

E. L. TEICH.
 KNOB ATTACHMENT.
 APPLICATION FILED OCT. 7, 1909.

950,735.

Patented Mar. 1, 1910.
 2 SHEETS—SHEET 1.

Fig. 1.

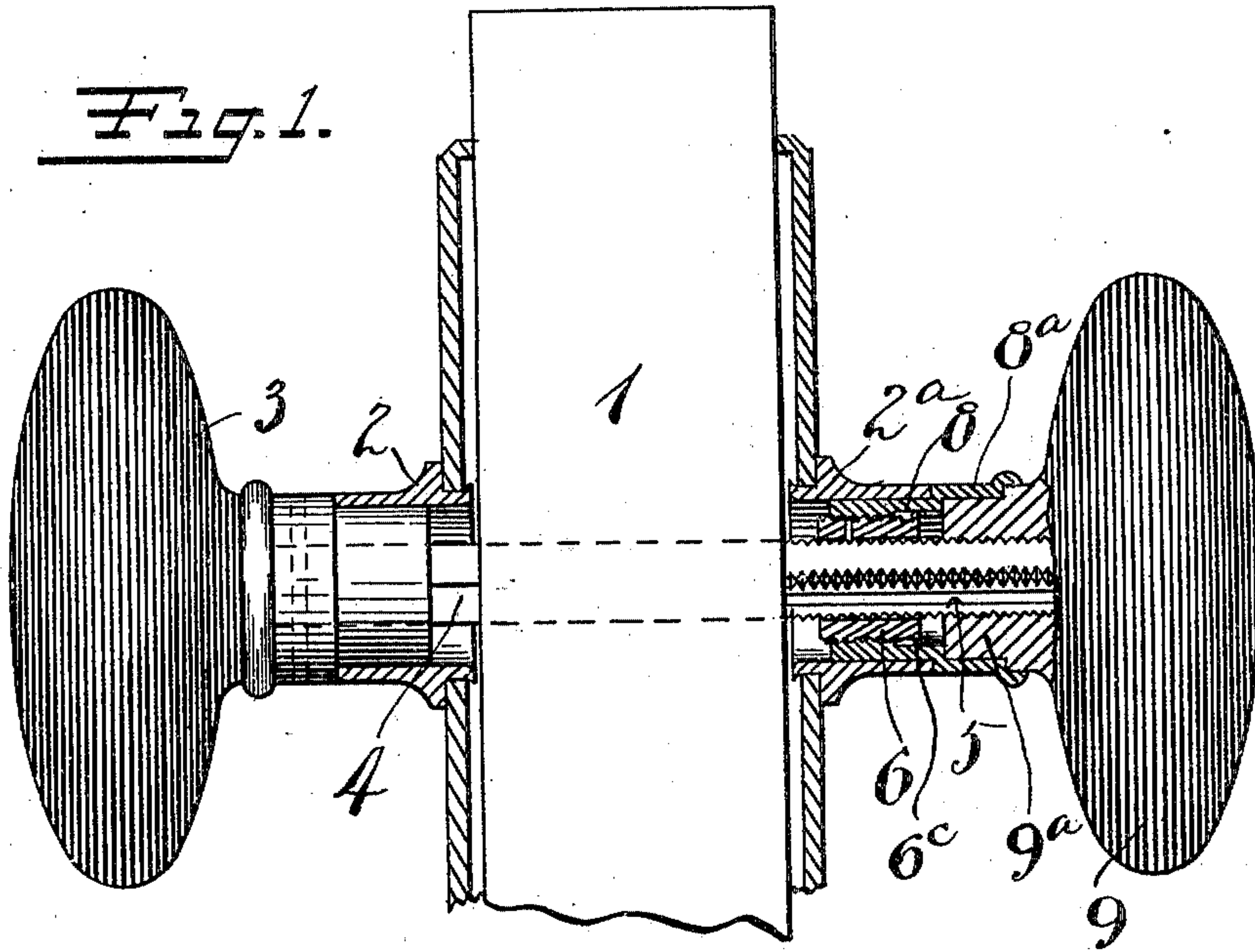


Fig. 2.

