

No. 637,890.

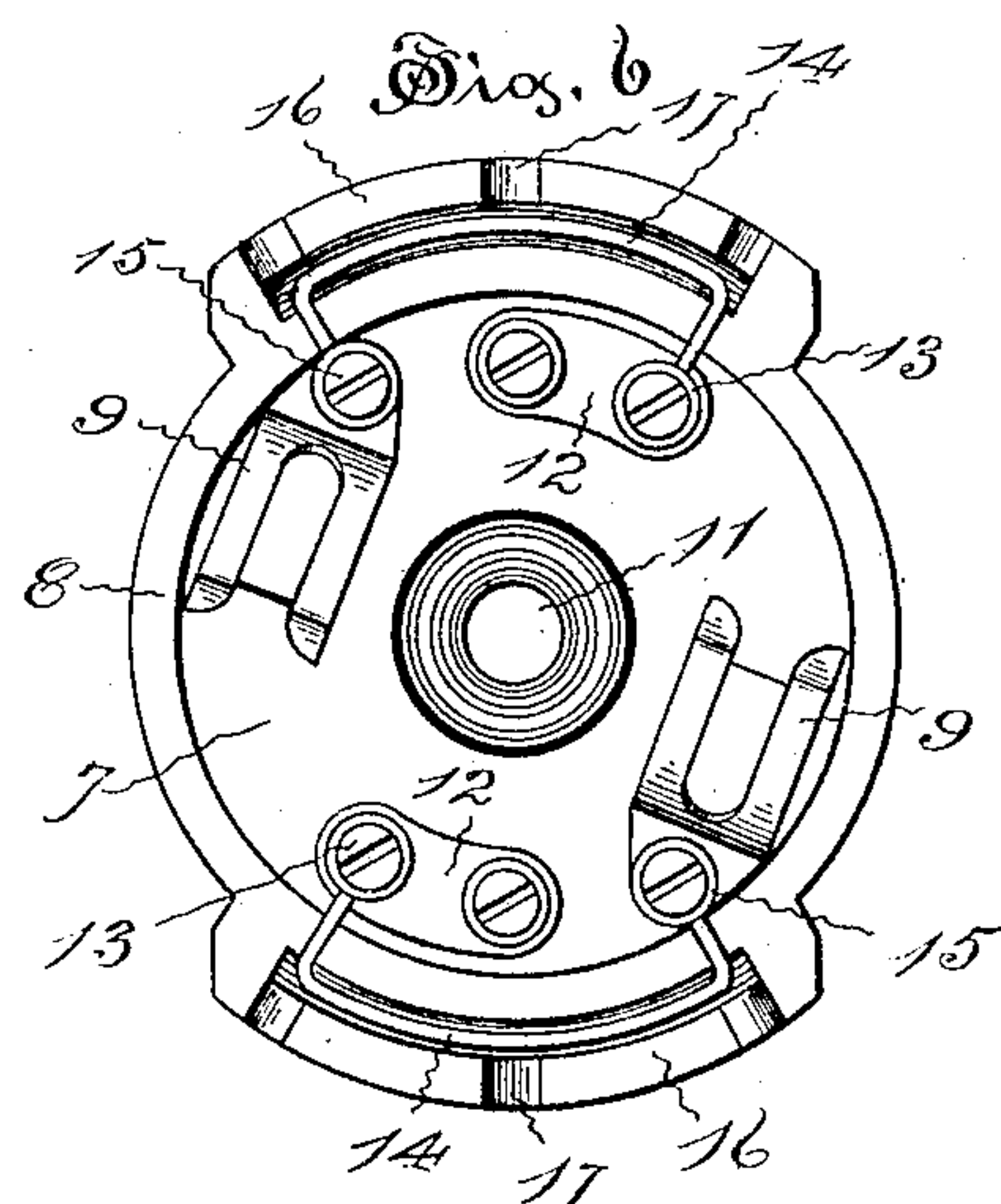
