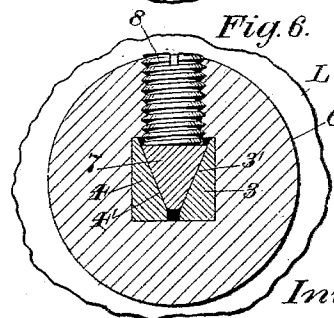
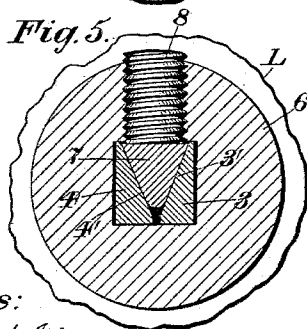
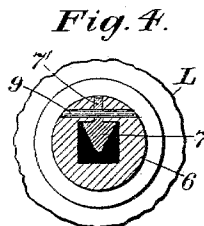
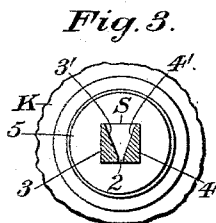
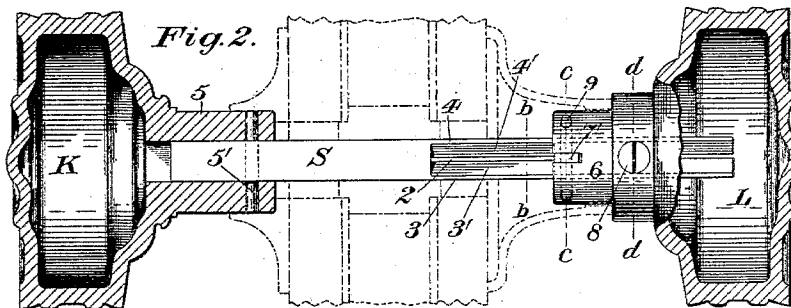
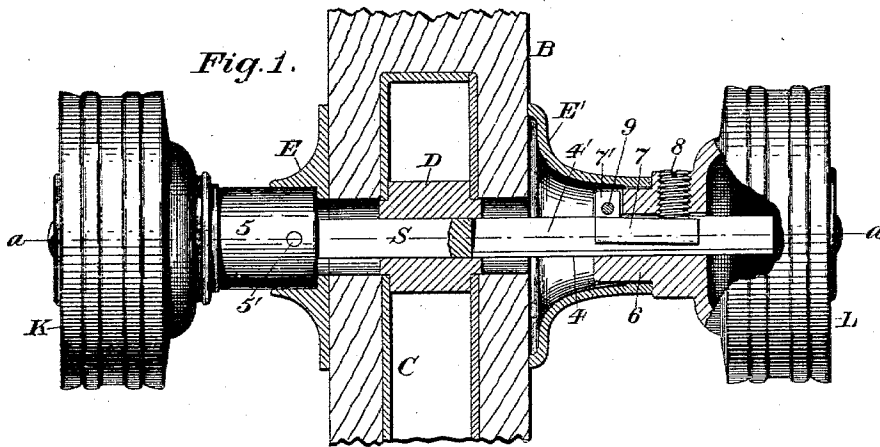


(No Model.)

C. F. DOEBLER.
KNOB ATTACHMENT.

No. 565,109.

Patented Aug. 4, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES F. DOEBLER, OF HARTFORD, CONNECTICUT.

KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 565,109, dated August 4, 1896.

Application filed February 26, 1896. Serial No. 580,812. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. DOEBLER, 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 Knobs, of which the following is a specification.

This invention relates to knob attachments of that class commonly known as "screwless" knobs, the object of the invention being to provide a knob attachment of this class which shall be simple in construction and organization, effective in its operation, and which may be quickly attached to or removed from the lock of a door.