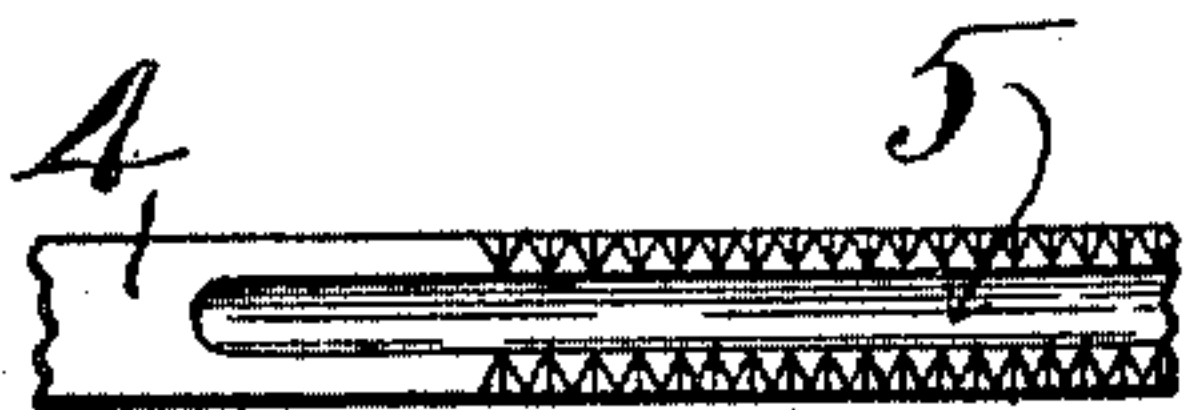


Fig. 4.

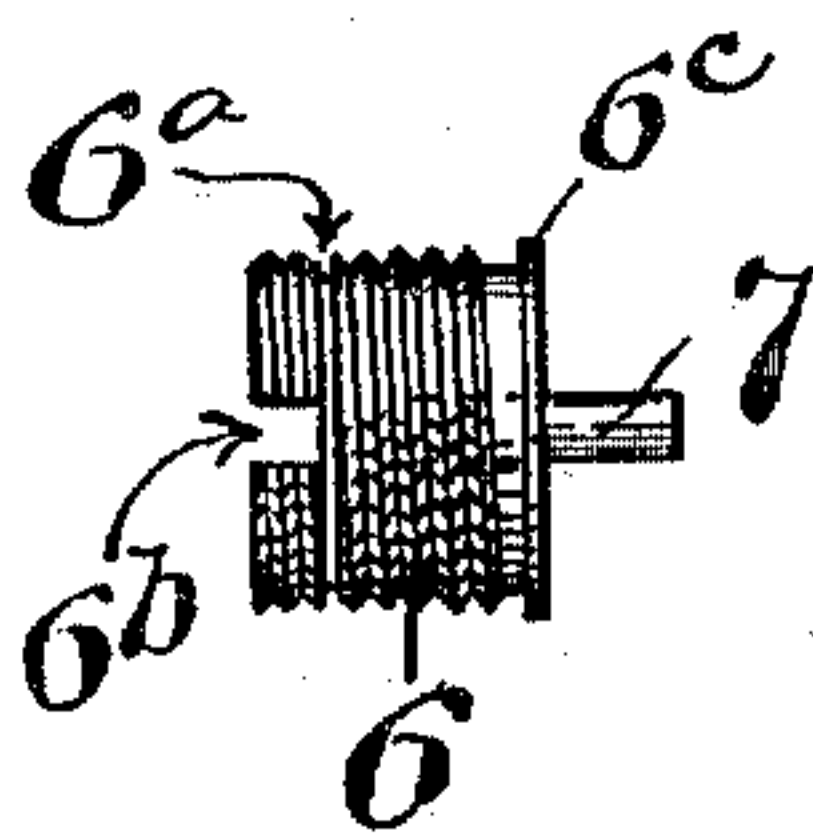


Fig. 6.

