

(No Model.)

C. J. KLEIN.

CUT-OUT AND CONNECTION FOR ELECTRICAL APPARATUS.

No. 434,149.

Patented Aug. 12, 1890.

Fig 1

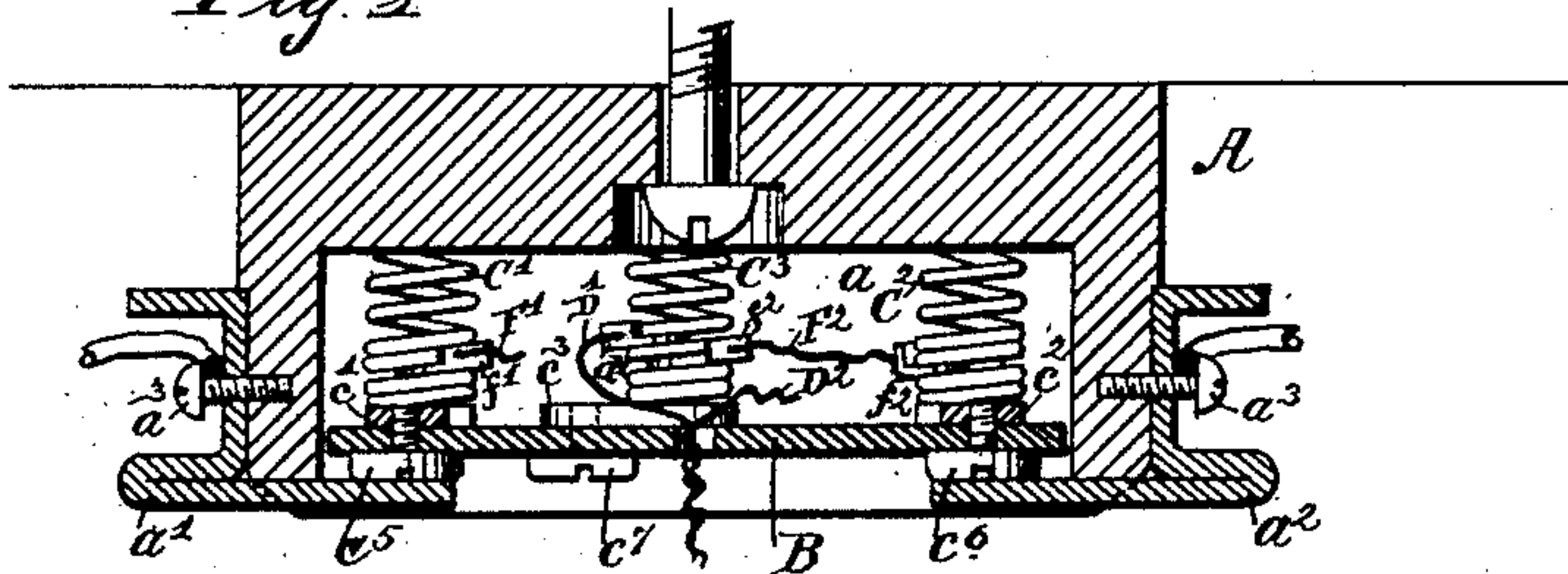


Fig 2.

