

(No Model.)

F. M. STEVENS.
ATTACHING KNOBS.

No. 453,869.

Patented June 9, 1891.

Fig. 1

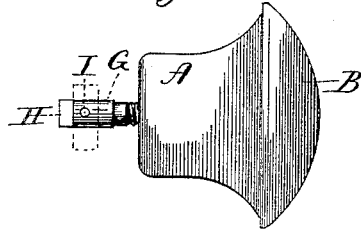


Fig. 2

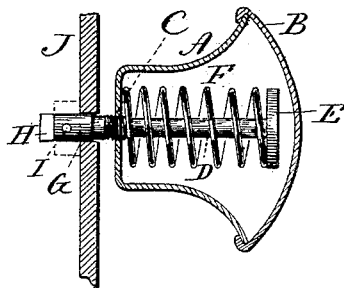


Fig. 9

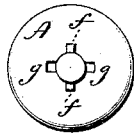


Fig. 4

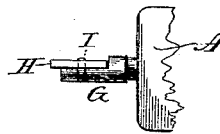


Fig. 3

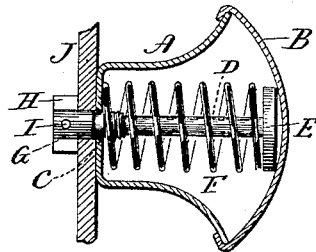


Fig. 10

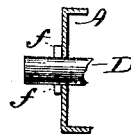


Fig. 8

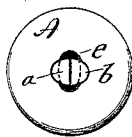


Fig. 5

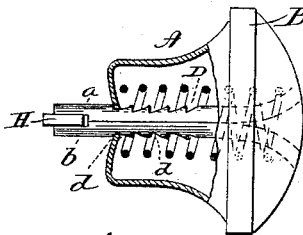


Fig. 7

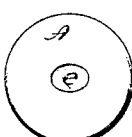
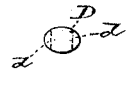


Fig. 6



Witnesses
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UNITED STATES PATENT OFFICE.

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ATTACHING KNOBS.

SPECIFICATION forming part of Letters Patent No. 453,869, dated June 9, 1891.

Application filed January 19, 1891. Serial No. 378,240. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK M. STEVENS, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Attaching Knobs; 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 side view of the knob complete; Fig. 2, a longitudinal section representing the knob as interlocked with the spindle and as being applied to a door; Fig. 3, the same as Fig. 2, representing the knob as disengaged from the spindle and forced to its clamping position; Fig. 4, a view of the end portion of the knob, representing the spindle as looking upon the edge of the turn-button. Figs. 5, 6, 7, and 8 represent a modification of the invention. Figs. 9 and 10 represent another modification of the invention.

This invention relates to an improvement in devices for attaching knobs to stove-doors and for similar purposes, the object being to produce a construction by which the knob may be readily and securely attached without riveting and so as to be readily detached when occasion requires; and the invention consists in the construction as hereinafter described, and particularly recited in the claims.

The knob is hollow, and as here represented is made from sheet metal, composed of a body A and head B, the two closed together in the usual manner. The inner end of the knob is constructed with a central hole C, which is screw-threaded. D represents a round spindle arranged within the knob, but extending through the hole C. The surface of the spindle near the hole C is screw-threaded, corresponding to the thread of the said hole C. The inner end of the spindle is provided with a collar E, made fast to the spindle, and between the collar E and the inner end of the knob a spiral or other suitable spring F is arranged, the tendency of which is to draw the spindle into the knob, or, which is the same thing, force the knob from the spindle.

The spindle is of a length to project from the end of the knob, so as to pass through the door or whatever the knob is to be attached to, and that projecting end G of the spindle is provided with a turn-button H, hung in the plane of the axis of the spindle and upon a pivot I at right angles to the axis of the spindle, so that the turn-button may swing freely on the pivot in a plane parallel with the plane of the axis of the spindle. The screw-threaded portion of the spindle terminates at a point distant from the turn-button when the turn-button is at right angles to the axis of the spindle greater than the thickness of the door or whatever the knob is to be attached to, and the spindle outside the screw-threaded portion is of less diameter than the diameter of the said screw-thread. This completes the construction.

