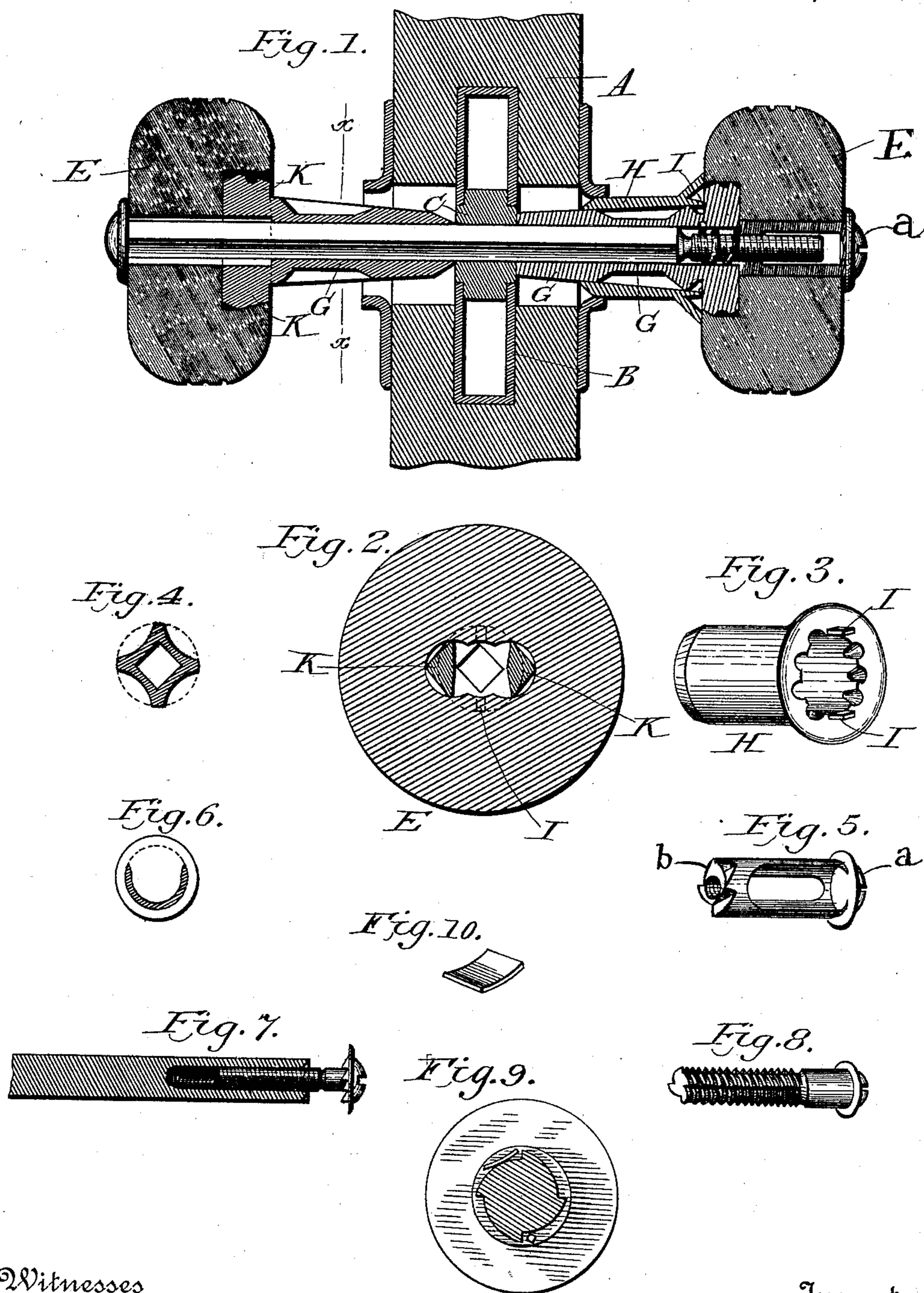


(Model.)

T. D. DAVIS.
KNOB ATTACHMENT.

No. 461,975.

Patented Oct. 27, 1891.



Witnesses
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KNOB ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 461,975, dated October 27, 1891.

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To all whom it may concern:

Be it known that I, THEODORE D. DAVIS, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Knob Attachments to Door Locks and Latches, of which the following is a specification.

My invention relates to door knobs and latches; and it consists in certain improved parts and combination of parts whereby a better and more desirable device can be produced at less cost.