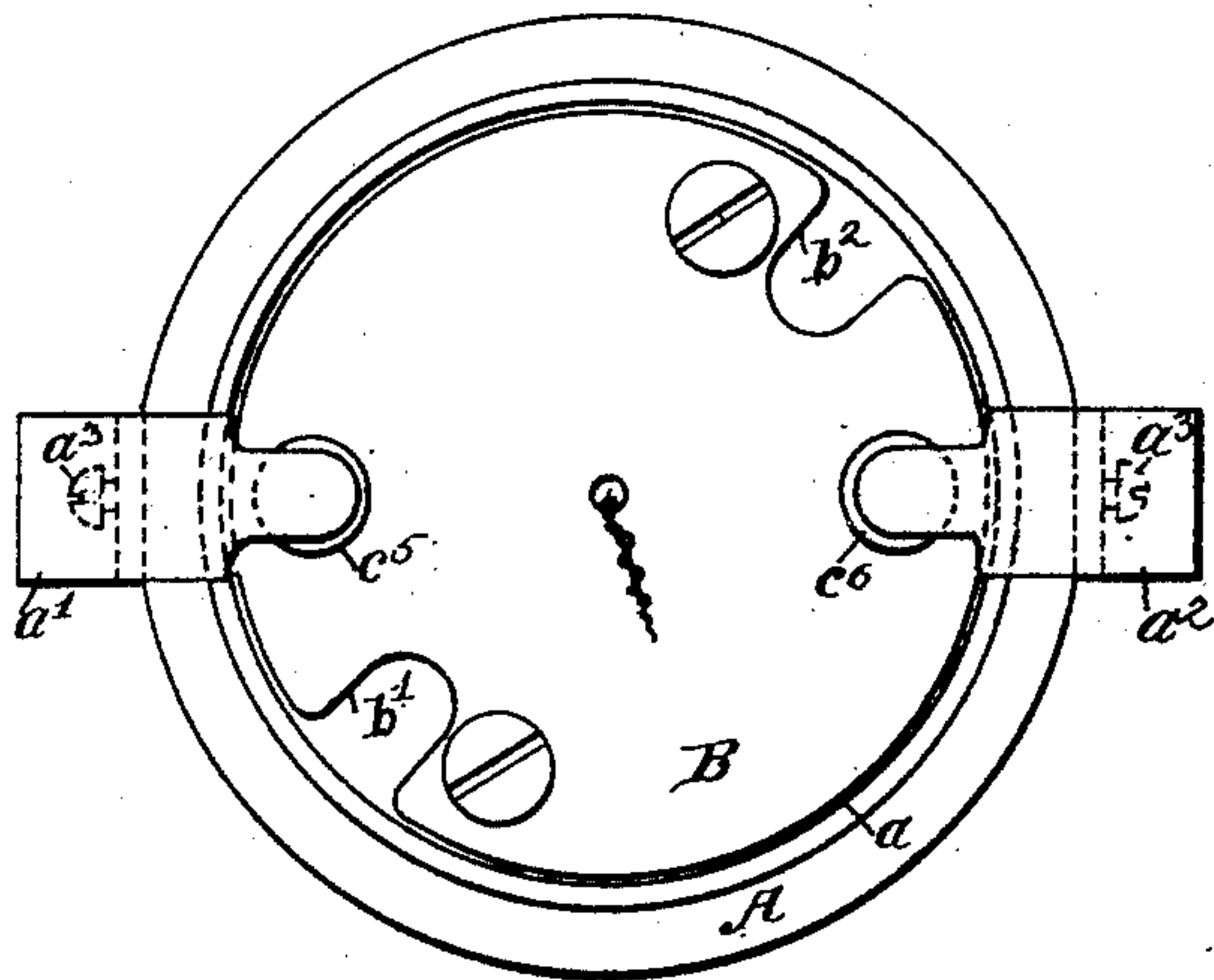


Fig 3.

