

F. J. RUSSELL.
ELECTRICAL PLUG RECEPTACLE.

APPLICATION FILED FEB. 13, 1906.

2 SHEETS—SHEET 1

Fig. 1.

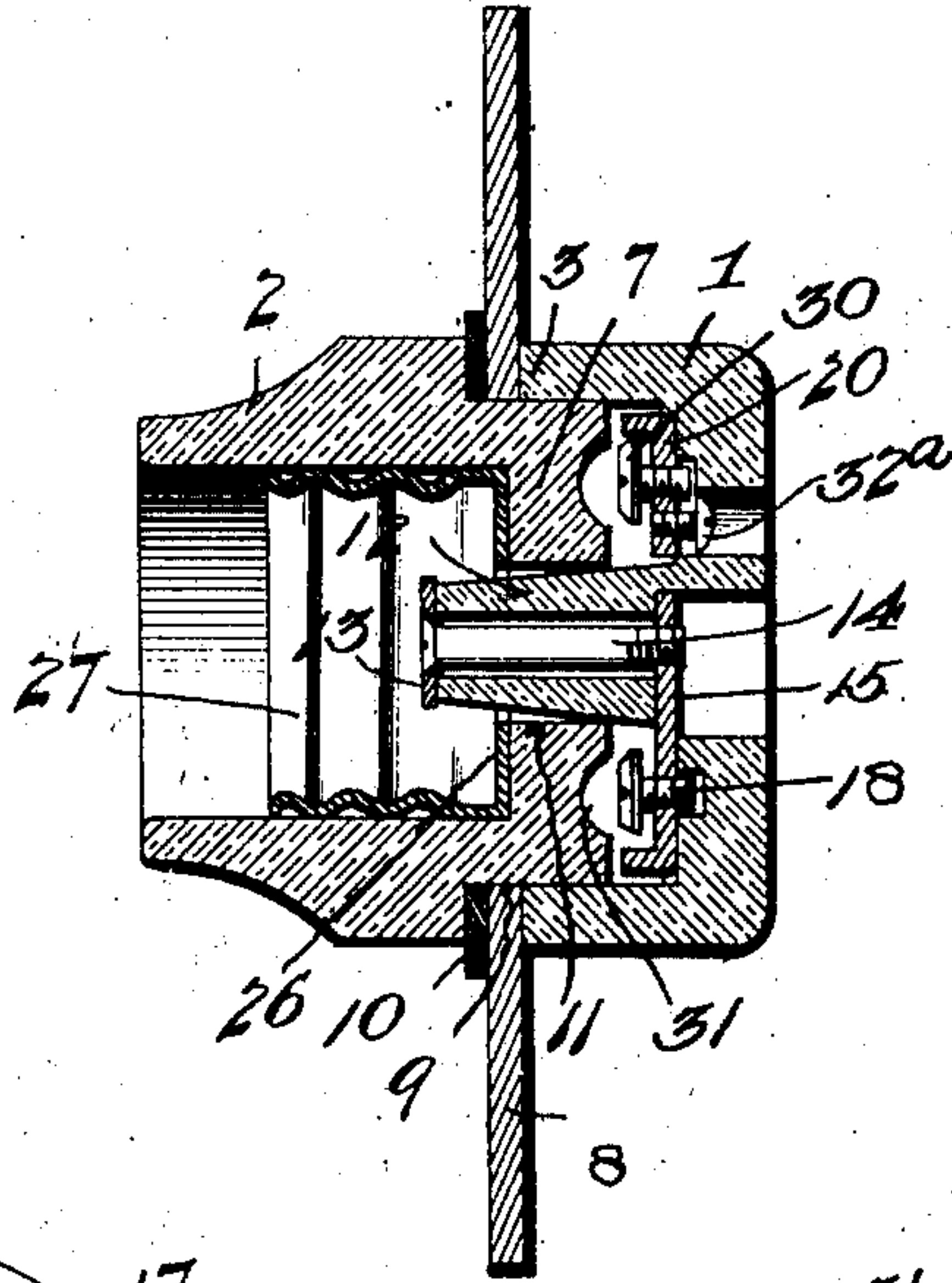


Fig. 2.

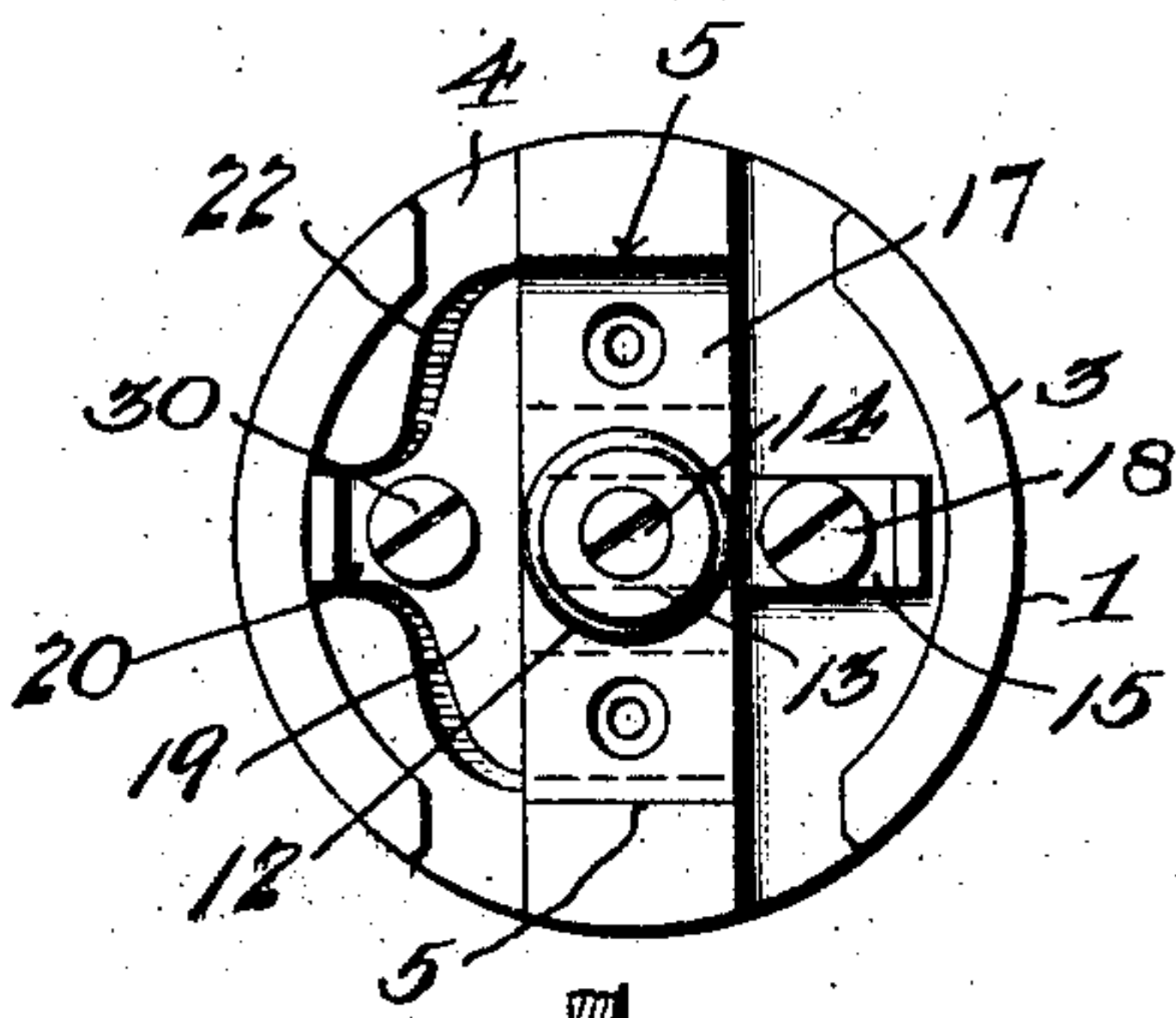


Fig. 3.

