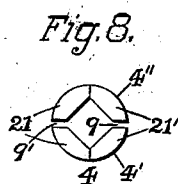
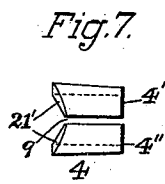
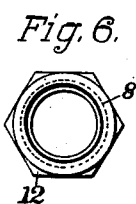
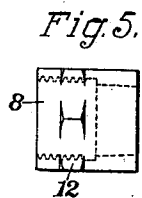
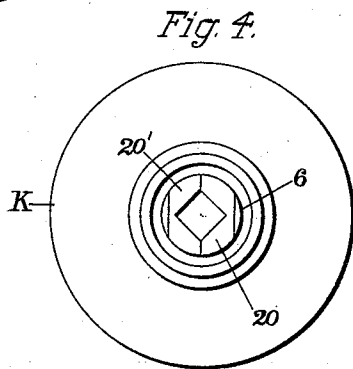
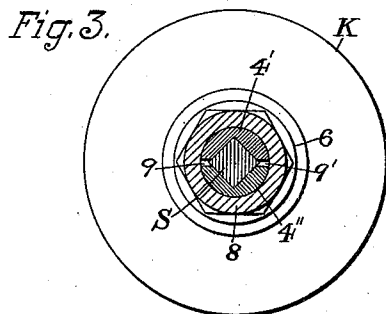
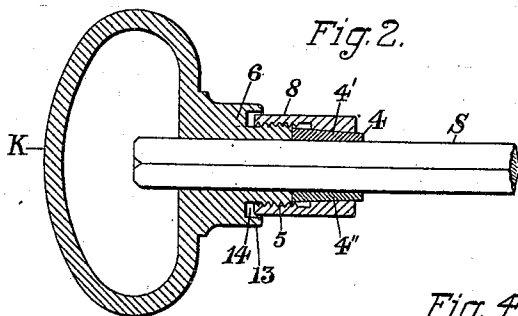
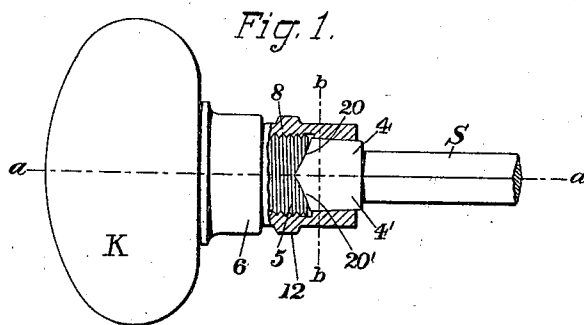


(No Model.)

C. F. DOEBLER.
KNOB ATTACHMENT.

No. 503,204.

Patented Aug. 15, 1893.



Witnesses:
John L. Edwards Jr.
Fred. J. Dole.

Inventor:
Charles F. Doebler.
By his Attorney,

F. W. Richards

UNITED STATES PATENT OFFICE.

CHARLES F. DOEBLER, OF HARTFORD, CONNECTICUT.

KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 503,204, dated August 15, 1893.

Application filed March 11, 1893. Serial No. 465,655. (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 Knob Attachments, of which the following is a specification.

This invention relates to that class of knob-attachments in which the knob is removably fixed to the spindle by means of clamping devices; the object being to provide a knob-fastening having spindle-clamps separate from the knob-stem but in non-rotative engagement therewith and operable by means of a clamp-sleeve carried by the knob-stem.

In the drawings accompanying and forming a part of this specification—Figure 1, is a side view, partially in section, of a knob-stem embodying my present improvements. Fig. 2, is a sectional view in line *a—*a** of Fig. 1. Fig. 3, is a transverse section in line *b—*b** of Fig. 1, showing the parts at the left hand of said line. Fig. 4, is an end view of the knob with spindle removed, and as seen from the right-hand in Fig. 1. Fig. 5, is a side elevation of the clamp-sleeve. Fig. 6, is an end elevation of said clamp-sleeve as seen from the left-hand in Figs. 1, 2, and 5. Fig. 7, is a side elevation of the longitudinally-divided spindle-clamp. Fig. 8, is an end view of said spindle-clamp, as seen from the left-hand in Fig. 7.

Similar characters designate like parts in all of the figures.

In my improved knob-attachment, the spindle *S* is, or may be of the usual squared cross-sectional form and of uniform diameter throughout the length thereof, as indicated in Figs. 1 and 2.

