C. CARPENTER.

Attaching Knobs to Spindles and Doors.

No. 152,724. Patented July 7, 1874.

Fig 1

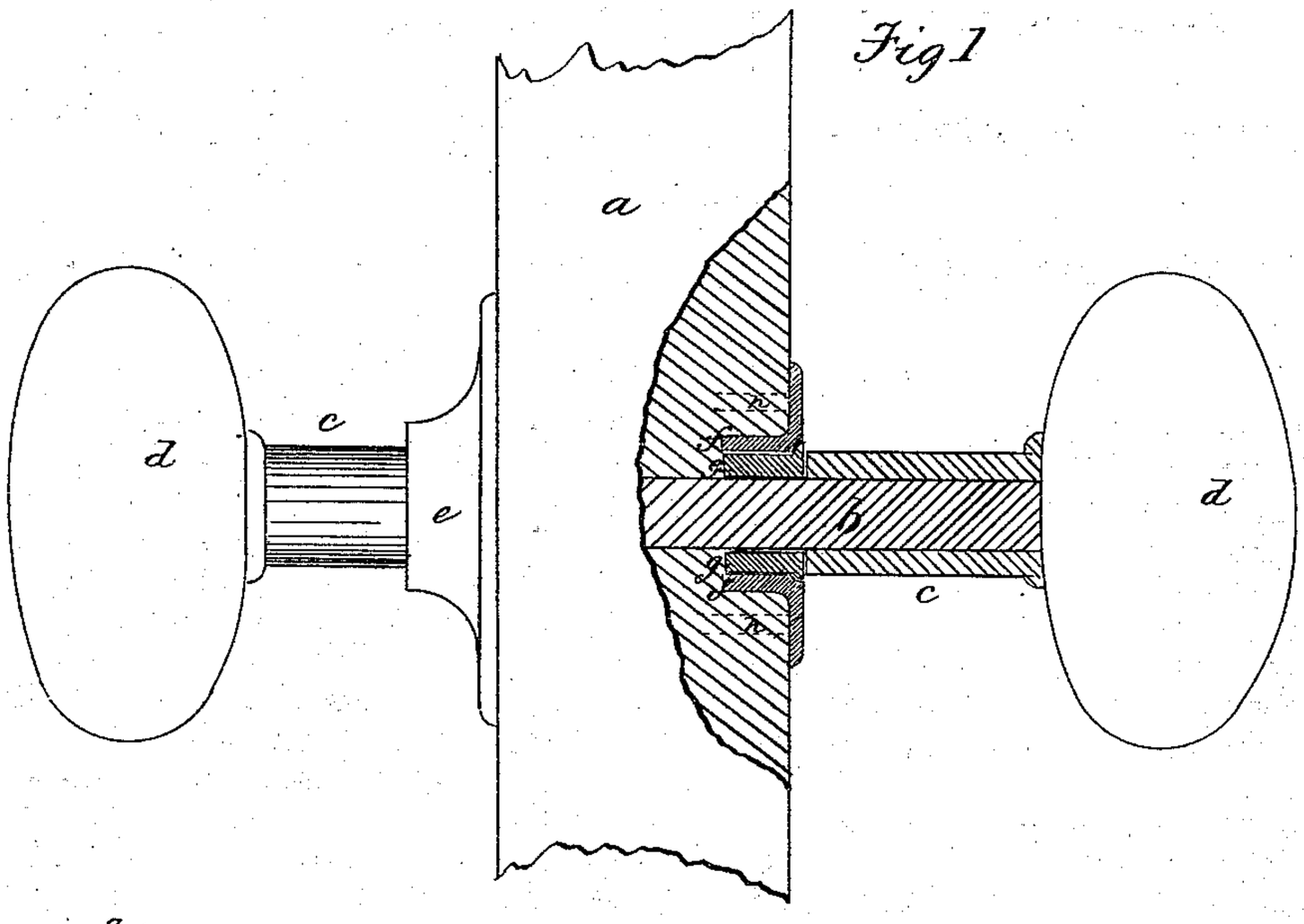


Fig 2

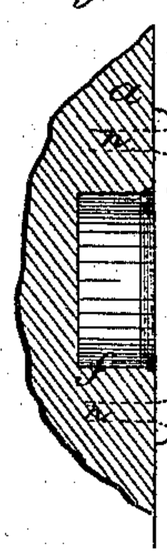


Fig 3

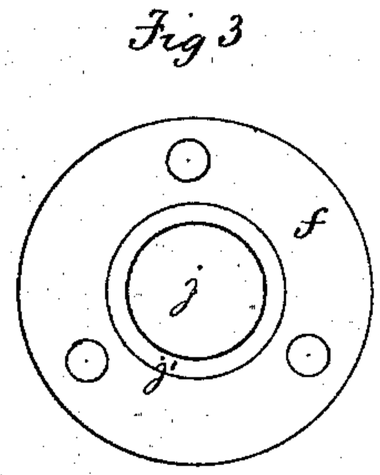


Fig 4

Fig 5

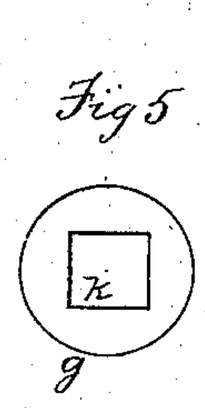


Fig 6

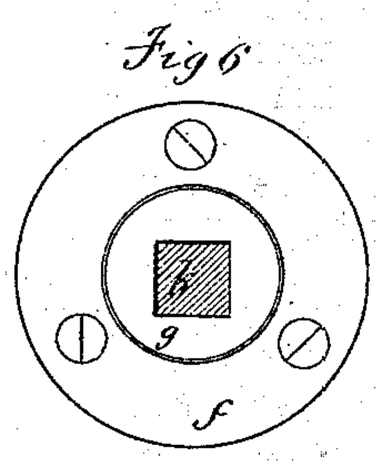