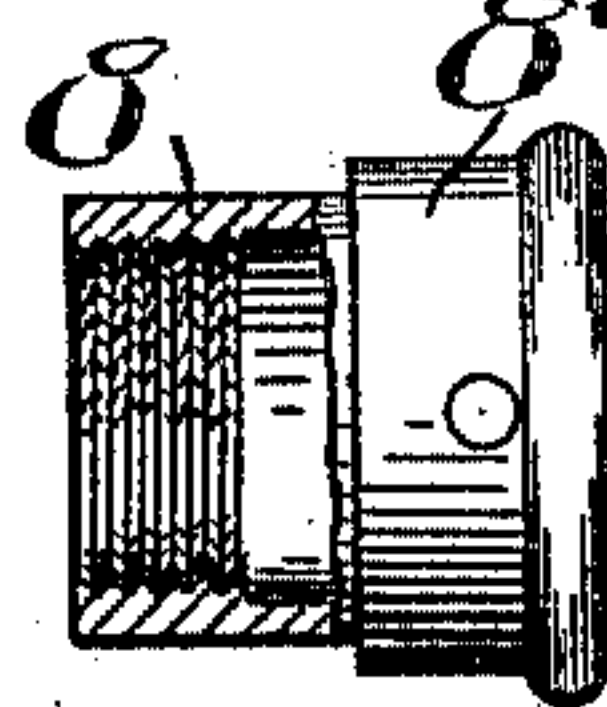


Fig. 3.

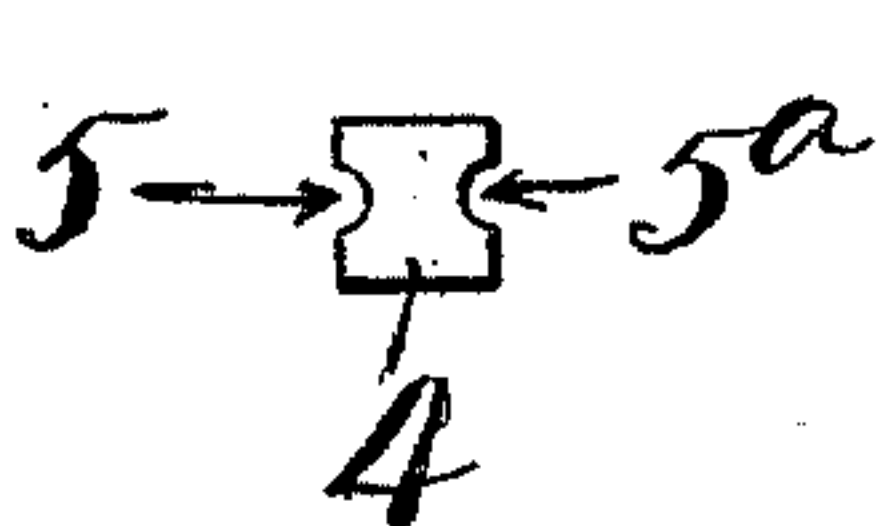


Fig. 5.

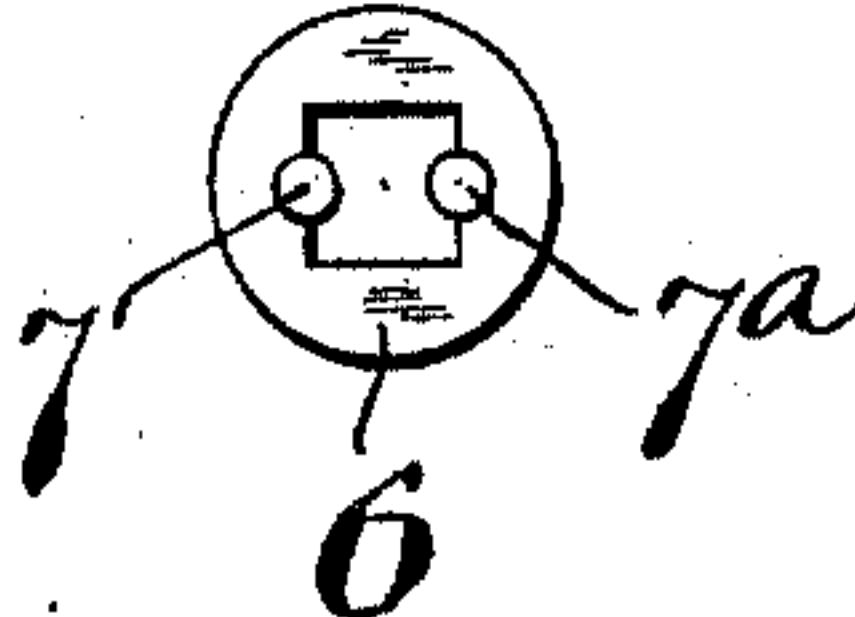


Fig. 7.

