

G. A. SCHEHR.
KNOB ATTACHMENT.
APPLICATION FILED SEPT. 17, 1904.

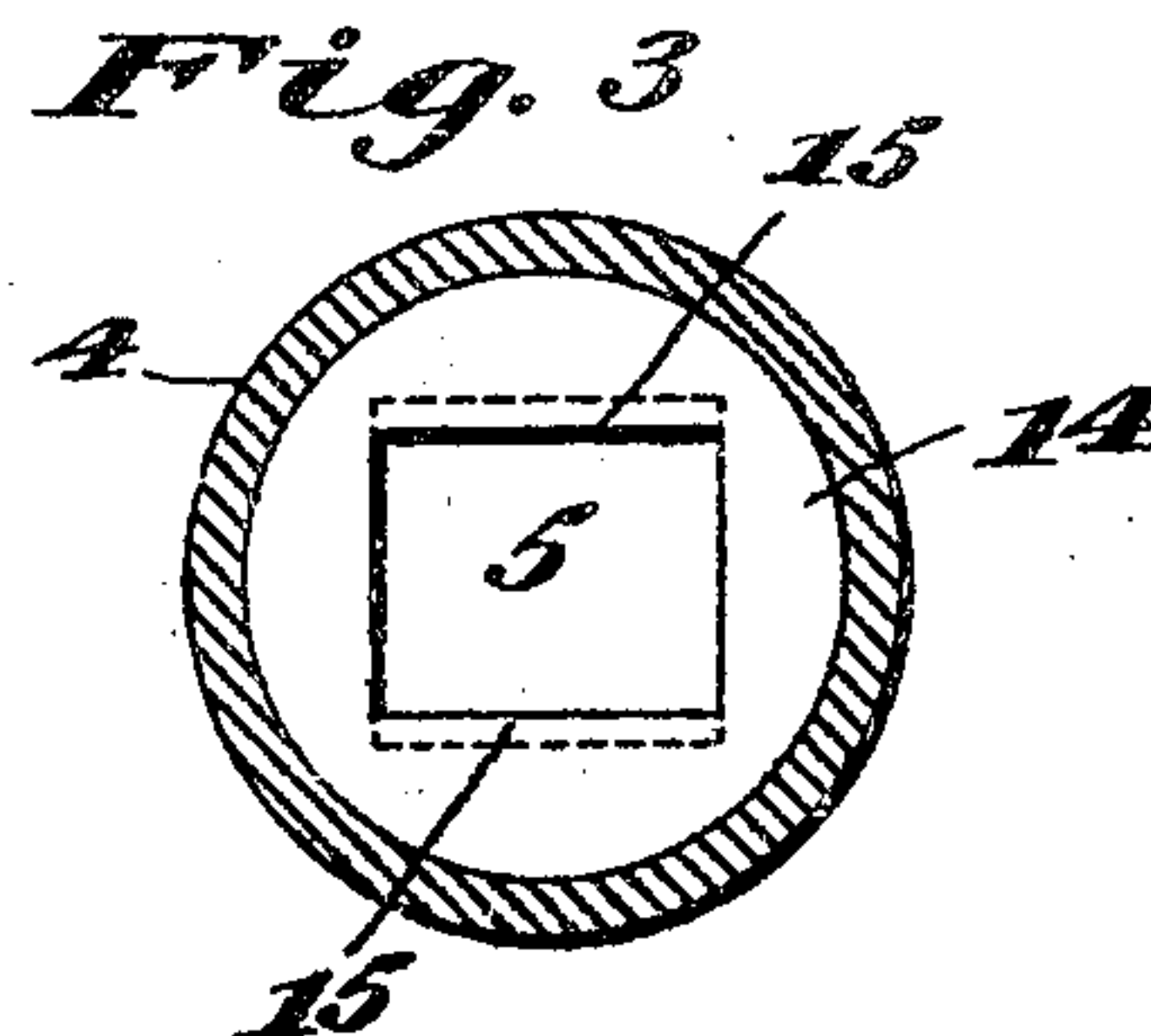
