

S. AIKINS.

DOOR KNOB.

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1,060,223.

Patented Apr. 29, 1913.

Fig. 1.

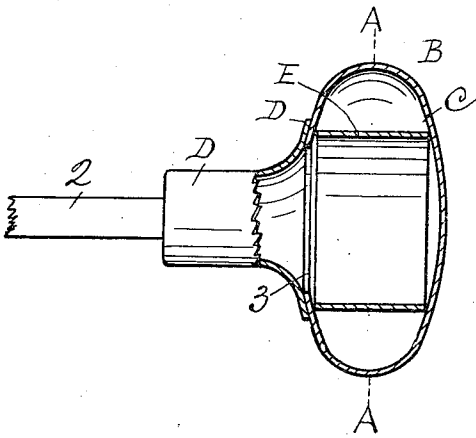


Fig. 2.

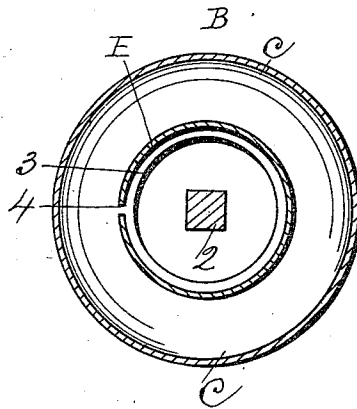


Fig. 3.

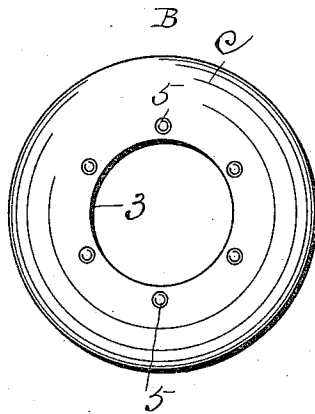
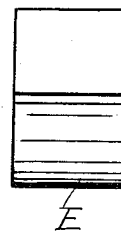
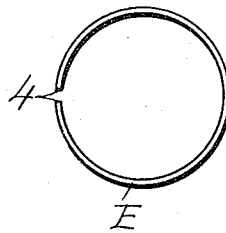


Fig. 4.

Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

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DOOR-KNOB.

1,060,223.

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To all whom it may concern:

Be it known that I, SAMUEL AIKINS, a subject of the King of Great Britain, and resident of Hamilton, in the county of Wentworth, in the Province of Ontario, Canada, have invented new and useful Improvements in Door-Knobs, of which the following is a specification.

My invention relates to articles of manufacture wherein one part of the article is a hollow structure or body formed up as one continuous piece of metal and entirely closed excepting at one place. A shank or stem or other form of closure is integrally united with the surface of this part in such position that the opening is covered or closed.

The invention is particularly useful in the manufacture of metallic door knobs and for an example of the application of the invention and for simplicity it will be described as applied to the manufacture of such articles although it will be understood that it might be applied to the manufacture of various other types of knobs or articles without departing from the spirit of this invention.

One of the objects of the invention is to provide a door knob having a hollow metal bulb or body portion and a shank or stem integrally united with the bulb whereby the weight of the knob is reduced and thereby the cost is lessened and by having the parts integral great strength is attained.

A further object is to reduce the cost of production of articles of the hereinbefore mentioned nature and to attain a simplified and cheaper finished article.

Further objects which might be attributed to the invention will be readily understood from the following description.

The invention consists in the new article of manufacture hereinafter more particularly described and then specified in the claims.

In the accompanying drawings Figure 1 is a cross-section and partial elevation of a door knob constructed in accordance with this invention. Fig. 2 is a transverse section taken on the line A—A of Fig. 1. Fig. 3 is an end elevation of the open end of the bulb portion, the shank being removed. Fig. 4 is a plan view of the reinforcing ring and Fig. 5 is a side elevation of the same.

In the preferred manner of manufac-

turing the article I prefer to secure the parts together by electric welding by means of which an integral structure is quickly and cheaply attained.

