

Fig. 1.

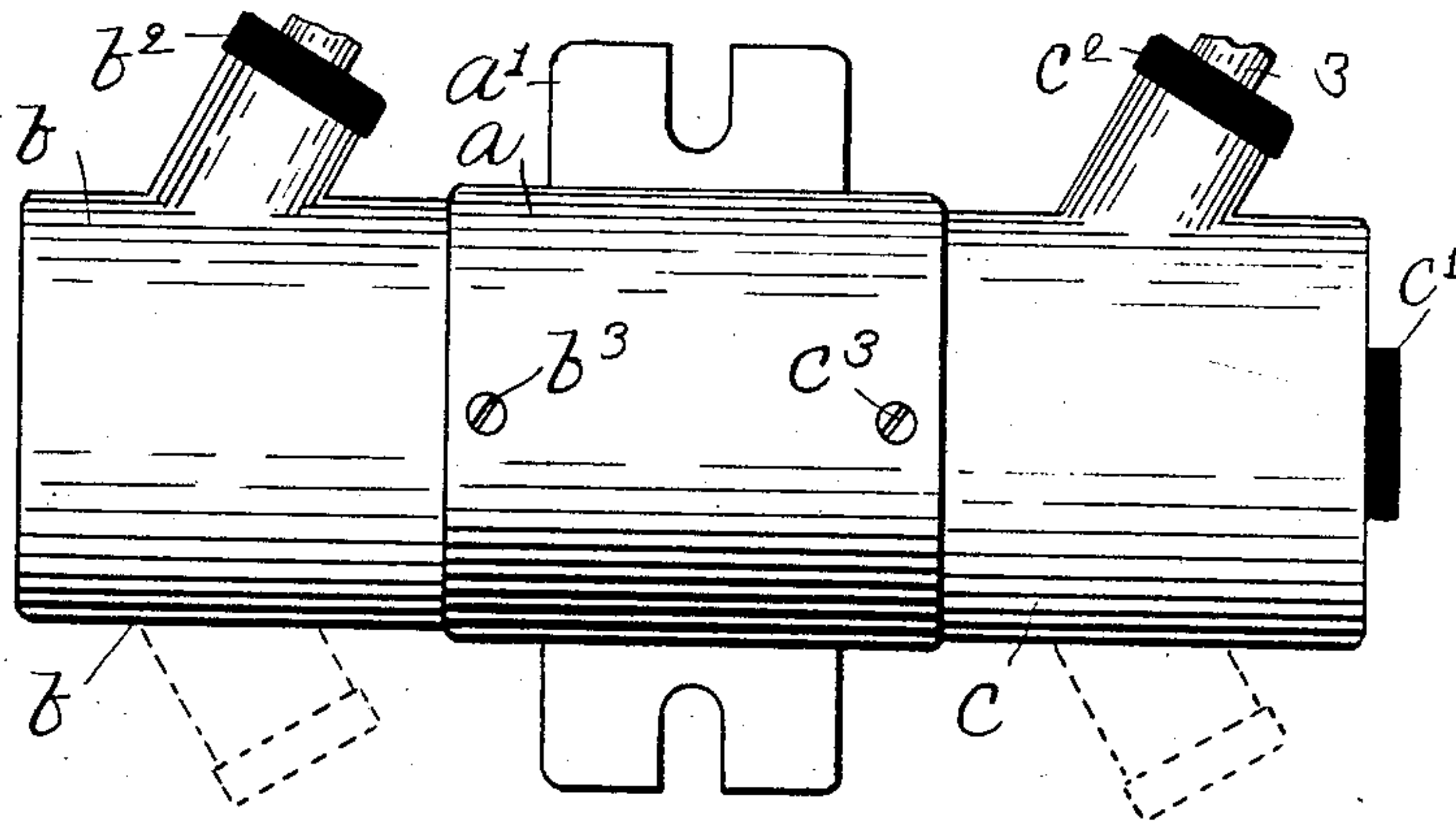


Fig. 2.