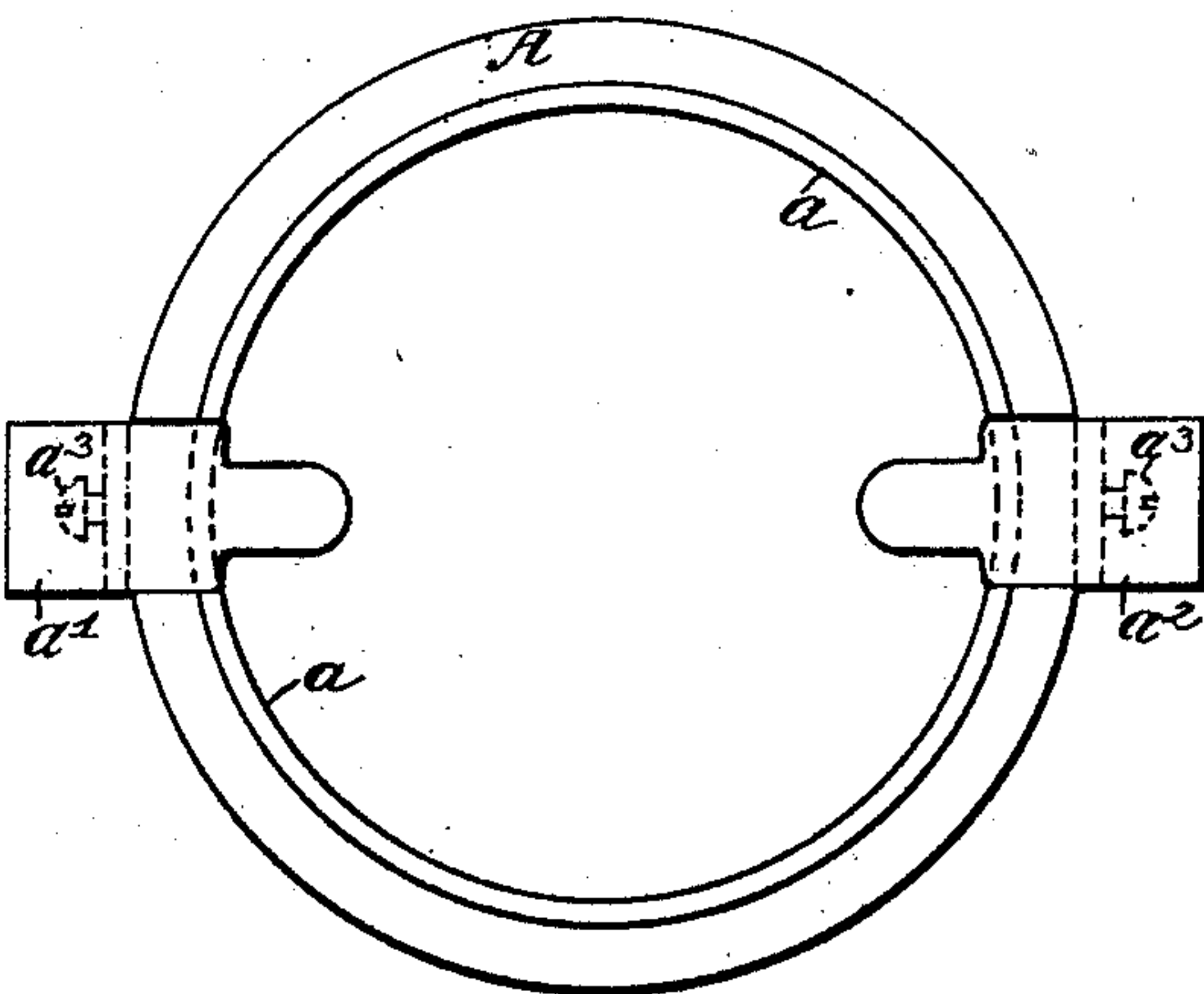


Fig 4