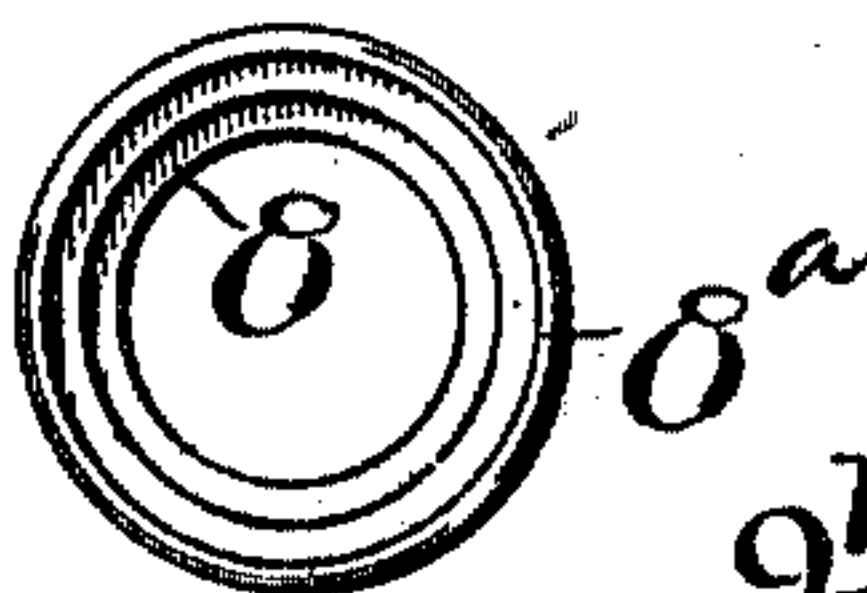
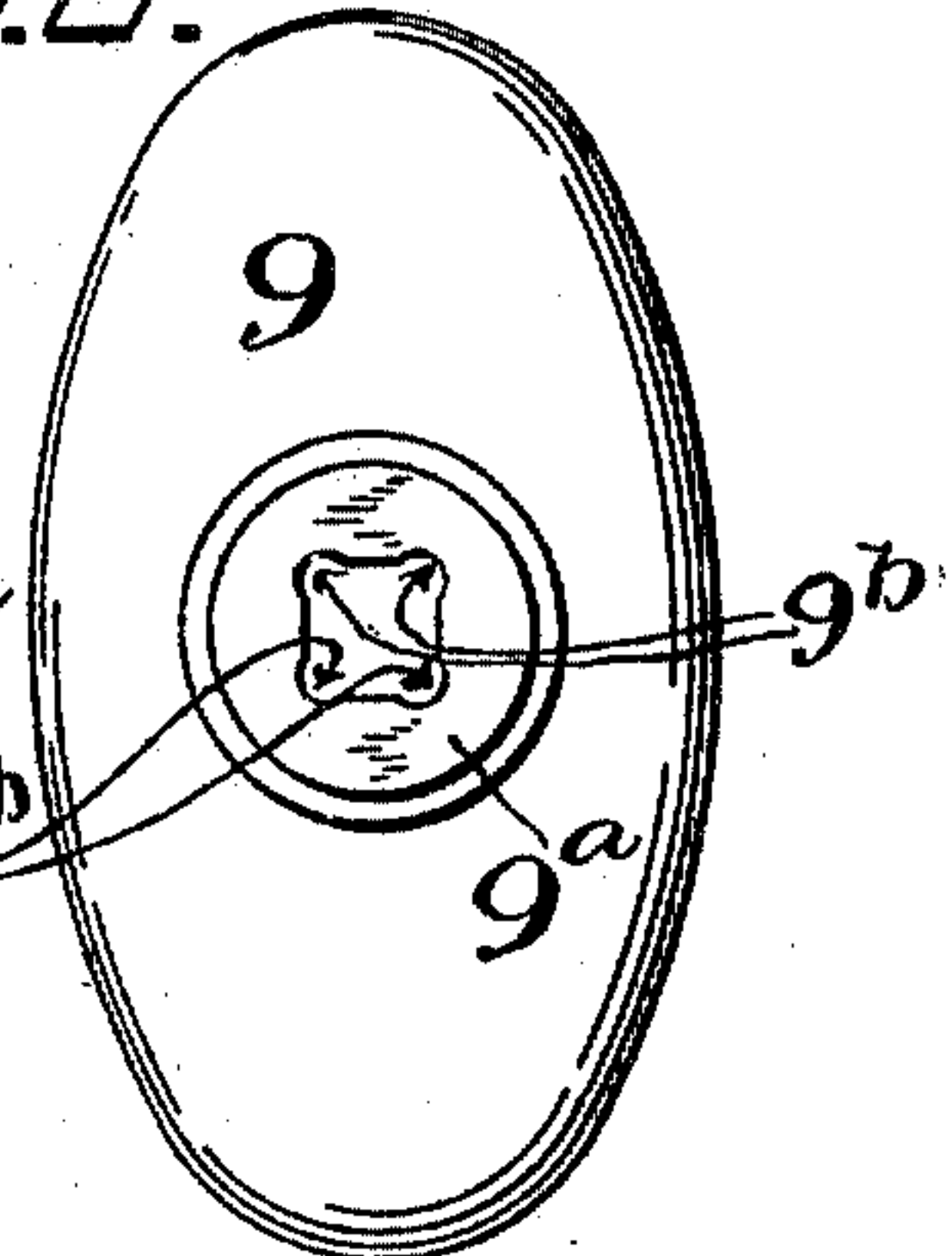