The best methods in which I have contemplated embodying my invention are illustrated in the accompanying drawings, and my said invention is disclosed in the following description and claims.

In the said drawings, Figure 1 is an axial section of a door latch or lock embodying one form of my invention. Fig. 2 is a section of a knob taken transversely of the spindle and through lugs of the socket engaging the knobs. Fig. 3 is a perspective view of the thimble. Fig. 4 is a transverse sectional view of the socket on line $x\ x$, Fig. 1. Fig. 5 is a perspective view of the nut. Fig. 6 is a transverse sectional view of a modified form of the same. Fig. 7 is a view of a modified form of spindle and the device for securing the same, the locking device being omitted. Figs. 8, 9, and 10 illustrate another modification of the same parts.

In the drawings, A designates the door, B the lock or latch, and C the hub of the latch. The sockets G are preferably made of cast-iron, tapering on the outside, and provided with lugs K, which are adapted to enter recesses in the knobs E E. These lugs are preferably made in the form shown in section in Fig. 2, and are enlarged between their ends and are designed to engage straight-walled recesses, so that when forced into the recesses of wooden or like knobs the fibers of the wood will have to yield slightly to permit the enlargement to pass. The tendency of the fibers compressed in doing this is to return to their normal position, and by so doing will make the union of the knob and socket very secure. In order to give the sockets an exterior finish,

I provide a thimble of brass or other fine metal that can be highly polished. This construction effects a considerable reduction in the cost of manufacture over a solid socket of fine metal, the appearance being the same. In casting the sockets it is impossible to secure a perfect uniformity of size, owing to the shrinkage of the metal and also to the rapping upon the pattern when loosening it from the sand of the mold. In order to secure the placing of the thimble securely upon the socket with the least expense, I give the socket and thimble each a peculiar construction. The socket near or adjacent to the knob is made of a plain cylindrical form. The opposite end, which is constructed to abut against the hub of the latch C, is also cylindrical for slightly more than the distance which it enters the door, and between these two cylindrical portions the socket is ribbed or corrugated, as shown in Fig. 4. The thimble and socket may be cylindrical or of even diameter throughout, but best results can be secured by constructing them slightly tapering, increasing in size outwardly. The interior of the thimble is for the greater portion of its length of a plain surface to engage with the ribs or corrugations of the socket; but the outer end of the spindle is interiorly corrugated, as shown in Fig. 3. This portion of the thimble engages the plain cylindrical portion of the socket near the knob, and the ridges or ribs which engage therewith are provided with spaces at each side which permit these ribs to flatten out and expand on each side when the thimble is forced on the socket and avoids preliminary fitting. The part of the thimble which engages the corrugated portion of the socket is of such thickness that if it tightly engages the ribs it will yield by springing down between the ribs, which accomplishes the same result in respect to these portions of these two devices. The portion of the thimble engaging the inner cylindrical portion of the socket is chamfered or tapered to a thin edge, so that it can be easily compressed or upset on this portion of the socket if the socket should be smaller than the interior of the thimble at that point, and readily yield if it is larger. The sockets, as are

seen, abut against the hub of the latch and they are secured in place and in rigid contact with the same, pressing firmly against it by the following instrumentalities:

5 The spindle D is of polygonal form, as usual, and is provided at one end with a head and at its opposite end with a rounded portion screw-threaded. The sockets of both knobs have an opening therethrough of a
10 polygonal form loosely fitting the spindle. One of the knobs is provided with a circular aperture. The securing device for the spindle passes through this aperture and engages the end of the spindle. In Fig. 1 this secur-
15 ing device is a nut, which is elongated sufficiently to provide for an adjustment of the parts to suit the thickness of the various forms of latches, so that the sockets will in each case be pressed firmly against the hub
20 of the latch. This nut is most clearly shown in Fig. 5. This nut in this instance is shown as having the head *a* and the threaded portion *b*, the two parts being connected by a hollow or skeleton portion, which is the pre-
25 ferred form, as it can be cheaply made by casting in the same manner as most of the other parts of the device. The threaded portion of the nut is provided with teeth or cor-
30 rugations, and the outer end of the socket is also provided with teeth or corrugations, and a spiral spring which acts as a pawl to engage with these teeth is placed on the spindle be-
35 tween them. The nut turns freely in the knob to draw the sockets together upon the hub C, and the spring-pawl retains the nut when once seated from reverse movement and prevents the loosening of the parts. While the spring-pawl is strong enough to keep the parts in proper relation when once connected,
40 by applying a screw-driver to the nut it can be forced in the direction to unscrew it against the force of the spring, bending or distorting it, so as to release the parts.

