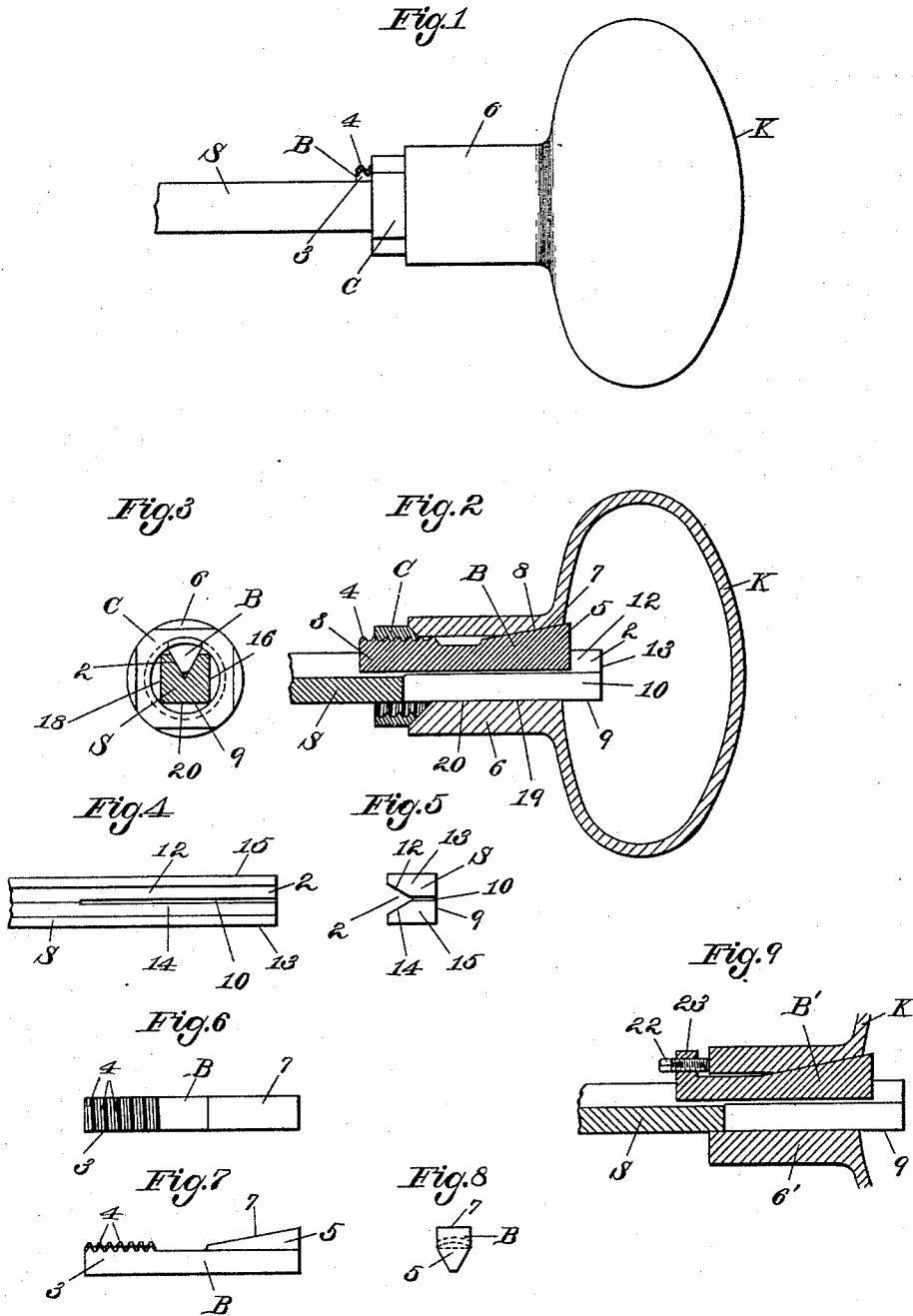


(No Model.)

F. H. RICHARDS.
KNOB ATTACHMENT.

No. 485,137.

Patented Oct. 25, 1892.



Witnesses:

Henry L. Packard.
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UNITED STATES PATENT OFFICE

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KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 485,137, dated October 25, 1892.

Application filed April 30, 1892. Serial No. 431,241. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Knob Attachments, of which the following is a specification.

This invention relates to that class of adjustable knob attachments which are generally designated as "screwless knobs," the object being to provide a knob attachment of this class whereby the knob may be readily removed and replaced and which shall be simple in construction, of low cost, and effective in operation.

In the drawings accompanying and forming a part of this specification, Figure 1 is a side elevation of a knob attachment embodying my present improvements. Fig. 2 is a longitudinal section of the knob attachment. Fig. 3 is an end view of the knob-stem and the parts shown carried thereby in Fig. 2. Fig. 4 is a plan view of a portion of the knob-spindle. Fig. 5 is an end view of the spindle, drawn in projection with Fig. 4. Figs. 6, 7, and 8 are respectively a plan, side elevation, and end view of the spindle-clamping wedge. Fig. 9 illustrates a modification of the means for actuating the wedge.

