

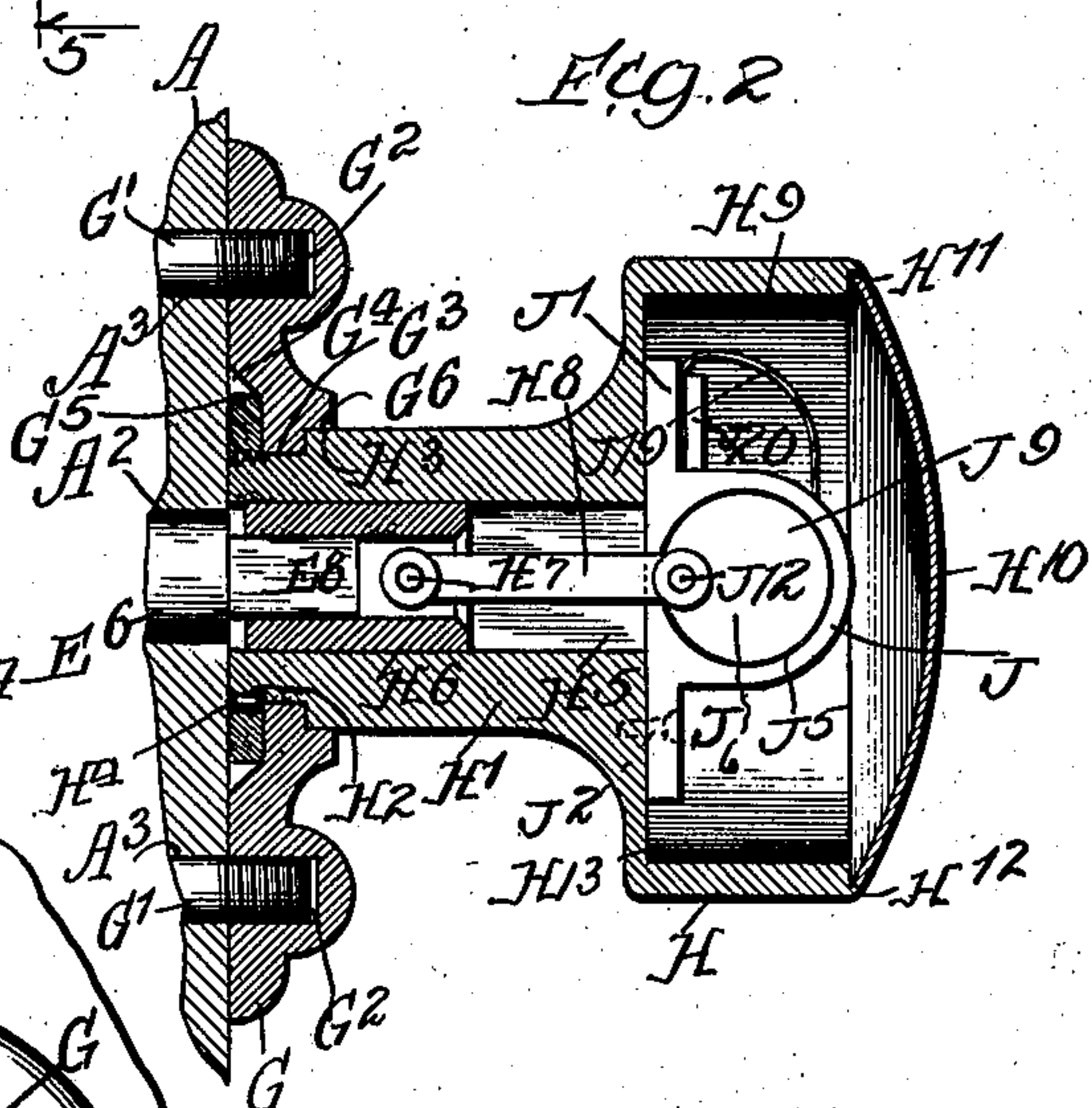
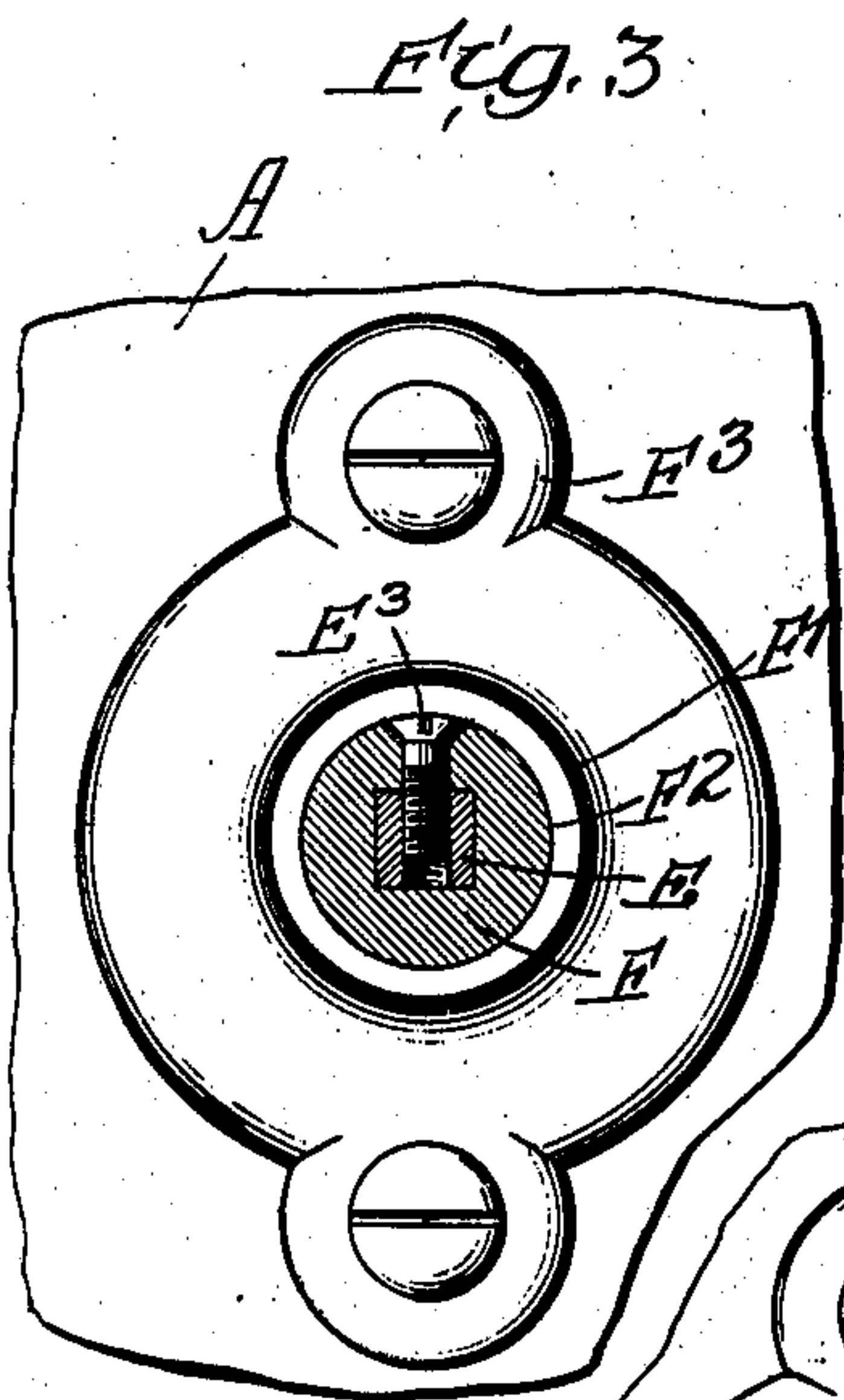
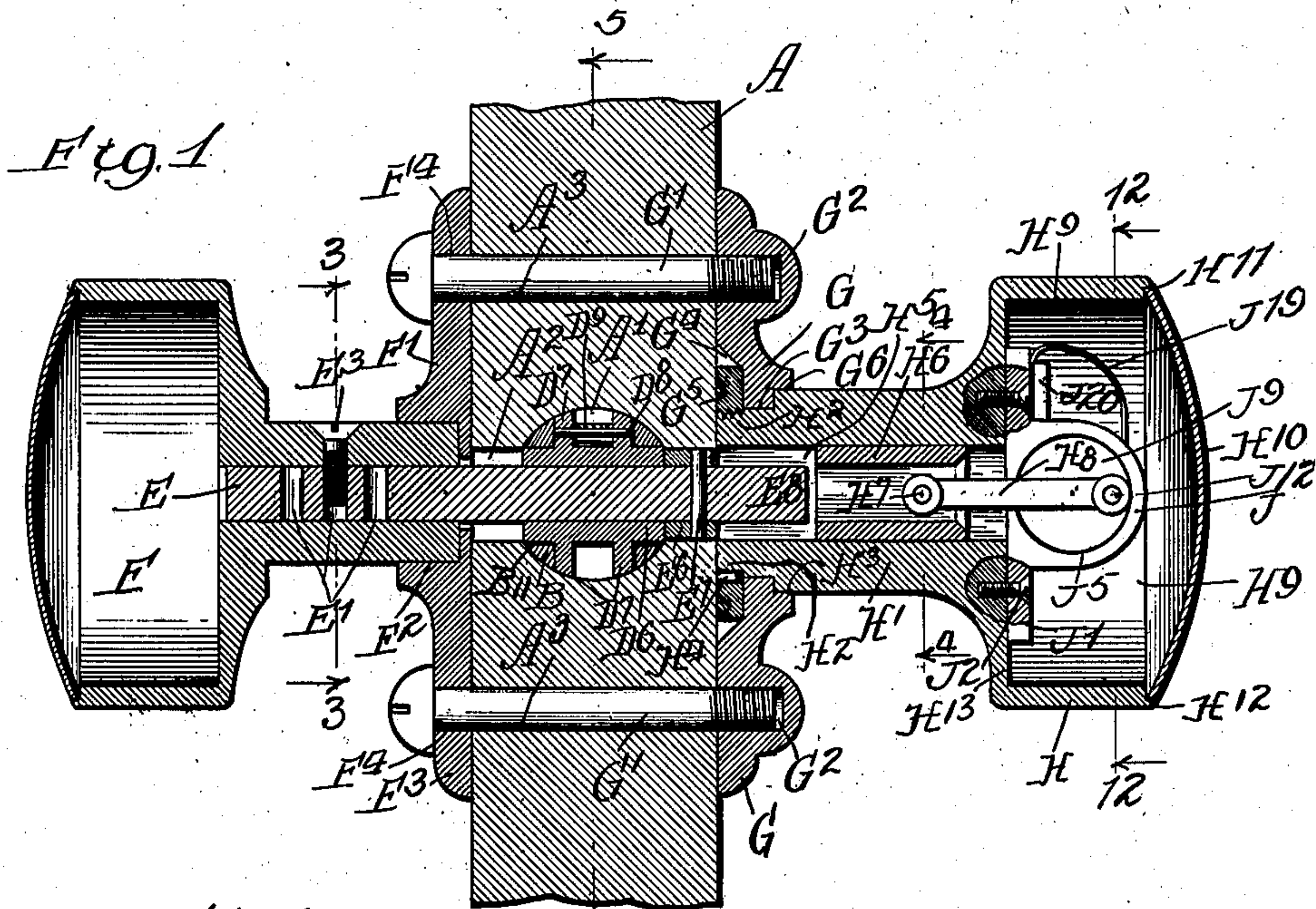
No. 854,847.