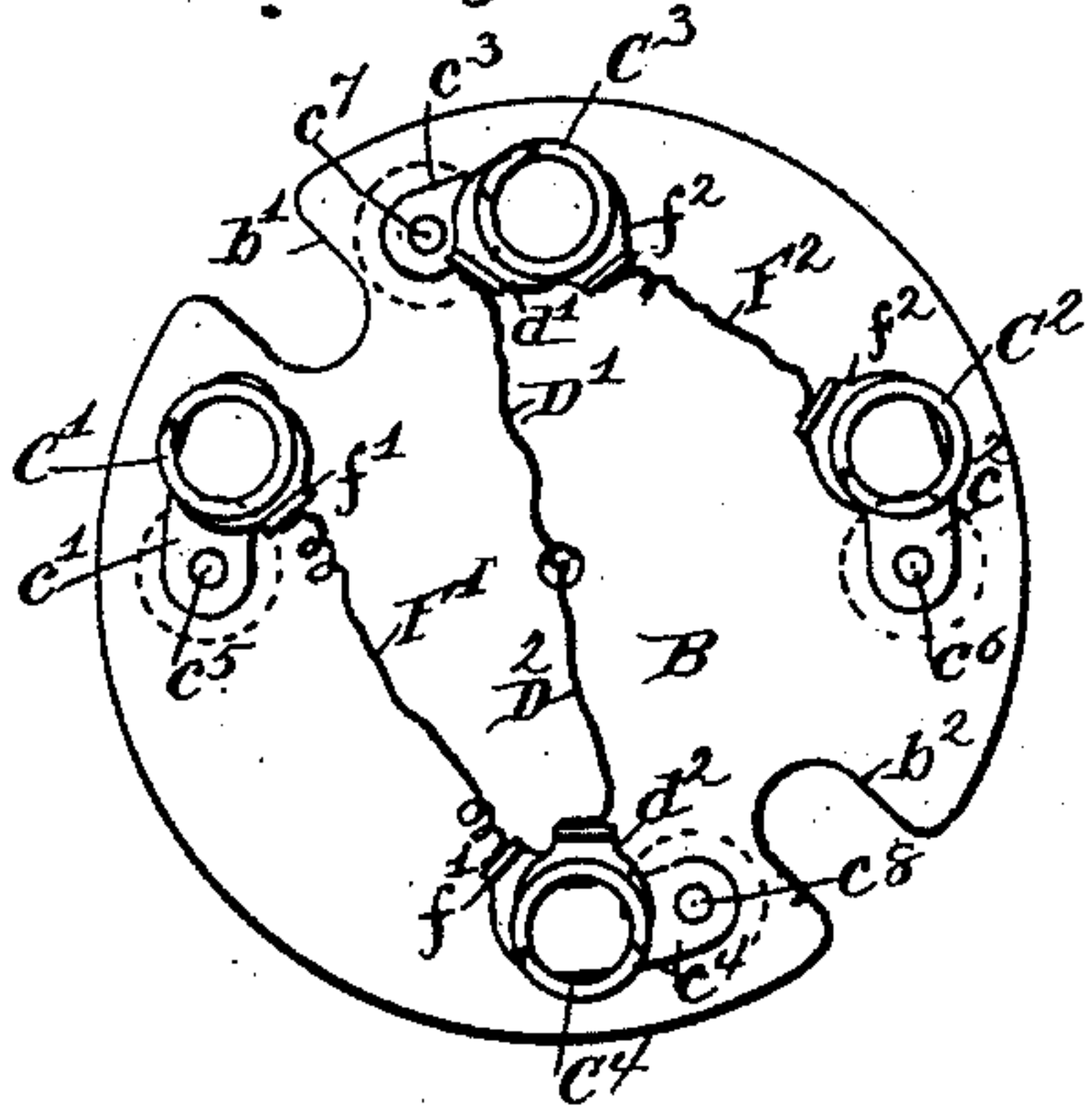
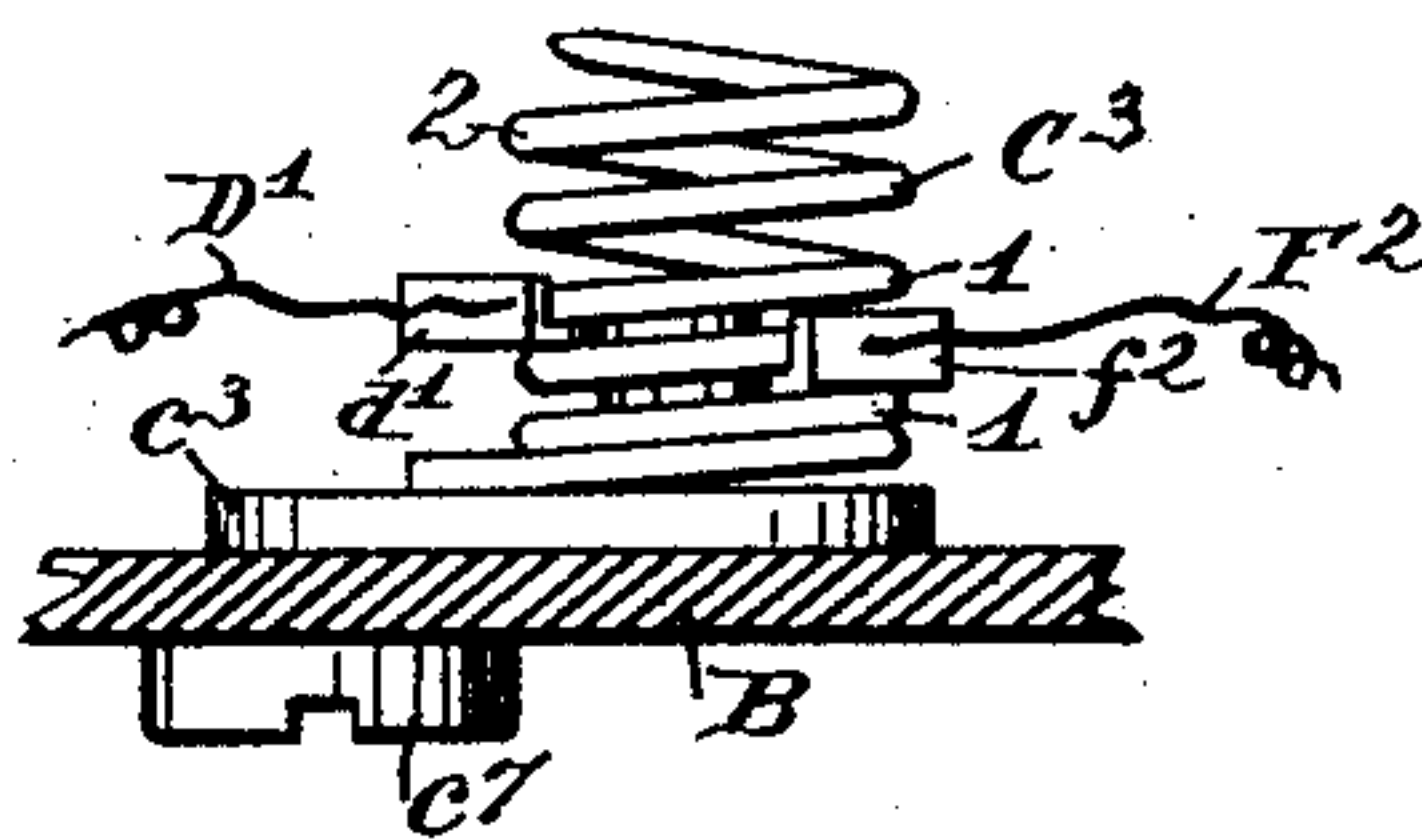