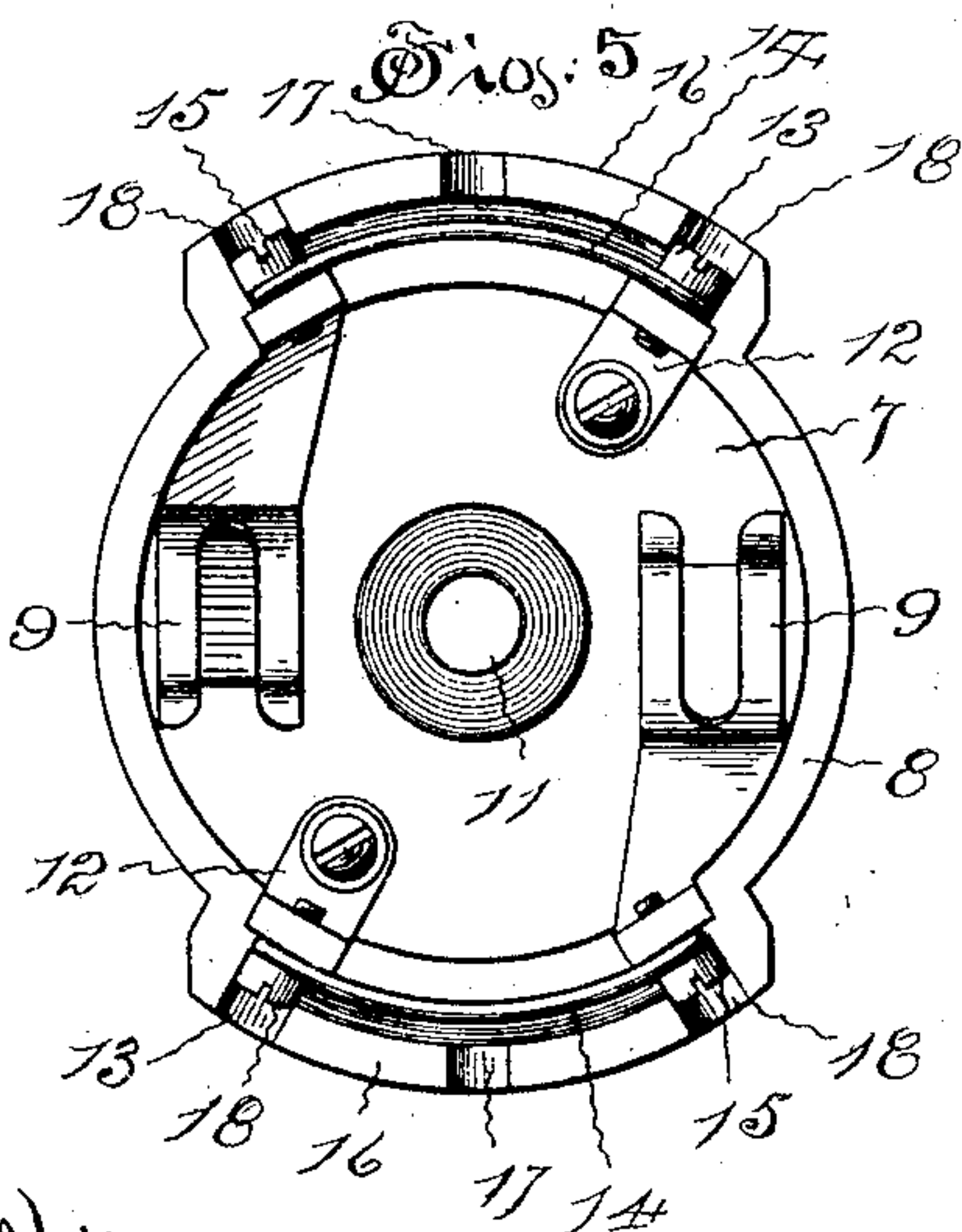
