(Model.)

F. A. HOLLENBECK.

KNOB ATTACHMENT.

No. 348,494. Patented Aug. 31, 1886.

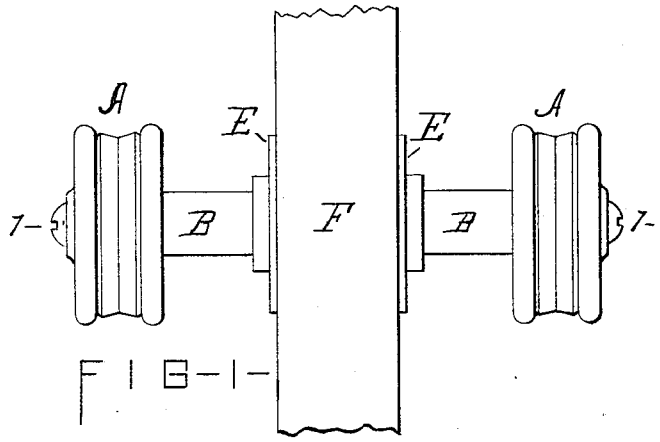

FIG-1-

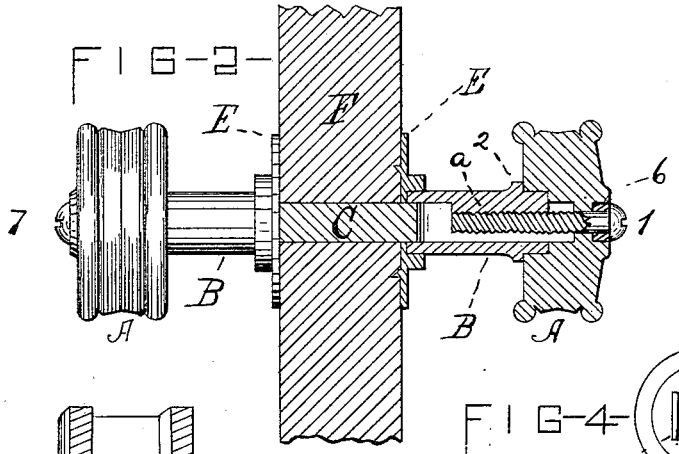

FIG-2-

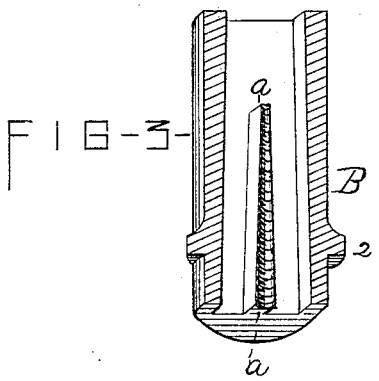

FIG-3-

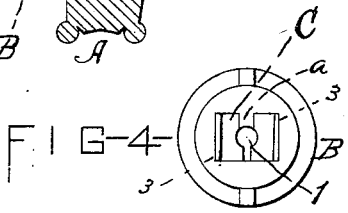

FIG-4-

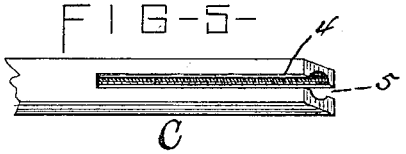

FIG-5-

FIG-6-

Witnesses
S. W. Mundell
A. T. Brown

Inventor
Frank A. Hollenbeck
By his Attorney
A. Smith

UNITED STATES PATENT OFFICE.

FRANK A. HOLLENBECK, OF SYRACUSE, NEW YORK.

KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 348,494, dated August 31, 1886.

Application filed June 7, 1886. Serial No. 204,396. (Model.)

To all whom it may concern:

Be it known that I, FRANK A. HOLLENBECK, of Syracuse, in the county of Onondaga, in the State of New York, a citizen of the United States, have invented certain new and useful Improvements in Knob Attachments, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the knob secured upon the door; Fig. 2, a longitudinal section of part of same and elevation of remainder, showing it in door; Fig. 3, a longitudinal section of shank, showing an isometrical elevation of spline; Fig. 4, an end view of shank, showing spline and spindle inserted therein; Fig. 5 a side elevation of spindle detached; Fig. 6, an elevation of screw.

The object of my invention is to improve the mode of attachment of a door-knob to the spindle, whereby the spindle and knob may be attached to doors of different thickness and close joints be secured without the use of washers.

My invention consists in the several features of construction shown in the drawings and described herein, and are particularly pointed out in the claims hereto annexed.

The letters of reference indicate like parts throughout the drawings.

A is the knob, recessed on its inner face to receive the end of the shank B. A hole is made therethrough to receive the screw for holding the parts together.