Fig. 8.



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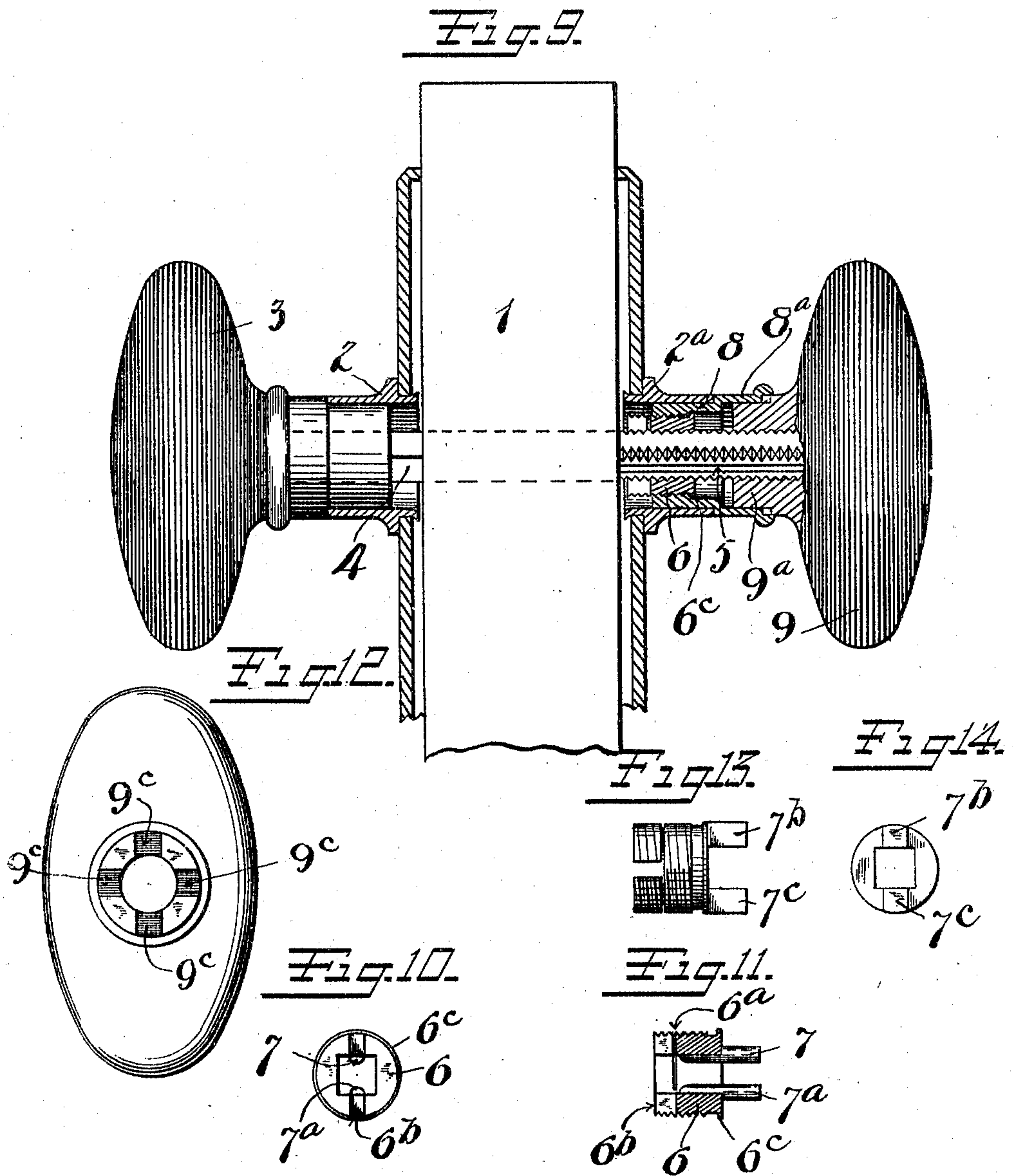
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2 SHEETS—SHEET 2.



