

H. G. VOIGHT.

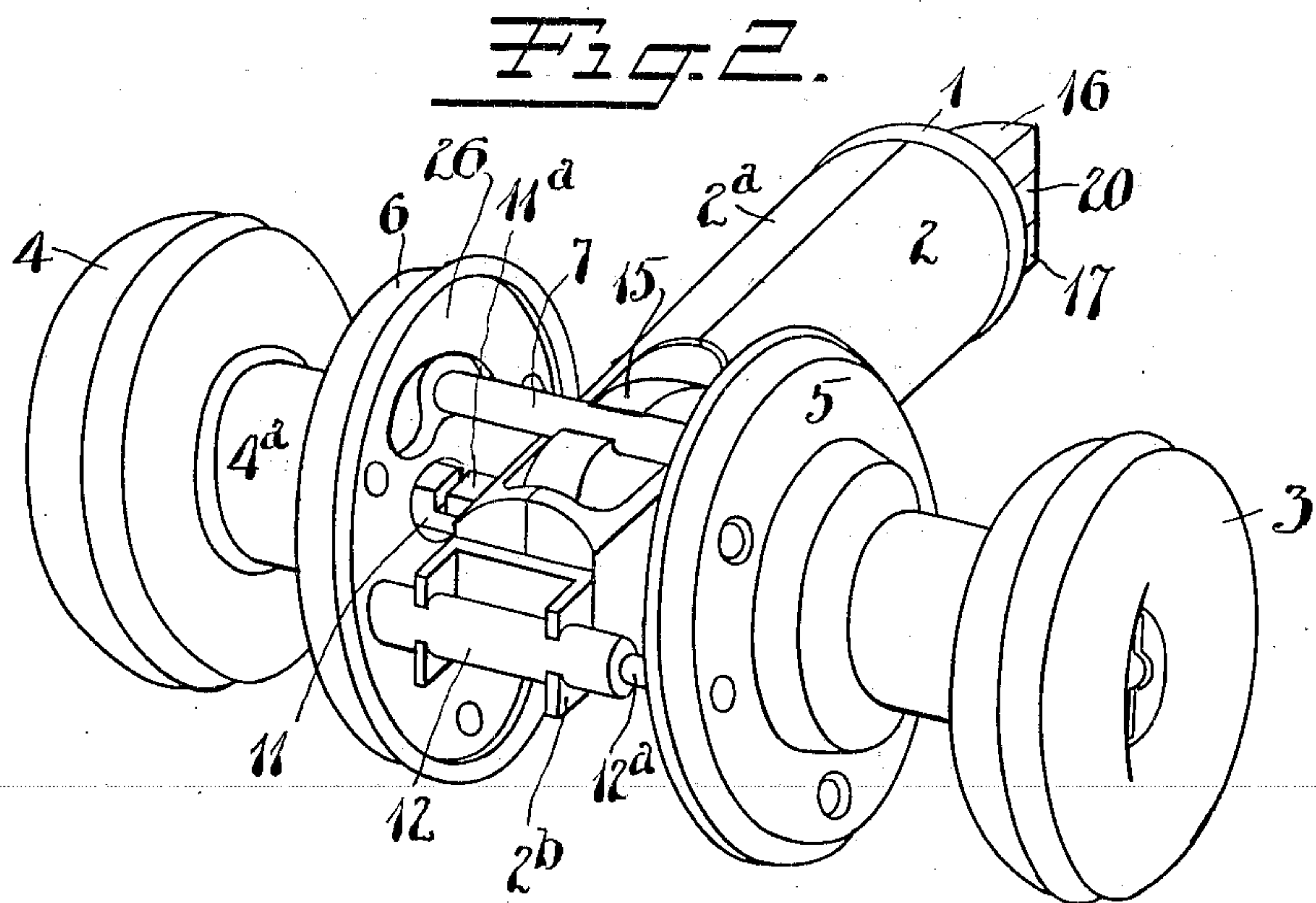
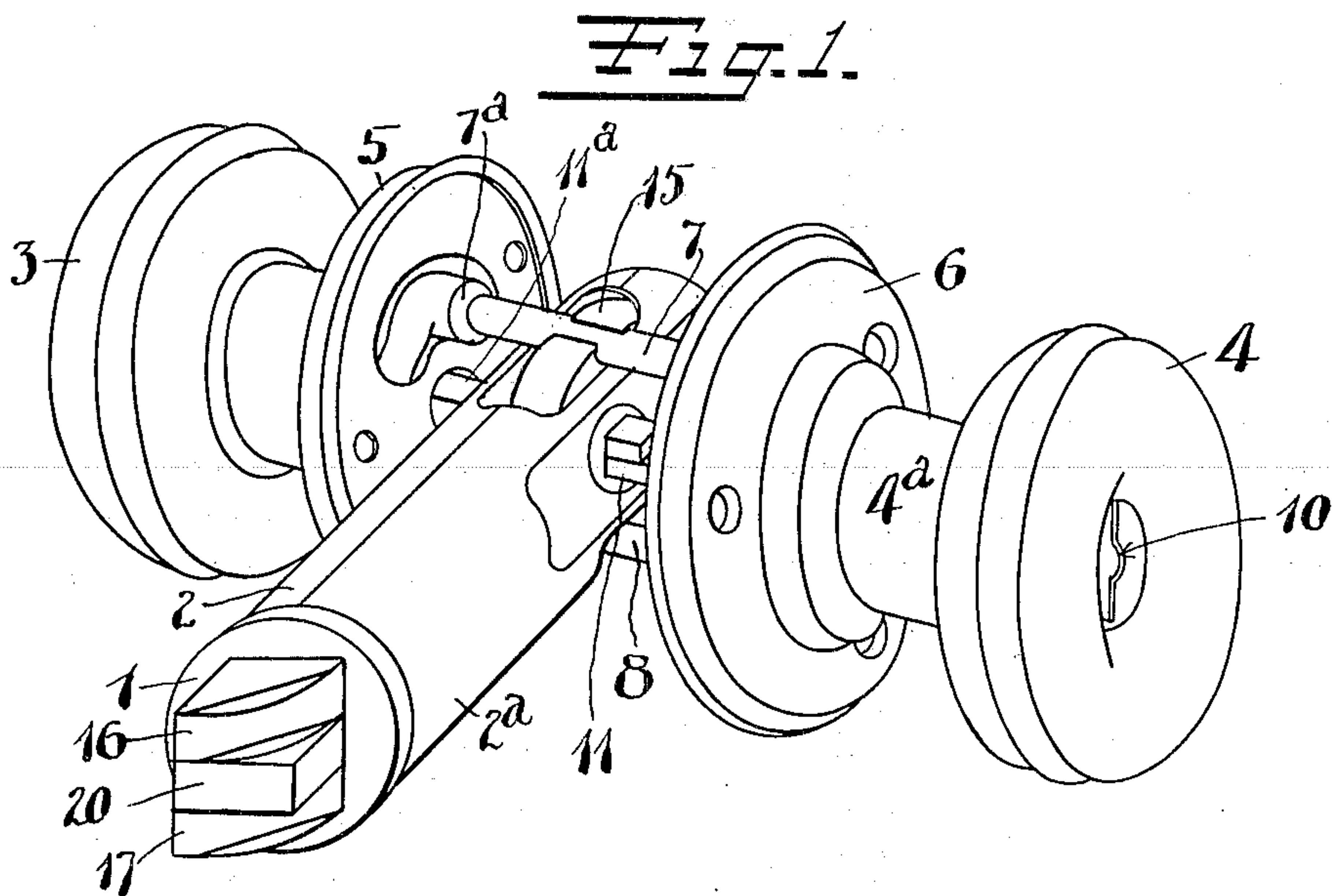
LOCK.

