(No Model.)

B. F. LIBBY.

DOOR KNOB ATTACHMENT.

No. 321,827. Patented July 7, 1885.

Fig. 1

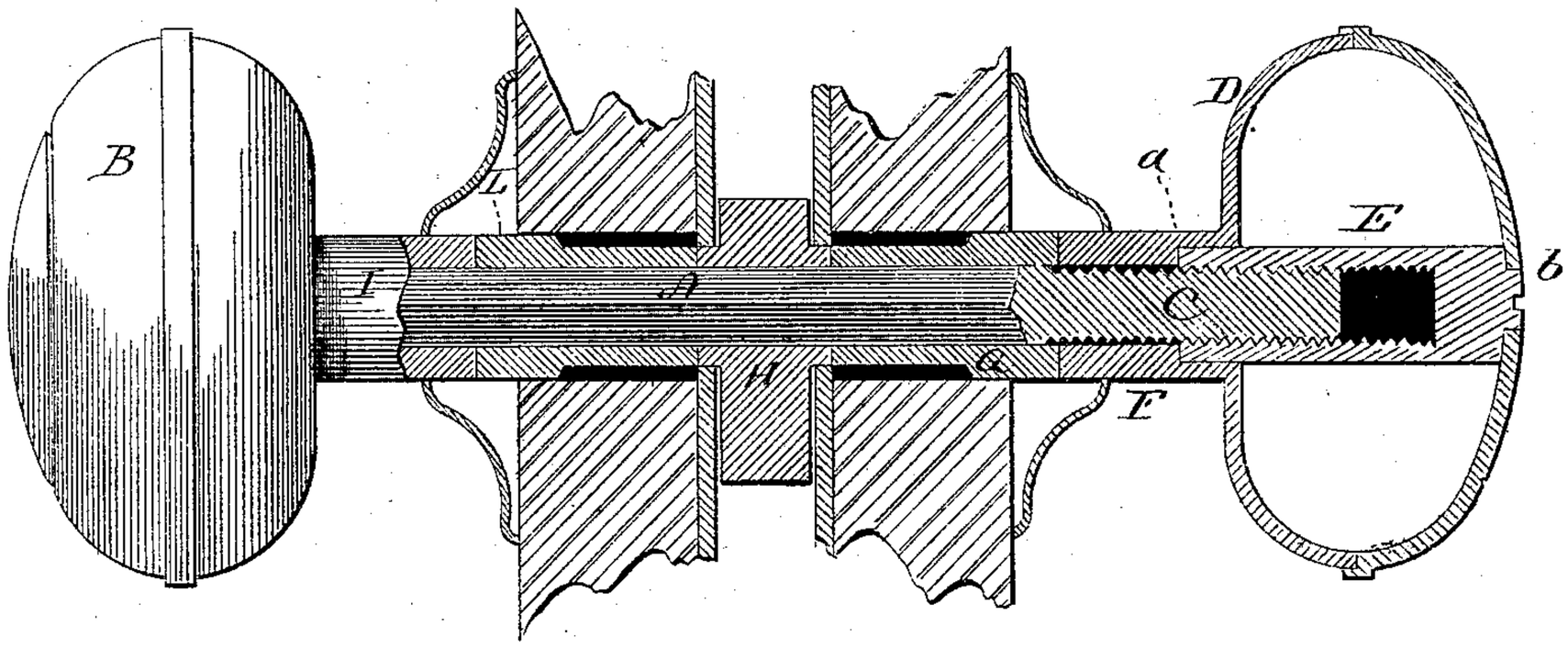


Fig. 3.