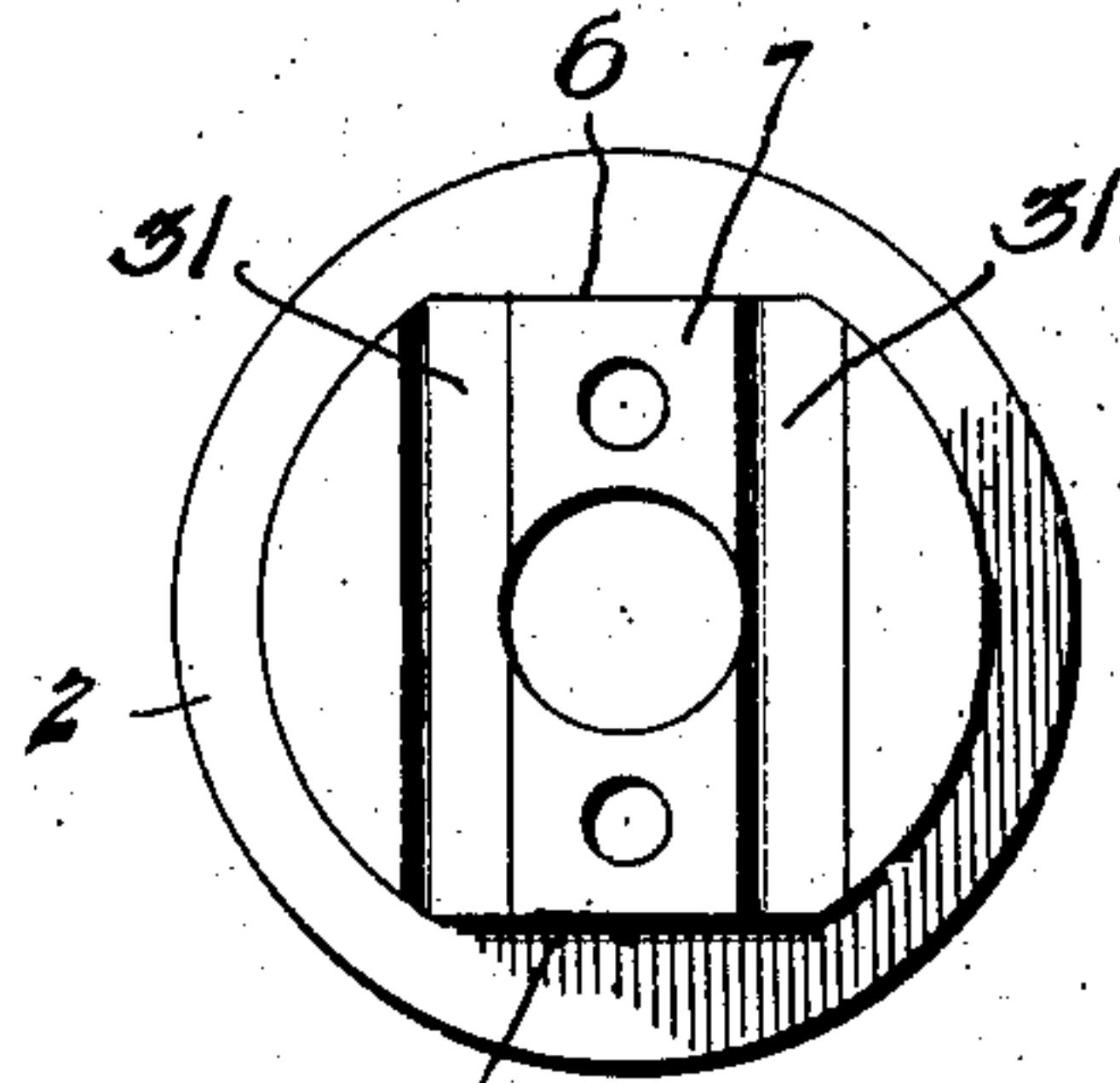


Fig. 4.

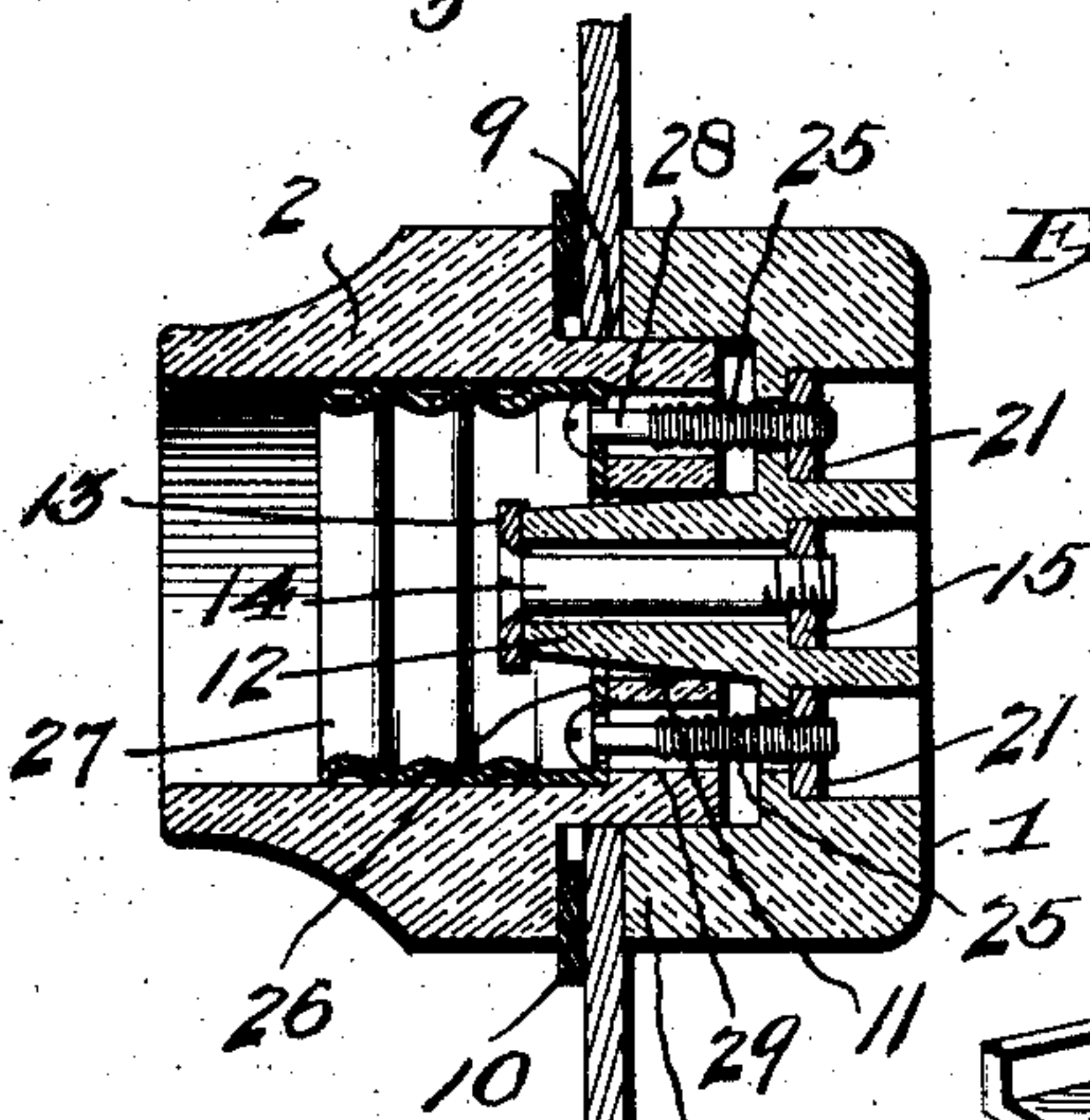


Fig. 6.