APPLICATION FILED AUG. 1, 1908.

929,638.

Patented July 27, 1909.

3 SHEETS—SHEET 1.



Witnesses:

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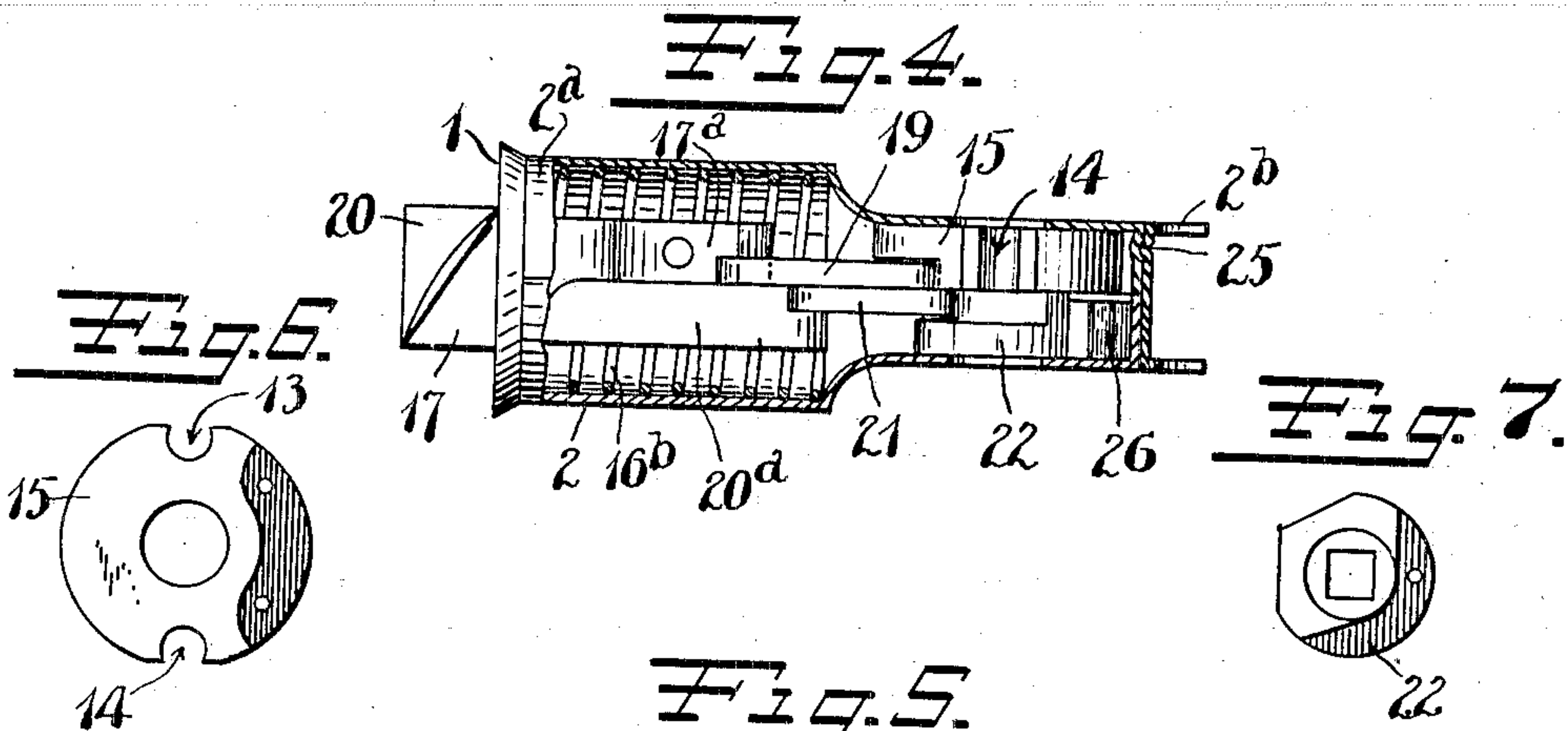
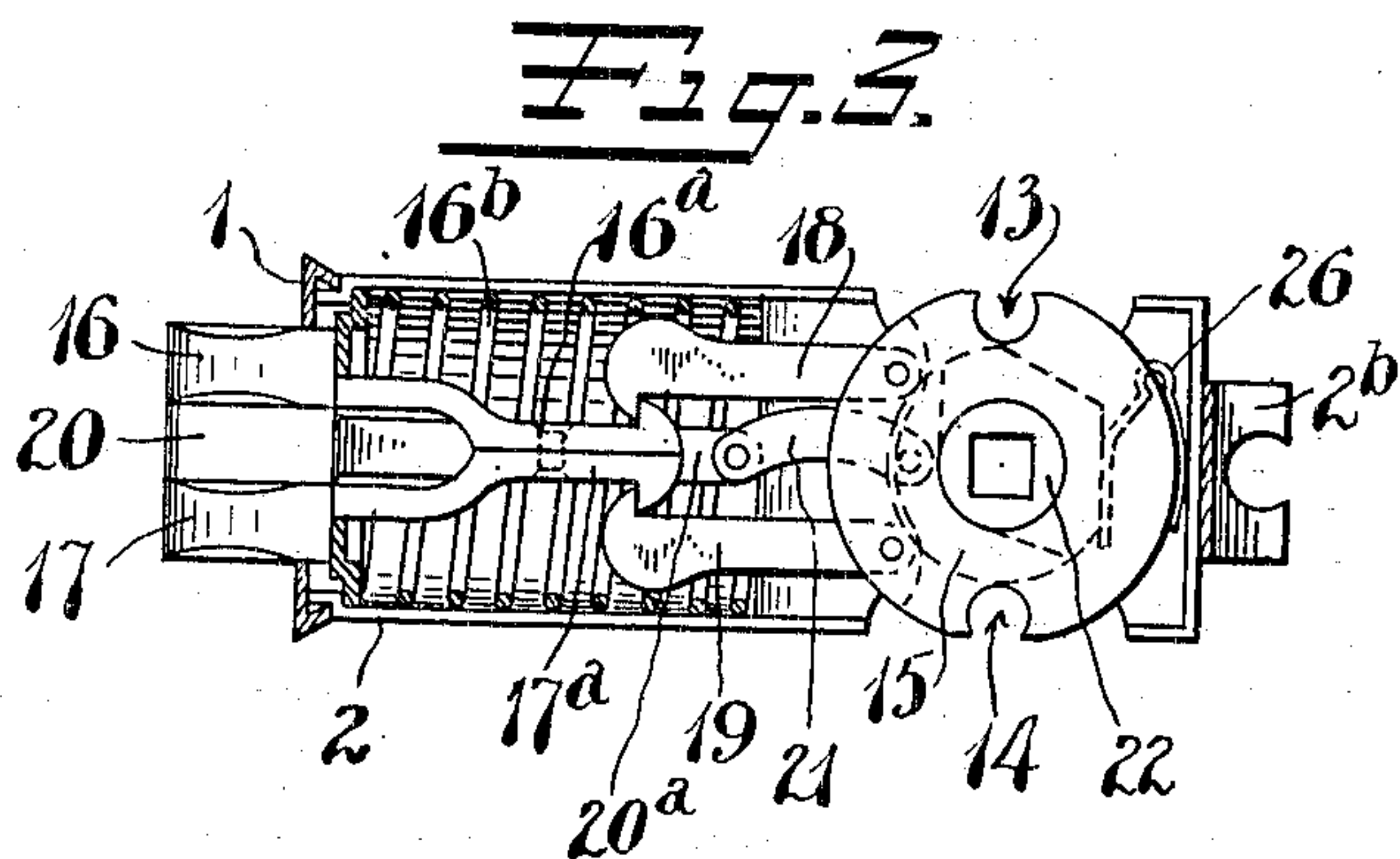
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 8.