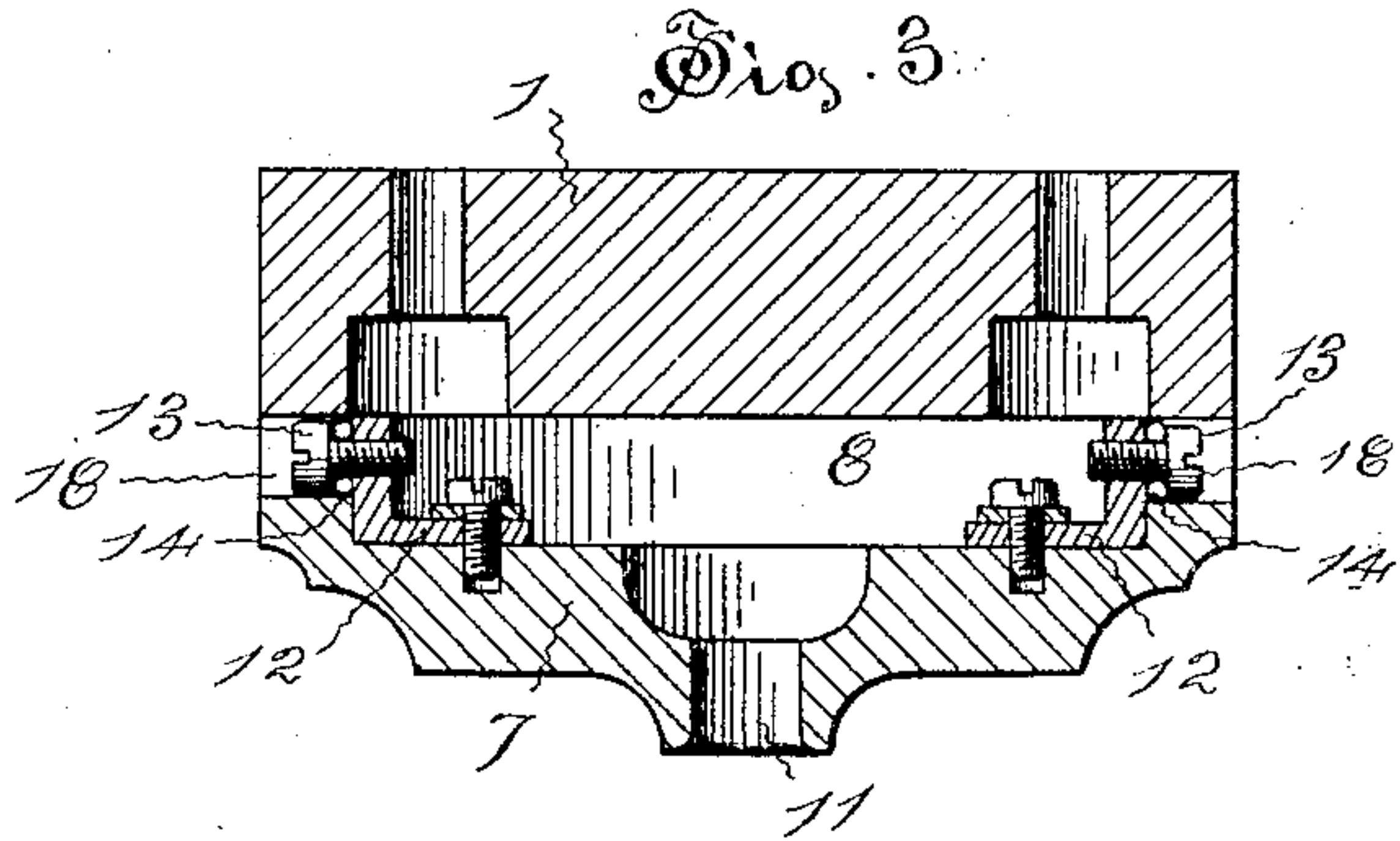
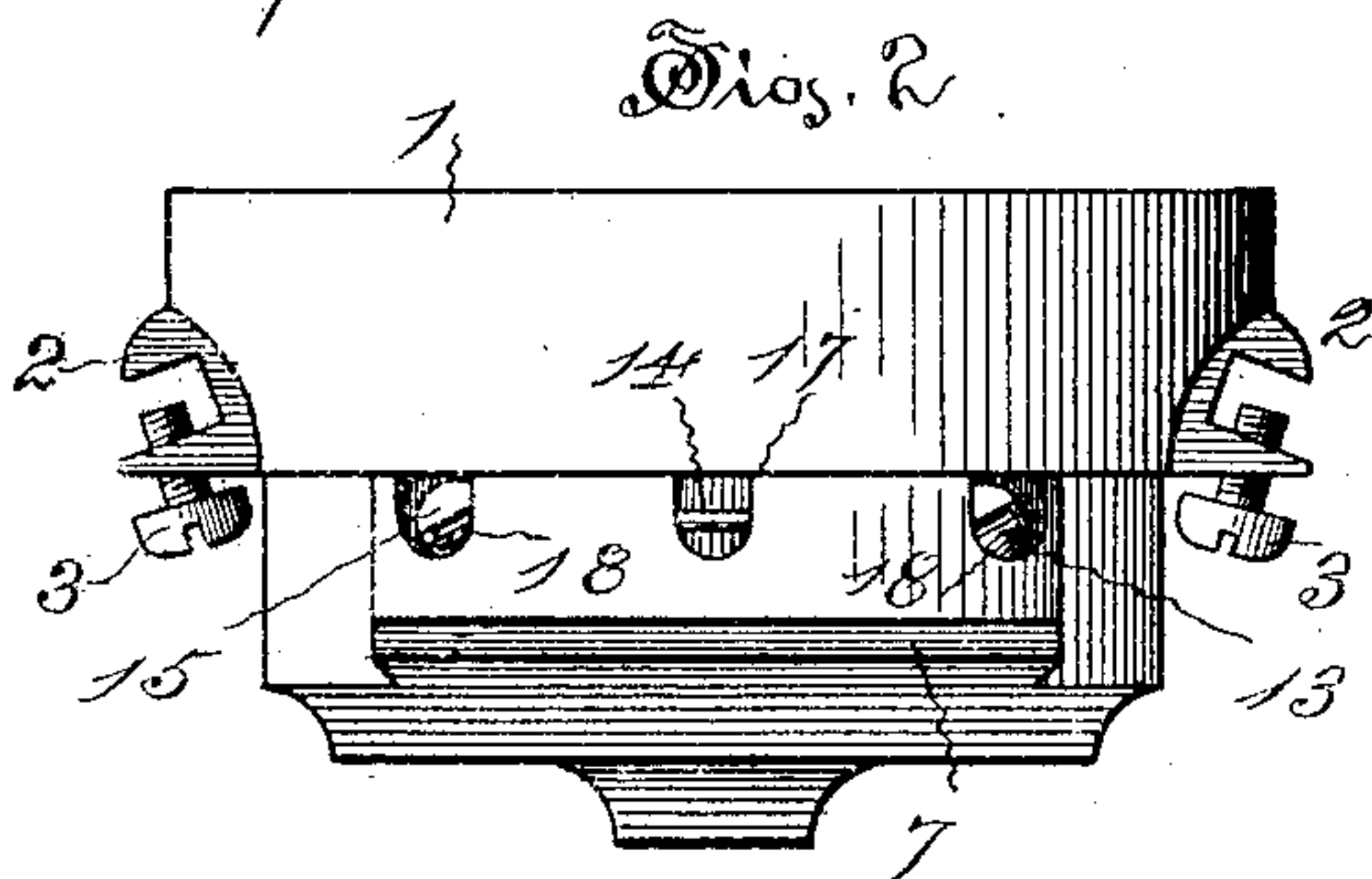