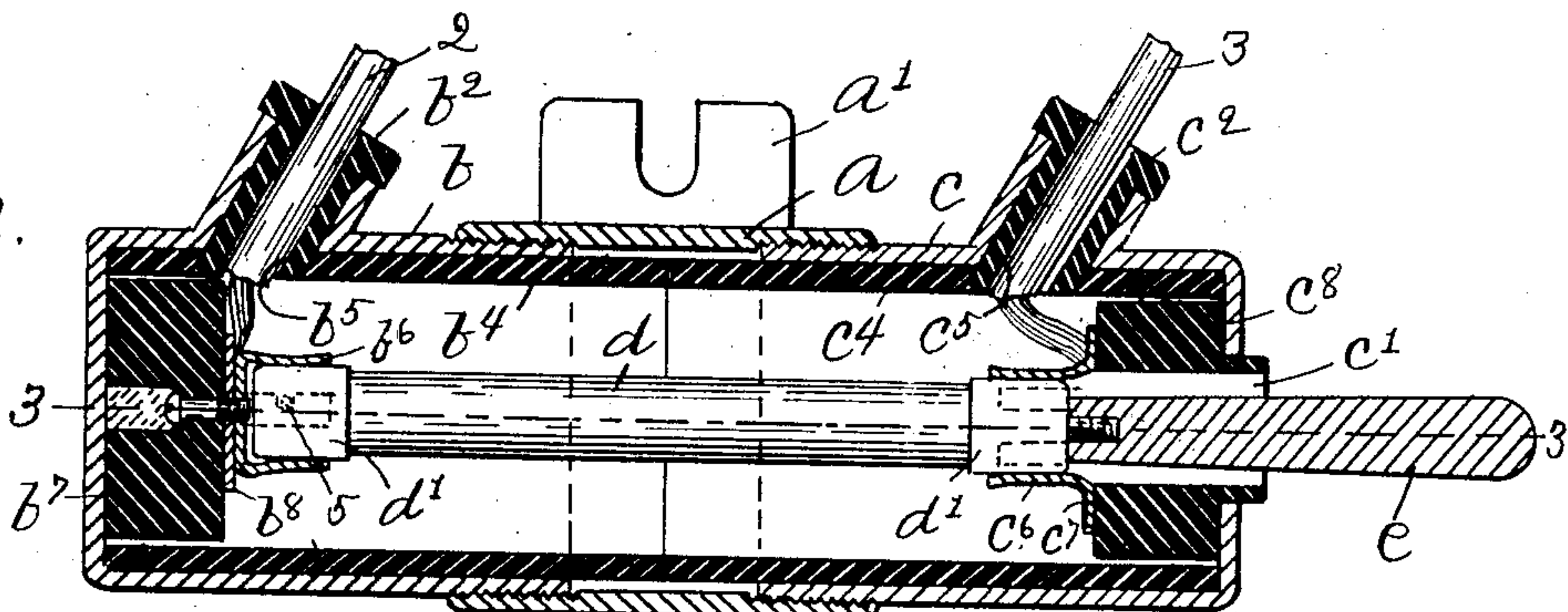


Fig. 3.