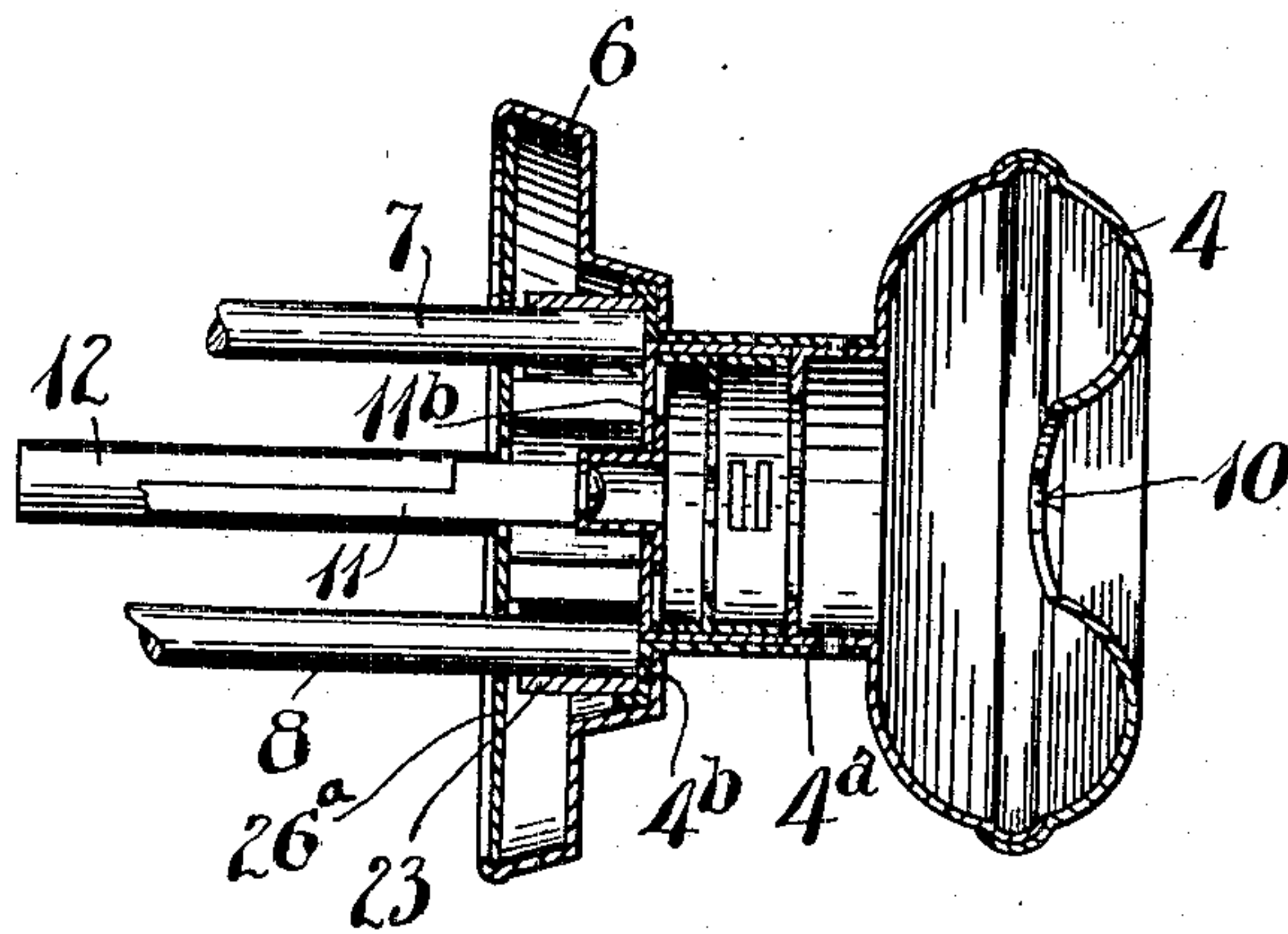


Fig. 9.

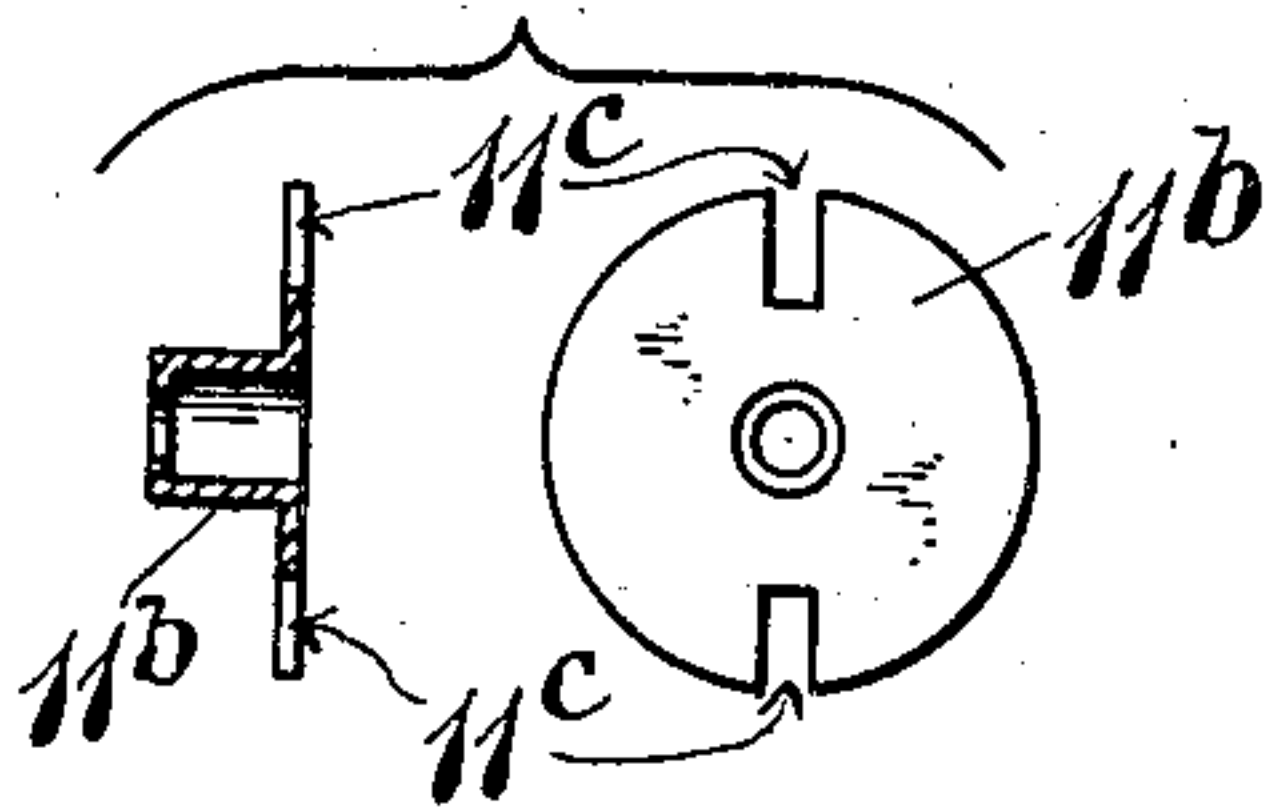


Fig. 10.