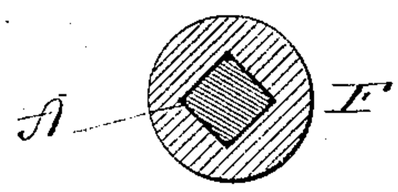
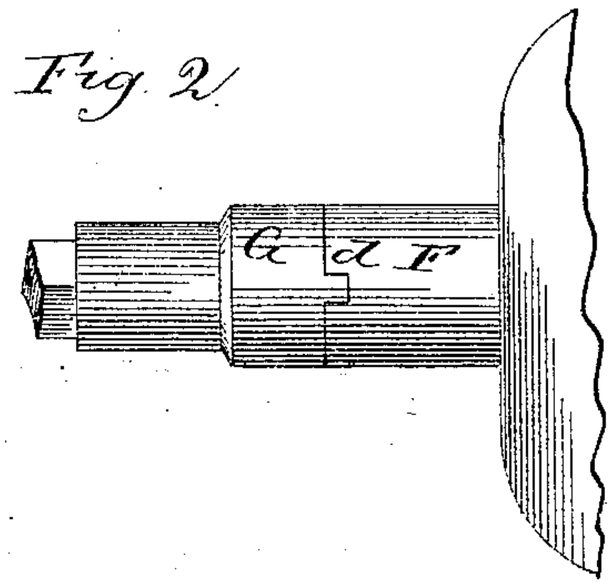


Fig. 2.



Witnesses.
J. F. Shumway.
Jos. C. Earle

Benjamin F. Libby.
Inventor.
By Atty.
Wm. G. Ewing.

BELL BROS., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN F. LIBBY, OF SOUTH NORWALK, CONNECTICUT, ASSIGNOR TO THE NORWALK LOCK COMPANY, OF SAME PLACE.

DOOR-KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 321,827, dated July 7, 1885.

Application filed April 13, 1885. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. LIBBY, of South Norwalk, in the county of Fairfield and State of Connecticut, have invented a new Improvement in Door-Knob Attachments; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a transverse section through the door and latch, showing the spindle and knobs as applied; Fig. 2, a side view of the neck of the adjustable knob and its sleeve, showing the manner of coupling the two; Fig. 3, a transverse section through the neck of the adjustable knob and the spindle.

This invention relates to an improvement in that class of door-knob attachments in which one of the knobs is fixed to the spindle and the other made adjustable thereon by some device which enables the knob to be set and held firmly at any desirable point, and whereby the interposition of collars to make such adjustment is avoided; and the invention is made with special reference to that class of knob attachments in which the spindle is screw-threaded on its angles and the knob adapted to be secured to the spindle by means of the said thread at the angles, and so that the knob may be screwed onto the spindle until the proper position is attained, and there held, but more particularly to the attachment for which Letters Patent No. 301,265 were granted to the assignee in this application, the object of the invention being to prevent the tendency of the spindle to play within the hub of the latch, and also to make the adjustable knob firm on its end of the spindle; and the invention consists in the construction hereinafter described, and particularly recited in the claims.

A represents the spindle, which is of the usual angular shape in transverse section. To one end the knob B is firmly fixed, also in the usual manner. The opposite end, C, of the spindle is screw-threaded on its angles.

D is a second knob, through the neck of which is an opening, so as to pass freely onto the angular spindle irrespective of the screw-threads on the angles of the spindle.

Within the knob, and in axial line with the spindle-opening of the knob, a nut, E, is arranged, fixed as to longitudinal movement, but free to revolve, the inner end of the nut taking a bearing upon a shoulder, *a*, in the neck, the outer end constructed with a shoulder to bear upon the inside of the knob, and with an extension, *b*, through the end of the knob, in which a nick is cut, or other construction whereby an instrument may be applied outside the knob to turn or revolve the nut E. The nut E is internally screw-threaded, corresponding to the thread on the angles of the spindle, and so that when the knob is set onto the spindle the thread on the nut will engage the thread on the spindle; then by turning the nut the knob will be drawn onto the spindle until the desired position is reached. This is the construction described in the Letters Patent hereinbefore referred to.

Usually the neck of each knob is brought to a bearing upon a seat in its own rose, and the adjustment is made so as to make the knobs as firmly seated as possible, yet to allow them to turn freely; but as doors will shrink to a greater or less extent, the roses necessarily approach each other according to the shrinkage of the door. Such shrinkage of the door therefore leaves a proportionate longitudinal play of the spindle and knobs, and such play quickly loosens the rose and leaves the knobs in a loose shackly condition.

