(Model.)

# W. I. ALVORD.

## KNOB ATTACHMENT.

No. 330,187. Patented Nov. 10, 1885.

Fig 1

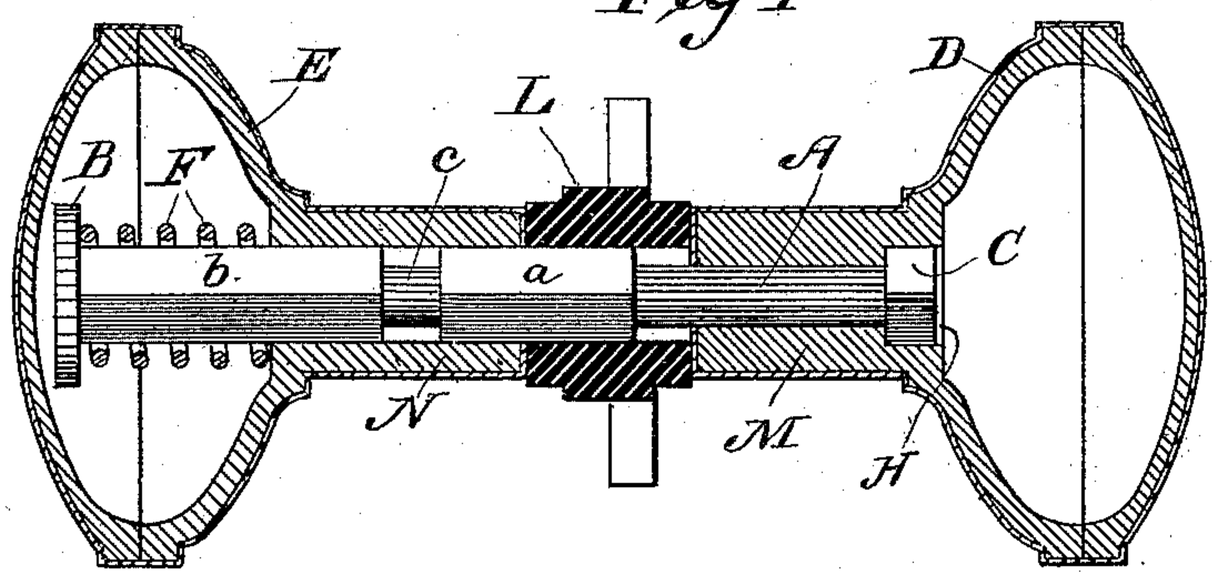



Fig 2

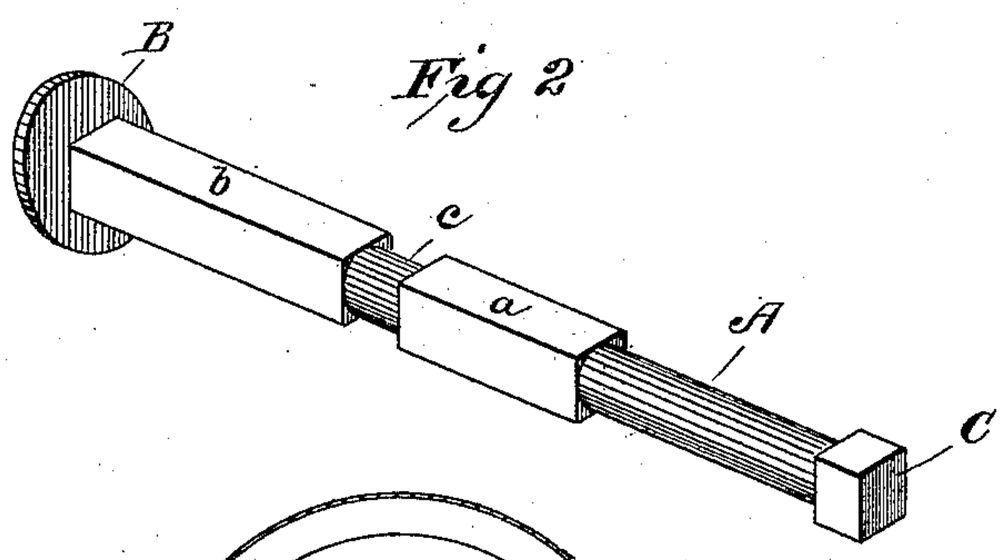



Fig 3

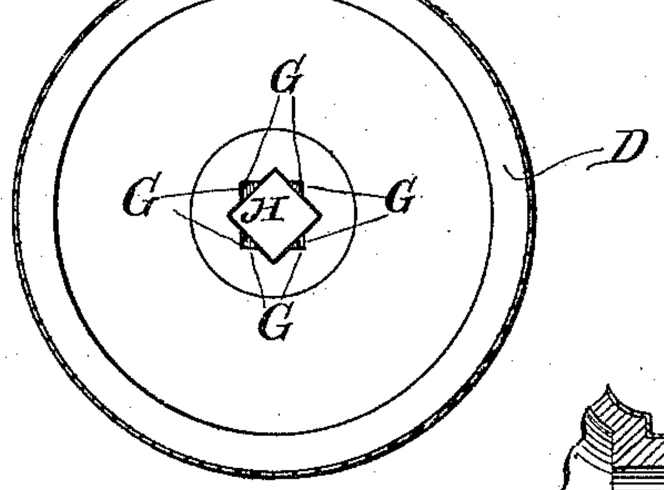



Fig 4

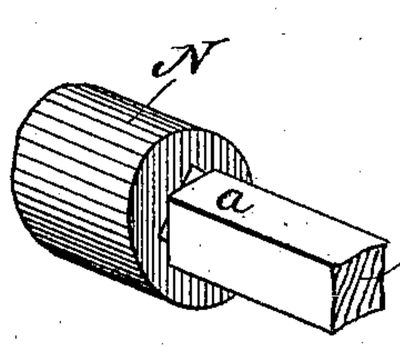
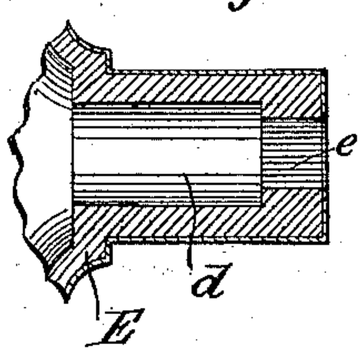



Fig. 5.