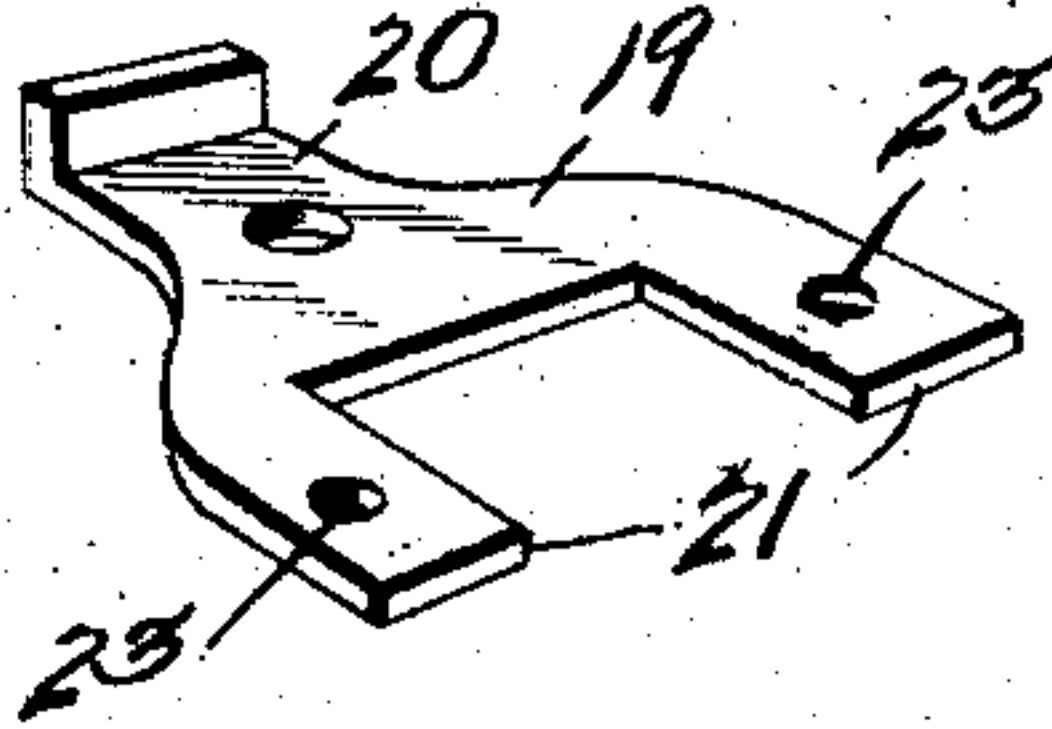
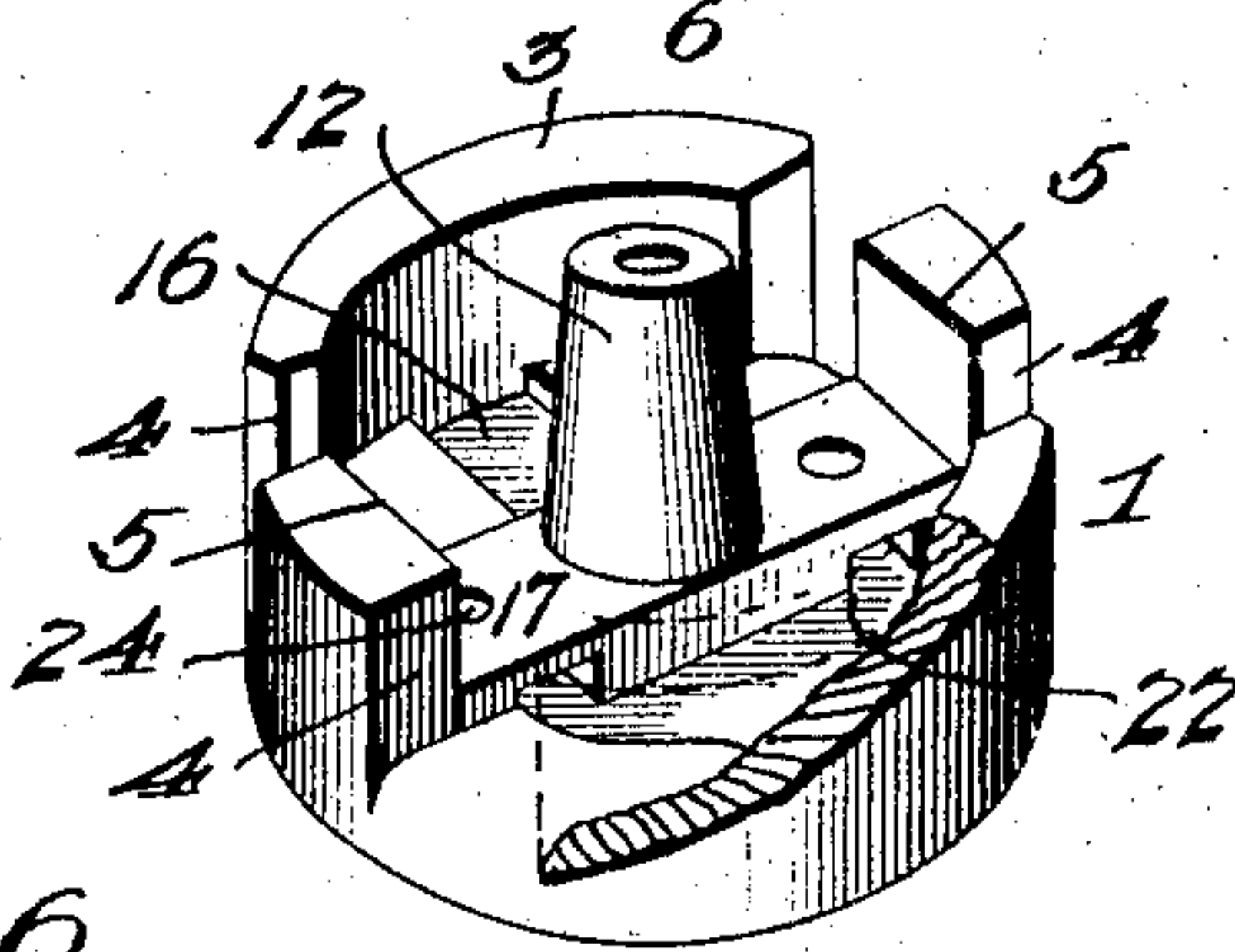


Fig. 5.



WITNESSES:

J. L. Mochan
William W. Deane

INVENTOR

Frank J. Russell

By

S. F. Holhafter

Attorney

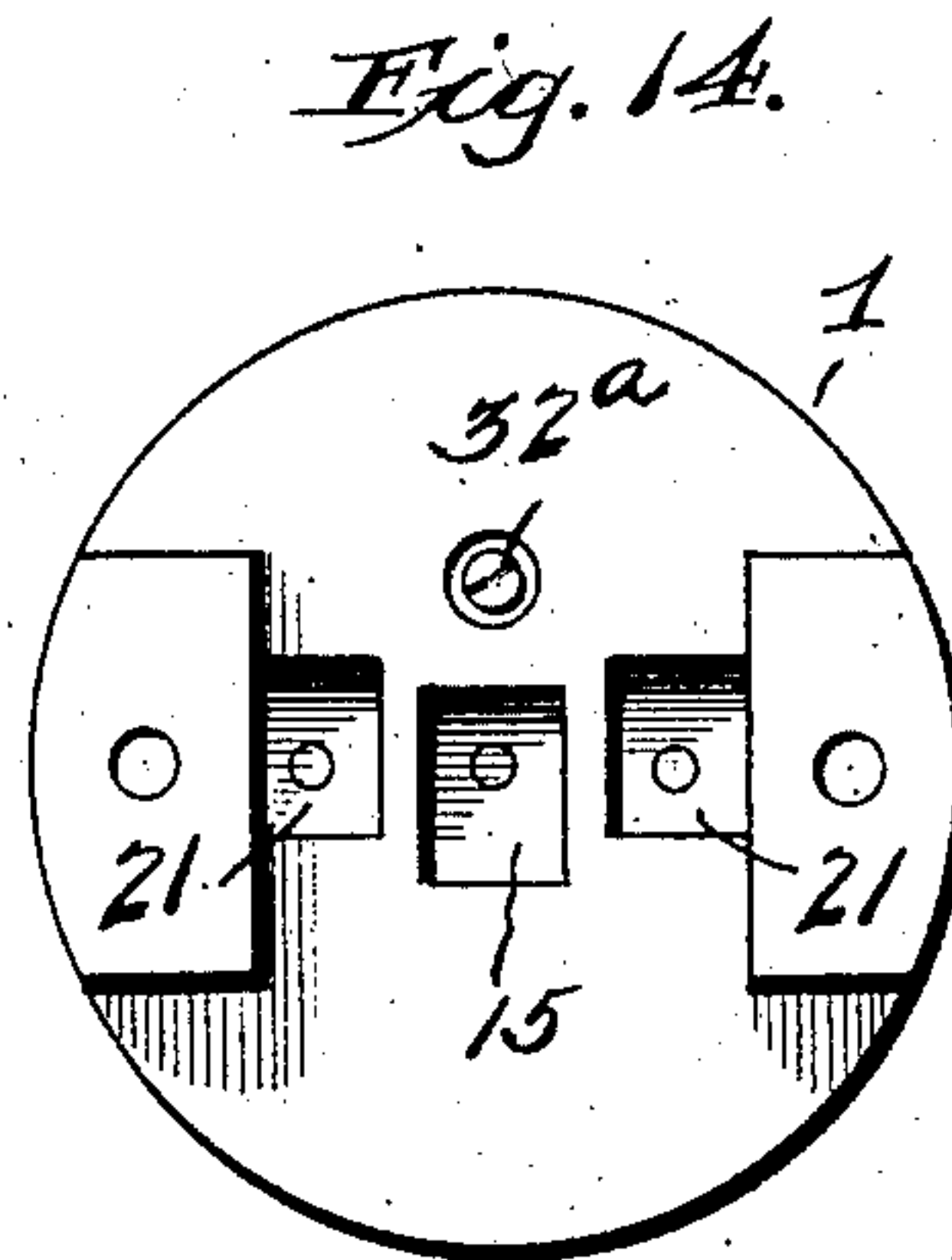