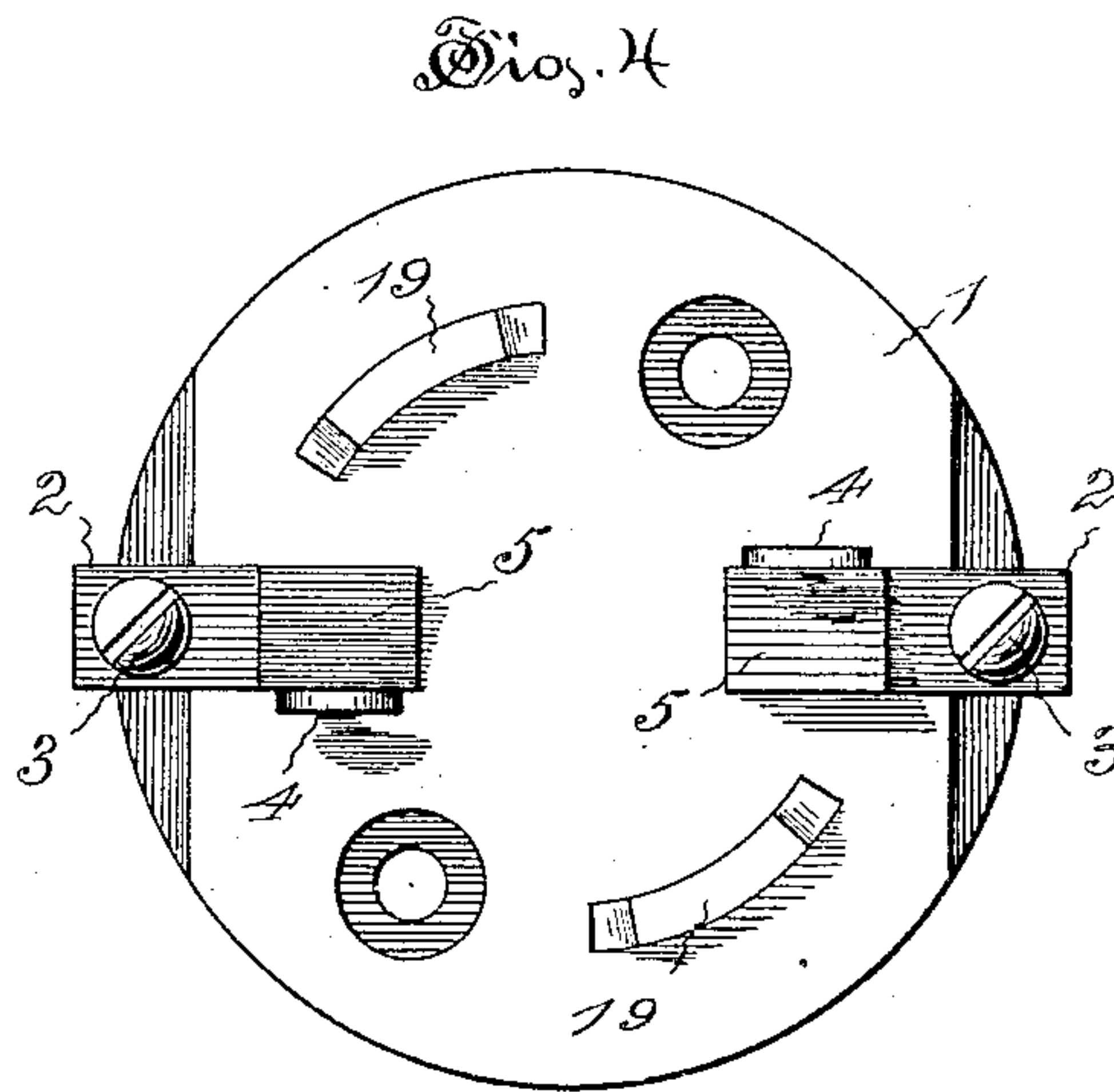