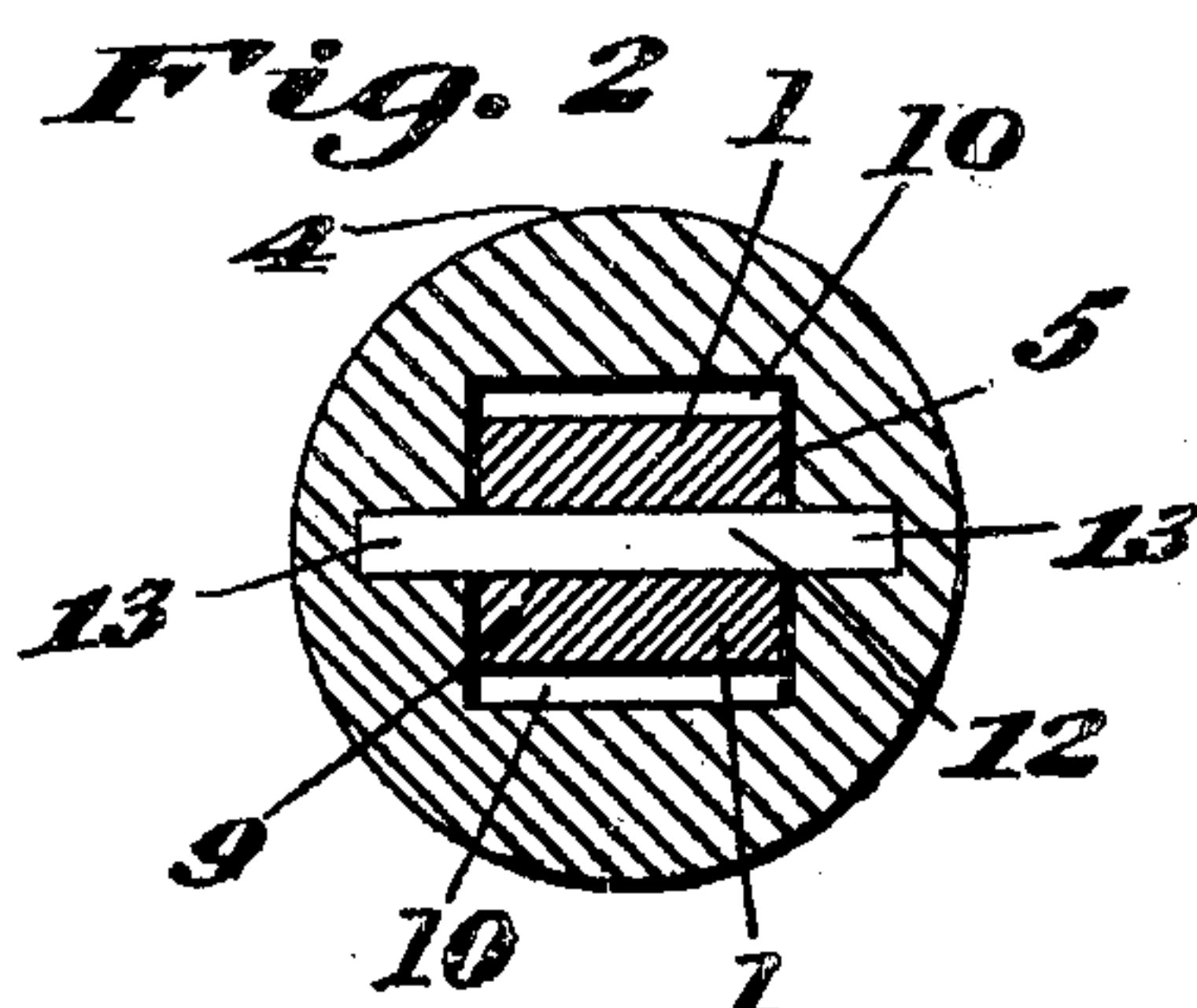
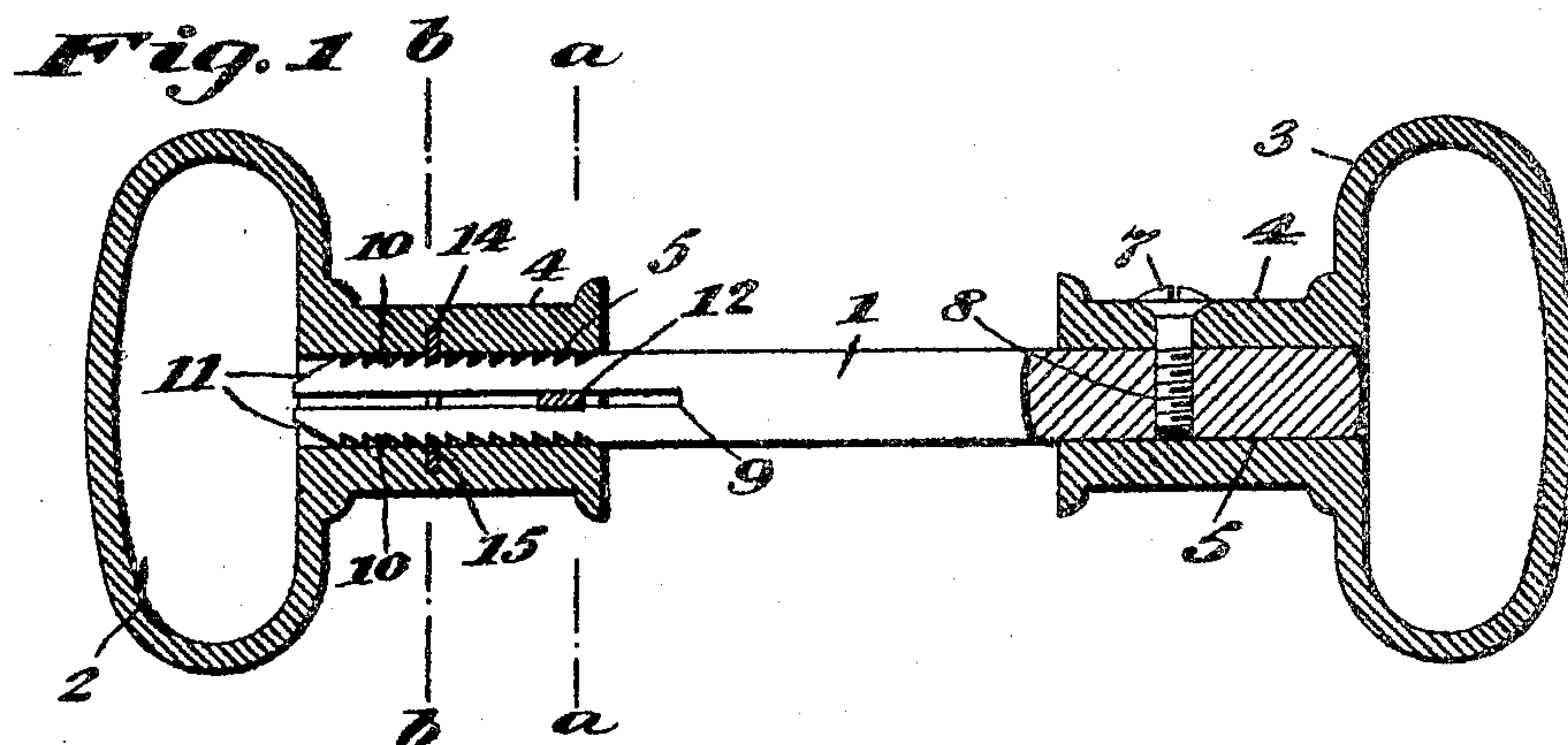