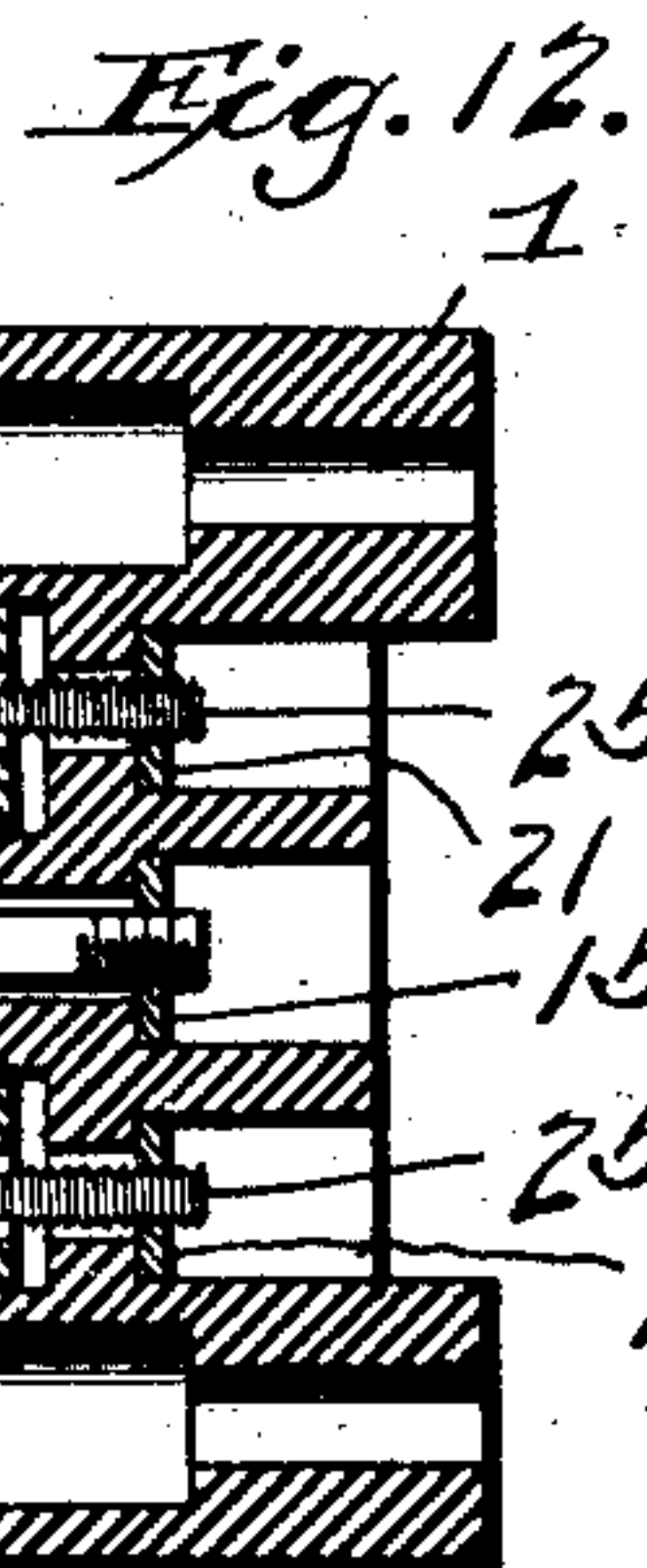
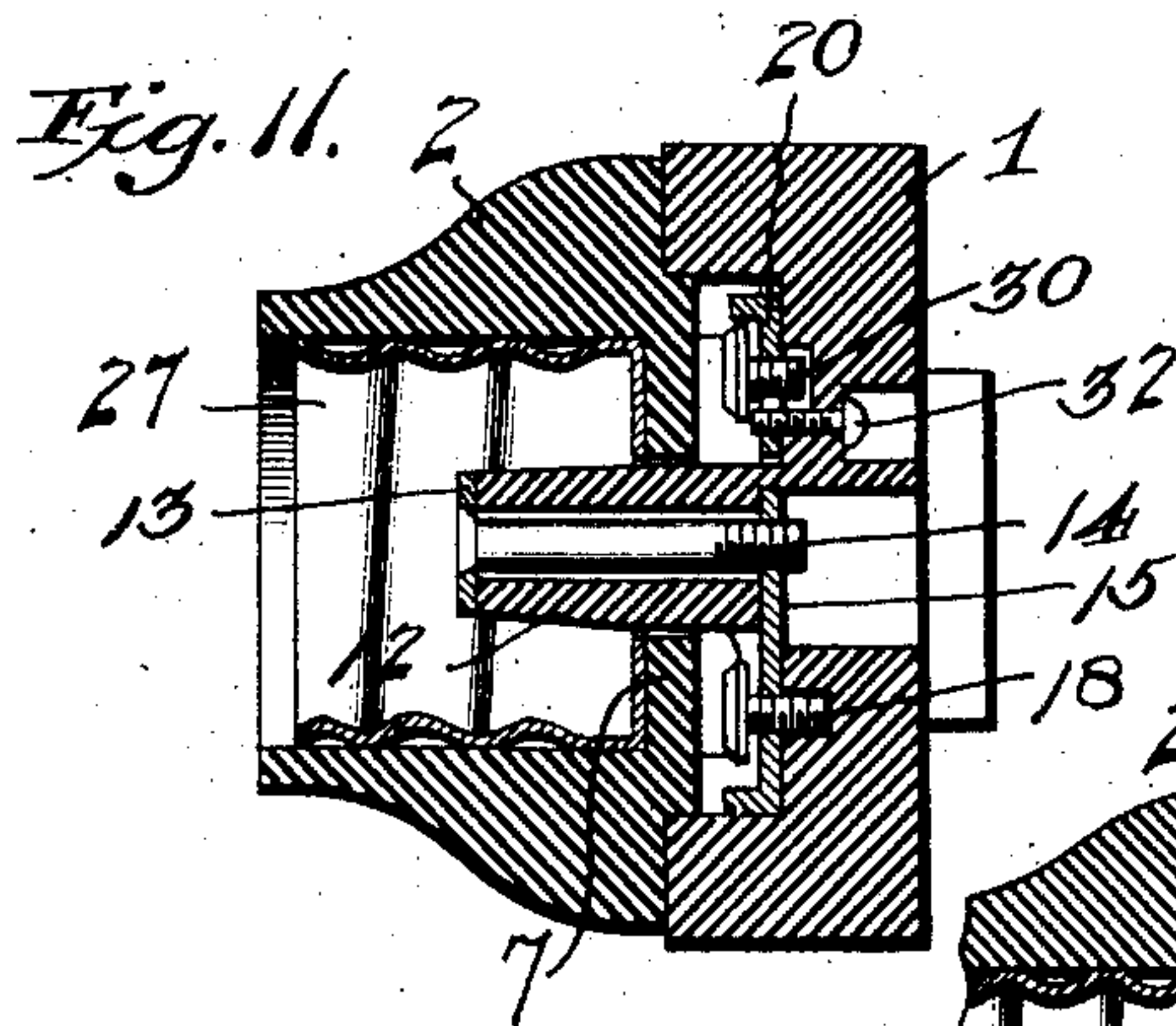
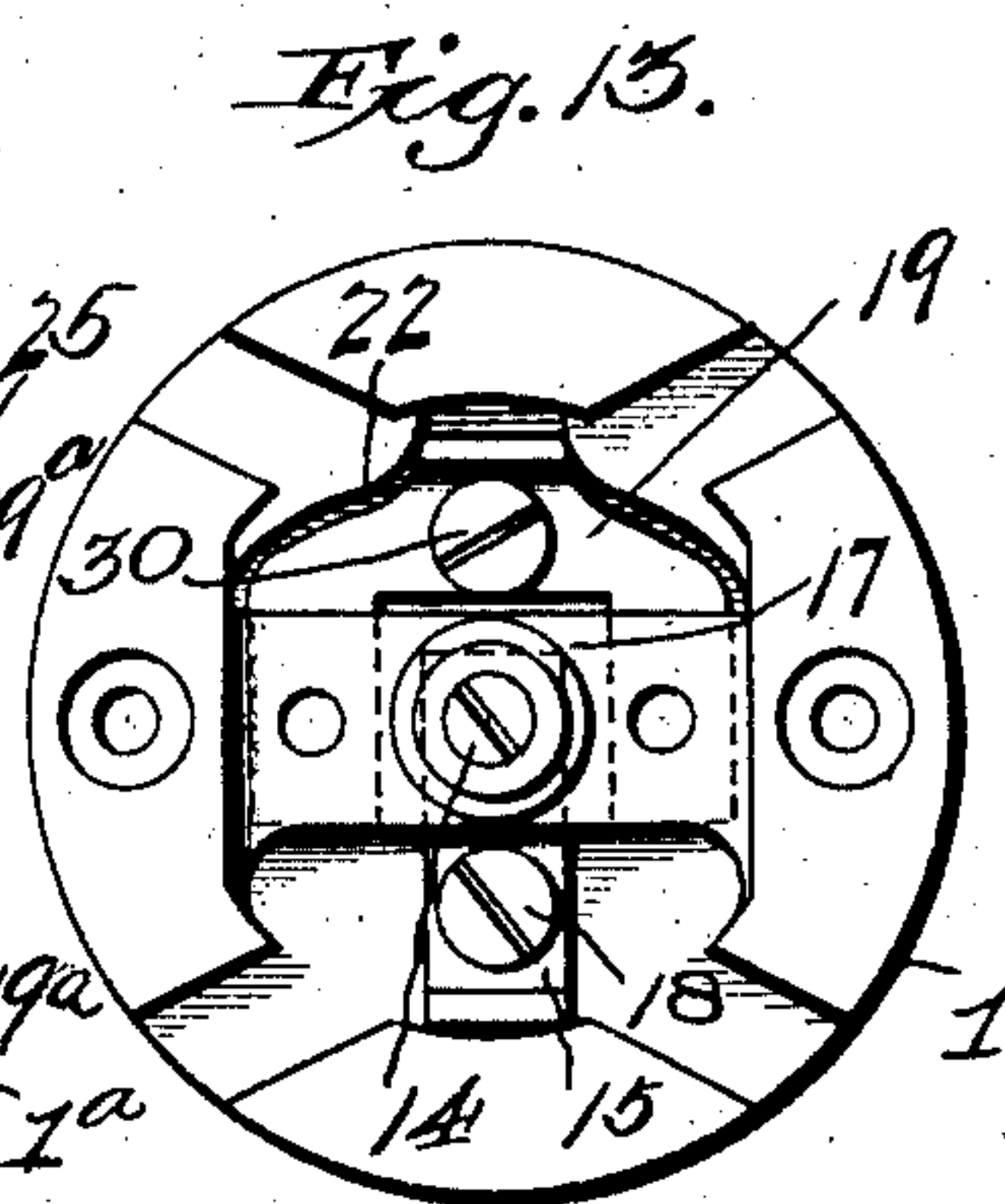
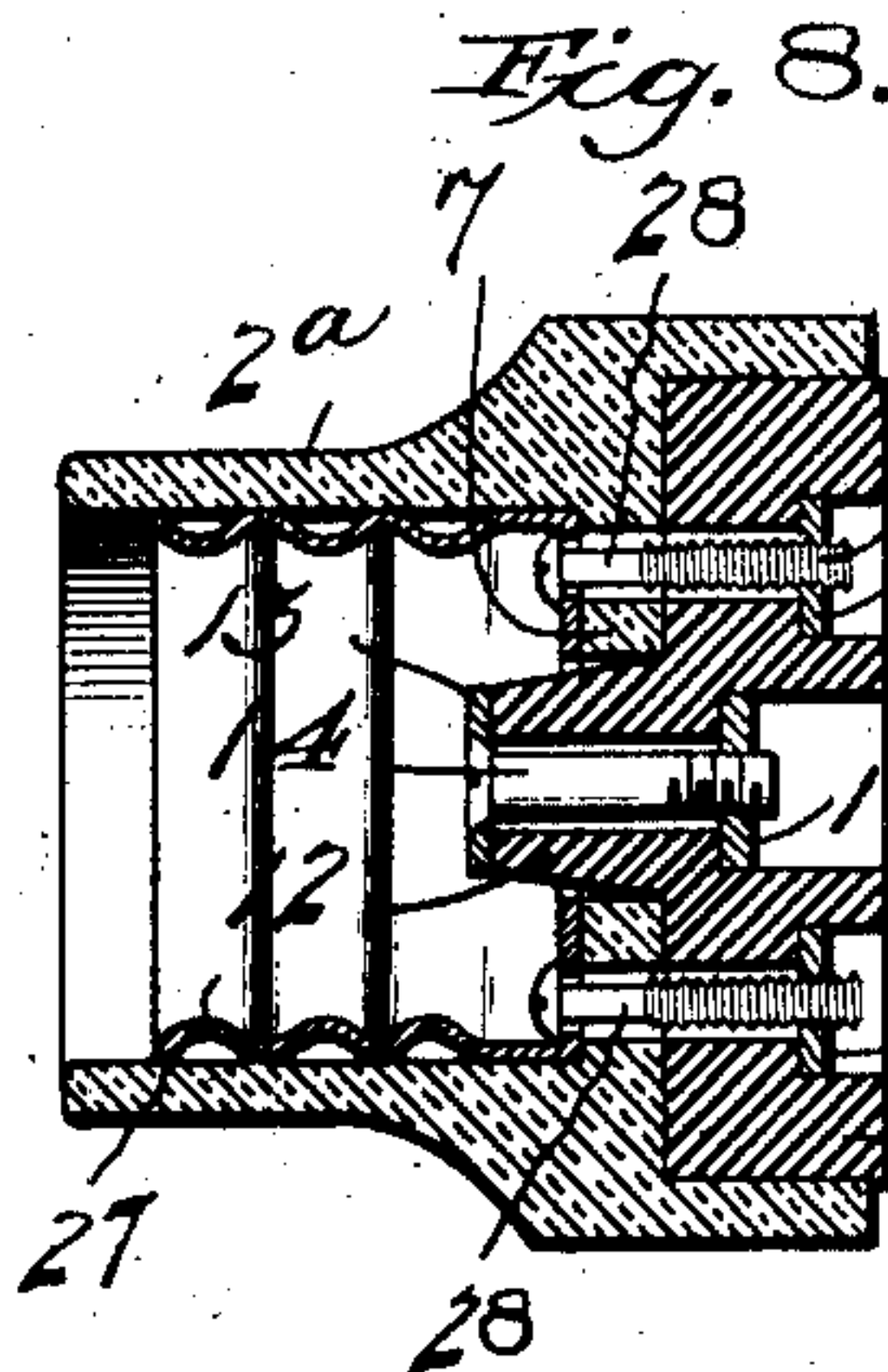
