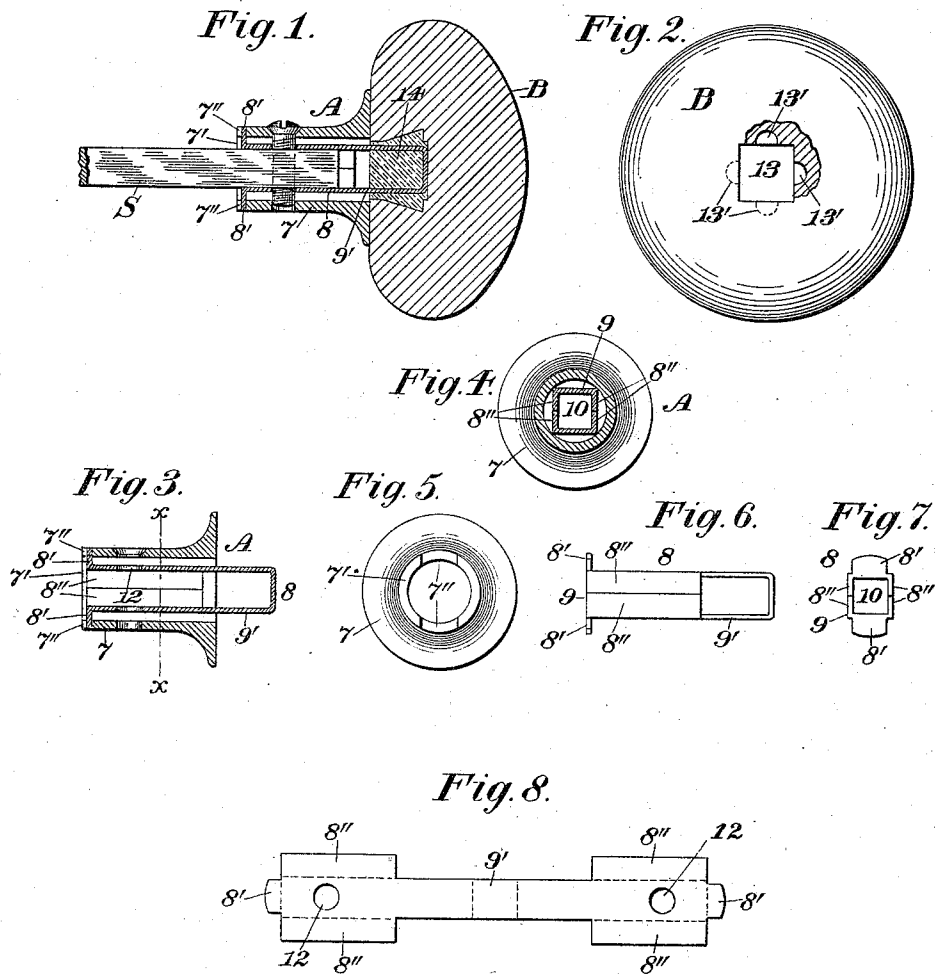


(No Model.)

S. P. COOLEY.
KNOB.

No. 535,050.

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Witnesses:

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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, SHERMAN P. COOLEY, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Knobs and Shanks Therefor, of which the following is a specification.

This invention relates to knob and shank attachments; and has for its object to furnish a superior article of that class, in which a tubular or shell portion of the shank may be formed separately from its core and secured to the knob by a central strengthening or core-member separate from said shell and connected with the knob so as to be held positively and directly thereby against movement with respect to the same.

In the drawings accompanying and forming part of this specification, Figure 1 is a sectional, side elevation of a knob-and-shank attachment constructed in accordance with my invention, and in operative connection with a knob-spindle. Fig. 2 is a sectional, side elevation of the knob of said attachment. Fig. 3 is a central, longitudinal section of the knob-shank thereof, showing the two parts of the shank assembled. Fig. 4 is a transverse section in line $x-x$, Fig. 3. Fig. 5 is a front elevation of the outer member or tubular shell of said knob-shank. Fig. 6 is a side elevation of the inner member or core of said knob-shank. Fig. 7 is a front elevation of said core. Fig. 8 is a plan of the blank for forming said core.

Similar characters designate like parts in all of the figures.