Fig. 4

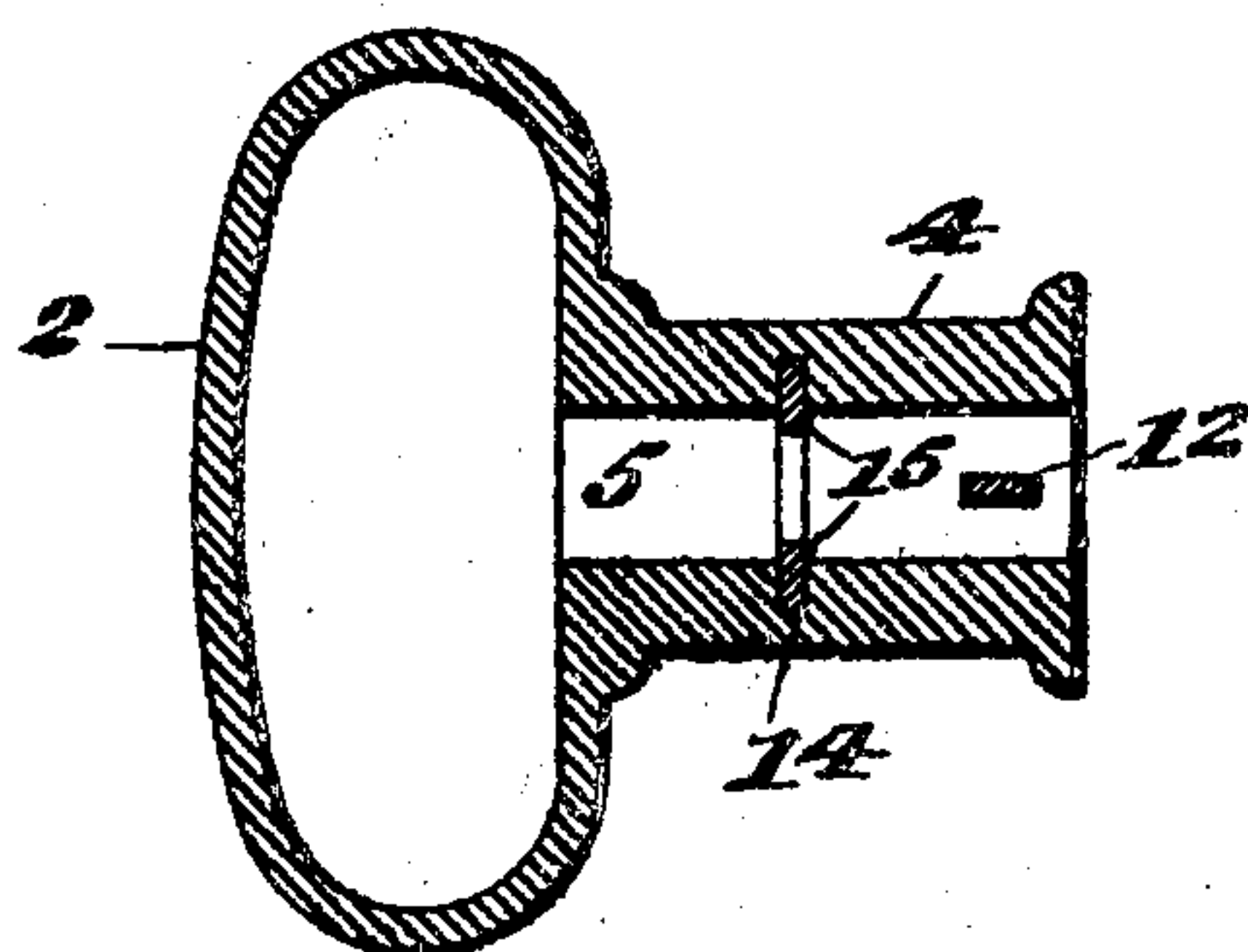
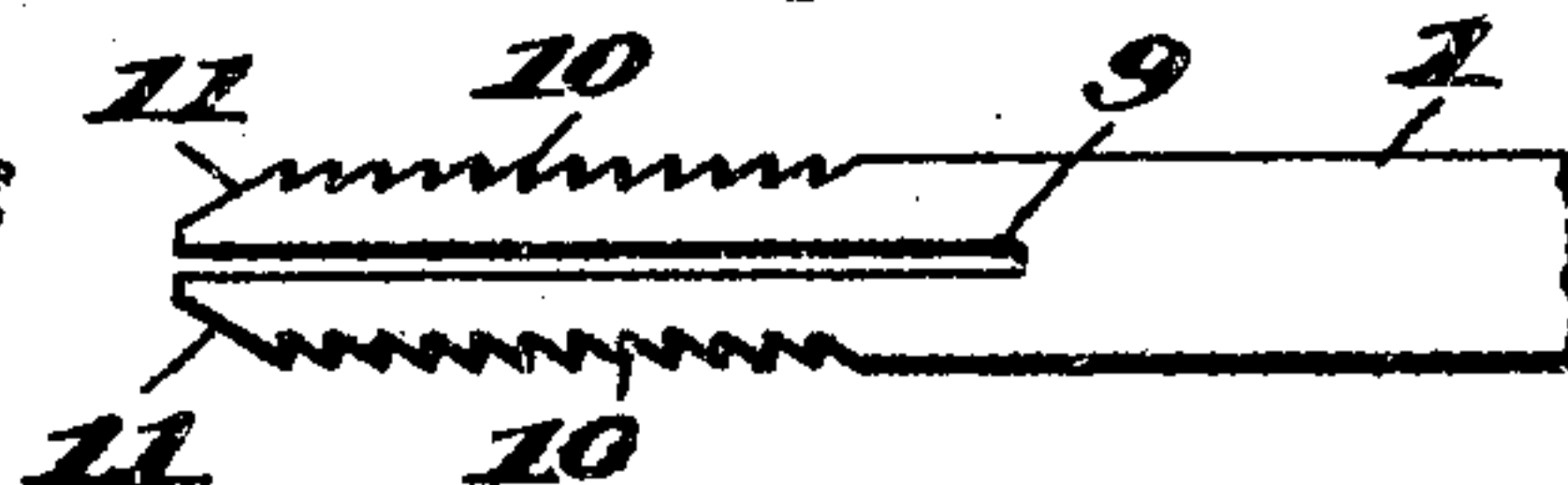