C indicates a hollow metal structure such as the bulb or body portion of a door knob or other type of knob B. This structure is preferably formed as a continuous metal body by spinning, drawing or any other suitable means and is provided with an opening at but one place such as indicated at 3. This structure or body might take various forms or configurations according to the use, but in the application illustrated, it is formed into a general circular and oval shape as is usual in door knobs. As will be noted, all parts of the hollow body are closed except at the opening 3 and it is therefore impossible to insert any tool into the body portion from a direction opposite the opening. The sides of the body preferably gradually converge toward the opening 3 in such manner that the surface is angularly disposed to the horizontal and vertical at all points adjacent to the edges of the opening. By this construction great rigidity is given to the metal of the body at the opening and permits the necessary pressure to be applied to weld the stem, shank or other closure thereto, without buckling or flattening the body portion.

D indicates the closure secured to the hollow structure or body C over the opening 3, which closure in the case of a door knob takes the form of a stem or shank by means of which the knob is fastened to the lock or other support such as the bar 2 as is usual. The stem or shank is provided with a flaring skirt or flange which overlaps the surface of the bulb for a greater or less distance from the edge of the opening 3 and is preferably so formed that it takes substantially the same inclination as the surface of the bulb or other body form to which it is presented.

As previously stated, the parts are welded together preferably by an electric welding process. The preferred manner of so joining the parts is as follows: The body portion or bulb C is provided with a plurality of raised projections 5 formed in any suitable manner and disposed annularly about the opening 3 preferably at a short distance from the edge of the metal surrounding the opening. The stem or shank D is placed

over the opening 3, the flange or skirt resting on the projecting nibs 5. The parts are placed between the electrodes of any suitable type of electric welding machine and welded together by the passage of current and the application of pressure in a manner now very well known.

As the electric current passes from one electrode to the other, the projections 5 coalesce with the flange or skirt at the contacting spots and by the simultaneous application of pressure, applied through the electrodes, the parts become integrally united in spots about the periphery as will be readily understood by those skilled in the electric metal working art. Obviously, if desired, the parts might be united by a continuous weld.

When the metal of the bulb C is of sufficiently heavy gage the shape thereof as previously described will prevent it yielding under the welding pressure without any reinforcement or support within the bulb or body portion, thus leaving a clear space within the bulb but if it is desired to form the bulb or body portion of very thin gage material, a reinforcement is necessary to support the surface of the bulb to which the skirt is welded and also the opposite surface or side. This reinforcement might be of any suitable form or character, as for instance, a ring or band E inserted into the bulb C through the opening 3, or otherwise, and of sufficient height that it will bear on the inner sides of the bulb at the top and bottom of the ring. When the ring is inserted through the opening 3 a split ring or band having free edges 4 is preferably employed, so that after insertion it can be expanded until it comes in proper line with the projections 5 or directly under the part to be welded. Obviously the ring might be made of proper size and placed in position before the bulb is formed or the reinforcement might take any other suitable style. When a reinforcement or support is employed it takes the pressure exerted by the electrodes in welding and positively prevents the sides of the bulb from being

squeezed together irrespective of how thin the metal may be or what shape the bulb may take. Also when an interior support is used it is not necessary for the part to which the shank or stem is welded to be angularly disposed as previously stated but might be so or might be otherwise formed.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. As a new article of manufacture a hollow metal body with a central opening in one side, the metal surrounding said opening being disposed at an angle to the horizontal, and a stem or shank having an annular skirt conforming to the surface of the body portion around said opening and bearing thereon, said skirt being integrally united with the outer surface of said body.

2. As a new article of manufacture a hollow metal body with a central opening in one side, the metal surrounding said opening being disposed at an angle to the horizontal and vertical and a stem or shank having an annular skirt conforming to the surface of the body portion around said opening and bearing thereon, said skirt being integrally united with the outer surface of said body.

3. As a new article of manufacture, a door knob comprising a hollow metal bulb or body having an opening in one side, a stem or shank having a flaring skirt conforming to and bearing on the outer surface of said bulb around said opening and integrally united with the surface of said bulb and a reinforcing ring located within said bulb and bearing on opposite sides of said body in line with the parts of integral union.

4. As a new article of manufacture, a door knob comprising a hollow metal bulb or body provided with an opening, a split ring adapted to be inserted in said bulb through said opening to reinforce said bulb and a stem or shank conforming to the surface of the bulb and welded thereto.

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Witnesses:

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