My knob-and-shank attachment comprises a two-part knob-shank, having an outer tubular shell, a core loosely mounted within the shell relatively thereto and extending beyond the same, and loosely-engaging locking members, such as co-operating lugs and recesses, formed upon said shell and core, respectively, and adapted to prevent lateral movement of the two parts of the shank relatively to each other, and also adapted to prevent longitudinal movement of the shell and the core in one direction relatively to each other; a knob co-operating with the shank, and having a socket in position and adapted to receive and inclose the free end of the core of the shank; and

holding means, such as a soft-metal filling, for engaging the core of the shank and rigidly securing it in the socket of the knob, to thereby prevent longitudinal movement of the shell and the core relatively to each other, all of which will now be more particularly described.

A designates, in a general way, a two-part knob-shank made according to my invention. The outer member or shell of said shank is shown herein at 7, as of tubular form and as having in its forward end, in the annular wall thereof, recesses or notches, such as 7', adapted, as hereinafter pointed out, to form locking members co-operating with complementary locking-devices carried by the core of the shank. This shell is adapted and intended to be made of any desired material, such as wrought steel, brass or bronze, that may be required for different styles of goods. It is one of the objects of my invention to provide a construction whereby this exposed or ornamental member of the shank may be made of wrought metal, so that it will have a smooth or drawn surface which may be nickel-plated or similarly finished much more economically than the cast-metal shanks heretofore employed.

The inner member or core of the knob-shank is designated herein in a general way by 8, and is shown as formed from a blank of sheet-wrought-material, preferably sheet-steel. This blank is shown herein as substantially of oblong form, and as comprising a main body having similar end-portions, 8', and also lateral, similar wings, 8'', disposed oppositely to each other and formed by the removal of the central edge-portions of the sides of the blank, as shown in Fig. 6. The flat blank is bent upon the dotted lines in Fig. 8, the wings 8'' inward, and the ears 8' outward, to form a core-piece such as illustrated in Figs. 1, 3, 6 and 7, said core having a substantially tubular, forward portion 9 rectangular in cross-section, and a rearward extension or loop, 9', having two open sides, as shown, formed by the cut away portions at the side edges of the blank. This core-piece is adapted to receive in its central, rectangular socket, shown at 10 in Fig. 4, a correspondingly shaped end of a knob-spindle, S, as illustrated in Fig. 1, a suitable aperture

being provided in one side of the core-piece, as at 12, and registering with a corresponding screw-hole in the outer shell, to receive a binding-screw for connecting said spindle with the two-part shank. The core-piece 8 is of such cross-sectional area as to fit snugly, but removably, within the socket of the tubular shell or outer member, and the ears 8' thereof are so positioned as to engage with the countersunk recesses 7'' of said shell. The thickness of said ears or lugs is preferably slightly less than the depth of the recesses in the shell, so that the wearing surfaces 7', of the tubular member will extend beyond said ears or locking members of the core and will bear against the usual knob-rose or plate upon the door, when the parts are assembled, and will thus protect said locking members 8' from wear.

The knob, designated in a general way by B, is shown herein as having a central socket, 13, corresponding in outline with the outline of the loop-portion 9' of the core-piece of the shank, and is also shown as having a plurality of laterally retreating recesses, 13', communicating with the socket 13. When said parts are assembled, that is, when the loop 9' of the assembled shank is placed in said socket of the knob, a permanent connection is established by running soft-metal, 14, into place through the usual hollow stem inserted in the core or inner member of the shank, said soft metal running around the loop-end of the core and into the laterally retreating recesses 13', as shown in Fig. 1, thereby holding the core firmly and fixedly in position with respect to said knob. It will be seen that by means of the rectangular socket in the knob co-operating with the rectangular loop lateral or torsional strains, in turning the knob, do not, as is the case in knobs having the shanks connected thereto by soft metal filling round sockets, tend to separate the parts in lateral direction, but that said lateral strains are taken up entirely by the longitudinal sides and connecting end of the loop 9', which are in constant engagement with the co-operating walls of the knob-socket. Moreover, it will be observed that the binding of the loop in the knob-socket by the soft metal holds the tubular shell firmly in position against the face of the knob, by means of the described interlocking engagement of the core and shell; and also that the locking together of the loop and the knob positively locks the two members of the shank itself at the same time against separation, for, by the abutment of the rear face of the shell against the face of the knob and the abutment of the ears or locking members 8', against the inner walls of the complementary locking-members or recesses 7'' of the shell, longitudinal movement of said shell is prevented; and by the abutment of the longitudinal meeting edges of the wings 8'' of the core against one another lateral movement of the parts, relatively to each other, is also prevented. A very firm securing means is thus obtained, whereby the two main parts, viz: the

shank and the knob, are not only positively connected relatively to each other, but each part of the shank is positively engaged with respect to the knob, and with respect also to the other member of said shank.