PATENTED MAY 28, 1907.

H. SCHMITT.  
LATCH LOCK.

APPLICATION FILED JULY 9, 1906.

3 SHEETS—SHEET 1.



Witnesses  
Harry White  
Ray White.

Inventor  
Henry Schmitt.

By Morgan & Kulnistein Attys



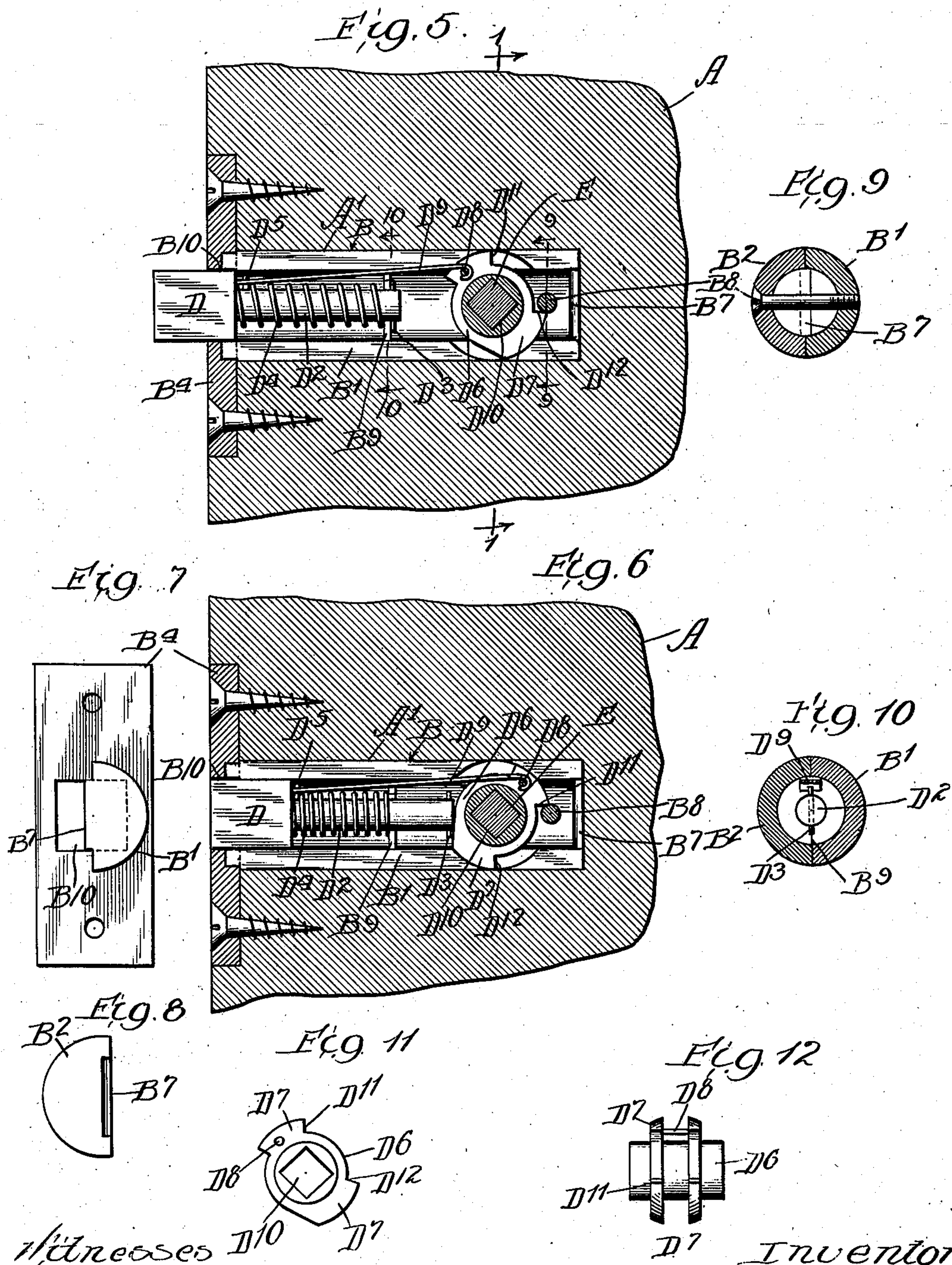
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 13