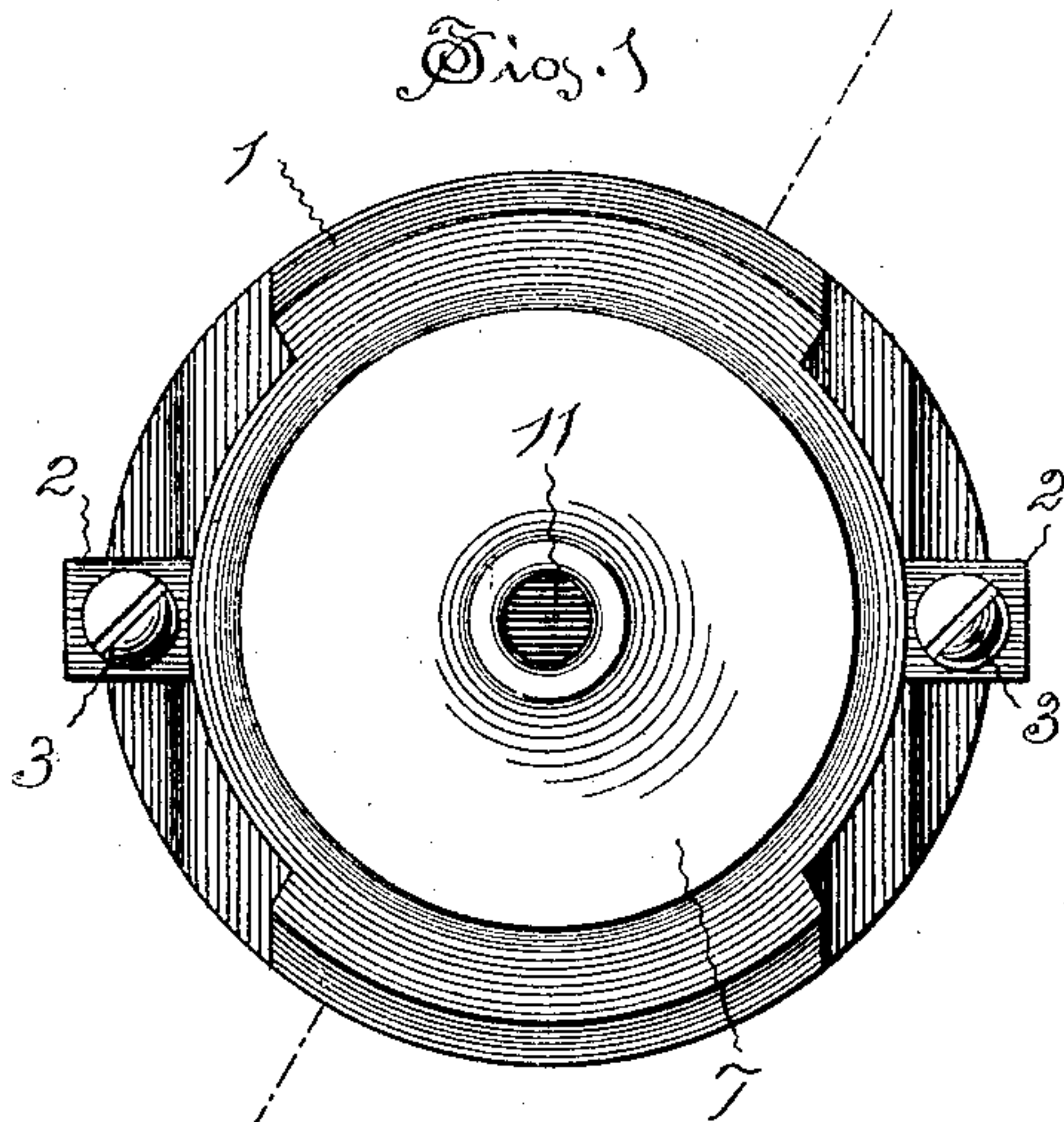
Patented Nov. 28, 1899.