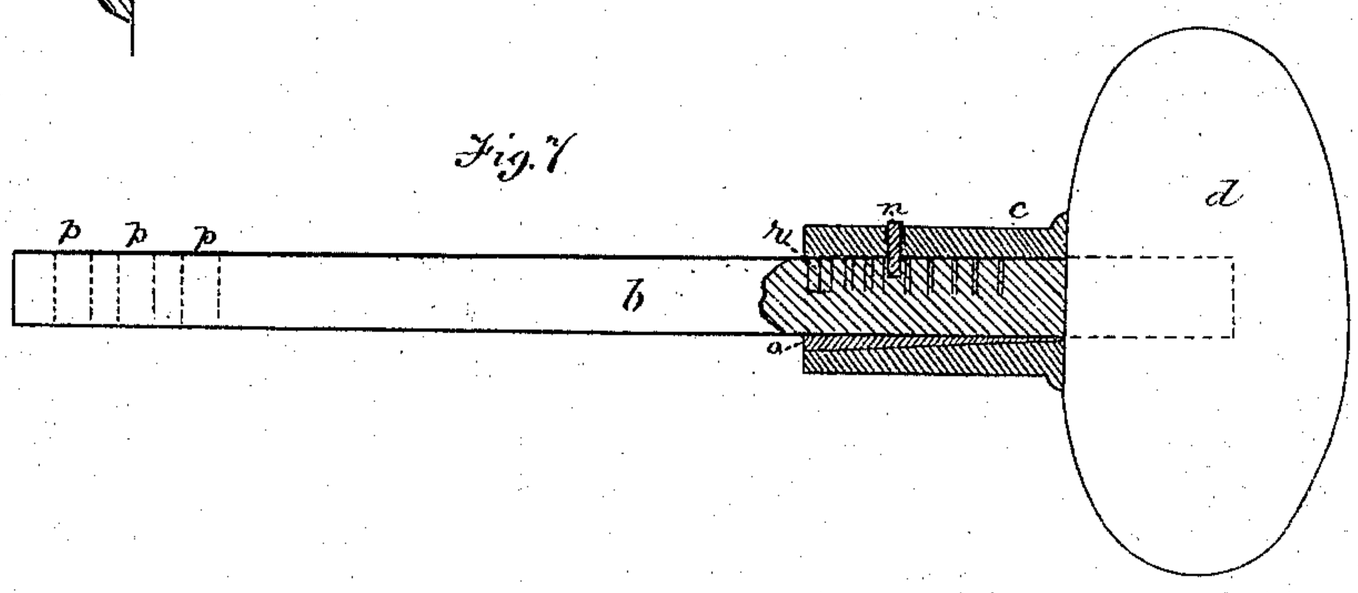


Fig 7



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UNITED STATES PATENT OFFICE.

CHARLES CARPENTER, OF HAMILTON, CANADA.

IMPROVEMENT IN ATTACHING KNOBS TO SPINDLES AND DOORS.

Specification forming part of Letters Patent No. **152,724**, dated July 7, 1874; application filed November 1, 1873.