In the drawings accompanying and forming part of this specification, Figure 1 is a sectional view of a portion of a door and door-lock, showing in sectional side elevation my improved knob attachment applied thereto. Fig. 2 is a horizontal sectional view, taken in dotted line *a a*, Fig. 1, of the knob attachment, a portion of one of the knob-stems being shown in plan view and a portion of the door and lock-case being shown in dotted lines. Fig. 3 is a cross-sectional view of the knob attachment, taken in dotted line *bb*, Fig. 2, and looking toward the left hand in said figure, only a portion of the knob at the left hand in Fig. 2 being shown. Fig. 4 is a cross-sectional view of the knob attachment, taken in dotted line *c c*, Fig. 2, looking toward the right hand in said figure, and showing only a portion of the knob. Fig. 5 is a cross-sectional view, upon a relatively large scale, of the knob attachment, said section being taken in dotted line *d d*, Fig. 2, looking toward the right hand in said figure, and showing the expandible spindle and the expanding device therefor in their non-clamping or ineffective positions, said figure showing only a portion of the knob; and Fig. 6 is a cross-sectional view similar to Fig. 5, showing the expandible knob-spindle and its expanding device in their effective clamping positions.

Similar characters designate like parts in all the figures of the drawings.

For the purpose of illustrating the application and mode of operation of my improved screwless knob attachment, the same is shown in Fig. 1 applied to a door B, having therein the usual lock-case C, furnished with the usual

cam or hub D for actuating the lock mechanism. (Not shown.) Said hub D is actuated by means of the knob-spindle, (designated in a general way by S,) which extends through said hub when the parts of the knob attachment are assembled, and which stem is usually provided at opposite ends with knobs K and L, respectively, whose knob-stems 5 and 6, respectively, are perforated longitudinally for the reception of the squared or polygonal spindle S.

One of the knobs, as K, may be secured to one end of the spindle S in any suitable manner—as, for instance, by means of the present improvements, or otherwise—said knob K being shown in Figs. 1 and 2 fixedly secured to the left-hand end of the spindle S by means of a pin 5', which extends through the knob-stem 5 and spindle.

In the preferred embodiment of my invention the knob attachment comprises in part a laterally-expandible spindle, a knob carried upon said spindle, and a spindle-expanding device carried by said knob in position and shiftable transversely of the spindle for engaging and expanding said spindle to lock the spindle and knob together and against longitudinal movement relatively to each other.

In the construction thereof shown most clearly in Figs. 1 and 2 of the drawings the spindle S is of the usual squared cross-sectional form at that end to which the knob K is fixedly secured, and the opposite end thereof is grooved and slitted longitudinally and centrally, as shown at 2, to form two relatively-expandible resilient walls 3 and 4, having oppositely-inclined adjacent faces 3' and 4', which converge toward the outer face of the spindle and together form an expandible cross-sectionally-V-shaped longitudinal bearing or seat for the reception of an expanding member or wedge 7, which is pivotally carried within the knob-stem 6 of the knob L, and which constitutes the knob-spindle expander of the expanding or locking device, which expanding device locks the knob relatively to said spindle. The other member of the spindle-expanding device is in the nature of a screw 8, seated in the screw-threaded bearing formed radially through the knob-stem 6, which screw bears at its inner end against

the expanding member 7 and constitutes the actuating member of the spindle-expanding device.

In the preferred form thereof shown in Figs. 1, 2, 4, 5, and 6 the expanding member 7 is in the nature of an elongated cross-sectionally-V-shaped wedge adapted to fit the V-shaped bearing in the spindle S, as shown in said figure.

As a means for pivotally securing the expanding member or wedge to the stem 6 of the knob L in proper position to enter the V-shaped bearing in the spindle, when the stem is projected into the axial recess in the knob-stem 6, said member has a transversely-perforated lug or projection 7' at the inner end thereof, which in practice will be relatively narrow as compared with the width of the upper face of the expanding-wedge, and which is pivotally secured in a longitudinal recess formed in the inner end of the knob-stem 6, a pivot-pin 9 being extended through the side walls of this recess and the lug 7', as will be understood by reference to Figs. 2 and 4 of the drawings.

As will be seen by reference to Figs. 1 and 5 of the drawings, the expanding-wedge 7 is pivotally supported near the extreme inner end thereof at a point above the plane of movement of the spindle and is left free at the outer end thereof for movement in a plane intersecting the axis of the spindle, the wedge-shaped body portion thereof being inclosed when the parts of the knob attachment are assembled by the boundary-line of the V-shaped bearing in said spindle.