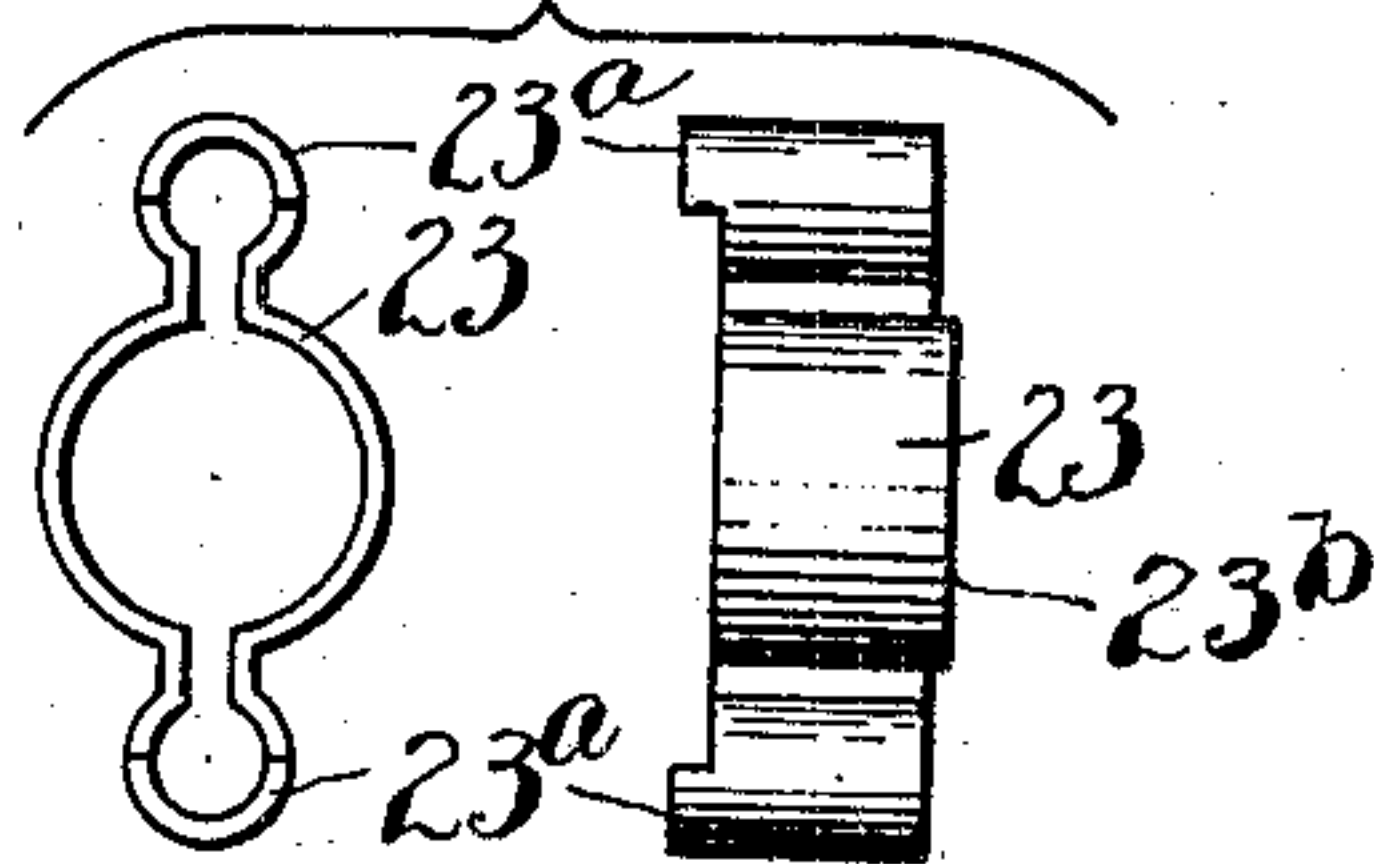


Fig. 11.