It will be obvious that according to my invention a knob-shank may be formed in two parts of entirely dissimilar materials, the inner or core-member of which shank is selected for strength and durability and, being hidden from view, does not require a high finish, but may be made of ordinary sheet-steel or other sheet-metal cut out and formed in the usual way by suitable dies and shaping devices; while the outer member, or shell, may be similarly formed of wrought material by presswork and nickel-plated or otherwise highly finished. I am thus enabled to provide a shank, each member of which is of the simplest possible construction, and each of which may be manufactured independent of the other at a minimum cost and of the desired or most suitable material for the purpose.

By means of the described organization of the locking members of the two parts of the shank, the ears or lugs upon the core will be protected for a long time from wear, and the shank maintained in perfect condition for use; and by this means said ears or lugs are prevented from wearing thin or wearing entirely off, which would of course tend to separate the tubular shell from the core. I consider within the scope of my invention, however, any means equivalent to the co-operating locking recesses and lugs described, and which will form a positive stop in longitudinal direction for preventing forward movement of the shell, while preventing also lateral movement thereof with respect to said core.

Having thus described my invention, I claim—

1. The combination with a two-part shank, comprising an outer tubular shell, a core loosely mounted within said shell relatively thereto and extending beyond the same, and loosely-engaging locking-members formed upon said shell and core respectively and adapted to prevent lateral movement of the same relatively to each other and also adapted to prevent longitudinal movement of said shell and core in one direction relatively to each other; of a knob having a socket adapted to receive and inclose the free end of said core; and means substantially as described for securing said core to said socket and thereby preventing longitudinal movement of said shell and core in the opposite direction relatively to each other, as set forth.

2. The combination with a two-part shank, comprising an outer tubular shell having recesses in the forward end thereof, a hollow core carried therein and having an open loop-end extending beyond the rear end of said shell and having also integral lateral ears or lugs at its forward end adapted to engage said recesses of the shell and prevent longi-

5 tudinal movement of the shell and core in one
direction relatively to each other; of a knob
having a socket coinciding in outline with
said loop-end of the core and adapted to re-
ceive and inclose the same and adapted also
to prevent turning of said knob and core rel-
atively to each other; and means substan-
tially as described for securing said loop-end
in said socket and thereby preventing longi-
tudinal movement of said shell and core in
the opposite direction relatively to each other,
as set forth.

15 3. In a knob-and-shank attachment, a tubu-
lar shell, a core loosely mounted therein and
extending beyond one end of said shell, and
laterally-extending stops integral with said
core and adapted to securely but loosely en-
gage the opposite end of the shell and hold said
shell, substantially as described.

20 4. In a knob-and-shank attachment, a tubu-
lar shell having longitudinal recesses in one
end thereof, a hollow rectangular core mount-
ed in said shell and having a loop-end extend-
ing beyond the opposite end of said shell,

and laterally extending stops carried by said 25
core and adapted to be seated in said recesses
of the shell, substantially as described.

5. In a knob-shank having an outer shell, a
core formed in one piece from wrought metal
and having a hollow body, lateral stops pro- 30
jecting from one end of said body and in posi-
tion and adapted to engage the shell of the
knob-shank, and a substantially-rectangular
loop extending longitudinally from the oppo-
site end thereof, substantially as described. 35

6. In a knob-shank, a hollow substantially-
rectangular core formed from sheet-metal and
having lateral ears projecting from one end
thereof, a body-portion having two opposite
sides formed by inwardly-turned wings, and 40
an open loop extending longitudinally from
said body at the end opposite said ears, sub-
stantially as described.

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Witnesses:

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