Preparatory to applying the knob to the door the spindle is drawn from the knob until the screw-thread may be engaged with the knob. The knob is then rotated so as to draw it onto the screw-threaded portion of the spindle and so as to lock the spindle and knob with the spring compressed, as seen in Fig. 2. The turn-button is then brought into line with the spindle, as represented in Fig. 2, and passed through the hole in the door J to a sufficient distance to permit the turn-button to be rotated upon its axis to bring it into a right-angular position, as indicated in broken lines, Fig. 2. Then the knob is unscrewed from the spindle until it escapes from the screw-thread. Then the spring reacts and forces the knob against the door on the outside and so as to clamp the door between the knob and turn-button, as seen in Fig. 3. The spring is of a power sufficient to hold the knob firmly against the door under an ordinary pull. If it be desired to remove the knob from the door, it is pulled outward from the door until the knob comes to the screw-threaded portion of the spindle. Then the knob is rotated to engage it with the screw and so as to again interlock the spindle and knob, as seen in Fig. 2. Then the knob and spindle are pressed toward the door until the spindle projects so far through the door as to permit the turn-button to be brought again into line with the spindle, when

the spindle may be withdrawn through the hole in the door, and thus the knob readily removed.

While I prefer to engage the knob with the spindle by means of the screw-thread, as described, this interlocking of the knob and spindle may be otherwise produced, for illustration as represented in Figs. 5, 6, 7, and 8. In this case the spindle is represented as constructed of two parts *a b*, the division being longitudinal, and at its outer end the turn-button *H* is arranged upon a pivot in a recess formed between the two parts, as clearly seen in Fig. 5, the pivot serving to secure the two parts together. The spindle extends into the knob, as in the first illustration, and is combined with a spring within the knob in similar manner to that first described, except that instead of providing a collar on the end of the spindle, the two parts of the spindle may be bent outward so as to form a rest for the spring, as seen in Fig. 5. The spindle is of elliptical shape in transverse section, as seen in Fig. 6, and in the sides of the spindle on the longest diameter one or more notches *d* are formed, as seen in Fig. 5 and as indicated in broken lines, Fig. 6, the depth of the notches being such that the distance between opposite notches will correspond substantially to the shorter diameter of the spindle. Through the end of the knob a hole *e* is made in shape corresponding to the shape of the spindle in transverse section, as seen in Fig. 7, and so that when the knob stands with the diameters of the hole corresponding to the diameters of the spindle the knob will slide freely on the spindle; but when drawn outward upon the spindle until one of the notches *d* are reached, then the knob may be rotated to bring its shorter diameter into the notches, as represented in Fig. 8, and thus interlock the knob and spindle, the spindle remaining so locked until the knob be returned to bring its longer diameter into line with the longer diameter of the spindle. Then the spindle will react and force the knob toward the turn-button.

The interlocking of the spindle with the knob may be produced by constructing the spindle round and introducing a pin transversely through it, so as to form radial projecting studs *f f*, (see Fig. 9,) and forming the end of the knob with a hole corresponding to the spindle, the hole having radial openings *g g*, corresponding to the studs *f f*, and so that when the knob is turned on the spindle to bring the openings *g* into line with the studs *f f* the knob may be drawn back on the spindle, the studs pass out through the openings *g*. Then the knob may be turned, as represented in Figs. 9 and 10, so that the studs *f* will bear upon the outside of the knob, and thus hold it locked with the spindle, to

be released therefrom by re-turning the knob to bring the opening *g* again into line with the studs *f*. Substantially the same manipulation of the knob is required for its attachment to the door as described in the first illustration.

While I prefer to employ the turn-button as the means for securing the end of the spindle, other known devices may be substituted therefor, it only being essential to the invention that there shall be some devices employed for securing that end of the spindle while the knob is interlocked with the spindle with the spring compressed, and while the spindle projects from the knob a distance greater than that required for its attachment.

I do not wish to be understood as claiming, broadly, a knob having a spindle projecting from its inner end, combined with a spring within the knob tending to force the knob toward the end of the spindle, combined with mechanism at the end of the spindle by which the knob is clamped upon the door under the force of the spring, as such, I am aware, broadly considered, is not new; but

What I do claim is—

1. The combination of a hollow knob having a hole through its lower inner end, a spindle within the knob and extending out through the said hole at the inner end of the knob, a spring between the said knob and spindle, the tendency of which is to draw the spindle into the knob, means, substantially such as described, at the projecting end of the spindle to secure the spindle at that end, the said spindle and knob being adapted to be interlocked with each other, with the spring compressed, and the spindle projecting from the knob a distance greater than that required for the attachment of the knob, substantially as described.

2. The combination of a hollow knob having a screw-threaded hole through its inner end, a spindle within the knob and extending through said screw-threaded hole, a portion of the spindle adjacent to said hole correspondingly screw-threaded and adapted to engage the screw-thread of the hole in the knob to interlock the said knob and spindle, a spring between said knob and spindle, the tendency of which is to draw the spindle into the knob, the spindle projecting from the inner end of the knob and provided with means, substantially such as described, at the projecting end of the spindle to secure the spindle at that end, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FREDERICK M. STEVENS.

Witnesses:

HARRY L. DANIELS,
GEORGE W. WATSON.