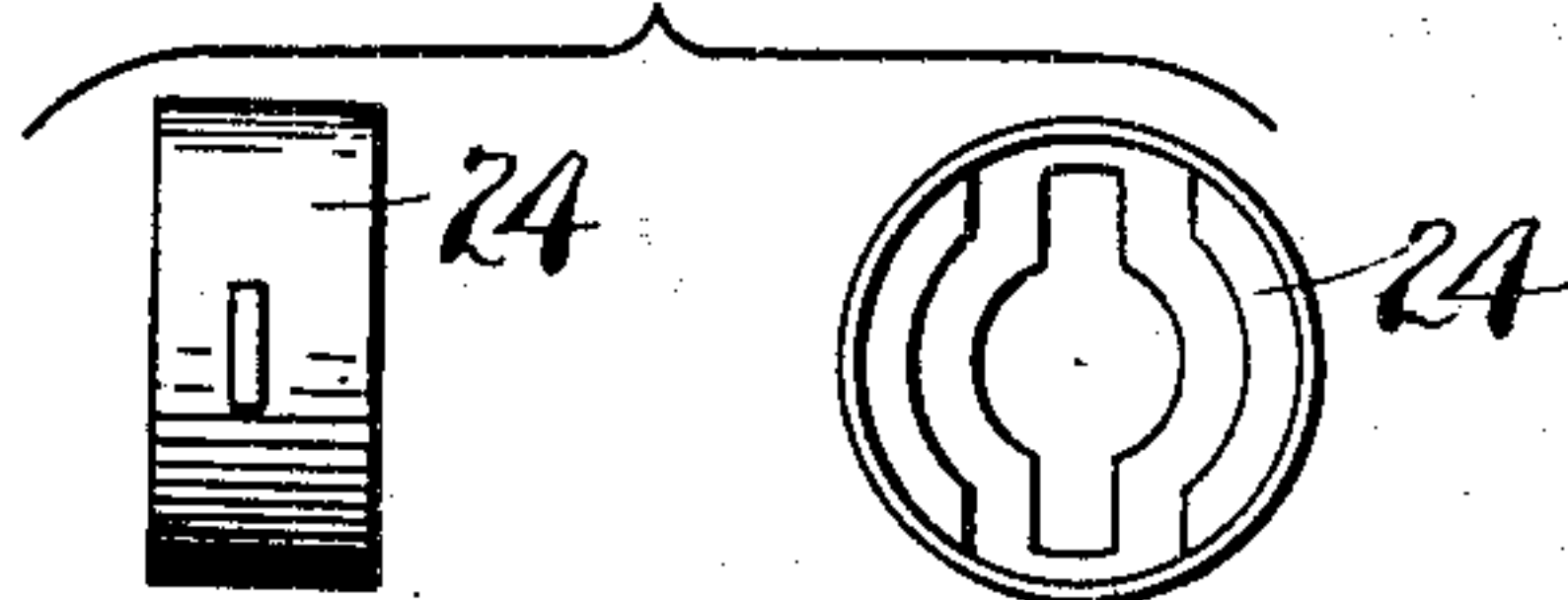
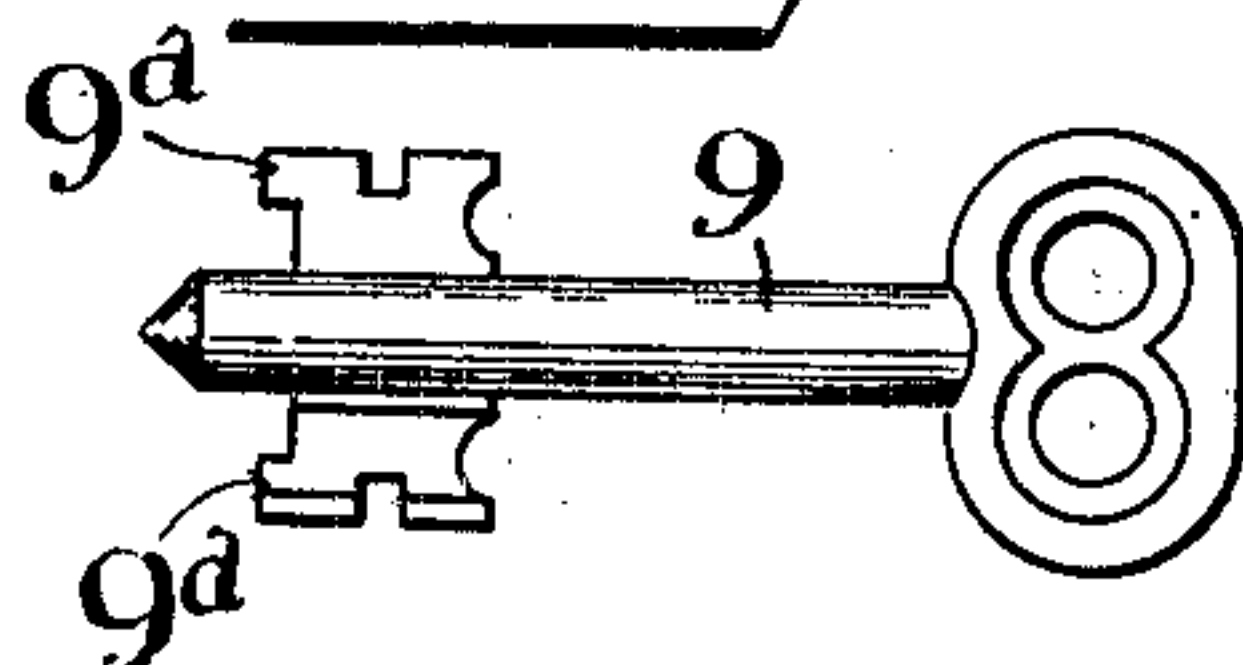


Fig. 12.



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UNITED STATES PATENT OFFICE.

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LOCK.

No. 929,638.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed August 1, 1908. Serial No. 446,362.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, Connecticut, have
5 invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in door locks.

10 The object of the invention is to provide a new type of lock, which is so constructed as to be very easily applied to a door, eliminating the necessity of the usual mortise and requiring but very little cutting of the door
15 stile to receive the several parts.

Some of the other advantages are—simplicity of construction, compactness, economy of manufacture, ease of assembling, strength and durability.

20 In the accompanying drawings, Figure 1 is a perspective view of the lock assembled and looking from the front. Fig. 2 is a similar view looking from the rear. Fig. 3 is a vertical section of the lock case, certain
25 elements being shown in elevation. Fig. 4 is a horizontal section. Fig. 5 is a plan view of a lock case, with the internal parts detached. Figs. 6 and 7 are end elevations of certain details. Fig. 8 is a vertical section
