handle member having a polygonal stem, an escutcheon plate engaged by the handle member and having an abutment and an opening through which the stem projects, a locking element slidable on the polygonal handle member stem, means yieldably urging the locking element along the stem into engagement with the abutment to restrain rotation of the handle member, a lock cylinder rotatable in the handle member, and means for changing the rotation of the lock cylinder into axial motion to slide the locking element axially along the stem against the action of the yieldable means and out of engagement with the escutcheon plate abutment to free the handle member for rotation.

8. In a device of the character described, a movable handle member, a stationary member, cooperating means carried by the handle member and the stationary member providing a partially spherical bearing seat for the handle member to accommodate a degree of axial misalignment between the handle member and stationary member, a locking element carried by the handle member and axially movable into and out of engagement with the stationary member to normally prevent relative movement between said members, lock means carried by the handle member for effecting disengagement of the locking element to release the handle member for movement, and spring means for maintaining the handle member properly engaged with the stationary member and the locking element normally engaged with the stationary member, said spring means yielding upon actuation of the lock means to accommodate disengagement of the locking element from the stationary member.

9. In a device of the character described, a handle member, a stationary member having a seat for the handle member to rotatably mount the same, a locking element non-rotatably connected with the handle member and engageable with the stationary member to normally prevent rotation of the handle member, spring means for maintaining the handle member engaged with its seat and yieldably urging the locking element into engagement with the stationary member, and lock means carried by the handle member for moving the locking element against the action of the spring means to release the handle member for rotation.

10. In a device of the character described, a handle member, a stationary member, a bearing on one side of the stationary member to receive a portion of the locking member and rotatably mount the same while permitting a degree of axial misalignment between the handle member and the stationary member, a locking element non-rotatably connected with the handle member and engageable with the other side of the stationary member, spring means for maintaining the handle member properly engaged with its bearing on the stationary member and for yieldably urging the locking element toward the handle member to engagement with the stationary member to restrain rotation of the handle member, and lock means carried by the handle member for moving the locking element against the action of the spring means out of engagement with the stationary member to release the handle for rotation.

11. In a device of the character described, a handle member having a shank, a stationary member having a spherical bearing seat for the handle shank whereby a degree of axial misalignment between the handle and stationary member is permitted while a proper bearing engagement between the handle shank and the stationary member is maintained, an abutment on the stationary member, and a locking element slidable axially along part of the handle member shank and non-rotatable thereon, spring means for yieldably urging the locking element into engagement with the stationary member abutment irrespective of the alignment existing between the handle shank and the stationary member to normally prevent rotation of the handle member, and lock means carried by the handle member for disengaging the locking element from the stationary member abutment to free the handle member for rotation.

12. In a device of the character described, a handle member, a fixed escutcheon plate providing a bearing for the handle member, a stem connected with the handle member outwardly of the escutcheon plate and passing through an opening in the escutcheon plate, a locking element slidable but non-rotatable on the stem inwardly of the escutcheon plate and engageable with the escutcheon plate to normally prevent rotation of the handle member, spring means surrounding the stem inwardly of the escutcheon plate for normally maintaining the locking element engaged with the escutcheon plate, lock means carried by the handle outwardly of the steam, and means for moving the locking element out of engagement with the escutcheon plate upon actuation of the lock means.

13. In a device of the character described, a handle member having a shank, a fixed escutcheon plate, providing a bearing for the handle shank and having an abutment, a stem connected with the handle shank outwardly of the escutcheon plate and extending through an opening therein, a locking ele-

ment apertured to slidably but non-rotatably receive the stem and normally engaged with the escutcheon plate abutment to prevent rotation of the handle member, means yieldably maintaining the locking element in operative position, a key controlled lock device carried by the handle member, and a push pin extending from the lock device through an opening in the handle shank to the locking element whereby actuation of the lock device moves the locking element out of engagement with the escutcheon plate abutment to free the handle member for rotation.

14. In a device of the character described, a handle member having a shank, a fixed escutcheon plate providing a bearing for the shank, and having an abutment, a stem extended from the handle shank and passed through an opening in the escutcheon plate, a locking element apertured to slidably but non-rotatably receive the stem, a spring encircling the stem to yieldably urge the locking element toward the escutcheon plate and into engagement with its abutment to prevent rotation of the handle member, a key controlled lock device carried by the handle member, and means slidable in a bore in the handle member shank and extending from the key controlled lock device to the locking element to move the locking element out of engagement with the escutcheon abutment upon actuation of the lock device.

In testimony whereof I have hereunto affixed my signature.

EDWARD N. JACOBI.