G. O. Russell,

Door Knob.

No. 4,220. Patented Oct. 7, 1845.

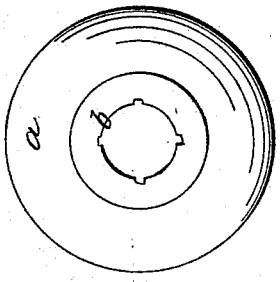


Fig 3.

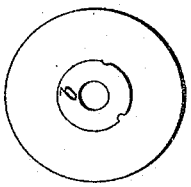


Fig 4.

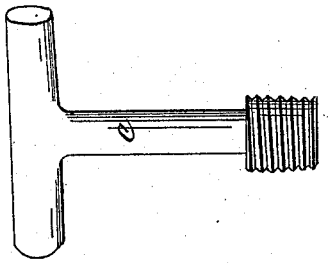


Fig 2.

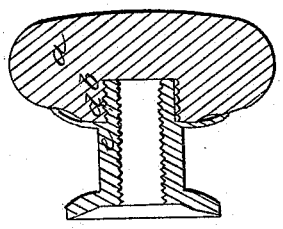
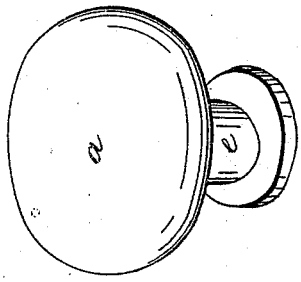


Fig 1.



UNITED STATES PATENT OFFICE.

GEO. O. RUSSELL, OF MIDDLETOWN, CONNECTICUT.

MANUFACTURE OF DOOR-KNOBS.

Specification of Letters Patent No. 4,220, dated October 7, 1845.

To all whom it may concern:

Be it known that I, GEORGE O. RUSSELL, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in the Method of Making Glass Knobs for Doors, &c., and Fastening Them to Their Shanks, and that the following is a full, clear, and exact description of the principle or character thereof which distinguishes it from all other things before known and of the manner of making and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a representation of the knob attached to its shank; Fig. 2, a section of the same through the axis; Fig. 3, a representation of the knob and shank separated; and Fig. 4, the metallic former on which the screw socket in the glass is formed.

The same letters indicate like parts in all the figures.

The nature of my invention consists in casting or molding the glass knob with a screw former inserted in it to form a socket in the knob with the thread of a screw, the former being withdrawn before the glass cools; and in uniting the metallic shank with the knob thus formed by means of any of the known cements. Various expedients have been adopted, and at various times patented, for connecting glass knobs with their metallic shanks, most of which have been made with a part of the shank of glass inserted in a socket in the metallic shank, which, to give the requisite strength, requires the shank to be made of very great size; and others have been made with the metallic shank inserted in a socket in the glass knob, the attachment being to a piece of metal cast within the glass, but this renders it necessary to surround the metal, thus introduced, with some elastic substance which will yield when the glass contracts in cooling.

To form the attachment and prevent the shank and knob from separating, it is necessary that the socket be provided with grooves or other indentations, within, of a greater diameter than the entrance to it, to prevent the metallic shank, when the two are cemented, from coming out by the continued jars and pulls to which door and other knobs are subjected; but the difficulty of effecting this is obvious, for the glass must be permitted to set, before the former or pattern on which the socket is to be molded, is removed, and then its larger part has to pass through the throat or entrance of the socket, which cannot be done without resorting to some expedient which will enable the operative to remove the former after the glass has set, and before it has cooled enough to crack the glass by contraction. This difficulty I have surmounted by making the socket in the glass of a screw formed by means of a metallic screw former which can be drawn out when the glass sets and before the contraction takes place by cooling.

The metallic shanks have generally heretofore been secured to their glass sockets by fluid metals, or alloys thereof, which being introduced in the fluid state, are at a high temperature, and therefore require the glass knobs to be heated to the same temperature to prevent cracking or splitting, which difficulty is entirely avoided by the substitution of any of the earthy or other mineral cements that solidify by the evaporation or absorption of the fluid or fluids employed in mixing them.

In the accompanying drawings (*a*), is the glass knob with the screw socket (*b*) within it, made by the metallic screw former (*c*), for the reception of the stem (*d*), of the metallic shank (*e*), having the thread of a screw cut, or cast on it, and the reverse of the thread in the socket of the glass knob. A cement, selected from any of the known earthy or other mineral cements that solidify by the evaporation or absorption of the fluid employed, is put into the socket of the knob in sufficient quantity to fill up the threads of the screws and all other interstices when the stem of the metallic shank is introduced. It is evident from the foregoing that after the cement solidifies the threads of the screws on the stem and socket will hold the two together and prevent the stem from being withdrawn, and the threads of the screw on the stem and the socket being one right and the other left handed will prevent the two from turning on each other.

Instead of the thread on the stem of the

shank other indentations may be made without affecting the principle of my invention.

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

Molding or casting the socket on a screw former which can be withdrawn from the glass after it has solidified and before it contracts sufficiently by cooling to split or crack, as described.

GEO. O. RUSSELL.

Witnesses:
HARLOW H. CASWELL,
JONATHAN BARNES.