30 of one of the knobs and rose plates, certain parts being shown in elevation and partly broken away. Fig. 9 illustrates in section and in end elevation a detail. Fig. 10 illustrates in end elevation and side elevation another detail. Fig. 11 illustrates in side elevation and end elevation still another detail.
35 Fig. 12 illustrates a key.

It should be understood that I have shown my new lock only in one of its preferred
40 forms, appreciating that a large number of modifications may be made without departing from the spirit and scope of my invention.

45 In the preferred form of my invention shown in the drawings, 1 represents the front or face plate of the lock, said plate carrying at its rear a tubular case, preferably of round cross-section and preferably
50 slit so as to form the two sections 2—2^a, which sections may be opened, as shown in Fig. 5, to permit the internal parts to be assembled therein.

3—4 are knobs.

55 5—6 are escutcheons or rose plates, through which the shank of each knob 3—4 passes

respectively, each rose plate affording a suitable bearing for its knob.

In Fig. 8 I have shown the knob 4 and rose 6 in section and illustrating one convenient form for assembling said parts. In
60 this figure the knob 4 is provided with the shank 4^a, which is offset at its inner end, as at 4^b, to hold the knob to the rose 6. This inner end of the knob shank carries the bars 7—8 so that when the knob 4 is rotated, said
65 bars 7—8 will move therewith.