The knob-stem 6 of the knob *K* is fitted to slide freely but closely on the spindle *S*, and is shown externally threaded at 5, Fig. 1, to receive the correspondingly internally threaded end of the nut or clamp-sleeve 8. The projecting end of said sleeve 8, which is at the right in Figs. 1 and 2, is bored internally tapering, or conical, the smaller end of the bore being at the end of the sleeve farthest from the knob.

The spindle-clamp 4 shown in detail in Figs. 7 and 8, and which is shown made of two

pieces is formed externally conical to fit within the projecting end of clamp-sleeve 8, as illustrated in Figs. 1 and 2; this clamp is internally fitted to the spindle *S*, and is shown longitudinally slotted or divided at the points 9 and 9', for permitting the same to be closed onto the spindle. The length of the spindle-clamp as shown in Figs. 1 and 2, is such that it projects beyond the clamp-sleeve 8 when this is in its normal position, and thus is adapted to bear against the usual bearing washer (not shown) for locating the knob longitudinally on the spindle and relatively to the door to which the knob shall be applied. For effecting the required non-rotative engagement between the spindle-clamp and the end of the knob-stem whereon said clamp is seated, said stem is, as illustrated in Fig. 1, grooved or channeled transversely of the face thereof, and, as herein shown, in the direction of the movement of the spindle clamp parts 4' and 4'' to and from the spindle. (This movement, of course, is, during the operation of the clamping, only of very slight extent.) The spindle-clamp being conical as set forth, and the clamp-sleeve engaging said spindle-clamp upon the conical surface thereof, when said clamp-sleeve is screwed onto the knob-stem it tends not only to close said spindle-clamp upon the spindle, but to draw the same toward and firmly against the end of the knob-stem, thereby drawing all of these several parts into a firm bearing the one upon the other.

As shown in Fig. 1, the knob-stem has formed across the end thereof a V-shaped groove whose angle is obtuse and extends nearly across the diameter of the knob-stem; but in practice the form of said groove may be modified as desired, so long only as the required non-rotative engagement is effected, and this without interfering with the closing of the spindle-clamp upon the spindle. The angular groove shown formed in the end of the knob-stem, which groove has the two inclined bearing-surfaces 20 and 20', respectively, engages the correspondingly-tapered rearward end of the compressible spindle-clamp 4 upon the corresponding angular faces 21—21', respectively, of said clamp. Of course, any modification in the shape or angle

of said knob-stem groove should be accompanied by a corresponding shape or angle of said clamp-faces.

In assembling the knob-attachment, the spindle being in its proper position, the spindle-clamp 4 is placed against the end of the knob-stem 6, and the clamp-sleeve is then screwed part way onto said stem, thus leaving the clamp sufficiently free to slide over the spindle without material resistance. The parts of the knob being thus loosely assembled together, the knob is then slid upon the spindle until the end of the spindle-clamp strikes against its bearing surface and thus locates the position of the knob upon the spindle. Next by means of an ordinary wrench applied to the usual squared portion 12 of the sleeve 8, this sleeve is screwed farther onto the threaded portion 5 of the knob-stem, until the conical end thereof forces together the two sides or parts 4' and 4'' of the spindle-clamp 4, and binds them firmly upon the spindle. This operation by reason of the clamp bearing against the end of the knob-stem, and this having no movement longitudinally of said stem, does not tend in any wise to displace the knob-stem on the spindle. By this means the knob is firmly fixed upon the spindle at the required place, the fastening operation is readily performed, and the fastening device holds the knob in place with great force. The same action draws the spindle-clamp firmly into engagement with the V-notch which is formed (see Fig. 1), in the end of

the stem 6, and thus rigidly binds and holds said clamp against any rotative movement relatively to the knob, and vice versa. This combined action of the parts results in a firm and rigid fastening together of the entire combination, and fixes the knob so firmly in place that in usual practice it can have no play on the spindle.

In practice, I provide, in some cases, a guard-flange 13 on the knob for covering the extreme end of the clamp-sleeve and the space at 14 between the end of said sleeve and the knob, thereby improving the finish and appearance of the article.

Having thus described my invention, I claim—

In a knob-attachment, the combination with the spindle, of the knob and its externally-threaded stem fitted to slide on the spindle and having transversely of the end thereof a spindle-clamp-engaging groove or key-way, the compressible spindle-clamp engaging with the grooved end of the knob-stem, and a clamp-sleeve internally threaded at one end to screw upon the knob-stem, and at the other end engaging the spindle-clamp for compressing the same upon the spindle and holding it in non-rotative engagement with the knob-stem, substantially as described.

CHARLES F. DOEBLER.

Witnesses:

JOHN L. EDWARDS, Jr.,
FRED. J. DOLE.