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KNOB ATTACHMENT.

950,735.

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To all whom it may concern:

Be it known that I, ERNEST L. TEICH, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Knob Attachments, of which the following is a full, clear, and exact description.

My invention relates to improvements in "screwless" knobs, so-called, the object being to provide a simple and effective mechanism whereby a knob may be accurately adjusted upon a spindle and fixed in said position.

In the accompanying drawings, Figure 1 is in the main a sectional view of a pair of knobs mounted on a spindle; Fig. 2 is a view of one end of the spindle detached; Fig. 3 is an end view thereof; Fig. 4 is a side elevation of the coupling and adjusting member; Fig. 5 is an end view thereof; Fig. 6 is a side elevation, partly in section, of an actuating sleeve for the coupling; Fig. 7 is an end view thereof; Fig. 8 is a view of the inner end of the "screwless" knob, detached; Fig. 9 is a view similar to Fig. 1, but showing the parts as they appear when the knob is uncoupled; Fig. 10 is an end view of the coupling shown in Fig. 4; and, Fig. 11 is a longitudinal section of the parts shown in Fig. 10. Figs. 12, 13 and 14 illustrate modifications.

1 represents conventionally a portion of a door, to which the knob is to be applied.

2—2^a are rose bearings for the knob.

3 is a knob fixed on one end of the spindle 4. The opposite end of the spindle, which is square in cross-section, is screw-threaded at its corners, as indicated in Figs. 1 and 2. The threaded end of the spindle is also provided with one or more grooves 5—5^a, arranged between the corners of the spindle and extending longitudinally thereof.

6 is what I term a coupling and adjusting member. This coupling 6 has an external cam thread, as shown in Fig. 4, and has a square bore, as shown in Fig. 5 so as to slidably fit upon the spindle 4.

7—7^a are pins carried by the coupling 6, one side of each pin being arranged to slide in the grooves 5—5^a on the spindle. The ends of the pins 7—7^a project beyond the outer end of the coupling 6, as best seen in Fig. 4.

8 is a coupling actuator threaded inter-

nally to fit the thread on the coupling 6. The outer end of the actuator 8 is arranged to overstand a part of the shank 9^a of the knob 9. The shank 9^a of the knob has a threaded bore adapted to the spindle 4. Each corner of this bore is cut back at 9^b, as indicated in Fig. 8, interrupting the threads and affording clearance for the ends of the pins 7—7^a, when the knob stands in the position hereinafter described. The part 8^a of the coupling actuator is always accessible for the reception of a suitable tool, such as a spanner or wrench, whereby said actuator may be turned. As shown, the outer end of the coupling actuator is slightly larger than the threaded portion thereof, and abuts against the rose 2^a. The coupling 6 preferably has a transverse cut extending partly through and indicated at 6^a, Fig. 4.

6^b is a cross-cut at the inner end of the clutch, said cut 6^b intersecting the transverse cut 6^a at one point, whereby the partially severed inner end of the clutch or coupling may be sprung out to give a snug frictional fit of said actuator on said clutch when the parts are assembled, to prevent accidental or unauthorized displacement.

The operation of the foregoing parts is as follows: To apply the knob, the threaded end of the spindle 4 thereon is passed through the rose bearings 2—2^a. The coupling and the coupling actuator are then applied, the latter being carried by the former. These parts are slid freely on to the end of the spindle 4. In applying these two last mentioned parts, care should be taken that the coupling is screwed well forward in the actuator 8, as shown in Fig. 9 and preferably until the shoulder 6^c of the coupling abuts against a shoulder within the coupling actuator adjacent to the internal threads. The knob 9 is then slid on to the spindle.