In case the lock is to be provided with a key, such, for example, as the key 9 (Fig. 12), said key may be entered through a
70 suitable passage 10 in the end of the knob, and may be so constructed as to operate a spindle 11. The particular form or purpose of the key mechanism is immaterial to this invention in its broadest aspect. As shown,
75 the key-controlled spindle 11 runs parallel with the bars 7—8. 12 is an alining member or bar also carried by the rose 6. This aliner is arranged to engage a notched extension 2^b (Fig. 3) at the rear of the lock
80 case, while the bars 7—8 are arranged to engage in notches 13—14 respectively, in a roll-back 15. The side walls of the ease sections 2—2^a are cut away sufficiently to afford clearance for said bars and to permit
85 the same to rock as the knob is turned to rock roll-back 15. The roll-back 15 is suitably connected with the latch-bolt. In the particular form shown, this latch-bolt comprises two members 16—17, each beveled on
90 one side in the usual manner, and provided at the rear with the tails 16^a 17^a, which latter may have hooked extremities, as shown, to permit of engagement by links 18—19,
95 which latter connect the latch-bolt with the roll-back 15.

From the foregoing, and referring particularly to Fig. 3, it will be seen that the roll-back 15 may be oscillated in either direction, and will retract the latch-bolt heads
100 16—17 against the influence of the projecting spring 16^b.

When a key locking mechanism is provided, I may employ a dead-bolt 20 adjacent to the latch-bolt heads 16—17 and preferably between them. This dead-bolt 20 has
105 a tail 20^a, which is connected by a link 21 with a roll-back 22 concentric with roll-back 15, but free to move independently thereof. The spindle 11 makes engagement with the roll-back 22 so that when a proper
110

key is inserted and the spindle 11 is turned, the dead-bolt may be projected or retracted at will. In all of the views, this dead-bolt is shown as projected.

5 In order to make the lock adjustable to doors of different thicknesses, and in order to permit the parts to be readily assembled, the bars 7—8—12 and the spindle 11 are telescopic with corresponding members pro-
 10 jecting from the opposite side of the door, and carried by the knob 3 and rose 5. For example, the bar 7 is telescopic with the companion part 7^a; the bar 8 is telescopic with a similar companion part (not shown);
 15 the bar 12 is telescopic with the companion part 12^a, and the spindle 11 (which is of rectangular cross-section) is telescopic with the companion part 11^a. In this particular instance these companion parts of the spin-
 20 dle 11 and 11^a do not slide, one within the other, but instead overlap, each being slabbed off on one side to produce, when placed together, the proper cross-sectional outline to fit within the roll-back 22. By
 25 this means the knob sections may be moved to and fro to adapt the apparatus to doors of different thicknesses. When all of the parts are assembled (as shown in Figs. 1 and 2) the plates 5—6 may be secured to-
 30 gether by suitable holding screws (not shown), and since the parts described hold the case and the various parts of the lock mechanism in their embrace, there is no danger of any of said parts becoming de-
 35 tached or lost.

When a carpenter desires to apply such a lock to a door, it is merely necessary for him to remove the holding screws and separate the three sections (the case section and the
 40 two knob sections). He then bores a hole into the edge of the door stile of suitable size and depth to receive the lock case. The face plate is preferably tapered or flared outwardly so as to make a snug fit in this bore, thereby producing a finished and handsome
 45 appearance when in place. The carpenter then bores a single hole transversely through the door stile, intersecting the first-mentioned bore. This transverse hole is of a suffi-
 50 cient size to permit the moving parts between the plates 5 and 6 (when assembled) to have the proper freedom of movement. This is all the cutting of the woodwork that is required to prepare it to receive the lock. As
 55 soon as these two bores have been formed, the lock case section is forced into place, and finally the two knob sections are applied from opposite sides of the door, the telescopic parts being brought together in proper
 60 alinement to permit said sections to be pushed toward each other until they bear firmly upon the two faces of said stile. Suitable holding screws may then be applied. In the particular form shown, the
 65 knob 4 may represent the outer knob, while

the knob 3 may represent the inner knob. In this arrangement the holding screws would obviously be passed through the inner rose plate 5 and screw into the rear of the rose plate 6, for by this arrangement it
 70 would be impossible for any one on the outside to remove the rose plate 6 and thereby gain access to the lock mechanism.

It should be stated that the rear side of the rose plate (when provided with a cover plate,
 75 as shown in Figs. 1, 2 and 8) should have suitable clearance spaces, as indicated in the drawings, to permit of the oscillation of the telescopic roll-back operating bars 7—7^a
 80 8—8^a. These clearance spaces are clearly indicated in Figs. 1 and 2. When a dead-bolt is provided, a key hole may be provided in each knob so that the door may be locked or
 85 unlocked from either side. The particular form of dead-locking means may, of course, be modified at will. Instead of providing a dead-bolt, suitable dogging mechanism (key operated or otherwise) might be provided to prevent entry from the outside save by means
 90 of a suitable key. Many such dead-locking devices are well known, and while I lay no claim to any particular form herein, I wish to have it understood that I regard a dead-locking device for the latch-bolt as an equivalent,
 95 in a broad sense, of the dead-locking bolt when used in the aforesaid connection in this type of lock.

In the details illustrated in the drawings I have shown such parts as may be found in the assembly views employed. These, of
 100 course, may be modified at will.

The detail shown in Fig. 9 represents a suitable head for the spindle 11, said head being indicated at 11^b. This head is provided with notches 11^c to receive the projec-
 105 tions 9^a at the forward end of the key, whereby when said key is inserted and turned, the head 11^b, spindle 11 and roll-back 22 will also be turned.

The detail shown in Fig. 10 is a carrier 23
 110 arranged to be secured to the head 4^b of the knob shank, and to in turn support the bars 7—8.

The detail shown in Fig. 11 represents a ward mechanism 24, through which the key
 115 passes, and in which it cannot be turned unless the key is properly notched or bitted to clear the wards.

It will be observed that the entire mechanism is exceedingly compact. The employ-
 120 ment of toggle connecting links between the roll-backs and the bolts permits me to employ a relatively small or short roll-back, the toggle link connection compounding the action so that with a comparatively small
 125 throw of either roll-back a very substantial movement of its bolt will occur.

Another feature of improvement will be found in the fact that bars 7 and 8 perform a second function, to wit, that of re-

inforcing and alining the parts when assembled, and in this respect supplementing the action of the alining bar 12, to firmly hold the several sections in their proper relation to one another.