C. G. PERKINS.
ELECTRICAL CUT-OUT.

(Application filed June 28, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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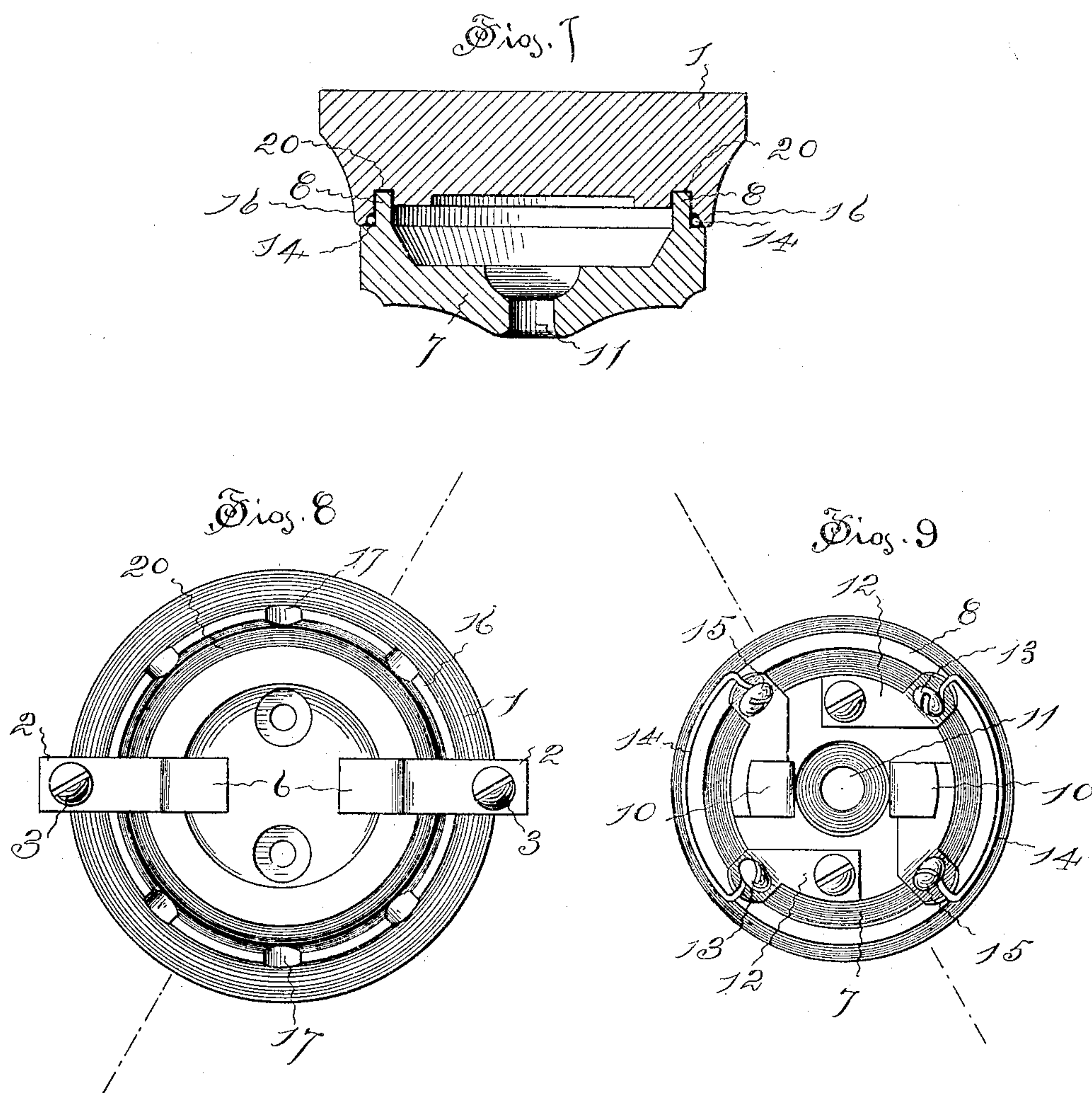
Patented Nov. 28, 1899.