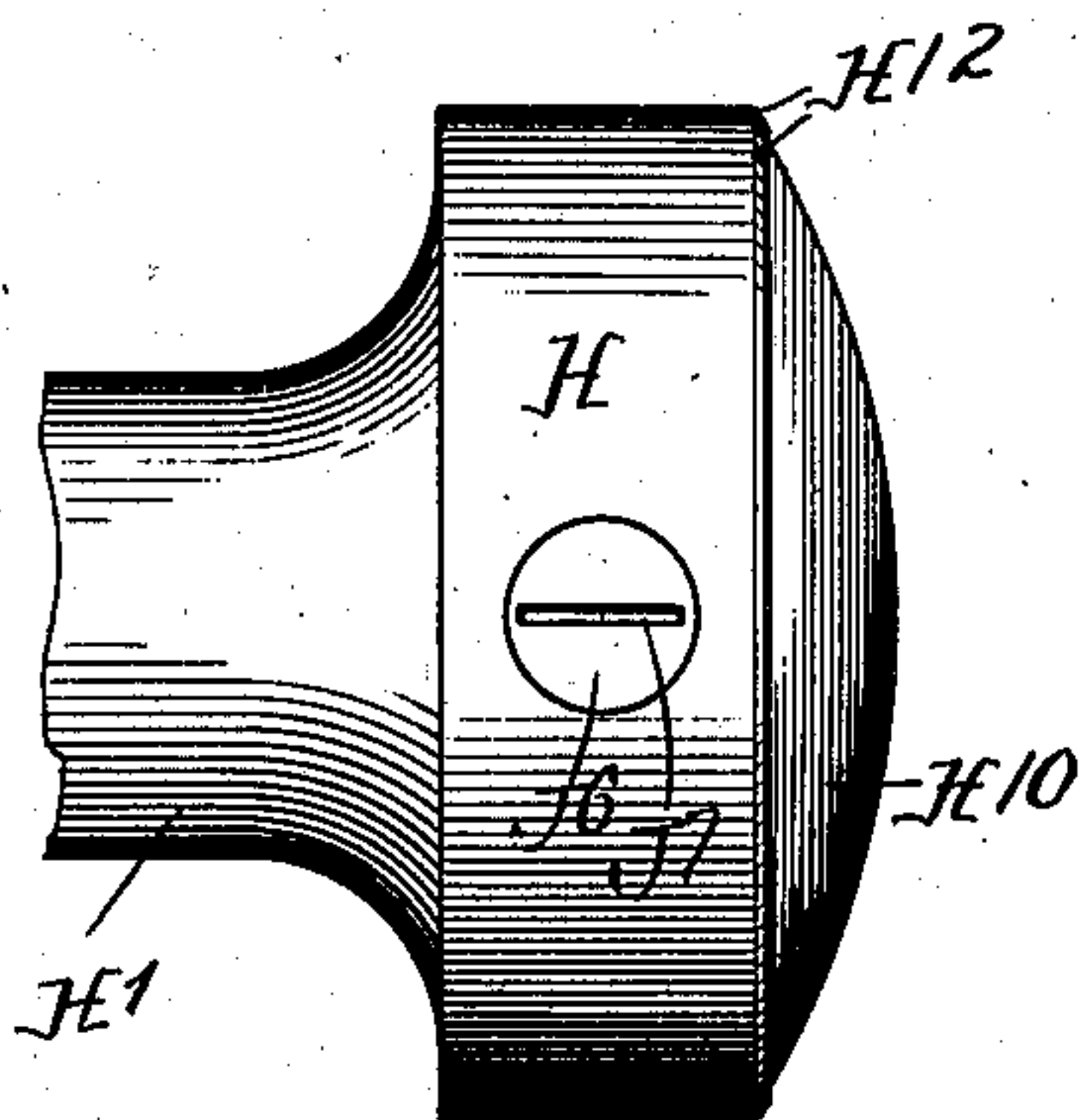


Fig. 14

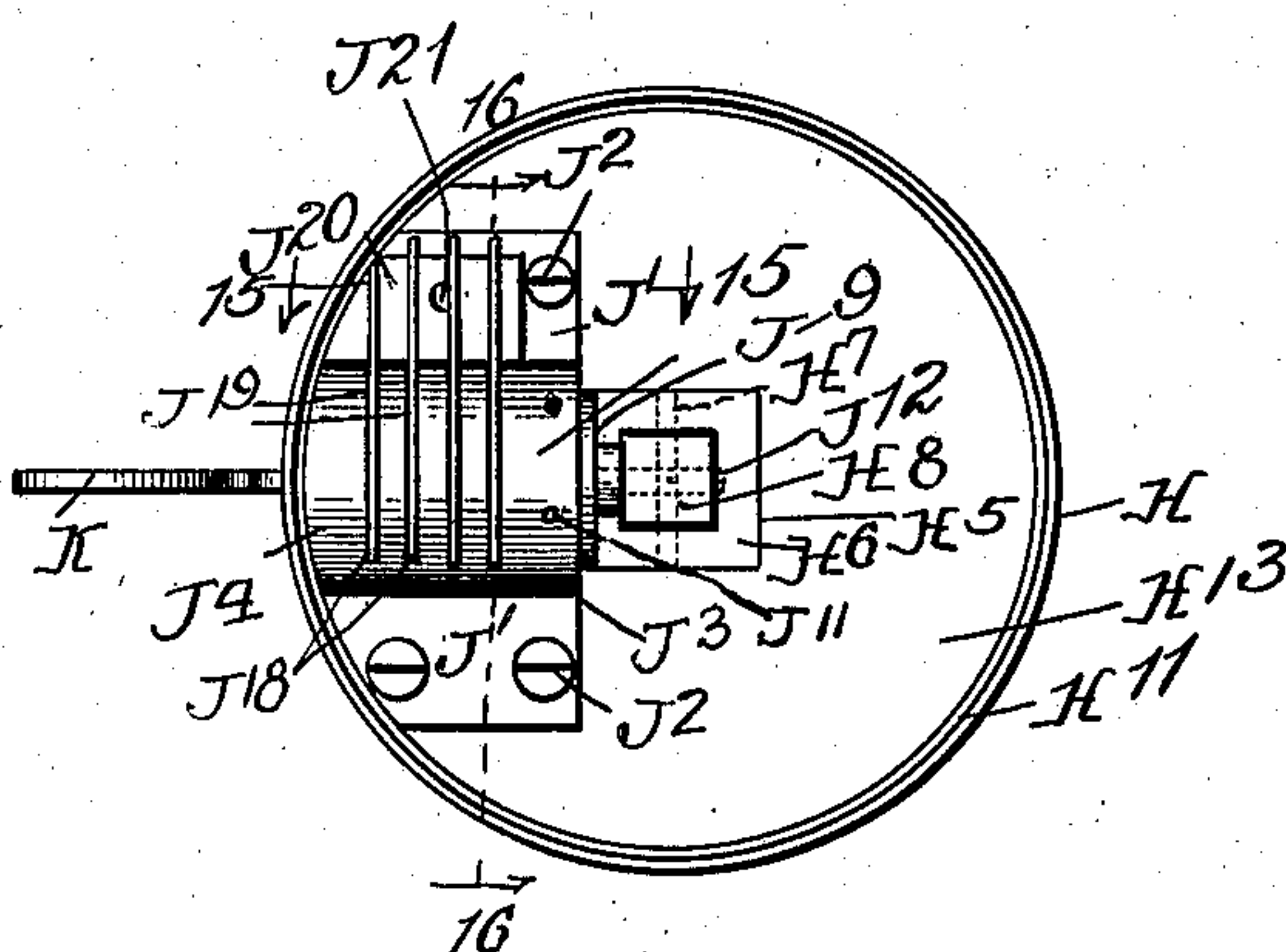


Fig. 15

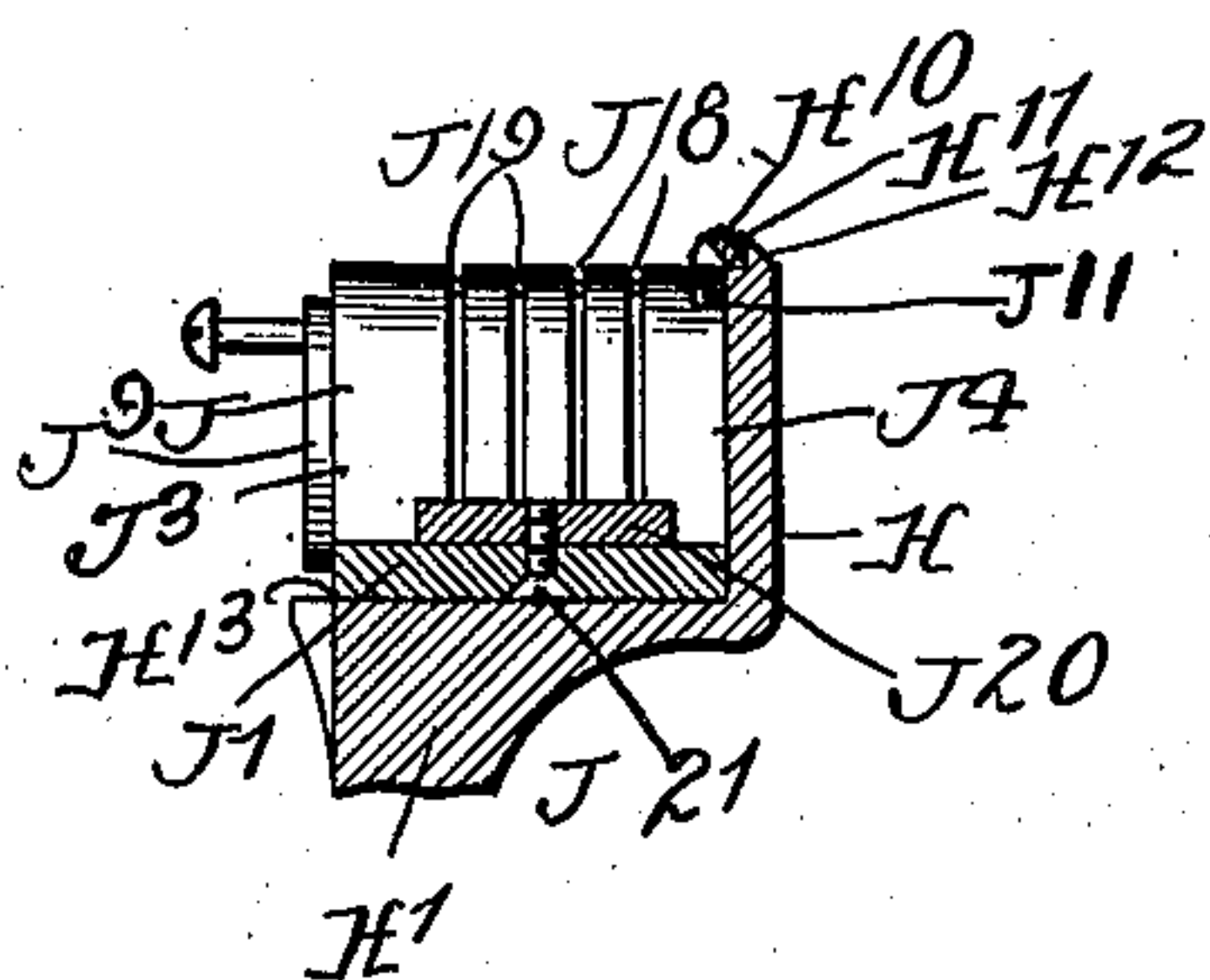


Fig. 16

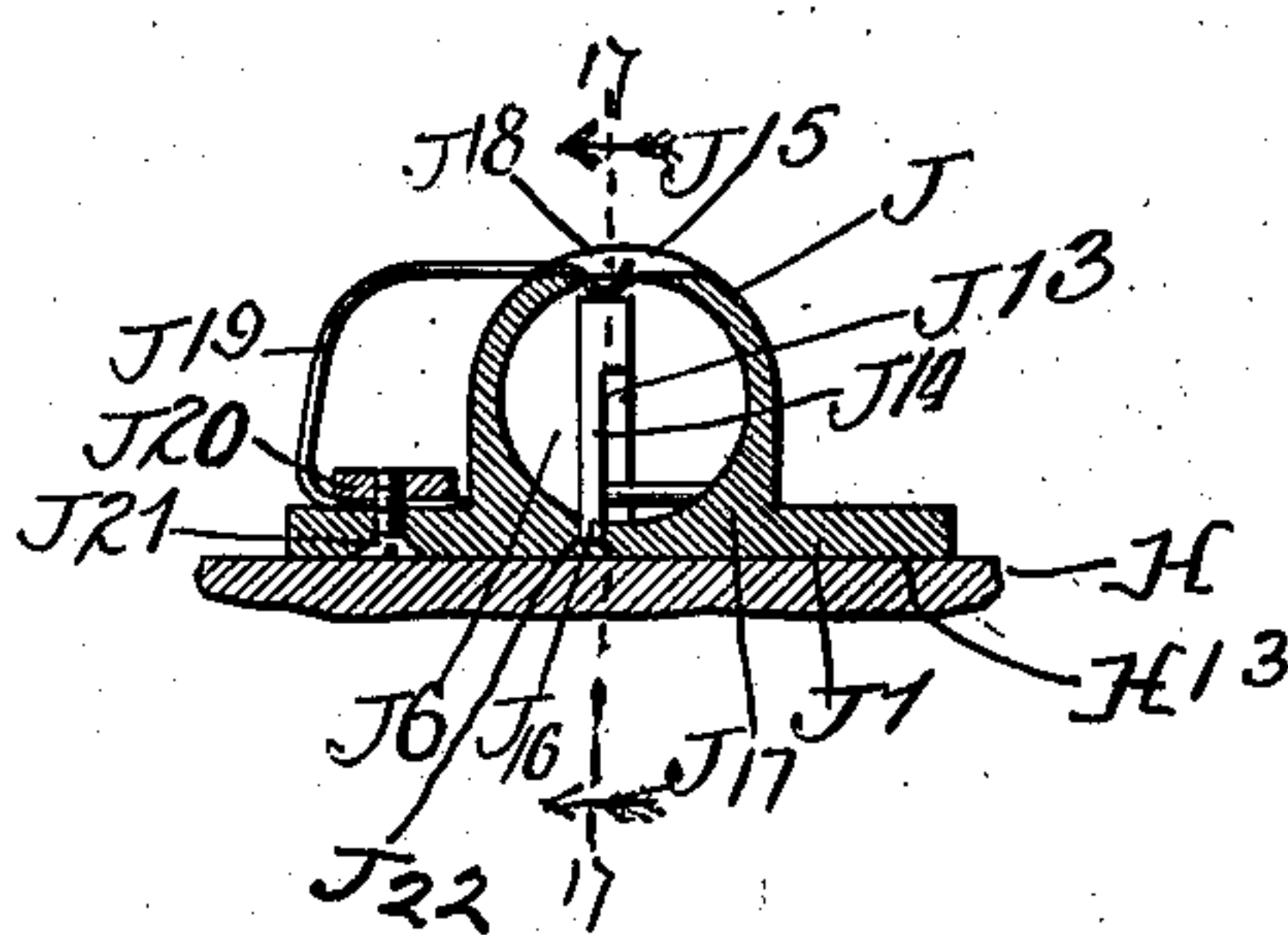


Fig. 17

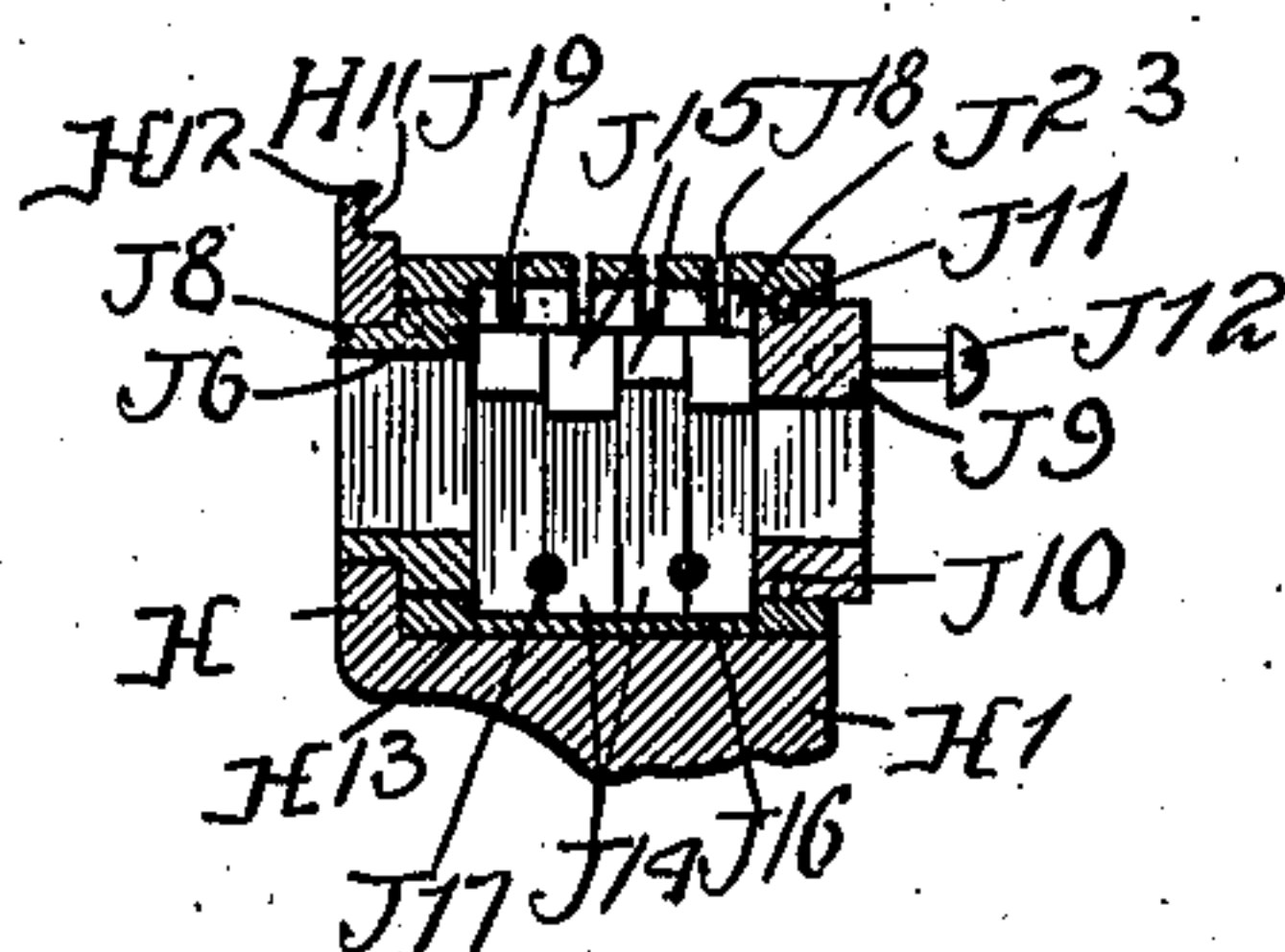
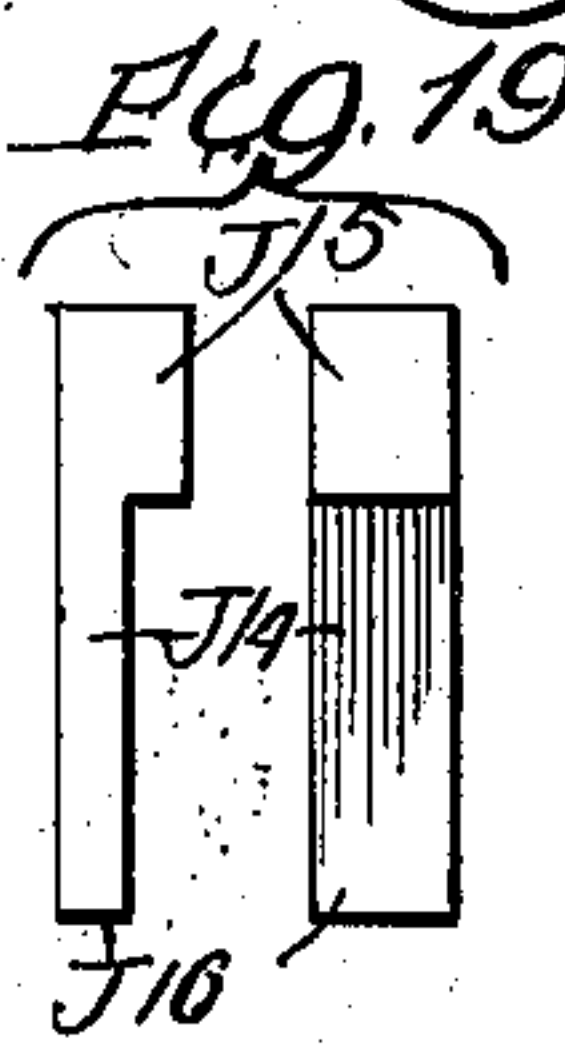
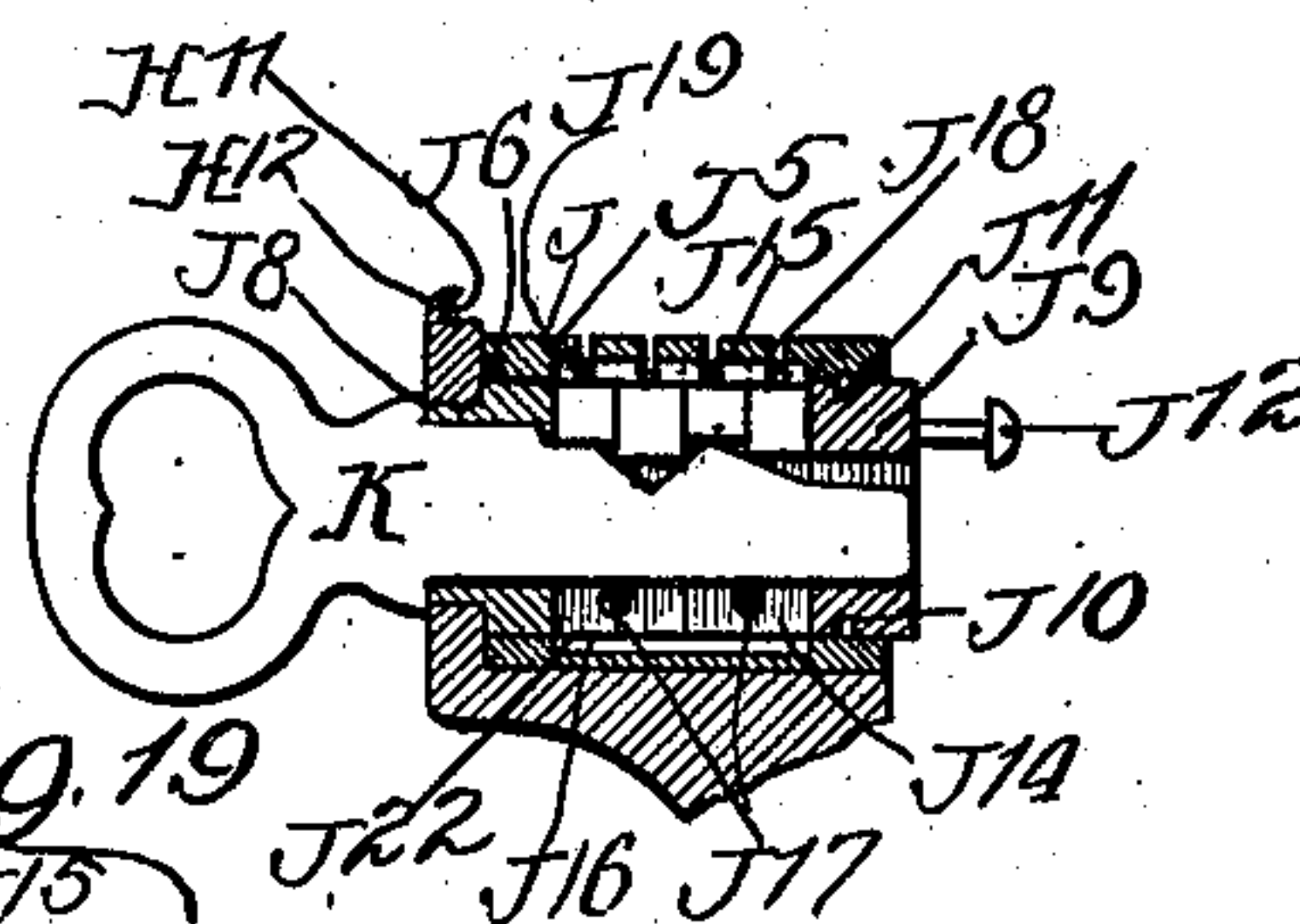


Fig. 18



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# UNITED STATES PATENT OFFICE.

HENRY SCHMITT, OF CHICAGO, ILLINOIS.

## LATCH-LOCK.

No. 854,847.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed July 9, 1906. Serial No. 325,354.

*To all whom it may concern:*

Be it known that I, HENRY SCHMITT, a citizen of the United States, and residing at 181 Twenty-eighth Place, in the city of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Latch-Locks, of which the following is a specification.