Fig. 5



Witnesses
William Schuchardt
L. W. Trivier

By

Inventor
George A. Schehr,
John Elias Jones,
Attorney

UNITED STATES PATENT OFFICE.

GEORGE A. SCHEHR, OF CINCINNATI, OHIO.

KNOB ATTACHMENT.

No. 797,918.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed September 17, 1904. Serial No. 224,814.

To all whom it may concern:

Be it known that I, GEORGE A. SCHEHR, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Knob Attachments, of which the following is a specification.

This invention relates to certain improvements in knob-attaching devices such as are employed for the attachment of door-knobs to their spindles; and the object of the invention is to provide a device of this character of a simple and inexpensive nature and of a strong and substantial construction having improved means for taking up looseness of the knob, whereby the employment of washers and like devices for this purpose is avoided without materially-increased cost.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved knob-attaching device whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a sectional elevation showing the embodiment of my improvements in a knob-spindle and its attached knobs. Fig. 2 is a transverse section taken through the knob-attaching device in the plane indicated by line *a a* in Fig. 1. Fig. 3 is a sectional view taken through the shank of one of the knobs in the plane indicated by line *b b* in Fig. 2 and showing certain details of construction of the elements of the knob-attaching device carried by the knob-shank. Fig. 4 is a sectional view taken axially through one of the knobs detached and showing certain features of the knob-attaching means carried thereby. Fig. 5 is a partial view showing one end portion of the knob-spindle with the elements of the knob-attaching means carried thereon.

In the views, 1 indicates a knob-spindle, which is made rectangular in cross-section in an ordinary way, and 2 and 3 indicate the knobs, held, respectively, on opposite ends of the spindle, each knob having its shank 4 provided with a squared bore 5 of dimensions adapted to snugly receive the squared ex-

tremity of the knob-spindle. As herein shown, one of the knobs, as indicated at 3, is held to the spindle by a well-known attaching means comprising a screw 7, passed through an opening in the knob-shank 4 and having threaded engagement, as shown at 8, with an opening in the end of the squared spindle.