C. G. PERKINS.
ELECTRICAL CUT-OUT.

(Application filed June 28, 1897.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

CHARLES G. PERKINS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PERKINS ELECTRIC SWITCH MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRICAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 637,890, dated November 28, 1899.

Application filed June 28, 1897. Serial No. 642,613. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. PERKINS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Electrical Cut-Outs, of which the following is a specification.

This invention relates to the class of cut-outs for electrical circuits which have a fuse-wire that melts or blows out and opens the circuits with which the cut-outs are connected when more than the desired amount of electricity flows through the wire.

The object of the present invention is to construct a very simple and inexpensive cut-out of this nature with the fuse-wire so arranged that it can be easily and quickly placed in position or renewed when necessary without any danger of accidentally short-circuiting the current and with the fuse-wire so located that an arc cannot possibly be formed between or across any of the metallic contacts or connecting-pieces or these parts be carbonized, burned, or corroded should the fuse-wire melt or blow out under an abnormal amount of electric current.

To this end the invention resides in a cut-out having a base with means for the attachment of the line-wires of the circuit, a cap removably connected with the base and provided with means for the attachment of the circuit-wires to the apparatus to be protected by the cut-out, and fuse-wire connected between parts in the circuit, said fuse-wire being completely isolated from the contacts and connecting means when the base and cap are together, as more particularly hereinafter described, and pointed out in the claim.

Of the accompanying drawings, Figure 1 is a plan of a cut-out that embodies the invention. Fig. 2 is an edge view of the same. Fig. 3 is a sectional view of the base and cap. Fig. 4 is a plan of the base of this cut-out. Fig. 5 is a view of the inside of the cap. Fig. 6 is a view of the inside of the cap with a modified arrangement for connecting the fuse-wire. Fig. 7 is a sectional view of a modified form of cut-out that embodies the invention. Fig. 8 is a plan of the base of this modified form of cut-out, and Fig. 9 is a view of the inside of the cap of this latter form.

The cut-out may have a base made in any desired shape of any suitable insulating material, as wood, composition, or porcelain. The base 1 of the cut-out shown in the drawings is a circular block of porcelain with perforations for the passage of the screws employed to hold it in position. This base is provided with conducting-pieces 2 of any convenient form, bearing binding-screws 3 for the connection of the line-wires of the circuit. Connected with these pieces 2 may be any desired form of holding-heads for the engagement of the fastening-arms on the cap. The pieces 2 shown in Fig. 4 are provided with projecting T-shaped heads 4 and with locking-surfaces 5, that incline toward the plane of the heads as they extend away from the heads. The pieces 2 shown in Fig. 8 are provided with wide flat heads 6, that extend up a slight distance above the surface of the base.

The cap 7 may be made in any desired shape of any suitable insulating material, but preferably is the same material as the base. The cap illustrated in the views is cup-shaped, and attached within the rim 8 are the fastening-arms that engage the holding-heads on the base for securing the base and cap together. The fastening-arms 9 (shown in Fig. 5) are forked, so as to pass beneath the edges of the heads 4, and when thus passed to engage with the inclining locking-surfaces 5 and become bent into locking curves back of the heads, so as to lock the base and cap together. The arms 10 (shown in Fig. 9) are wide and flat, so as to properly engage with the heads 6 of the form of connection shown in Fig. 8. In both of these forms the arms on the cap and the heads on the base are forced into engagement, so as to lock and securely and tightly hold the base and cap together, and they also form a portion of the circuit. This is not material to the invention, however, and any other common form of means for connecting the base and the cap may be employed without departing from the invention.