Fig 5



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CUT-OUT AND CONNECTION FOR ELECTRICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 434,149, dated August 12, 1890.

Application filed June 6, 1890. Serial No. 354,489. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. KLEIN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cut-Outs and Connections for Electrical Apparatus, of which the following is a specification.

I will describe a cut-out and connections embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of a cut-out and connections embodying my improvement. Fig. 2 is a view of the under side of the same. Fig. 3 is a view of the under side of the principal part. Fig. 4 is a top view of another part. Fig. 5 is an enlarged view of a spring and clip comprised in the device.

Similar letters and figures of reference designate corresponding parts in all the figures.

A designates the principal part of the cut-out and connections. It will preferably be made of porcelain or like material. It is provided with a cylindric cavity a , and it may advantageously be made externally of cylindric shape. It may be constructed in any suitable manner to adapt it to be fastened to a ceiling or other support.

$a' a^2$ designate two electrodes, here shown as consisting of pieces of metal bent to bear against the exterior of the part A, and at one end bent transversely to extend across the under edge of the said part. As here shown, there are recesses in the exterior of the part A for the reception of the electrodes, and notches in the lower edge through which these electrodes pass. Screws a^3 are shown as employed for securing the electrodes to the part A.

B designates the secondary part of the cut-out. It may be made of hard rubber or analogous material, and is shown as made in the form of a disk having notches $b' b^2$. As here shown, these notches $b' b^2$ are at diametrically-opposite portions of its periphery to correspond with the positions of the electrodes $a' a^2$ of the part A. These notches are of such size as to enable the part B to be slipped upwardly past the inwardly-extending ends of the electrodes $a' a^2$. After the part B has

been applied in this way to the part A, it is to be rotated so as to bring its notches out of line with the electrodes $a' a^2$.

Intermediate of the part B and the top of the cavity in the part A are springs. There may be any desirable number of these springs. As here shown, there are four $C' C^2 C^3 C^4$. These springs are of helical form, and must be compressed in order to permit of the insertion of the part B into the part A. By their resilience they press the part B downwardly toward the inwardly-projecting ends of the electrodes $a' a^2$. The springs $C' C^2$ are connected with metal plates $c' c^2$, which are attached to the upper side of the part B, and in the present instance by means of metal screws $c^5 c^6$, which are inserted in the part B from the under side, have heads which bear against the under side of said part, and at the upper end engage with tapped holes in the plates $c' c^2$. The springs $C^3 C^4$ are connected to metal plates $c^3 c^4$, which fit against the upper side of the part B, and are fastened thereto by metal screws $c^7 c^8$, which are inserted from the under side of this part, and provided with heads bearing against the latter and at the upper ends engaged with the plates.

After the insertion of the part B within the part A it will be rotated to bring the screws $c^5 c^6$ above the inwardly-extending ends of the electrodes $a' a^2$, and the springs which are intermediate of the part B and the top of the cavity in the part A will press and hold the screws in firm contact with the electrodes $a' a^2$; so that the electric circuit may be extended from the line-wires to the screws.

The springs $C' C^2 C^3 C^4$ may be fastened to their plates $c' c^2 c^3 c^4$ by solder or in any other suitable manner which will continue the electric circuit from the plates to the springs.