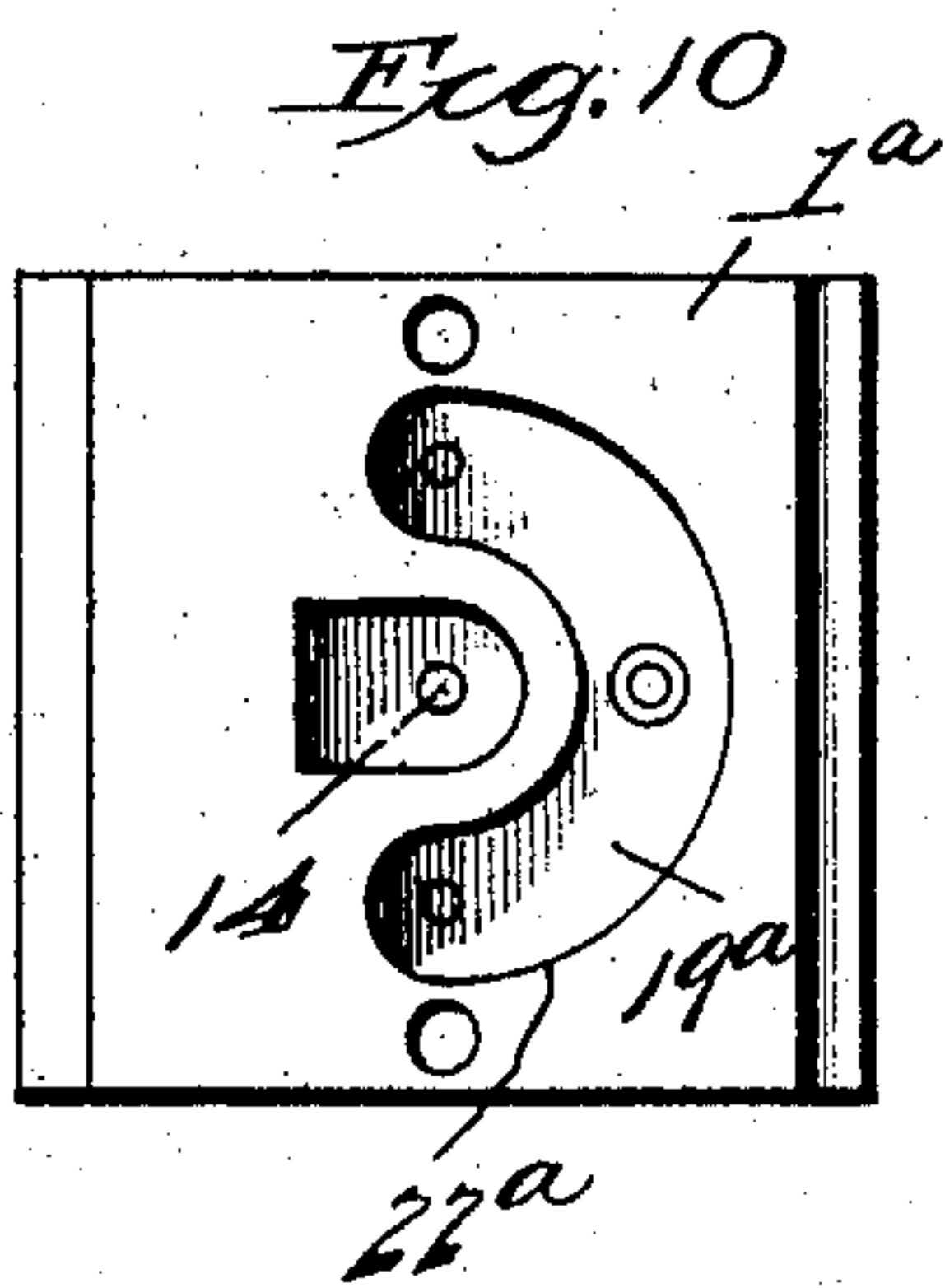
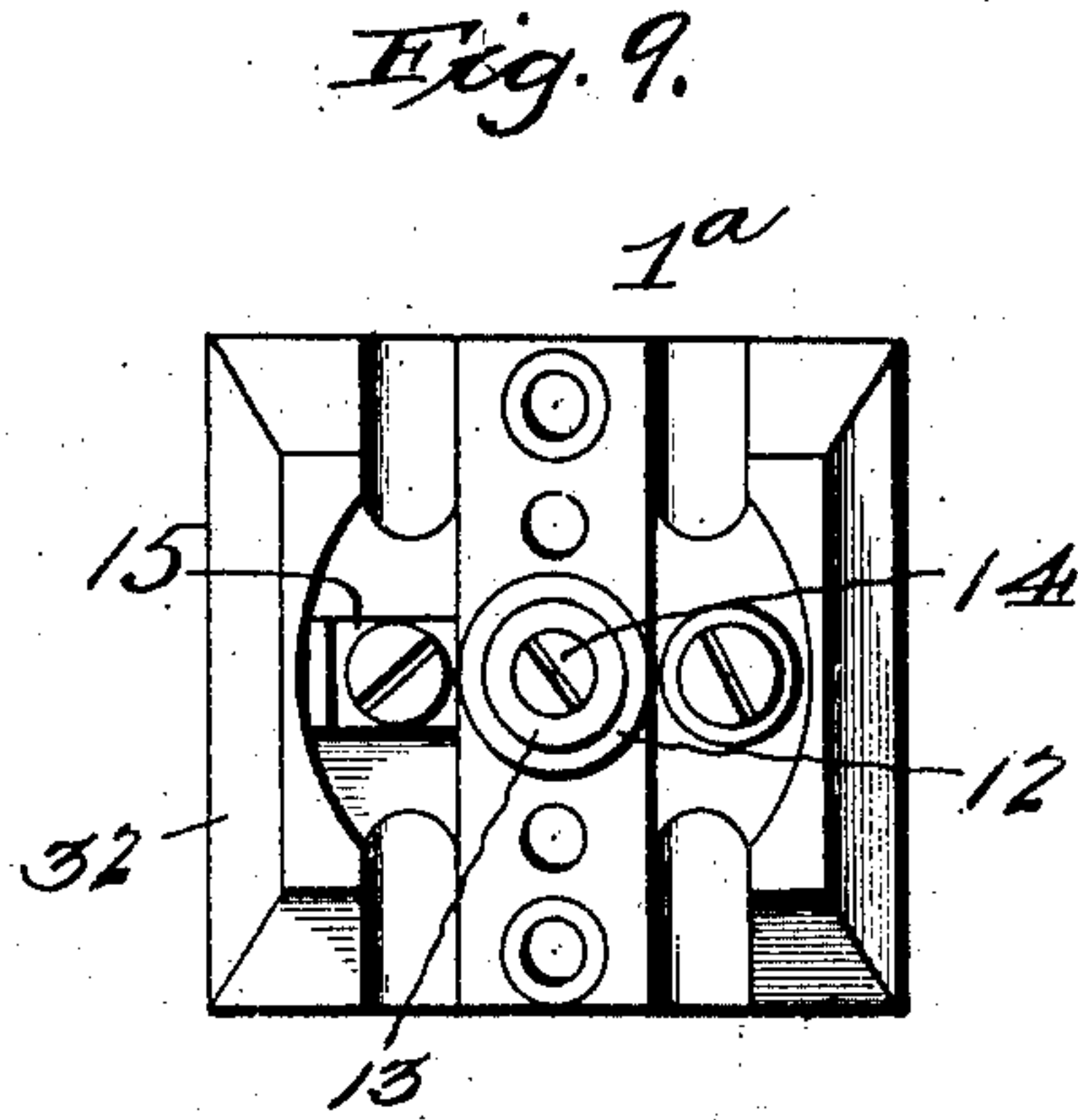
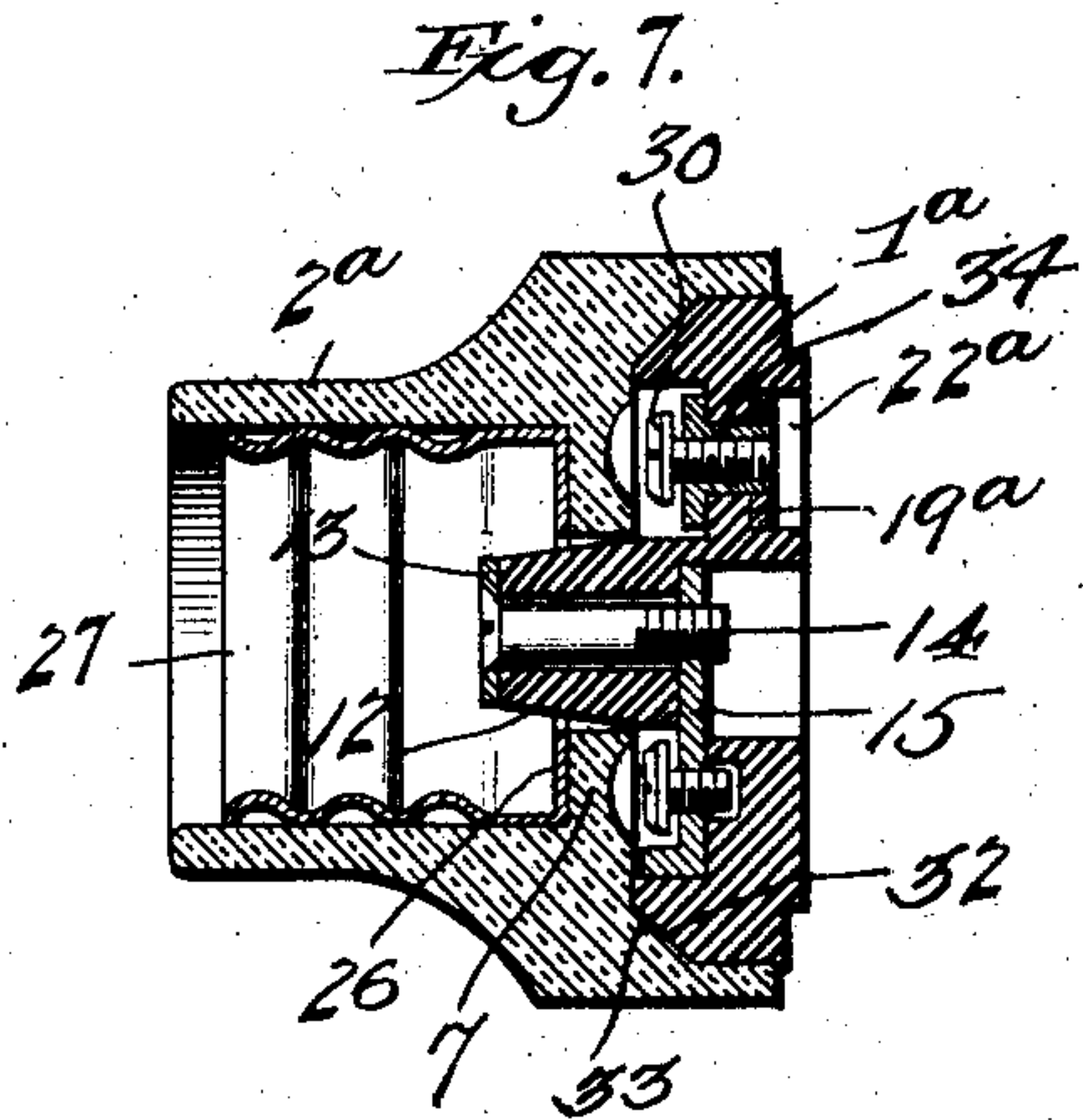
No. 840,014.