The cap usually has a central perforation 11 for the passage of the circuit-wires that lead to the apparatus to be protected by the cut-out, and these circuit-wires are intended to be connected by the usual binding-screws

with conducting-plates 12. The conducting-plates may be any desired shape, but preferably they are bent at right angles, as shown in Fig. 3, so that part will extend in the plane of the inside of the end of the cap and part will extend in the plane of the rim around the cap. It is not essential, however, that these plates be formed in this manner, for they may, if desired, be shaped as shown in Fig. 6. Turning in threaded sockets in the plates 12 are ordinary binding-screws 13, and held at one end by these binding-screws are the pieces of the fuse-wire 14. The other ends of these pieces of fuse-wire are connected by binding-screws 15 with conducting-plates attached to or connected with the fastening-arms 9 or similar part of the circuit.

In the form of cut-out illustrated in Figs. 1 to 6 the cap is provided with an exterior rim 16, that extends outside of the fuse-wire 14, which lies outside of the rim 8—that is, in this form the fuse-wire lies in a groove in the material of the cap outside of the recess or chamber in which the conducting-contacts and connecting means are located, and this groove is closed when the base and cap are together, so that the fuse-wire is completely isolated from the metallic parts in the interior of the cut-out.

In the form of cut-out illustrated in Figs. 7 to 9 the exterior rim 16 is formed on the base and the fuse-wire extends outside of the rim 8 on the cap and inside of the rim 16 on the base, so as to be inclosed between these two rims, as in a groove, when the base and cap are together. In this latter case the fuse-wire is completely inclosed in the insulating material and is separated from the metallic conducting-contacts and connecting parts in the interior by the insulating rim of the cap. Openings 17 are made through the exterior rim, whether this rim is on the base or on the cap, for the escape of the flame and gases of the flash of the fuse when blown. When the conducting-plates 12 are made and the fuse-wire connected, as shown in Fig. 5, there is absolutely no opening from the fuse-wire groove to the inner recess or chamber in which the contacts and connecting parts are located, so that if the fuse-wire blows none of the flame or gas generated can enter the interior. Openings 18 are also made through the outer rim, when the connections are made in this manner, for reaching the binding-screws in order that they may be tightened or loosened, as desired, for placing the fuse-wire in position. If the conducting-plates 12 are arranged as shown in Fig. 6 and the

ends of the fuse-wire are led through small perforations in the rim 8 and connected in the interior with the plates 12, there is no chance for the flame or gas of a flashing fuse to enter the chamber, for the flash will be projected outwardly through the blow-opening 17. Lugs 19 may be formed on the face of the base, as illustrated in Fig. 4, to guide the rotation of the cap and cause it to move correctly for the engagement of the fastening-arms on the cap with the holding-heads on the base, or the rim on the cap may be arranged to extend into a groove 20 in the base, as illustrated in Fig. 7, for this purpose. The cut-outs illustrated in the views are provided with two pieces of fuse-wire, so as to make a double blow; but of course the cut-out can be arranged with only one piece of fuse-wire without departing from the invention.

A cut-out constructed in the manner described cannot possibly be short-circuited by the blowing out of a fuse-wire, for the fuse-wire is located entirely outside of and is isolated from the chamber or recess in the interior in which the metallic conducting-contacts and connecting parts are placed, and that chamber or recess is closed in, so that all of the flame and gas of the flash of the fuse-wire when blown is projected outside of the cut-out away from the metallic parts.

This cut-out is very simple and inexpensive to manufacture and sure and effective in use. The base can be readily placed in position and the cap can be quickly located on or removed from the base for connecting or disconnecting the circuit or for examining or replacing the fuse-wire, which can be accomplished easily and safely.

I claim as my invention—

An electrical cut-out, consisting of a base and a cap of insulating material with inner and outer recesses that are surrounded by walls of insulation between the base and cap, means attached to the base for connecting line-wires, means attached to the cap for connecting branch wires, means forming part of the circuit located in the inner recess and detachably holding the base and cap together, and fuse-wire located in the outer recess and joining the branch-wire connections and the base-holding means in the cap, substantially as specified.

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