When the knob has been advanced to the desired position, it is given a partial turn (in this particular instance one-eighth of a turn) so as to bring two of the recesses 9^b within the knob shank in line with the pins 7—7^a. By pulling out slightly on the sleeve, the ends of the pins 7—7^a will slightly enter two of the recesses 9^b so as to hold the knob against turning on the spindle. The operator may then revolve the actuator 8 in a direction to draw the coupling toward the knob. This causes the pins 7—7^a to move farther into the knob shank, thereby securely

holding said knob shank from turning on the spindle, said pins operating as keys or splines. By continuing to turn the actuator 8, the coupling is drawn up until the proper amount of looseness is obtained to allow the knob to turn freely. While in Fig. 1 I have shown the coupling as spaced away slightly from the end of the knob shank, the actuator 8 may be turned until the coupling bears directly against the same, when, if it is found that the knobs are too tight to be turned freely, said actuator may be moved back to the desired degree to release the endwise pressure of the knob shanks against the rose bearings 2—2^a, thus permitting said knobs to turn easily. It is obvious that it is the threaded engagement between the knob and the corners of the spindle 4 that prevents the knob 9 from being pulled off, the threads of said parts respectively being held in mutual engagement so long as the pins 7—7^a stand within the recesses 9^b of the knob shank. In a broad sense, it will be seen that the coupling and adjusting member 6, together with its pins 7—7^a operates as a clutch intermediate the spindle 4 and the "screwless" knob 9.

In the modified form shown in Figs. 12, 13 and 14, the coupling device, instead of having the pins 7—7^a at one end, is provided with what may be termed "bump clutch" projections 7^b—7^c. In this form the end of the knob shank should, of course, have recesses in the end thereof, as indicated at 9^c—9^c, Fig. 12, to receive the clutch members 7^b—7^c. In the particular form shown in Fig. 12, two sets of recesses 9^c are shown and would be preferably employed. The operation of the modified form would be substantially similar to the operation of the device first described, the modified knob and the modified coupling shown in Figs. 12 to 14 being in all other respects than those mentioned similar to the construction first described.

In all of the couplings it will be observed that the purpose of slitting the end of the coupling is to permit said slitted end to be expanded so that the threads will frictionally engage the threads of the actuator with sufficient snugness to prevent turning of the adjusting sleeve accidentally or unauthorizedly.

What I claim is:

1. A screwless knob construction, including a spindle square in cross-section and having threaded corners, a knob adjustable thereon, a coupling slidable but non-rotatable thereon, a coupling actuator screw-threaded on said coupling and overstanding the shank of the knob, and key devices carried by one of said parts and arranged to hold the knob from rotation on the spindle when said parts are in one position, leaving the knob free to be rotated when said parts are in another po-

sition, and interrupted threads on the bore of the knob shank arranged to engage the threaded corners of the knob spindle when the parts are assembled.

2. A screwless knob construction, including a spindle square in cross section and having threaded corners at one end, a knob having a bore to receive said spindle, said bore being notched to interrupt the threads, a coupling slidable but non-rotatable on the spindle, means to move said coupling longitudinally on the spindle, and a key carried by the coupling and arranged when in one position to lock the knob against rotation on the spindle.

3. A screwless knob construction, comprising a spindle square in cross section and having threaded corners at one end, a knob having a bore adapted to said spindle, said knob being adjustable thereon, interrupted threads on the inner wall of the bore arranged to engage the corner threads on the spindle, a coupling slidable on the spindle but non-rotatable thereon, a key carried by the coupling, and means to move said coupling after the knob has been adjusted upon the spindle to shift said key into locking engagement between said knob and spindle to prevent independent rotation of said parts.

4. A screwless knob construction, comprising a spindle square in cross section and having threaded corners at one end, a knob having a bore adapted to said spindle, said knob being adjustable thereon, interrupted threads on the inner wall of the bore arranged to engage the corner threads on the spindle, a coupling slidable on the spindle but non-rotatable thereon, a key carried by the coupling, and means to move said coupling after the knob has been adjusted upon the spindle to shift said key into locking engagement between said knob and spindle to prevent independent rotation of said parts, said coupling moving means surrounding the spindle and overstanding a portion of the inner end of the knob.

