April 20, 1954 N. A. WELCH ET AL 2,675,692

DOORKNOB CONSTRUCTION

Filed Jan. 31, 1951

Fig. 1.

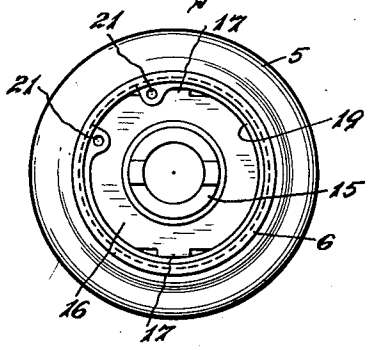


Fig. 2.

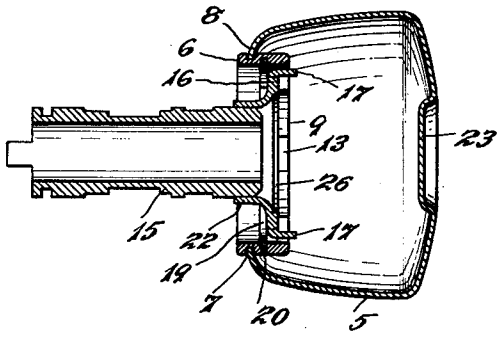


Fig. 3.

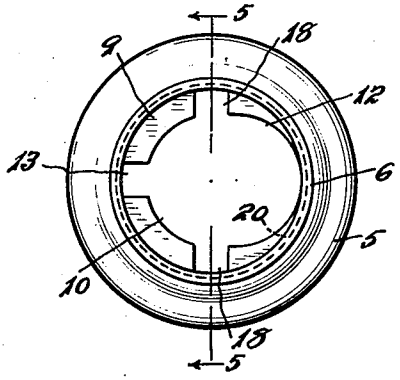


Fig. 4.

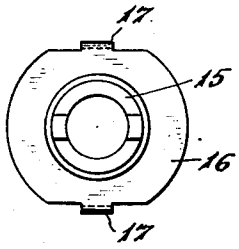
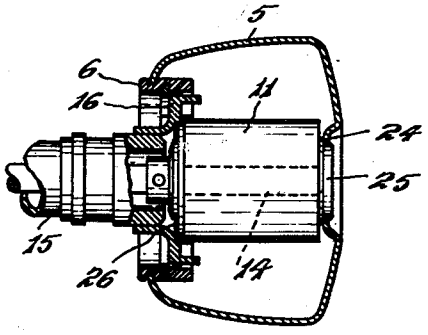


Fig. 5.



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DOORKNOB CONSTRUCTION

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7 Claims. (Cl. 70—224)

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This invention relates to improvements in door knob construction and more particularly to such door knobs as are used on door locks.

An object of this invention is an improved construction which will provide a door knob that may be economically manufactured and which is easy as assemble, durable, and readily adaptable to receive and have mounted therein a key controlled lock such as of the cylindrical type or the like.

A further object of the invention is to provide a knob which, with slight modifications, may be used without a key operated lock therein or, with slight modifications, may be adapted to receive different types of cylindrical locks.

Further objects and advantages of this invention will be more clearly understood from the following description and from the accompanying drawings in which:

Fig. 1 is an inner end view of a door knob embodying our improved construction.

Fig. 2 is a sectional side view thereof.

Fig. 3 is an inner end view with the shank member of the knob being removed therefrom.

Fig. 4 is an inner end view of the said shank member.

Fig. 5 is a sectional side view from the opposite side of the knob and showing a modified form thereof with a cylindrical lock mounted therein.

In the embodiment of the invention illustrated in the drawings, our improved knob construction comprises a shell-like grip portion 5 having an open inner end to which there is secured an annular sleeve 6 that has an annular groove 7, in the outer surface thereof, into which the free inturned marginal edge 8 of the portion 5 is extended by being spun thereinto, or otherwise forced thereinto, to secure said sleeve to the grip portion. If desired, the edge of the groove, or the marginal edge of the grip portion, may be peened so as to lock the said portion to the sleeve against rotation.

The said sleeve 6 is provided, at the inner end thereof, with a wall 9 having an opening 10 that is adapted to receive a lock 11 of the cylindrical type. The said opening is preferably formed with an off-set portion 12 to permit the use of a different type of cylindrical lock for which an opening of such formation is required.

At one side of the opening 10 there is provided a notch 13 which receives a projection 14, such as the pin-tumbler chamber on the cylindrical lock and prevents rotation thereof within the said opening.

A shank 15, which is preferably tubular, is secured to the said grip portion by means of an annular flange 16 which fits within the sleeve 6 and abuts the inner surface of the wall 9. This flange has perpendicular projections 17 thereon which extend through notches 18 in the wall 9 of the sleeve to prevent rotation of the shank relatively to said sleeve and grip portion. The said flange is preferably locked to the sleeve by means of contractable ring 19, which fits within an annular groove 20 in the inner wall of the sleeve 6 and has spaced end portions that are provided with openings 21 to receive a conventional tool for contracting the said ring when it is being assembled to the sleeve or removed therefrom. In the form illustrated, the flange 16 is provided with a collar 22 which is secured to the end of the shank 15, by being brazed or otherwise connected thereto.