B is the shank, and consists of a cylindrical body provided with the flange or collar 2 near its outer end. This shank has a polygonal spindle-opening extending lengthwise thereof. This opening is, on two opposing sides larger at its outer than at its inner end, increasing outward or toward the knob A, affording space for the spread of the spindle, as hereinafter described. Projecting inward from one or both of the straight sides of this spindle-opening is a spline or projection with either straight or tapering sides. These splines or projections extend longitudinally of the shank, are of any desired length, and are, in my preferred form, provided with screw-threads on their inner faces.

C is the spindle, polygonal in cross-section and of a size to fit the inner end of the spindle-opening in the shank. The outward end of the spindle has a cylindrical opening therein, provided with interior screw-threads, and it is split longitudinally on opposite sides by the slots 4 and 5. The preferred form of retaining-screw is shown in detail in Fig. 6. The chief office or function of the spline is to spread the end of the split spindle, and it accomplishes this whether the spline is wedge-shaped and engages a straight slot in the spindle or whether the sides of the spline are straight and the slot in the spindle is wedge-shaped. The spline, when provided with threads on its inner face, serves an important function, even when the sides of the spline and of the slot are straight and no wedging action is produced. In such case it is engaged by the retaining-screw, and the position of the shank and knob in respect to the spindle determined thereby, while they are at the same time and by the same means connected to the spindle. I also provide the knob A with a central recess in its outer face, in which I place an elastic washer, 6, which is of the same size as the head of the retaining-screw, and is concealed thereby. F designates the door, and E the rose, which is of the usual construction, having an outwardly-extending flange embracing the inner end of the shank, and spurs on the other side to enter the wood in the ordinary manner.

It is generally sufficient to have the construction just described on one end of the spindle. In placing the knobs in position the spindle and roses are placed as in ordinary constructions. The shank is then placed upon the end of the spindle with the spline entering one of the slots in the spindle. The knob is then placed upon the outer end of the shank, and the knob and shank are then pressed toward the door until the several parts are brought in close contact, when the retaining-screw is inserted through the knob and screwed tightly in place. The function or result accomplished by the intervention of the elastic washer is to effect a gripping of the retaining-screw by the split spindle whenever the knob is drawn from the door. The shank being firmly connected with the knob, as soon as an outward force is applied to the latter the washer allows the knob and shank to move slightly before the pull is communicated to the retaining-screw.

This movement causes the inclined sides of the spindle-opening in the shank to press the parts of the split spindle firmly against the retaining-screw, thereby effectively clutching the same. This construction is of particular value where from any cause imperfections in the thread of the screw or spindle occur, or where there is not an exact correspondence between such threads. The parts will then be locked together and firmly held in position. The screw engages with the screw-thread on the spline and with the interior thread of the spindle, and all of the parts being engaged by the screw are each independently locked and held by it. In case no wedging action is desired the slot in the spindle and spline of the shank are provided with straight sides. In case the spline is provided with straight sides, and it is desired to secure an expansion of the end of the spindle the slot engaging the same is made tapering to accomplish that result.

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

1. The combination, with a door-knob and a shank provided with an inwardly-projecting spline, of a spindle provided with a longitudinal slot engaging said spline, and having an interior screw-thread, and the retaining-screw, substantially as described.

2. The combination, with a door-knob and a shank having an inwardly-projecting spline, of a split spindle having an interior screw-thread, the spline of the shank and the slot of the spindle being the one of wedge form and the other engaging the same, and the retaining-screw, substantially as described.

3. The combination, with a door-knob and shank having a tapering opening in the same increasing toward the outer end, and an inwardly-projecting wedge-shaped spline increasing in the same direction, of a split spindle engaging said spline, and provided with an interior screw-thread, and the retaining-screw, substantially as described.

4. The combination, with the door-knob and shank having a spindle-opening therein provided with an inwardly-projecting spline having screw-threads, of a spindle split longitudinally and a screw passing through the knob into the split spindle and engaging with the screw-threads of the spline, substantially as described.

5. The combination of the knob, an elastic washer in the same, with a screw passing through the knob and washer, the split spindle having an interior screw-thread, and a knob-shank having an opening increasing in size toward its outer end, and a wedge-shaped spline engaging the spindle, the said parts being constructed and operating substantially as described.

6. The combination of the knob, an elastic washer in the knob, a screw passing through the knob and washer, a split spindle having interior screw-threads, and a knob-shank having a spline engaging one of the slots in the split spindle, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand this 24th day of January, 1886.

FRANK A. HOLLENBECK.

In presence of—

C. W. SMITH,

A. T. BROWN.