The springs $C' C^2$ are to be connected by fusible wires $F' F^2$ with the springs $C^3 C^4$, and the latter have in electrical communication with them wires $D' D^2$ leading to an electric lamp or other article.

The construction of the springs $C' C^2 C^3 C^4$ constitutes an important feature of my improvement. Each of these springs has two portions, as may be best understood by reference to Fig. 5. One portion 1 of each spring has its coils wound so as to be closely adja-

cent to each other, and another portion 2 has its coils wound so as to be quite distant from one another. Each spring is so constituted that the coils of its portion 1 will have a tendency to draw together and will consequently resist any tendency to separate them, and that the coils of its portion 2 will have a tendency to spread apart and will resist any tendency which may be exerted toward forcing them together. The coils of the portions 2 of the several springs serve by their resilience to press the part B downwardly so as to make firm contact between the screws c^5 c^6 and the electrodes a' a^2 , while the coils of the portions 1 serve to tightly grip plates which are inserted into them to make connections. Preferably the springs will be flat in the cross-section, so as to afford a more extensive bearing to plates inserted between the coils of their portions 1. I have shown the fusible wires F' F^2 as having metal plates f' f^2 fastened to them. Solder may serve to connect these plates to the said wires. The plates, as here shown, are substantially of a crescent shape. They are of a thickness which enables them to be inserted between the coils of the portions 1 of the springs C' C^2 C^3 C^4 . Owing to the resistance which these portions of the springs offer to the insertion of the plates a firm and efficient electrical contact is made between the plates and springs.

The wires D' D^2 have attached to them by solder or in any other suitable manner which will secure electrical communication plates d' d^2 corresponding with the plates f' f^2 . These plates d' d^2 are inserted in the portions 1 of the springs C' C^2 .

It will be seen that by my improvement I provide a connection having parts A B, which may be detached expeditiously and without even the use of a screw-driver, and whose various wires may be disconnected with equal facility.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An electrical coupling consisting of a principal part having a cylindric cavity and provided with electrodes and notches extending across the opening of said cavity, and a secondary part made in the form of a disk, having notches which enable it to be passed beyond the electrodes into the cavity of the principal part and having metallic contact-pieces which may by rotating this secondary part be made to bear against the said electrodes, substantially as specified.

2. An electrical coupling consisting of a principal part having a cylindric cavity and provided with electrodes and notches extending across the opening of said cavity, and a secondary part made in the form of a disk, having notches which enable it to be passed beyond the electrodes into the cavity of the principal part and provided with metallic contact-pieces which may by rotating this sec-

ondary part be made to bear against the said electrodes, and springs intermediate of the secondary part and the end of the cavity in the principal part, substantially as specified.

3. An electrical coupling consisting of a principal part having a cylindric cavity and provided with electrodes and notches extending across the opening of said cavity, and a secondary part made in the form of a disk, having notches which enable it to be passed beyond the electrodes into the cavity of the principal part and provided with metallic contact-pieces which may by rotating this secondary part be made to bear against the said electrodes, and springs attached to the secondary part and bearing against the end of the cavity in the principal part, substantially as specified.

4. An electrical coupling consisting of a principal part having a cylindric cavity and provided with electrodes and notches extending across the opening of said cavity, and a secondary part made in the form of a disk, having notches which enable it to be passed beyond the electrodes into the cavity of the principal part and provided with metallic contact-pieces which may by rotating this secondary part be made to bear against the said electrodes, and springs attached to the secondary part and having their coils constructed to hug closely together, and clips or plates inserted between these coils and affording connections for wires, substantially as specified.

5. An electrical coupling consisting of a principal part having a cylindric cavity and provided with electrodes and notches extending across the opening of said cavity, and a secondary part made in the form of a disk having notches which enable it to be passed beyond the electrodes into the cavity of the principal part and provided with metallic contact-pieces which may by rotating this secondary part be made to bear against the said electrodes, and springs severally having two differently-coiled portions, in one of which the coils have a tendency to hug one another and in the other of which the coils have a tendency to separate, and clips or plates inserted between those portions of the coils of the springs whose coils have a tendency to hug closely together, substantially as specified.

6. The combination, with a coiled spring, of a plate inserted between the coils and forming an electrical connection therewith, substantially as specified.

7. The combination of the part A, having a cylindric cavity, the part B, the springs C' C^2 C^3 C^4 , the fusible wires F' F^2 , the plates f' f^2 , wires D' D^2 , and plates d' d^2 , substantially as specified.

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Witnesses:

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