Similar characters designate like parts in all the figures.

This invention is in the nature of an improvement on the adjustable knob attachment shown and described in the application of my assignees, Doeblner and Bryant, whose application, Serial No. 421,676, was filed February 16, 1892.

In the drawings, the knob K, which is generally made hollow, as shown, is provided with a stem 6, that is longitudinally perforated to receive and fit freely upon the squared (or polygonal) spindle S. Said spindle is made of a length to pass through the door to which the knob is to be applied and of a size to fit in and actuate the lock or latch to be operated thereby; but these parts, not being directly involved in my present improvements, are not shown in this application. One side of the spindle S is grooved, as at 2, Fig. 5, and this wedge-receiving groove in its preferred form is V-shaped for the purpose of receiving

a spindle-expanding wedge B, which is fitted to lie therein. The wedge B on its projecting outer end 3 is usually provided with notches or screw-threads 4, engaging in a nut C, whereby said wedge may be actuated. The inner or working end 5 of the wedge B constitutes the wedge proper and has the inclined outer surface 7 bearing against the corresponding face 8 of the bore of the knob. That end of the spindle S which is within the knob-stem is slotted at 10 from the lower side of the groove 2 toward the opposite side 9 of said spindle, thereby sufficiently dividing or bifurcating the knob-carrying end of the spindle to make the same expansible, as will be understood by comparison of the detail views, Figs. 4 and 5. As a means for steadying and holding in place in its proper position concentrically of the spindle the inner end of the knob-stem this is shown constructed of the form of an internal cone, (see Fig. 2,) and the nut C is formed conical to bear in said cone, and thus serve to control the lateral position of the stem, notwithstanding the stem may be loosely fitted upon the spindle. By this means the inner end of the stem 6 is rigidly held from lateral play.

The operation of the improvement is as follows: The spindle S having been put through the lock or latch to be operated thereby, the wedge B is slipped within the knob-stem and the nut placed over the same against the stem, as shown in Fig. 2, but with the wedge extending farther toward or into the interior of the knob. Next the parts thus assembled are slid over the end of the spindle to the required working position—as shown, for instance, in Fig. 2. A wrench is now applied to the squared faces of the nut C, which is thereby turned to draw the wedge B toward the left hand in Figs. 1 and 2 until the wedge-face 7 bears firmly against the corresponding face 8 of the knob-stem. At this time the working end 5 of the wedge is forced laterally toward the spindle, and being, as shown in Fig. 8, of a wedge-shaped cross-sectional form is driven between the inclined faces 12 and 14 of the spindle ends 13 and 15 to spread these in opposite directions against the side faces 16 and 18 of the bore 19 of the knob-stem. By means of this action of the wedge, the end of the spindle be-

ing expansible, as described, the spindle is spread to fully fill the squared (or polygonal) bore of the knob-stem, and the wedge acts, also, to force the spindle against the lower side 20 of the knob-stem. Thus the wedge, acting, as it does, in two directions, operates to force the spindle against three faces of the bore, while the wedge itself bears against the fourth face of the bore of the knob-stem, thereby holding 10 the stem rigidly within the knob against lateral movement in any direction. This action of the wedge will be found effective for the purpose described, and so far as relates to that portion of the knob-stem where the wedge 15 bears upon the same without the conical construction of the nut hereinbefore described; but by means of this additional feature each end of a comparatively-long knob-stem may be rigidly held in place.

20 In Fig. 9 I have shown another means for actuating the spindle-expanding wedge longitudinally of the knob-stem, this means consisting of the set-screw 22, carried in the projecting end 23 of the wedge B' and bearing 25 against the end of the knob-stem 6', as will be understood from the drawings without further explanation thereof.

Having thus described my invention, I claim—

- 30 1. In an adjustable knob attachment, the combination, with the knob-stem and with the expansible spindle constructed to receive a

spindle-expanding wedge, of the spindle-expanding wedge adapted for longitudinal movement within the knob-stem and constructed 35 to act in two directions, and means for actuating the wedge, whereby the spindle may be simultaneously clamped and expanded, substantially as set forth.

2. In an adjustable knob attachment, the 40 combination, with the knob-stem and with the expansible spindle, of the spindle-expanding wedge projecting beyond the knob-stem, and the conical nut engaging the end of the knob-stem and actuating said wedge, whereby the 45 spindle is clamped and expanded and the end of the knob-stem held against lateral play, substantially as set forth.

3. In an adjustable knob attachment, the combination, with the spindle having the V- 50 groove in one side thereof and slotted from the bottom of said groove toward the opposite side thereof, of the knob-stem over said spindle, the wedge V-shaped in cross-section and having the longitudinal wedge-face bearing 55 against the knob-stem, and means for actuating the wedge longitudinally of the knob-stem, whereby the spindle is simultaneously clamped and expanded, substantially as shown and described.

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Witnesses:

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