To form a bearing for the knobs independent of the rose and of the door, and which bearing will not be affected by the shrinkage of the door, I introduce between the end of the neck F of the knob D, a sleeve, G, which closely fits the spindle, and is of a length to extend into the door and take a bearing against one end of the hub H within the latch, and by which the bolt is turned. The construction of this hub and its connection with the latch is too well known to require illustration or description.

Between the neck I of the fixed knob B and the hub on the opposite side I apply a like

sleeve, L, which bears against the hub on that side, the opening through the door being such as to permit the introduction of the sleeves, as shown.

The fixed knob with its sleeve is introduced from one side of the door to bring the sleeve against that end of the hub, as shown; then the other sleeve G is passed onto the spindle, and then the knob D placed upon the spindle until its neck comes against the sleeve and forces the sleeve hard against the hub on that side, the nut E being turned to thus bring the knob D to its hard bearing, and by so turning the nut or operating the adjusting device, whatever it be, the hub is firmly clamped between the two knobs, and therefore held as if a permanent part of the spindle. The hub having a strong and large bearing in the plates of the latch, forms a support for the spindle, and in which there is comparatively little play, and whatever may be the shrinkage or swelling of the door the knobs are in nowise affected, as they are controlled entirely by the latch-case through the hub.

The neck of the respective knobs passes freely through the rose, and so that the knob is not dependent to any extent upon the rose for support.

In the manufacture of knobs they are made of a length from the inner end of the sleeve to the knob sufficient for the thickest door—that is, so that when placed upon such thick door there will be suitable space between the knob and the door; then, if applied to a thinner door, the result will be simply a greater space between the door and the knob.

The angles of the knob being screw-threaded for the purpose of adjustment, as before described, it is difficult to get so firm bearing between the neck of the knob and the spindle as to prevent more or less play between the two. By extending the knob in the form of a sleeve and the angular portion of the spindle beyond the screw-thread this difficulty is avoided, as a close fit may be attained; and in such application of the sleeve and knob I prefer to couple the neck of the knob with the sleeve by a projection on the one and corresponding recess on the other, as seen at *d*, Fig. 2.

I prefer to apply the extension of the neck of the knobs in the form of a sleeve, as I have described, because it enables me to introduce a longer or shorter sleeve should occasion require; but the sleeve may be constructed as an integral part of the neck of the knobs, the neck being extended so as to bring its inner end firm against the end of the hub.

While I have illustrated but a single method of adjustment of the knob, and that the same as in the patent before referred to, it will be understood that any of the numerous adjustments of similar character may be employed. I therefore do not wish to limit my invention to the particular adjustment which I have described.

I do not claim, broadly, the arrangement of knobs upon a spindle so as to take a bearing against the hub.

I claim—

1. The combination of a knob-latch, a knob-spindle extending through the hub of the latch, and a knob fixed to one end of the spindle, with an extension therefrom to take a bearing upon that end of the hub, the second knob made adjustable upon the opposite end of the spindle, with a sleeve interposed between the end of the neck of the knob and the hub, and so as to bear against that end of the hub, the said sleeve adapted to closely fit the spindle, substantially as described.

2. The combination of a knob-latch, a knob-spindle extending through the hub of the latch, and a knob fixed to one end of the spindle, with an extension therefrom to take a bearing upon that end of the hub, the second knob made adjustable upon the opposite end of the spindle, with a sleeve interposed between the end of the neck of the knob and the hub, and so as to bear against that end of the hub, the said sleeve adapted to closely fit the spindle, the sleeve and the neck of its knob constructed the one with a projection and the other with a corresponding recess, whereby the knob and sleeve are coupled together, substantially as described.

3. The combination of a knob-latch, the knob-spindle extending through the hub of the latch, with a spindle fixed at one end, and with an extension from the neck thereof to take a bearing upon that end of the hub, the opposite end of the spindle screw-threaded upon its angles, and a knob adapted to pass freely onto that end of the spindle, the nut within the knob free for rotation, but fixed as to longitudinal movement, the said nut internally screw-threaded to correspond to the thread on the angles of the spindle, and the said nut also extended through the face of the knob as a means whereby the said nut may be turned, the neck of the knob extended onto the spindle to take a bearing against its end of the hub, substantially as described.

B. F. LIBBY.

Witnesses:
E. BEARD,
JACOB M. LAYTON.