5. A screwless knob construction including a spindle square in cross section and having threaded corners at one end, a knob having a threaded bore corresponding to the threads on the corners of said spindle, said knob being arranged for adjustment on said spindle, a coupling member slidable but non-rotatable on said spindle, means carried at the outer end of said coupling arranged to engage the inner end of the knob shank to prevent the latter from turning on said spindle, and a coupling actuator cooperating with said coupling and so constructed and arranged that rotation of said actuator will move said coupling into or out of engagement with said knob shank.

6. In a screwless knob construction, a spindle, a knob adjustable thereon, cooperating screw-threads on said parts, a coupling

slidable but non-rotatable on said spindle, a coupling actuator, a threaded engagement between said actuator and said coupling, a part of the threaded portion of said coupling being slitted to weaken the same whereby the weakened portion may be sprung out to engage the coupling actuator with the desired degree of friction.

7. A screwless knob construction including a spindle square in cross section, a knob movable to and fro upon said spindle, a threaded connection between said knob and spindle, a coupling member slidable, but non-rotatable, upon said spindle, a rotatable coupling actuator cooperating with said coupling and arranged to move the latter to and fro on the spindle when said actuator is rotated, and means to lock said knob against rotation on the spindle, said means being controlled by said coupling.

8. In a device of the character described, a knob spindle of irregular cross section and threaded at its outer end, a knob adapted to the threaded portion of said spindle, a clutch slidable but not rotatable on said spindle, said clutch being arranged to interlock with the knob when in one position, and means for operating said clutch to slide the same to and from the locking position, said operating device making operative connection with said knob.

9. In a device of the character described, a spindle of irregular cross section threaded at its outer end, a knob having a hollow shank threaded upon said spindle, a clutch slidable but not rotatable on said spindle and arranged to lock the knob against rotation on the spindle, and rotatable means for moving said clutch to and fro to lock and unlock said knob.

10. In a device of the character described, a spindle of irregular cross section threaded at its outer end, a knob having a hollow shank threaded upon said spindle, a clutch slidable but not rotatable on said spindle and arranged to lock the knob against rotation on the spindle, rotatable means for moving said clutch to and fro to lock and unlock said knob, and means to hold said clutch operating device against displacement.

11. In a device of the character described, a spindle, the outer end of the same being threaded, a knob having a threaded portion adapted to the threaded part of the spindle, a clutch slidable but not rotatable on said spindle, said clutch being arranged to en-

gage and hold the knob against rotation on said spindle, and means movable independently of the clutch for shifting said clutch into and out of a knob locking position said clutch shifting means being rotatably mounted relatively to the axis of the spindle.

12. In a device of the character described, a spindle, the outer end of the same being threaded, a knob having a threaded portion adapted to the threaded part of the spindle, a clutch slidable but not rotatable on said spindle, said clutch being arranged to engage and hold the knob against rotation on said spindle, and means for shifting said clutch into and out of a knob locking position, comprising a sleeve rotatably mounted and a cam connection between said operating sleeve and clutch.

13. In a device of the character described, a spindle, the outer end of the same being threaded, a knob having a threaded portion adapted to the threaded part of the spindle, a clutch slidable but not rotatable on said spindle, said clutch being arranged to engage and hold the knob against rotation on said spindle, and means for shifting said clutch into and out of a knob locking position, comprising a sleeve rotatably mounted and a spiral cam connection between said operating sleeve and clutch.

14. In a device of the character described, a spindle, a knob, a screw-threaded connection between said knob and spindle, a clutch slidable but not rotatable on said spindle, and arranged, when in one position, to hold the knob from turning on the spindle, a device for moving said clutch, said device comprising a sleeve surrounding said clutch, a portion of said sleeve being exposed for manual engagement, another portion making operative connection with said clutch.

15. In a device of the character described, a spindle, a knob, a screw-threaded connection between said knob and spindle, a clutch slidable but not rotatable on said spindle, and arranged, when in one position, to hold the knob from turning on the spindle, a device for moving said clutch, said device comprising a sleeve surrounding and operatively connected with said clutch, a portion of said sleeve being exposed for manual engagement, the exposed portion of said sleeve overstanding a portion of the knob.

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