No. 672,866. Patented Apr. 23, 1901.

G. E. TYSON.

DOOR KNOB.

(Application filed Nov. 1, 1900.)

(No Model.)

Fig. 1.

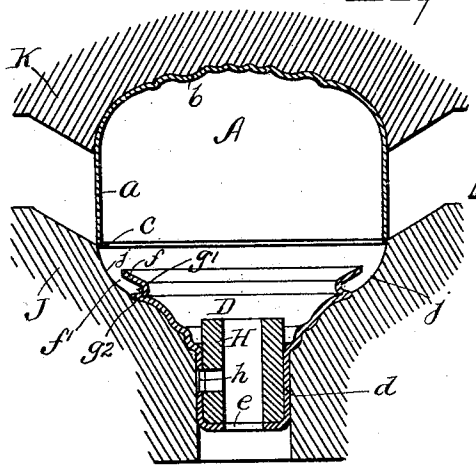


Fig. 2.

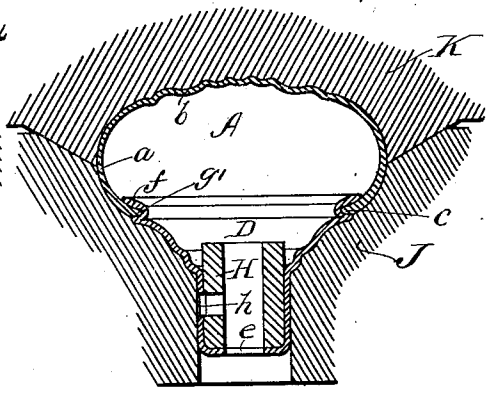


Fig. 3.

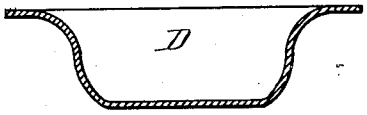
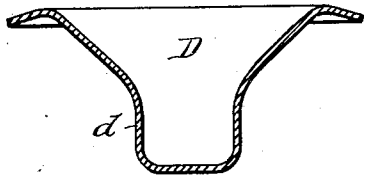


Fig. 4.



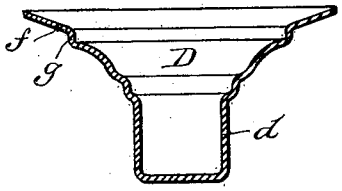


Fig. 5.

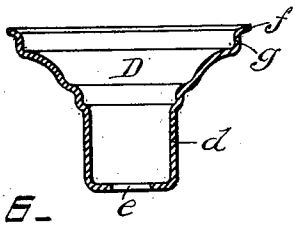


Fig. 6.

Witnesses
Caleb J. Siebel
D. M. Steward

George E. Tyson Inventor
by F. Howard Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE E. TYSON, OF READING, PENNSYLVANIA.

DOOR-KNOB.

SPECIFICATION forming part of Letters Patent No. 672,866, dated April 23, 1901.

Application filed November 1, 1900. Serial No. 35,093. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. TYSON, a citizen of the United States of America, and a resident of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Door-Knobs, of which the following is a specification.

My invention relates particularly to door-knobs; and my main object is to provide a sheet-metal construction which will combine the ornamental and substantial features of a cast knob with the lightness and cheapness of a sheet-metal structure.

The invention is fully described in connection with the accompanying drawings, and the novel features are pointed out in the claim.

Figure 1 shows the completed back portion of the knob in position in the lower uniting-die and the separately-formed cup portion loosely entered in said lower die preparatory to being pressed into uniting engagement with said back portion. Fig. 2 shows the cap portion pressed down by the closing of the upper and lower dies, and thereby firmly united with the back portion. Figs. 3, 4, 5, and 6 indicate different steps in the formation of the sheet-metal knob and back, as shown complete in Fig. 1.

The cap portion A of the knob is formed from a piece of sheet metal or equivalent material by pressing the same in suitable dies to form a substantially cylindrical body *a*, with a suitably-shaped closed end or knob-face *b*. The latter, as indicated, may be ornamented by pressing or stamping it with any suitable design by means of correspondingly-embossed male and female dies, upon one of which the cylindrical body of the cap may be readily and firmly supported during this operation. The circular edge *c* of the cap is then preferably trued and beveled in a lathe in order to insure proper and uniform action upon the metal in the closing and clenching operation hereinafter described.

The knob-back D, as shown, is formed integral with the neck *d* from a piece of sheet metal subjected to successive pressing operations, several intermediate steps of which as effected in actual practice are indicated in Figs. 3 to 6. In the latter figure the pressed form is shown complete, including the square opening *e* in the end of the neck *d* for the passage of the knob-spindle. The knob-back D, flaring outward from the cylindrical neck *d*, is formed with an outer clenching-flange *f* and a short cylindrical portion *g*, adjacent to said flange, the diameter of which latter is less than that of the cap-body *a*.

In order to give body to the sheet-metal neck *d*, as usual, the separately-formed filling or shank H, having a passage-way for the knob-spindle, is pressed tightly into the neck and firmly secured therein by punching a screw-opening *h* in the sheet metal corresponding with the like opening in the filling-piece, as indicated in Fig. 1.

In order to adapt the knob-back D for attachment to the cap A in the act of pressing the parts together, as indicated in Figs. 1 and 2, I subject the portion D, after it has been pressed to the shape described, to an additional operation in order to form a circular groove *g'*, adjacent to the flange *f*, this being readily effected by spinning in a lathe, whereby the metal forming the portion *g* of the back is pressed inward between the flange *f* and the circular bead or shoulder g^2 thus formed.

The die J, in which the knob-back D is seated, as shown in Figs. 1 and 2, is correspondingly recessed, so as to closely fit the knob-back up to the beginning of the groove *g'*, above which it is dished outward, as shown at *j*, to a diameter at the top equal to or slightly greater than the cap-body *a*, the circular edge *c* of which thus freely enters the dish of the die. The flange *f* of the knob-back D is so shaped as to just leave sufficient space *f'* between it and the wall *j* of the die for the metal of the cap-body *a* to pass under the outer edge of the flange as the form of the cap-body is changed to correspond with the form *j* of the lower die by the pressing down of the upper die. As the dies close together the edge *c* of the cap-body is gradually reduced in diameter and is finally pressed tightly into the groove *g'* of the back D, with the flange *f* clenching it snugly therein and the bead or shoulder g^2 bearing tightly against its outer surface, so as to avoid all indications of a joint.

By means of my invention I am enabled to produce a knob which is equal in appearance and strength to a cast knob, though lighter

and less expensive. The face of the knob may be ornamented similarly to a cast knob prior to the closing together of its open end in the uniting operation and no sign of the union of separately-formed parts appears, owing to the location and form of the connection, while at the same time the article is produced with less labor and less material.

It is evident that the particular construction shown may be modified without departing from the spirit of my invention.

What I claim is—

A door-knob consisting of separately-formed cap and back portions, the latter being of less maximum diameter than the interior of the cap portion and formed with an exterior circular groove adjacent to the edge thereof and said edge forming an interior clenching-flange overhanging said groove and the cap portion having its edge turned inward to a reduced diameter under said overhanging flange and seated in said groove, whereby the inclosed interior flange serves to clench the same therein substantially as set forth.

Signed at Reading, Pennsylvania, this 30th day of October, 1900.

GEO. E. TYSON.

Witnesses:

D. M. STEWART,

WALTER B. CRAIG.