PATENTED JAN. 1, 1907.

F. J. RUSSELL.
ELECTRICAL PLUG RECEPTACLE.

APPLICATION FILED FEB. 13, 1906.

2 SHEETS—SHEET 2.



WITNESSES:

T. L. Kockham
William W. Dyer

INVENTOR

Frank J. Russell

By

D. P. Wolhaupter
Attorney

UNITED STATES PATENT OFFICE.

FRANK JOSHUA RUSSELL, OF NEW YORK, N. Y.

ELECTRICAL PLUG-RECEPTACLE.

No. 840,014.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed February 13, 1906. Serial No. 300,923.

To all whom it may concern:

Be it known that I, FRANK JOSHUA RUSSELL, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Plug-Receptacles, of which the following is a specification.

This invention relates to that type of electrical fixtures known in the art as "electrical receptacles" designed to receive and make connection with the common standard forms of electrical connecting-plugs, such as electric-lamp plugs or extension-circuit plugs.

To this end the invention contemplates certain novel and practical improvements possessing utility in connection with different types of electrical receptacles, such as those employed as junction-boxes, as well as those employed as wall and molding receptacles. In this connection the invention has in view a novel construction and arrangement of parts which provide what may be properly termed a "weatherproof" electrical receptacle, inasmuch as special provision is made not only for thoroughly housing the wire terminals, but more particularly securing as complete an isolation as possible of the electric contacts or terminals, so as to prevent moisture bridging across the same and short-circuiting the terminals.

The short-circuiting in electrical receptacles through the bridging of the plug-contacts by moisture is a common occurrence in many of the ordinary forms of electrical receptacles on the market, and one of the novel features of the present invention resides in avoiding this through an improved arrangement of the plug contact or terminal elements whereby the separate contact elements will be carried by separate parts of the receptacle-body.

A further object in this connection is to provide a construction wherein one part or section of the receptacle-body carries the two wire terminals and one of the contact elements for the plug, while the other part or section of the receptacle simply carries the other contact element with which the plug makes electrical connection.

Another object of the invention is to effect a complete housing for the wire or terminal connections on the base of the receptacle through the medium of the cap or socket section of the receptacle and also to provide

improved means whereby the separate parts of the receptacle may be assembled and taken apart with the greatest facility.

Also another object of the invention is to provide an interlocking or matching engagement between the two parts of the receptacle whereby the same are guided to perfect matching relation and at the same time are relatively adjustable, so that in the junction-box form of receptacle the separate parts of the latter are clamped upon a supporting sheet or board through the medium of the assembling means for the two parts of the receptacle.

With these and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention involved in carrying out the special objects above indicated are necessarily susceptible to structural modification without departing from the scope of the invention; but several preferred embodiments of the latter are shown in the accompanying drawings, in which—

Figure 1 is a sectional view of a preferred form of electrical receptacle embodying the improvements contemplated by the present invention and illustrating a receptacle of the junction-box type. Fig. 2 is a top plan view of the base-section of the receptacle shown in Fig. 1, showing the terminal plates and binding-screws in position. Fig. 3 is a bottom plan view of the cap-section shown in Fig. 1. Fig. 4 is a sectional view of the receptacle at right angles to the line of section of Fig. 1. Fig. 5 is a detail in perspective of the base-section omitting the metal attachments. Fig. 6 is a detail in perspective of the forked terminal plate of the base-section. Fig. 7 is a sectional view of a modified form of receptacle, such as adapted for molding and embodying the present invention. Fig. 8 is a similar view of the same modification on a line of section at right angles to that of Fig. 7. Fig. 9 is a top plan view of the base-section shown in Figs. 7 and 8. Fig. 10 is a bottom plan view of the same base-section. Figs. 11 and 12 are views similar to Figs. 7 and 8, illustrating the improvements adapted to another type of receptacle, such as em-

ployed as a wall-receptacle. Figs. 13 and 14 are top and bottom plan views, respectively, of the base-section shown in Figs. 11 and 12.

Like references designate corresponding parts in the several figures of the drawings.

In carrying out the present invention an essential feature thereof resides in constructing the separable receptacle-body in two pieces, the same consisting of a base-section 1 and a cap or socket section 2, made of porcelain or other suitable insulating material and designed to be detachably interlocked together, while at the same time carrying the necessary metal fittings and parts to provide the necessary electrical contacts and connections for an electrical plug of any of the ordinary types.

The special improvements contemplated by the present invention are well exemplified in the illustration of the preferred form of receptacle shown in Figs. 1 to 6, inclusive, of the drawings, and, referring in the first place to this embodiment of the invention, it will be observed that the insulating base-section 1 of the receptacle is of hollow formation, the same being formed with a projecting wall 3, provided in diametrically opposite portions with the separate parallel pairs of conductor-receiving notches 4, and at other diametrically opposite portions the said offstanding wall of the base-section 1 is provided with the guiding and locking flats 5, adapted to register with the complementary guiding and locking flats 6, provided on opposite sides of the exteriorly-shouldered closed bottom portion 7 of the detachable cap or socket section 2. This engagement provides an interlocking connection between the two parts of the receptacle-body which insures the same being readily guided into perfect matching relation, while at the same time positively locking the two sections against a relative turning movement, thus entirely relieving the assembling screws or connections from any twisting or torsional strain incident to the screwing in or out of the electrical connecting-plug.