The preferred construction of the body of
45 the skeleton nut is shown in the transverse sectional view, Fig. 6. In this view the hollow body of the nut is exteriorly of a true cylindrical form with a portion of the walls removed, the part removed from the walls of
50 the hollow portion being taken away at one side. This is done in order that the nut may be made of the least possible amount of metal and yet have the required strength. It also enables me to use a nut of very small
55 diameter, retaining all the effective qualities of other forms of these nuts. This construction also enables me to employ only a small opening through the knob, which is very desirable.

60 In Fig. 7 I have shown an equivalent or modified construction in which I employ a screw in place of the nut, the female screw or threads in this instance being in the spindle and the male on the fastening device. In
65 this instance I have shown the teeth or corrugations on the head of the screw and those

for engaging the opposite end of the spring on the spindle.

In Figs. 8, 9, and 10 I show a screw for se-
curing the spindle corrugated longitudinally. 70 When this is employed, I employ a locking-piece such as shown in Fig. 10, which rests within the circular opening in the knob in the relation to the screw shown in Fig. 9,
75 which is a section through a knob having the screw shown in Fig. 8 passing therethrough. On reversing the screw to withdraw it a rib of the screw engages the locking-piece and forces its opposite end against the wall of the
80 aperture in the knob holding against reverse movement, unless considerable force is applied to the screw through a screw-driver. The spring-pawl and the device shown in Fig. 10 I term "locking devices."

In order that the thimbles may be securely
85 held when once forced into position on the socket, I construct the thimbles with spurs I, which are bent over the end of the socket.

It will be understood that other devices may be employed in place of the spring; but
90 for certainty of operation and cheapness I prefer it to any other construction I have contemplated.

It will be seen that the thimbles are of a size to pass through the apertures in the roses,
95 and that I adjust the spindle and knobs upon the hub of the latch and not upon the door. The securing device for the spindle is in every instance removable from the knob without disturbing or removing other parts and rotates
100 freely within it in placing it in position and in removing it.

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

1. The combination, substantially as before
105 set forth, with a latch, of a knob and socket, a spindle having screw-threads, a retaining device for said spindle having screw-threads to engage those of the spindle and provided with teeth or corrugations, a coiled spring to
110 engage said teeth or corrugations, and means for engaging and holding the opposite end of said pawl.

2. The combination, with a door-latch one of the spindle-sockets of which is provided
115 with teeth or corrugations, of a spindle having a threaded portion, a nut having teeth or corrugations, and a spring-pawl for engaging the teeth or corrugations of both nut and socket, substantially as described. 120

3. In a latch, the combination, with a knob, of a socket having a rigid body provided with ribs or a corrugated outer bearing-surface, a thimble of softer metal having a plain interior surface for engaging the ribs of the
125 socket and adapted to be forced upon the socket by a movement parallel with said ribs or corrugations, substantially as described.

4. In a latch, the combination, with a knob, of a socket having a plain cylindrical portion
130 adjacent to the knob and a thimble of softer material having its end adjacent to said knob

interiorly corrugated to engage the cylindrical portion of the socket, substantially as described.

5 In a latch, the combination, with a knob, of a socket having a portion of its outer surface ribbed or corrugated and a plain cylindrical surface next adjacent to the knob, and a thimble of softer material having a plain interior surface to engage the ribbed portion
10 of the socket, and a corrugated surface to engage the plain cylindrical portion of the socket, substantially as described.

6. In a latch, the combination, with a socket having knob-engaging lugs, said lugs being
15 enlarged between their ends, of a wooden knob having straight-walled recesses to receive said lugs, substantially as described.

7. The combination, with the socket of a latch, of a thimble of softer metal adapted to
20 be forced upon the socket by longitudinal

movement, said thimble being provided with spurs for securing the thimble in place, substantially as described.

8. In a door-latch, the combination, with the latch, hub, and threaded spindle, of a
25 socket abutting against the hub and provided with a projection adapted to be forced into a recess in the knob, the knob, and an elongated nut revoluble in said knob and engaging the
30 outside of the same, the said nut having threads fitting the threads of the spindle, whereby the nut holds the socket against the hub and forms a supplemental means for holding the socket and knob together, substantially as described.

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Witnesses:

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