My invention relates to that class of locks commonly known as door locks and in which the knob to be operated on each side of the door is an essential part.

The object of my invention is to provide a latch lock which can be let into the body of the door and secured therein by the boring of one cylindrical hole in which the lock is forced into position, by the boring of a cylindrical hole for the knob spindle and one or more small holes to hold the knob plates, to thereby reduce the labor and skill required to fit the ordinary locks in the doors to reduce the amount of wood required to be removed from the door to a minimum and thereby prevent the weakening of the door in the part where the lock is inserted and where its strength should be the greatest; to combine the utility of a latch and a lock to be used as one or the other at pleasure, and to simplify and cheapen the manufacture of door fastenings of the class described.

The manner in which I accomplish my object is described in the following specifications and illustrated in the accompanying drawings in which:

Figure 1 is a central section on line 1—1 Fig. 5. The knobs being slightly turned. Fig. 2 is a central section on line 1—1 Fig. 5 of the outside door-knob, door plate, and part of the spindle. Fig. 3 is a cross section on the line 3—3 Fig. 1. Fig. 4 is a cross section on the line 4—4 Fig. 1. Fig. 5 is a section on line 5—5 Fig. 1. Fig. 6 is the same as Fig. 5 except that the latch is drawn in. Fig. 7 is a rear end elevation of the part shown in Fig. 6; Fig. 8 is a rear end elevation of the part of the casing forming the cover; Fig. 9 is a cross section on the line 9—9 Fig. 5; Fig. 10 is a cross section on the line 10—10 Fig. 5; Figs. 11 and 12 are face and side elevations of the hub; Fig. 13 is a side elevation of the outside knob showing the outside end of the lock plug and the key slot therein; Fig. 14 is a plan view of the lock in the interior of the outside knob, the cap of the knob being removed; Fig. 15 is a section on line 15—15 Fig. 14; Fig. 16 is a section on line

16—16 Fig. 14; Fig. 17 is a section on line 17—17 Fig. 16; Fig. 18 is the same sectional view as Fig. 17 showing the key in position in the lock; Fig. 19 is an enlarged detail view of one of the lock tumblers shown in the face and side positions.