In connection with the foregoing description of the construction and organization of the several elements comprising the knob attachment I desire to state that structural modifications may be made without departure from my present invention.

One important feature of my present invention is that the knob attachment may be applied to or removed from a door without detaching the escutcheon plates or roses E and E', secured to the opposite faces of the door in the usual manner.

In assembling the knob attachment in working position upon the door the spindle S, having the knob K fixed to the outer or non-bifurcated end thereof, is extended through the recess of the hub D, and the knob L is then applied to the opposite expansible end of said spindle in a manner shown in Fig. 1 of the drawings, the actuating member 8 of the expanding device and said expanding device being during this operation in the ineffective or non-expanding position shown in Fig. 5. After the knob-stems have a suitable bearing engagement with the escutcheon-plates, as shown in Fig. 1, the actuating member is then screwed home, which forces the free end of the expanding member 7 tightly into the bearing of the spindle, thereby spreading the walls of said spindle, as shown in Fig. 6, and tightly clamping the spindle in the recess of the knob

and locking said knob against longitudinal movement relatively to said spindle.

The escutcheon-plate E' is shown having an elongated cylindrical bearing which, when the knob attachment is in place upon the door, surrounds a portion of the inner end of and forms a finish for the knob-stem.

Having described my invention, I claim—

1. In a knob attachment, the combination with an expansible knob-spindle and with a knob removably carried on said spindle; of a spindle-expanding device pivotally carried by the stem of said knob and removable with said knob, and in position for engaging and expanding the spindle to lock the spindle and knob together when assembled.

2. In a knob attachment, the combination with an expansible spindle and with a knob removably supported on said spindle; of a spindle-expander pivotally carried by the knob and removable with said knob, and in operative relation with the spindle; and an expander-actuator carried by the knob and in operative relation with the expander and adapted for actuating the expander to expand the spindle, and thereby lock said spindle and knob together.

3. In a knob attachment, the combination with an expansible spindle, and with a knob removably supported on said spindle; of a spindle-expander pivotally supported on the knob-stem between said stem and spindle and removable therewith, and having a free end in operative relation with the spindle; and a screw carried by the knob-stem in position to engage and force the free end of the expander into tight impingement with the spindle, to spread said spindle and lock the same relatively to the knob.

4. In a knob attachment, a knob-spindle having a substantially V-shaped expander-receiving groove formed in one face thereof and dividing said spindle longitudinally; combined with a knob removably supported on said spindle; a wedge-like expander pivotally carried on the knob-stem and removable with said knob and seated in the V-shaped groove of the spindle; and means carried by the knob-stem for forcing the expander into tight impingement with the spindle for expanding the same.

5. In a knob attachment, the combination with an expansible spindle having two longitudinal relatively-separated walls with oppositely-inclined adjacent faces; and with a knob removably carried upon said spindle; of an expanding-wedge removable with and pivotally carried on the inner end of the knob-stem between the divided walls of the spindle; and a screw carried on the knob-stem in position to engage the free end of the expanding-wedge, to force the same inward relatively to the spindle, to spread the walls of said spindle and lock the knob and spindle together.

6. In a knob attachment, the combination with a knob, of a knob-spindle expander piv-

otally carried thereby and removable therewith.

7. In a knob attachment; the combination with a knob having an axial spindle-recess; 5 of a spindle-expander pivotally supported on said knob and removable therewith, and movable in said recess.

8. In a knob attachment, the combination with a knob-spindle having a longitudinal V-shaped expander-bearing; of a knob having 10 an axially-recessed stem receiving said spindle; a spindle-expander pivotally secured to and movably seated in the expander-bearing of the spindle within the axial recess of the 15 knob-stem, and removable with said knob; and means for actuating said expander.

9. In a knob attachment, the combination with the expansible spindle and a knob-stem;

of an expanding device carried by the knob-stem and having an expanding member pivotally supported on the knob between the 20 stem and spindle and removable with said knob.

10. In a knob attachment, the combination of an expansible knob-spindle; a knob 25 movably carried on said spindle and having a longitudinal recess; a spindle-expander having a transversely-extending lug entering and pivotally secured in the longitudinal recess of said knob; and means carried by the 30 knob for actuating said expander.

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