To all whom it may concern:

Be it known that I, CHARLES CARPENTER, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Attachments for Door-Knobs and Spindles; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

By reference to the annexed drawings it will be seen that Figure 1 is a section of a door, showing on the left the knob, shank, and rose, on the right part of the door broken away, and the spindle and surrounding parts shown in transverse section. Figs. 2, 3, 4, and 5 represent side and front views of the parts around the spindle, shown in section in Fig. 1; Fig. 6, a full front view of the same devices in their proper positions on the spindle. Fig. 7 represents my device for adjusting the length of the spindle to suit any door without the aid of washers, and also the manner of permanently fastening the spindle to the shank.

a, Fig. 1, represents a portion of a door; *b*, the spindle running through the door; *c*, the shank; *d*, the knob secured to the shank. *e* is the rose surrounding the end of shank and spindle.

My device first consists in constructing a small circular metal plate, having round opening in its center, and sinking the said plate into the door, and constructing a small hub or bush, through which the spindle passes, to revolve in the central opening of the said circular plate. My device secondly consists in the arrangement of a rivet or pin, which passes through the shank of the knob into any one of a series of openings or holes in the spindle, in combination with a wedge arranged between the shank and spindle, so that the length of the spindle may be adjusted to adapt it to any door, as will be hereinafter fully explained.

j represents the circular opening in the center, the outer edge of which is concaved, as shown at *j'*, Fig. 3, the reason of which will be shown hereafter. I then construct a small iron circular hub or bush, *g*, a side view of which is seen at Fig. 4, and a front view at Fig. 5. It has a square hole, *k*, through the center, and a convex rim, *g'*, as seen at Fig. 4. The said hub or bush *g* is then placed in the circular opening *j* of the plate *f*, in which it fits and revolves with the spindle. The spindle *b* is then passed through the said square opening *k* in the said bush *g*, and the shank and knob fastened to it. The rose *e* is fastened to the door by three screws, and covers the plate *f* and bush *g* from observation.

It will be seen that my door-knobs are malleable cast-iron, and tinned, upon which I have been granted a patent of the United States, dated July 16, 1872, No. 129,458, as also on the peculiar method of constructing the knob and shank in one piece, so that they are solid. My present device perfects the whole arrangement.

Heretofore the spindle has been made to pass through a hole in the door. The constant friction of the spindle on the same causes the said hole to enlarge, and allows the spindle and shank too much play in the door, and the rose has to bear all the strain and wear and tear of the spindle, which soon causes the knob to lose its horizontal position and neat appearance.

My device, as above described, obviates these defects, as the bush or hub *g*, through which the spindle passes, and plate *f*, take all the strain from the rose *e*, and at the same time effectually hold the spindle in its place, but allow it to revolve easily.

The spindle, shank, and knob are thus always kept in a horizontal line, at right angles to the door and lock, and consequently the parts work smooth and perfect, and when once placed properly in a door cannot easily get out of order. The spindle cannot wear the door, and will always keep its horizontal position.

The plate *f* and hub *g* are covered with the rose, so that the whole arrangement, when complete on a door, will present a neat and handsome appearance, and also possess great durability. The device is also especially adapted to mortise-locks.

Fig. 7 represents my device for adjusting the length of the spindle to suit any door, without the use of washers, and also the manner of permanently fastening the spindle to the shank. I first drill a small hole in the shank

c, then insert in the said opening a pin, *n*, and rivet it tight. The pin is made long enough to project about a sixteenth of an inch into the spindle-chamber. It is also made a little thicker at the lower or inside end, so that it cannot possibly drop out. A number of small holes, *r*, are next drilled in the spindle, quite close together, and when the length of the spindle is adjusted to the thickness of a door, the spindle is inserted in the shank to the proper place, and the under part of the pin *n* enters one of the small holes *r* in the spindle, and a small iron wedge, *o*, is then driven into the shank under the spindle, as shown in Fig. 7. This wedge closes up the space between the spindle and shank, and firmly holds them both together, so that they cannot under any ordinary circumstances come apart. The spindle, being properly adjusted, is placed in the door, and the opposite knob screwed on the spindle in the usual manner.

This method of adjusting and securing the spindle does away with the washers, which are needed to fill up the space between the shank and door, as the spindles and shanks are now constructed and fastened.

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

1. The combination of the flanged circular plate *f* and hub or bush *g*, as shown, with the door *a*, spindle *b*, shank *c*, and knob *d*, substantially as and for the purpose specified.

2. The arrangement of the rivet *n*, holes *r*, and wedge *o*, in combination with the spindle *b* and shank *c*, as shown in Fig. 7, for adjusting the knob and securing the spindle to the shank, as specified.

Dated at Hamilton, Ontario, this 3d day of October, A. D. 1873.

CHARLES CARPENTER.

Signed in the presence of—

WM. BRUCE,

P. L. SCRIVEN.