In the drawing, the same reference letters and figures have reference to the same parts in all the figures.

In the drawings A designates the stile or that part of the door in which the door lock is fitted, the thickness varying with the size of the door. A cylindrical hole A—1 is bored in the center of the thickness of the door and horizontally to a depth and of a diameter adapted to allow the latch case to be easily pressed in and driven tight home so the face fits firmly into the door and flush therewith. At right angles to the hole A—1 a smaller hole A—2 is bored through the door passing horizontally through the central line of the hole A—1. This hole is adapted in size and location to permit the passage and rotation of the spindle passing through the case adapted to support the door knobs. Two screw holes A—3 are made for the purpose of securing the outside knob plate by screws affixed therein from the inside of the door, thereby preventing the removal of the outside knob as hereinafter described. These views illustrate the small amount of wood removed from the door and the ease and rapidity by which my latch lock can be affixed in the door, which is the main object of my invention.

The case B which forms the body of my device is cylindrical, a longitudinal cylinder adapted in diameter and length to the size of the door to which it is attached. This case is shown particularly in section in Figs. 9 and 10. The case is constructed of a main part B—1 and a cover part B—2, the main part constituting the front or face of the latch lock, this face may be a circular or rectangular form. In the back of the face shallow indents B—5 are made to receive projections B—6 on the cover as shown in Figs. 5 and 6. The rear end of both parts of the case have lips B—7 which engage each other as shown in the same figures, and when pressed together the cover is forced forward and the projections B—6 are forced into the indents and thereby the cover is held in position on the main body. The parts B—1 and B—2 are secured together by a screw B—8 which extends through the cover and is



screwed into the main body. Across the central part of the main body and cover, a partition B—9 extends with apertures therein adapted to allow the tail of the latch bolt, 5 and the draw bar hereinafter described to pass through. A square aperture B—10 in the face plate of the main body is adapted to support the head of a latch bolt. Transversely through the main body and cover are 10 apertures B—11 adapted to support a hub. Supported in the case is a latch bolt D having a beveled head D—1 adapted to slide in the aperture B—10 and a tail D—2 adapted to slide through one of the apertures in the partitions B—9. Extending transversely through 15 the end of the tail is a stop pin D—3 adapted to engage the partition B—9 and to thereby limit the outward movement of the latch bolt in the case. Supported on the tail of 20 the bolt and compressed between the head of the bolt and the partition in the case, is a coiled spring D—4. Affixed in the tail near the head of the bolt is a projecting pin D—5. Within the case and journaled in the apertures B—11 is a hub D—6 shown in detail in 25 Figs. 11 and 12. This hub is constructed with double flanges D—7. Secured transversely in two of these flanges is a crank pin D—8. Hooked onto this pin is a flat draw 30 bar D—9. In the other end of this bar is an aperture by which it is connected to the projecting pin D—5 near the head of the bolt. This bar passes through an aperture in the partition in the case and is adapted by the 35 movement of the hub to draw the head of the bolt within the face of the case. Through the center of the hub is a square aperture D—10 adapted for the passage of a spindle. The flanges D—7 have shoulders D—11 and 40 D—12 which are adapted to engage the screw B—8 and to thereby limit the rotative movement of the hub, as shown in Figs. 5, 6.

Extending through the aperture A—2 in the door and through the hub D—6 is a spindle E having threaded holes E—1 by which a 45 knob F is secured by screws E—3 in the ordinary way. The inside plate F—1 has a deep bearing surface F—2 and enlarged flange F—3 and screw holes F—4 as shown in 50 Figs. 1 and 3. The outer part of the spindle is provided with a stop ring E—6 secured therein by a pin E—7 as shown in Fig. 1 this ring is adapted to abut against the hub 55 when the inside knob is attached to the spindle and thereby preventing any lateral movement of the spindle in the hub. The outside door knob plate G is secured to the door by screws G—1 which extend through the inside plate and enter the threaded holes G—2 60 in the plate G. This plate has a large central hole G—3 adapted to admit the end of the knob and has a recess G—4 adapted to permit the movement of a bearing ring G—5 between the plate and the door, and an outside 65 side recess G—6 adapted for an outside bear-

ing for the knob. Supported in this plate is an outside knob H, the barrel H—1 of this knob has a threaded end H—2 adapted to extend through the center hole in the plate which is engaged by the shoulder H—3. On 70 the threaded end of the knob a ring G—5 is secured, this ring is adapted to fit in the recess G—4 and together with the outside G—6 form a bearing in which the knob is secured and free to be revolved. When adjusted on 75 the knob this ring is secured by a dowel pin H—4 as shown in Figs. 1 and 2. Extending through the longitudinal center of the barrel H—1 of the knob is an aperture H—5, in cross section this is square as shown in Fig. 4. 80 Slidably supported in this aperture is a square sleeve H—6 adapted to slide on and off the end E—8 of the spindle E and to form a telescopic connection between the knob and the 85 spindle as shown in Figs. 1 and 2. Near the end of this sleeve and extending transversely therethrough is a crank pin H—7. Pivotal-ly attached to this pin is a connecting rod 90 H—8. This rod is attached at the other end to a crank pin affixed in the end of a rotatable plug in a lock J whereby said sleeve is moved into and out of connection with the spindle. This lock J is secured in the head of the knob 95 which is adapted to hold it in a cylinder H—9 and is covered by a cap H—10 affixed in a check H—11 in the outside edge H—12 of the knob. The body of the lock J is secured through the flanges J—1 to the base H—13 100 of the interior of the knob by screws J—2 as shown in Figs. 1, 2, 14 and 15. One end J—3 of this lock is square and forms a right angle to the base of the knob and is parallel with one side of the square aperture H—5 in the barrel H—1 of the knob as shown in Figs. 1, 2 and 14. The other end J—4 is adapted 105 to fit the curve of the knob. Extending through the body of the lock J is a cylinder J—5, the longitudinal center of this cylinder forms a right angle with the center line of the sleeve. In this cylinder is a rotatable plug 110 J—6 having a longitudinal key slot J—7 as shown in Figs. 13, 17 and 18. The end J—8 of this plug extends through the side of the knob as shown in Figs. 13, 17 and 18 and forms the entrance for the key. The other 115 end J—9 projects slightly beyond the end of the lock. In this end of the plug, within the cylinder is an annular channel J—10. Extending through the body of the lock and projecting into this channel is a pin J—11 120 adapted to hold the plug in position in the cylinder as shown in section in Figs. 17 and 18. Secured in and projecting from the end of the plug is a crank pin J—12. On this pin one end of the connecting rod H—8 is 125 secured. In the central part of this plug is a transverse slot J—13 as shown in Fig. 16. Slidably adjusted in this slot are a series of tumblers J—14 shown in Figs. 16, 17 and 18, and in detail in Fig. 19. The heads J—15 of 130



these tumblers are adapted to fit the width of the slot while the body part J—16 is reduced in thickness to permit the passage of the key as shown in Figs. 16, 17, 18 and 19.