In connection with the complementary interlocking engagement between the base and cap sections of the receptacle it may be noted at this point that this connection provides a telescopic fit between the two sections 1 and 2, thus permitting a relative bodily movement of the sections, so that the same can be tightly connected under all conditions and also clamped directly upon a plate, signboard, or other supporting medium (designated in the drawings by the numeral 8) and provided therein with a receiving hole or opening 9, through which projects the shouldered closed bottom 7 of the cap-section 2. This provides for interposing the supporting medium 8 between the base-section 1 and the cap-section 2, and at this point of clamping engagement a gasketing-washer 10 may

be placed, as plainly shown in Figs. 1 and 2 of the drawings.

In the construction described it will be perceived that the closed bottom portion 7 of the cap-section 2 acts as an insulating-cover for the cavity within the base-section 1, which is of material importance from an electrical insulating standpoint, and said bottom portion 7 of the cap 2 is provided therein with a central clearance-opening 11, through which projects an insulating central supporting-post 12, which is preferably projected centrally and integrally from the base-section 1 and extends through the opening 11 a material distance into the cap or socket section 2. The said post 12 supports on the end thereof within the cap-section 2 the center contact element 13 for the electric plug, said element consisting of a plate or button held in position by the connecting-screw 14, extending longitudinally through the bore of the post 12 and screwed into a fixed terminal plate 15, arranged in a transverse holding-seat 16, provided in what may be termed the "top" side of the base-section and extending beneath a raised transverse insulating-bridge 17, formed integrally with the base. The terminal plate 15 is locked in position by the connecting-screw 14, and the end portion thereof exposed within the base carries one of the binding-screws 18 for engaging one of the electrical conductors.

The other terminal within the base for the other electrical conductor consists of a forked terminal plate 19, having a main shank portion 20 and the spaced fork-arms 21. The forked terminal plate is seated in a correspondingly-shaped plate-holding seat 22, the side extensions of which extend beneath the insulating-bridge 17 to receive the separate fork-arms 21, which are provided with the screw-holes 23, registering with the screw-openings 24 in the bridge 17, through which extend the threaded portions of the assembling-screws 25. These assembling-screws have their headed portions arranged to engage the base 26 of the side plug-contact elements 27, located within the cap or socket piece 2 and usually consisting of the ordinary metal threaded shell to receive the threaded cap of the electrical plug. The shank portions of the assembling-screws 25 are preferably formed with slightly-reduced sections 28, extending through the openings in the base of the contact or shell piece 27, whereby the slightly larger threaded body of the screws will act as retaining means to hold said screws in place in the openings of the element 27 when the screws are disengaged from the terminal plate 19. Screw-openings 29 are provided in the closed bottom portion 7 of the cap 2 to admit of the screws 25.

The main shank portion 20 of the forked terminal plate 19 is exposed within the base-section at the side of the bridge 17 opposite

the seat 16 and has fitted thereto the second binding-screw 30 for the other electrical conductor. Parallel conductor-grooves 31 are provided in the under side of the bottom portion 7 within the plane of the notches 4 to admit of the stringing of the conductors through the receptacle.

From the foregoing description it will be observed that the base-section of the receptacle carries the two wire-terminal connections and only one of the plug-contacts 13, while the other or cap section 2 of the receptacle-body carries only one of the plug-contacts 27, which is thoroughly insulated from the other metal parts by the bottom 7 and the post 12, while at the same time the disposition of the other metal parts with relation to the insulation 17, 7, and 12 provides a very compact and thoroughly weather proof receptacle wherein the possibility of short-circuiting by bridging of moisture is very greatly lessened. Also the wire terminals are entirely inclosed, and the parts are so arranged and constructed that the most inexperienced workman can set up and take apart the receptacle.

It is preferable in the construction described to hold the forked terminal plate 19 in place through the medium of a retaining-screw 32^a, passing through an opening in the bottom of the base 1.

As previously indicated, the invention may be carried out by a slightly different arrangement or modification of parts—such, for instance, as arranging the terminal plates of the base on the top thereof or on the bottom or near or in any other practical insulating position, and the contact element 27 may be of any improved or preferred type and held in place through any suitable means so long as the general features of the invention herein pointed out are preserved, and for illustrative purposes certain practical modifications of the invention are illustrated in Figs. 7 to 14, inclusive. Referring particularly to these figures of the drawings, it will be observed that the type of receptacle shown in Figs. 7 to 9, inclusive, includes a base-section 1^a, having a peripheral beveled edge 32, having a matching fit within and against a correspondingly-beveled seat 33, provided within the closed bottom portion of the cap or socket section 2^a, thus providing a flush-seated base-section, which, however, is of a hollow formation and, in conjunction with the cap-section 2^a, adapts the improvements to a molding type of receptacle.

In the modification just referred to it will be observed that the forked terminal plate (designated by the numeral 19^a) is arranged within a plate-holding seat 22^a, formed in the bottom of the base-section 1^a, and the binding-screw connection 30 for said plate is effected through a bushing or sleeve or equivalent part 34, fitting in an opening in the base.

In other particulars this modified construction is the same as shown in Figs. 1 and 6 of the drawings, and similar references apply to similar parts.

The other modification (shown in Figs. 11 to 14, inclusive, of the drawings) illustrates the improvements applied to a wall type of receptacle and also shows that the latter may be formed of other insulating material than porcelain. In other respects the construction and arrangement of parts is substantially the same as described for Figs. 1 to 6, inclusive, of the drawings, and the same reference-numerals will apply.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim—

1. An electrical receptacle comprising separate base and cap sections one of which is provided with the plug-receiving opening, each of said sections carrying a single plug-contact element exposed within the plug-receiving opening, and one of said sections also carrying the wire terminals.

2. An electrical receptacle comprising a base-section, a cap-section having an insulating bottom portion arranged to form a housing for the base-section, said base and cap sections respectively carrying only one of the plug-contact elements exposed within the cap, and the base-section also carrying both wire terminals.

3. An electrical receptacle comprising separate base and cap sections, the cap-section having a bottom portion covering the base, and the latter having a contact-supporting member projecting through said bottom portion and into the cap-section, a plug-contact arranged on said supporting member within the cap-section, a plug-contact arranged in and fitted to the cap-section, and wire-terminal connections fitted to the base-section, and each having a connection with one of the plug-contacts.

4. An electrical receptacle comprising separate base and cap sections, the latter having an insulating bottom portion acting as a cover for the base-section, and the latter having a central insulating supporting-post projecting through said bottom portion into the cap-section, a central plug-contact arranged on said post, a single contact element fitted within the cap-section on the bottom thereof, wire-terminal fittings carried by the base-section and each having a metallic connection with one of the plug-contacts, and common means for connecting the base and cap sections and for holding in place the plug-contact carried by said cap-section.

5. An electrical receptacle comprising a base-section having a central offstanding supporting-post, a cap-section having a bot-

tom portion covering the base-section and provided with a clearance-opening through which said post projects, a central plug-contact arranged on said post, a side plug-contact fitted in the cap-section on the bottom portion thereof; two wire-terminal connections for the separate contacts carried by said base-section, and adjustable connecting means for the base and cap sections.

6. An electrical receptacle comprising a base-section and a cap-section separably connected, a single plug-contact carried by the base-section and located within the cap-section, a single plug-contact carried by the cap-section, a terminal plate fitted to the base-section and having a screw connection with the contact carried thereby, a forked terminal plate also carried by the base-section, and assembling-screws engaging the contact of the cap-section and the separate members of the forked terminal plate.

7. An electrical receptacle comprising a hollow base-section having a transverse insulating-bridge and a central supporting-post, a cap-section fitting said base and having a bottom portion through which said post projects, a plug-contact arranged on said post within the cap-section, a plug-contact shell fitted within the cap-section on the bottom

portion thereof, a single terminal plate seated in the bottom section beneath the bridge and having a screw connection with the contact on the supporting-post, a forked terminal plate also seated on the base-section and having its separate parts arranged beneath said bridge, and assembling-screws passed through the contact-shell, the bottom portion of the cap-section, and adjustably engaging the separate arms of said forked plate.

8. An electrical receptacle comprising a base-section and a cap-section having a telescopic non-rotative engagement, the cap-section also having an insulating bottom portion covering the base-section, and assembling connections for said sections.

9. In combination with a supporting member, an electrical receptacle comprising separate adjustably-connected and telescoping base and cap sections, one of which extends through an opening in said supporting member, said base and cap sections respectively carrying separate contact elements.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRANK JOSHUA RUSSELL.

Witnesses:

THEO. STOLL,
AUG. W. PLASSMANN.