The end of the spindle 1 opposite to that at which the screw 7 has engagement is provided with a centrally-arranged longitudinal slot or kerf 9, one end of which is open at the extremity of the spindle with which knob 2 has engagement, and by means of said central slot or kerf that end of the knob-spindle is formed into parallel forks or bifurcations. The opposite lateral surfaces of the forks or bifurcations at said end of the knob-spindle are provided with serrations 10 10, herein shown as in the form of ratchet-teeth, with inclined surfaces extended from the slotted extremity outward and toward that end of the spindle at which screw 7 has engagement and with straight surfaces extended in planes at right angles to the axis of the knob-spindle. The last ratchet-tooth or serration in each of the opposite series 10 10 has its inclined surface extended substantially to the opening of the slot or kerf 9 at the extremity of the spindle to produce cam-surfaces, as indicated at 11 11 in the drawings, and whose function will be hereinafter described. The knob 2 and its shank are both imperforate excepting the opening at the end of the bore of the knob-shank at which the spindle is received, the shank being unprovided with an opening such as is provided in the shank of knob 3 to receive the screw 7, and the attaching means at the knob 2 is wholly housed inside of the knob-shank, so that when the device is in use unauthorized access to said attaching means is effectively prevented.

The attaching means carried by the knob 2 according to my invention comprises a strip or piece 12 of metal extended transversely across the bore 5 of the knob-shank, with extremities 13 embedded in the metal of which said shank is formed and with its central portion which traverses the squared bore of the knob-shank adapted when the slotted end portion of the knob-spindle 1 is pushed within the bore of said shank to engage in and traverse said slot or kerf 9 to a position such as that shown in Fig. 1. The part 12 may be formed from a piece of plate or sheet metal or of flattened wire, as may be desired.

14 indicates a locking member located in the

bore of the knob-shank beyond the point of location of the part 12, and, as herein shown, this locking member 14 is formed of a disk of hard metal, the edge portions of which are embedded in the process of manufacture in the metal of which the walls of the knob-shank 4 is produced. The disk or member 14 is also provided with a rectangular opening the width of which in one direction corresponds with that of the bore 5 of the knob-shank, but when measured in a direction at right angles is of less width than the bore 5 when correspondingly measured, whereby the edges of the hard-metal disk at opposite sides of the opening therein are caused to project within the bore 5 of the knob-shank at opposite sides thereof, as clearly shown at 15 on the drawings, in position for engagement upon the ratchet-teeth or serrations 10 10 along the opposite lateral portions or forks at the slotted end of the knob-spindle.

In the operation of the improved knob-attaching device the knob 2 is applied to the slotted and serrated end of the knob-spindle in such a way that said spindle enters the bore 5 of the knob-shank, the transversely-extended part 12 entering and traversing the slot or kerf 9 of the spindle in such a way as to hold the forks or bifurcations of the spindle beyond said part 12 spread away from each other and in position for proper engagement of their ratchet-teeth or serrations 10 10 with the inwardly-projecting portions 15 15 of the locking member 14. The metal of which the knob-spindle is produced will of course have sufficient elasticity to permit the projecting portions 15 of the locking member to ride upon the inclined surfaces of the ratchet-teeth, so that said portions 15 may properly engage the straight surfaces of the teeth to lock the knob in place upon the spindle. The longer inclinations 11 of the ratchet-teeth or serrations at the ends of the series 10 10 insure the proper passage of the extremity of the spindle over the projecting portions 15 of the locking member, so as to render the operation of the device more convenient. When the knob 2 has been attached and pushed upon the spindle until the end of its shank comes into contact with the door plate or escutcheon, the engagement of the straight surfaces of the ratchet-teeth with the projecting portions 15 of the locking member will serve to hold the knob securely positioned, so that rattling and looseness is prevented, the resilience of the metal from which the spindle is produced being of course sufficient to hold the teeth or serrations 10 securely in engagement with the locking member. When the knob 2 has been attached to the spindle by means of the improved attaching device, it is evident that the removal of said knob from the spindle will be prevented, since the part 12 engaged in the slot or kerf 9 effectively prevents pressure being exerted upon the forks of the spindle to cause