5 Dowel pins J—17 supported transversely in the plug project into the slot as shown in Fig. 16 and are thereby adapted to engage the ends of tumblers holding them in a slidable position, and afford a bearing for the  
10 back of the key as shown in Figs. 17 and 18.

In the transverse slots J—18 in the top of the lock J and resting on the head of each tumbler is the free end of a spring J—19, the other end of each of said springs is secured  
15 by a plate J—20 on the flange of the lock by a screw J—21 as shown in Figs. 1, 2, 14, 15 and 16. These springs press the bottom ends of the tumblers into a longitudinal slot J—22 in the bottom of the cylinder and thereby  
20 lock the plug to the body of the lock. The insertion of a proper key through the side of knob into the plug engages the heads of the tumblers, lifts the tumblers out of the slot in the cylinder and permits the plug to be  
25 rotated by the key, and the connecting rod and sleeve be thereby moved into or out of engagement with the spindle. A longitudinal slot J—23 in the top of the cylinder shown in  
30 Fig. 17 is adapted to permit the tumblers to be lifted therein by a wrong key and thereby prevents the turning of the plug. The key K is of the ordinary flat kind.

What I claim and desire to secure by Letters Patent, is set forth in the following  
35 claims:

1. In a latch lock of the kind described, the combination consisting of, a cylindrical case of two longitudinal parts secured together by a screw extending transversely  
40 through said parts, the face plate of said case being an integral part of one member of said case; a spring pressed latch bolt slidably supported in said case; a hub journaled in said case, said hub having flanges and a crank pin  
45 extending therethrough, said flanges being adapted to engage said screw in said case and to thereby limit the rotary movement of said hub; a draw bar pivotally secured to said crank pin and to the head of said latch bolt; a  
50 spindle extending through said hub, said spindle being provided with a stop adapted to limit the lateral movement of said spindle in said hub; a knob secured to said spindle and a knob plate secured on a door in which  
55 said case is inserted; an outside knob plate secured to said door and a knob revolubly secured in said plate; an angular sleeve slidably supported in said knob adapted to be moved into and out of engagement with said spin-  
60 dle; a cylinder lock secured inside said knob, the axis of said lock being at right angles to the axis of said spindle, the cylinder of said lock having longitudinal slots; a plug revolubly secured in said cylinder, said plug having  
65 a longitudinal key way and a transverse tum-

bler slot, one end of said plug extending through an aperture in the side of said knob, the other end having a crank pin; a series of spring pressed tumblers slidably supported in said tumbler slot in said plug; a connecting  
70 rod pivotally attached to said crank pin and to said sleeve; being adapted to be operated by a key inserted in said lock through the side of said knob and to thereby move said sleeve into and out of engagement with said  
75 spindle.

2. In a latch lock of the kind described, the combination consisting of a case in two parts insertible in a door; a spring pressed latch bolt slidably in said case; a flanged hub  
80 journaled in said case; a draw bar attached to said flanges and to said latch bolt; a spindle inserted in said hub extending through said door; an inside knob secured to said spindle; an outside knob revolubly secured to the  
85 out side of said door; a slidable sleeve in said knob adapted to be moved into engagement with said spindle; a cylinder lock secured inside said knob the axis of said lock being at right angles to the axis of said spindle; a plug  
90 revolubly secured in said lock extending through the side of said knob, said plug having a longitudinal key way and tumbler slot; one or more tumblers slidably supported in said plug; means attached to said plug and to  
95 said sleeve connecting said plug and sleeve adapted to move said sleeve into and out of engagement with said spindle when said plug is rotated; being adapted to be operated by a  
100 key inserted in said lock through the side of said knob and to thereby move said sleeve into and out of engagement with said spindle.

3. In a latch lock of the kind described, the combination consisting of a case insertible in a door; a spring pressed latch bolt  
105 slidably in said case; a hub journaled in said case; means for connecting said hub and bolt; a spindle extending through said hub and door; a knob revolubly secured to said door; a sleeve slidably supported in said knob;  
110 a cylinder lock having a central plug revolubly therein whose axis is at right angles to the axis of said spindle, one end of said plug registering with an aperture in the side of said knob and having a longitudinal keyway;  
115 means attached to the other end of said plug and to said sleeve adapted to move said sleeve into and out of engagement with said spindle when said plug is rotated; being adapted to be operated by a key inserted in said lock  
120 through the side of said knob and to thereby move said sleeve into and out of engagement with said spindle.

4. In a latch lock of the kind described, the combination consisting of a case insertible in a door; a latch bolt slidably therein;  
125 a hub journaled in said case; means connecting said hub and latch bolt; a spindle supported in said hub; means for rotating said spindle on the inside of the door; an outside  
130



knob adapted to be revolubly secured on the outside of the door; a slidable sleeve in said knob adapted to be moved into and out of engagement with said spindle; a cylinder lock secured in said knob the axis of said lock being at right angles to the axis of said sleeve and spindle; a rotatable plug in said lock forming the axis thereof and having a key hole in line with a key hole in the side of said knob; means connecting said plug with said sleeve, adapted to be operated by a key inserted in said lock through the side of said knob and to thereby move said sleeve into and out of engagement with said spindle.

5. In a latch lock of the kind described the combination of a case; a spring pressed bolt slidably supported therein; a hub in said case; means connecting said hub and bolt; a spindle secured in said hub; an outside knob adapted to be revolubly secured to a door; means supported in said knob adapted to be connected with a lock mechanism in said knob and to be moved into and out of engagement with said spindle by the movement of said lock mechanism; a lock in said knob the axis of the lock being secured at right angles to the axis of said spindle, being adapted to be operated by a key inserted in said lock through the side of said knob and to thereby move said sleeve into and out of engagement with said spindle.

6. In a door lock the combination of a case containing a bolt and hub, and a spindle supported in said hub; with a door knob adapted to be revolubly secured to a door; adjustable means contained in said knob and at-

tached to a lock therein adapted to be connected and disconnected with said spindle; the axis of said lock in said knob being at right angles to the axis of said spindle, said lock being adapted to be operated by a key inserted through the side of said knob.

7. The combination with a door lock having a bolt and a hub adapted to operate said bolt; of a knob adapted to be revolubly secured to a door, and a lock in said knob the axis of the lock being secured at right angles to the axis of the hub, said lock in said knob being adapted to be operated through an aperture in the side of said knob; means for connecting said lock in said knob with the hub in said door lock, said means being adapted to be moved into and out of engagement with said hub by the operation of said lock in said knob.

8. The combination with a door bolt; of a knob adapted to be revolubly connected with said door bolt; means for making said connection between said bolt and knob; means in said knob adapted to be connected with a lock in said knob and to be moved by the operation of said lock into and out of engagement with the mechanism of said door bolt and to operate the said mechanism; a lock in said knob the axis of the lock being secured at right angles to the axis of the mechanism in said door bolt, said lock of said knob being operated through the side of said knob.

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