By locating the dead-bolt between the two heads of the latch-bolt, I attain not only the advantage of compactness, but at the same time so position said parts that any strain upon the door will not tend to twist the latch-bolt or dead-bolt, the present arrangement centralizing or balancing said strain.

As shown in Figs. 4 and 5, one of the sections 2 of the case may be rigidly secured to the face plate, while the other section, 2^a, is detachably secured by means of a spring detent 25 at one end, its other end being centered and held within the recess in the rear of the face plate. This avoids the necessity of special holding screws.

Another noteworthy feature of advantage resulting from the construction heretofore described, is that nearly all of the parts may be formed from sheet or wrought metal, thereby attaining great economies.

As best seen in Fig. 4, the rear end of the case formed between sections 2—2^a is preferably shaped or flattened vertically so as to form bearing walls to support the roll-backs 15—22, while directly at the rear or at some convenient place within the case, a spring 26 may be employed to hold the roll-back 22 in position to frictionally maintain the dead-bolt 20 in its projected or retracted position. The alining bar 12 also performs another important function, to wit, that of anchoring or tying the lock case section in place in the door stile. This end is attained by reason of the fact that when said alining bar 12 is in place in the perforated or notched extension 2^b at the rear of the case, the latter cannot be moved laterally of the bar, and since the bar is securely held by the rose members, and since the latter are securely held to the opposite sides of the door by the holding screws, it follows that the case section is positively held against longitudinal displacement, a feature of decided advantage, because with the case longitudinally displaced it would tend to cramp or bind the knob shanks and the key spindles and associated parts.

The carrier 23 serves not only to support the rods 7—8, but also operates as a spacing element to prevent the knob from being pushed in. In the form shown, the carrier 23 may be riveted to the head 4^b of the knob shank by means of the extensions 23^a, while at the opposite end of the carrier 23 the central portion of said carrier may be projected forward, as indicated at 23^b, to form an annular bearing to take up against the inner side of the cover or back plate 26^a of the rose 6.

What I claim is:

1. In a lock, a tubular case, a latch-bolt carried thereby, an oscillating roll-back carried thereby and connected to said latch-bolt, and means arranged to engage said roll-back at its outer edge to rock the same, one wall of said case having a clearance space to permit said means to be connected to said roll-back to move the same.

2. In a lock, a tubular case, a latch-bolt carried thereby, a roll-back connected to said latch-bolt, a hub therefor, said roll-back hub having a bearing support in said case, and manually controllable means making engagement with opposite edges of said roll-back for oscillating the same, said case having clearance spaces therein to permit said roll-back oscillating device to move.

3. In a lock, a frame comprising a face plate, a tubular case projecting rearwardly therefrom, the sides of said case at the rear being flattened, a bolt head projecting through the face plate, a roll-back between the flattened sides of said case, and a connection between said roll-back and bolt head, said case being cut away at its upper and lower sides to expose the upper and lower ends of the roll-back.

4. In a lock, a frame comprising a face plate, a tubular case projecting rearwardly therefrom, the sides of said case at the rear being flattened, a bolt head projecting through the face plate, a roll-back rotatably supported between the flattened sides of said case, a connection between said roll-back and bolt head, manually operable means arranged to make operative connection with the outer edge of said roll-back, a second bolt head, a second roll-back, and means for making operative connection with said second roll-back at its center.

5. In a lock, a frame comprising a face plate, a tubular case projecting rearwardly therefrom, the sides of said case at the rear being flattened, a bolt head projecting through the face plate, a roll-back rotatably supported between the flattened sides of said case, a connection between said roll-back and bolt head, manually operable means arranged to make operative connection with the outer edge of said roll-back, a second bolt head, a second roll-back, and means for making operative connection with said second roll-back at its inner edge, both of said roll-backs being arranged in axial alinement.

6. In a lock of the character described, three separable sections comprising a tubular case section and two independent knob sections, latch mechanism carried by the case section, latch operating mechanism carried by each knob section, means whereby the latch operating mechanism of both knob sections may be adjustably connected with each other to adapt the lock to doors of different thicknesses, and means whereby said latch operating mechanism may be connect-

ed with the latching mechanism carried by the case to operate the latter.

7. In a lock of the character described, three separable sections comprising a tubular case section and two independent knob sections, latch mechanism carried by the case section, latch operating mechanism carried by each knob section, means whereby the latch operating mechanism of both knob sections may be adjustably connected with each other to adapt the lock to doors of different thicknesses, means whereby said latch operating mechanism may be connected with the latch mechanism carried by the case to operate the latter, and alining mechanism for all of said sections when assembled.

8. In a lock of the character described, three separable sections comprising a tubular case section and two independent knob sections, latch mechanism carried by the case section, latch operating mechanism carried by each knob section, means whereby the latch operating mechanism of both knob sections may be adjustably connected with each other to adapt the lock to doors of different thicknesses, means whereby said latch operating mechanism may be connected with the latch mechanism carried by the case to operate the latter, and alining mechanism

for all of said sections when assembled, said alining mechanism including a portion of the already-named latch operating mechanism.

9. In a lock, a tubular case, a latch-bolt carried thereby, a roll-back within said case, two toggle connections between said roll-back and said latch-bolt, a dead-bolt carried by said case, a second roll-back carried thereby, and a single toggle connection between the last mentioned bolt and the last mentioned roll-back.

10. In a lock, a tubular case, a latch bolt carried thereby, a roll-back within said case, two toggle connections between said roll-back and said latch-bolt, a dead-bolt carried by said case, a second roll-back carried thereby, a single toggle connection between the last mentioned bolt and the last mentioned roll-back, and a roll-back operating mechanism including manually operable means making connection with the outer part of one of said roll-backs, and manually operable means making connection with the inner part of the other roll-back.

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Witnesses:

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