Witnesses
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# UNITED STATES PATENT OFFICE.

WILLISTON I. ALVORD, OF BRIDGEPORT, CONNECTICUT.

## KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 330,187, dated November 10, 1885.

Application filed April 16, 1885. Serial No. 162,405. (Model.)

*To all whom it may concern:*

Be it known that I, WILLISTON I. ALVORD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Knob Attachments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in knob attachments, and has for its object to provide a knob which shall be readily and securely attached to the spindle without the use of screws; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully described, and then specifically set forth in the claims.

In order that those skilled in the art to which my invention appertains may understand how to make and use the same, I will proceed to describe it in detail, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central longitudinal section showing a pair of knobs arranged in accordance with my invention; Fig. 2, a detail perspective of the spindle; Fig. 3, a view in elevation of the inside of the outer knob; Fig. 4, a detail perspective showing the inner knob-shank in abutment against the spindle; and Fig. 5 is a detail section of the inner knob-shank.

Similar letters denote like parts in the several figures of the drawings.

A is the spindle, having at the inner extremity a shoulder, B, and at the outer end a head, C. This spindle is square in cross-section at those parts which are intended in assembled position to remain within the latch-hub L and the inner knob, as seen at *a b*, and between these intervenes a short portion, circular in shape, and of a diameter less than that of the said square parts, as seen at *c*. Between the portion *a* and the head C the spindle is of the same shape and diameter, as at *c*. The knobs are metallic, the outer knob, D, having in its shank M a recess, G, shaped like an eight-pointed star, as seen at Fig. 3.

Within the inner knob-shank is formed a circular opening, *d*, extending from the rear nearly to the outer end thereof; and *e* is an opening, square in cross-section, extending from the outer end of the circular recess *d* to the end of the knob-shank, a distance which is equal to or less than the length of the circular portion of the spindle between *a* and *b*. The diameter of the circular opening *d* is equal to the diagonal of the square opening *e*.

In assembling my devices I first insert the spindle within the inner knob-shank, E, placing between the shoulder B and the bottom of the knob a coil-spring, F. The shank N is then forced against the action of the spring until the rear shoulder of the part *a* is beyond the knob-shank, the circular portion *c* lying within the square opening *e* of the knob-shank, when the spindle is given a slight turn, carrying the angles of said shoulder out of coincidence with the angles of the square opening *e*, when the shoulder is allowed to abut by the spring action against the knob-shank.

The device is now ready to be applied to the latch-hub, and the manner of doing this is as follows: The knob D has extending through its shank an opening, H, square in cross-section, the angles of which are coincident with four alternate angles of the star-recess G, but not with the other four; so that it will be readily understood that a square head of the same diameter as the opening may be withdrawn through the latter, provided the angles of said head are coincident with the angles of the opening.

The manner of applying the device to a latch is as follows: The spindle is passed through the latch-hub in the usual manner, and inserted within the outer knob through the aforesaid square opening until the head C projects beyond the bottom of the knob-shell. The spindle is now given an eighth of a turn in either direction, so as to throw the corners of the head out of coincidence with the angles of said opening and into coincidence with the other points of the recess. The head of the spindle is now thrown within the recess and will abut against the bottom thereof. The shank of the knob E is now released from abutment against the spindle by turning the angles of the abutment in coincidence with

the angles of the opening *e*. The resiliency of the spring will draw both knobs tightly against the latch-hub.

In removing the knob D, it is simply necessary to force the shank against the action of the spring, and effect the abutment of the part *a* against the shank or the knob E, as previously set forth, when the head C is projected without the recess G and brought into proper relative position with regard to the opening H, and the knob D readily withdrawn.

I do not wish to be confined to any particular shape of spindle and head, as it is obvious that any shape other than a circle will accomplish the end aimed at, the shape of the recess being of course conformed to the head.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the latch-hub of a lock, the spindle having a shoulder at one extremity and a head at the other and extending, when the parts are in assembled position, through the knobs and hub, coil-spring between said shoulder and the inner knob-shank, and recess formed within the outer knob-shank, adapted to permit of the withdrawal of the spindle and at the same time affording an abutment for the head of the spindle, whereby the latter may be held against retraction, said spindle being adapted near its center to sustain the abutment of the inner knob-shank against the resiliency of the spring, all arranged and operating substantially as and for the purposes hereinbefore set forth.

2. The combination of the hub L, spindle A, having at its extremities shoulder B and square head C, knob E, spring F, placed between said knob and shoulder, stop *a* on the spindle, against which the inner knob-shank may abut, and knob D, having through its shank an opening, H, square in cross-section, and at the outer mouth of said opening recess G, shaped like an eight-pointed star, four alternate angles of which are coincident with the angles of the opening, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLISTON I. ALVORD.

Witnesses:
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