them to approach sufficiently for the disengagement of their teeth or serrations from the locking member. This construction renders the device especially well adapted for use upon outside doors, the knob 2, which is locked to the spindle by the improved attaching means, being in such cases arranged at the outside of the door, and the knob 3, which is held to the spindle by means of the screw 7, being arranged inside the door. The improved knob-attaching device may, however, also be employed in connection with inside doors. When it is desired to remove the knobs and spindle for any reason, the knob 3 may be detached upon removal of its screw 7, and in case of damage or breakage of the knob 2 it is evident that the resilient forks or bifurcations at the slotted end of the spindle will be exposed upon breakage of said knob and may be conveniently pressed together so as to disengage their serrations from the locking member, whereupon said knob 2 may be removed from the spindle and replaced by an undamaged one. When after a time the knobs become loose by reason of wear, it is evident that all that is necessary is to press the knob-spindle 1 farther within the bore of the shank of knob 2, so that the next tooth or serration in series 10 10 may be engaged with the projections of the locking member, whereby such wear will be taken up and the knob will be held locked to the spindle.

The improved knob-attaching means constructed as above described is of an extremely simple and inexpensive nature and is especially well adapted for use by reason of the security with which the knob 2 is held to the spindle, whereby the knob cannot be stolen or removed from the spindle to permit tampering with the lock and also by reason of the ease with which it may be adjusted to take up wear.

It will also be obvious from the above description that the device is capable of considerable modification without material departure from the spirit and principles of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts of the device herein set forth in carrying out my invention in practice.

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

1. In a knob-attaching device, the combination of a knob-spindle having a forked end portion, a knob having a shank with imperforate walls and provided with a bore open at the end of the shank to receive the forked end portion of the spindle, coacting engaging devices carried respectively by the forks of the spindle and the knob-shank and adapted, when engaged, to lock the spindle to the knob and a metal strip the ends of which are embedded in the opposite walls of the knob-

shank and the central part of which is extended across the bore of the knob-shank for engagement between the forks of the spindle to move said forks and engage the devices carried thereon with the devices in the walls of the knob-shank.

2. In a knob-attaching device, the combination of a knob-spindle having at one end resilient forks provided with serrations, a knob provided with a shank having a bore to receive the forked end of said spindle and having in its bore a locking member provided with a projecting portion engageable with the serrations of the spindle, and a strip the ends of which are embedded in the walls of the knob-shank and the central portion of which is extended across the bore of the knob and engageable between the forks of the spindle to hold said locking member engaged with the serrations of the spindle.

3. In a knob-attaching device, the combination of a knob-spindle having at one end resilient forks, one of which is provided with serrations, a knob having a shank provided with a bore to receive said spindle, a locking member formed of a hard-metal disk the edge portions of which are embedded in the walls of the knob-shank and the central portion has an opening alined with the bore of the knob-shank with an edge portion extended in the knob-shank for engagement with the serrated

fork of the spindle and a device engageable between the forks of the spindle for holding the serrated forks engaged with the locking member.

4. In a knob-attaching device, the combination of a knob-spindle having at one end resilient forks provided with serrations, a knob having a shank provided with a bore to receive the knob-spindle, a locking member formed of a hard-metal disk, the edge portions of which are embedded in the walls of the knob-shank and the central portion of which has an opening alined with the bore of the knob-shank, portions of said disk at opposite sides of the opening being arranged to project within the bore of the knob-shank for engagement with the serrations of the resilient forks of the spindle and a metal strip extended across the bore of the knob-shank with ends embedded in the walls thereof and with opposite flat sides engaged on the inner surfaces of the forks of the spindle to hold the serrations thereof engaged with the oppositely-arranged projecting edge portions of the locking member.

Signed at Cincinnati, Ohio, this 12th day of September, 1904.

GEORGE A. SCHEHR.

Witnesses:

JOHN ELIAS JONES,

WILLIAM SCHUCHARDT.