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The outer wall of the grip portion 5 has a depressed axial portion 23 which, when a cylindrical lock is to be used in the knob, is provided with axial opening 24 for receiving the end portion of the key plug 25 of the cylindrical lock and thereby axially positioning the said lock within the knob. The inner end of the lock cylinder fits within a recess 26, in the flange 16, which axially positions the inner end of the cylinder. Longitudinal movement of the said cylinder is prevented by its being contained between the said flange and outer wall of the grip portion.

It will be noted that our improved knob construction permits varied uses of the door knob with the making of slight modifications and provides for easy assembly of the parts of said knob in the production thereof. It also provides for readily mounting a cylinder lock within the said knob by simply placing it in position within the knob, as illustrated in Fig. 5, and then securing the parts together by the insertion of the ring 19 into the groove 20. When the lock is thus secured to the knob, no other fastening means are required since endwise movement of the lock is prevented by the flange 16 and outer wall of the grip portion and rotational movement of the said lock is prevented by the projection 14 on the knob fitting within the notch 13 in the sleeve.

We claim:

1. A door knob construction comprising a shell-like grip member having an opening in the inner end thereof with inturned marginal edge portions surrounding said opening, a sleeve fitting within said opening and having an annular groove in the outer surface thereof into which the said marginal portions extend for securing the sleeve to the grip member, an end wall on said sleeve, a shank, a flange on said shank fitting within said

sleeve and against said end wall, projections on said flange extending into openings in the said wall for preventing relative rotation between the shank and grip portion, the said sleeve having an annular groove in the inner surface thereof adjacent to said flange, and a fastening member detachably mounted within said groove and projecting therefrom into engagement with said flange securing the shank to the grip member.

2. A door knob construction comprising a shell-like grip portion formed of sheet metal and having an opening in the inner end thereof with inturned marginal edge portions surrounding said opening, an annular sleeve contained within said opening and having an annular groove in the exterior surface thereof, the said marginal portions being forced into said groove for securing the grip portion to the sleeve, an end wall on said sleeve located within said grip portion, a shank, an annular flange on said shank fitting within said sleeve and against the said end wall, projections on said flange extending perpendicularly therefrom through openings in said wall to prevent relative rotation between said shank and grip portion, and means detachably connected to the inner wall of said sleeve and engaging said flange securing the shank to the grip portion.

3. A door knob construction comprising a shell-like grip portion having an opening at the inner end thereof and inturned marginal edge portions surrounding said opening, an annular sleeve fitting within said opening and secured to said edge portions, an end wall on said sleeve having an axial opening extending therethrough, a lock unit contained within said grip portion and fitting within said axial opening, a shank, an annular portion on said shank fitting within said sleeve and covering said axial opening; said annular portion engaging the lock and retaining it within the grip portion and means supported by said sleeve and engaging said annular portion securing the shank to the grip portion.

4. A door knob construction comprising a shell-like grip portion having an opening at the inner end thereof, an annular sleeve secured within said opening and extending into the grip portion, an end wall in the inner end of said sleeve, the said wall and the front wall of the grip portion having co-axial openings therein, a lock contained within said grip portion and having portions fitting through said openings, a shank, an annular flange on said shank fitting within the sleeve and against the said end wall thereof and engaging the inner end portion of said lock thereby retaining the lock within said openings, and means securing said flange to the sleeve to thereby secure the shank to the grip portion.

5. A door knob construction comprising a shell-like grip member having an opening in the inner end thereof and marginal edge portions surrounding said opening, an annular sleeve secured to said marginal edge portions and projecting through said opening into the grip member, a wall in the inner end of said sleeve having an opening therein co-axial with the sleeve and aligned with an opening in the front wall of the grip member, a lock unit contained within the grip member, the said lock unit including a casing and a rotatable plug therein, an end portion of said casing extending through the opening in the said wall of the sleeve, the end portion of the plug extending through the opening in the front wall of the grip member, a shank, a flange on the shank fitting within the recess in the sleeve and against the said wall thereof and having an annular recess receiving the adjacent end portion of the lock casing, the said flange retaining the lock unit in position within the grip member, and means within the recess in the sleeve securing the flange against said wall and thereby securing the said shank and lock unit to the grip portion.

6. A door knob construction comprising a shell-like grip member having a recess in the inner end thereof, a bottom wall in said recess having an opening therethrough co-axial with an opening in the front wall of the grip member, a lock unit including a casing contained within said grip member and having its outer end portion positioned within the opening in the front wall of the grip member and its inner end portion extending through the opening in said bottom wall, a shank, an annular flange on said shank fitting within said recess and over the opening in said bottom wall, projections on said flange extending into openings in said bottom wall, said flange having a recess which receives the inner end of the lock casing to position it within the grip member and prevent axial movement thereof and means securing the flange to the grip member.

7. A door knob construction comprising a shell-like grip member having a recess in the inner end thereof, a bottom wall in said recess having an opening therethrough co-axial with an opening in the front wall of the grip member, a lock unit including a case contained within said grip member and having its outer end portion positioned within the opening in the said front wall, a shank, an annular flange on said shank fitting within said recess and over the opening in the bottom wall thereof; said flange having a recess therein which receives the inner end portion of the lock unit and positions it within the grip member, and means securing said flange within said recess and to the grip member.

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