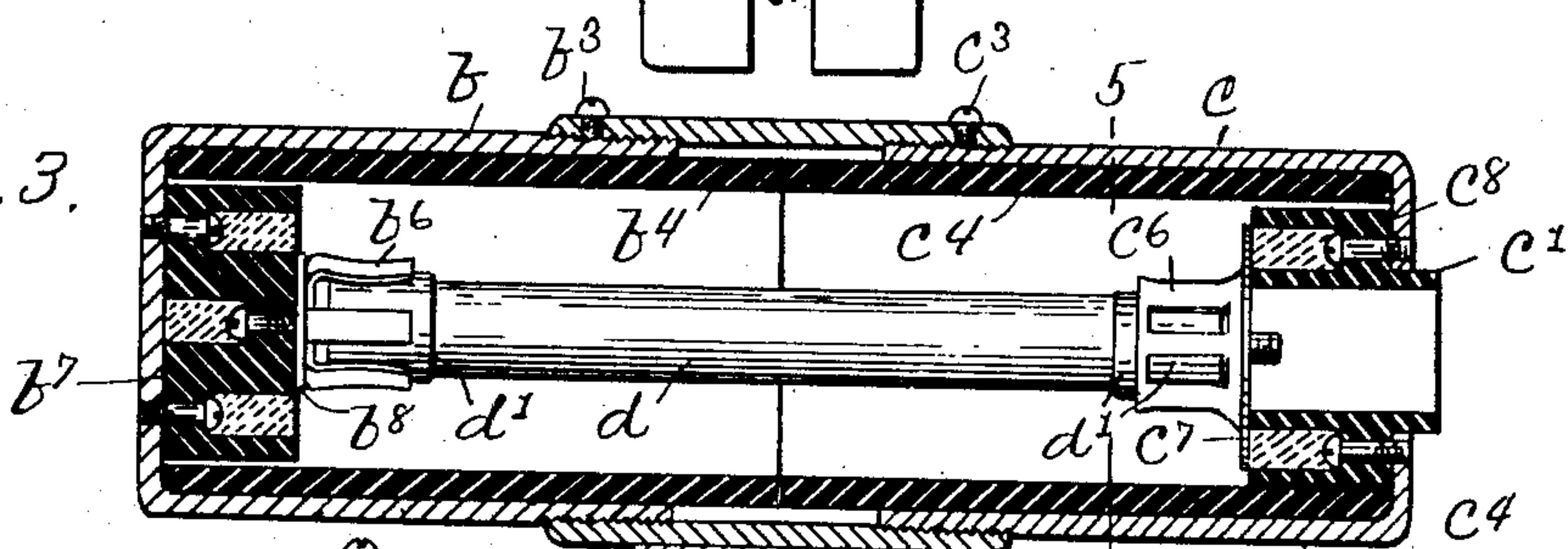


Fig. 4.

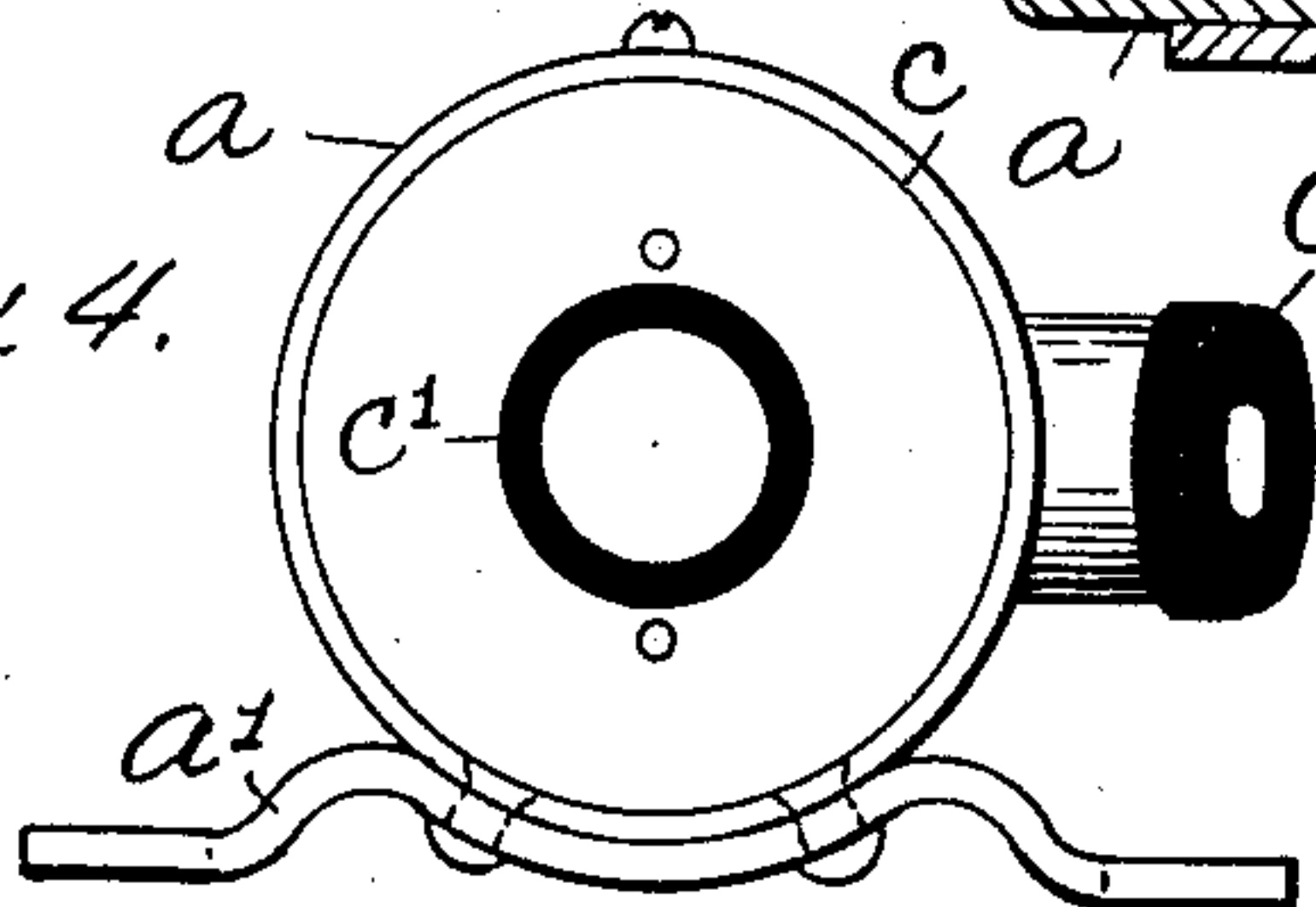
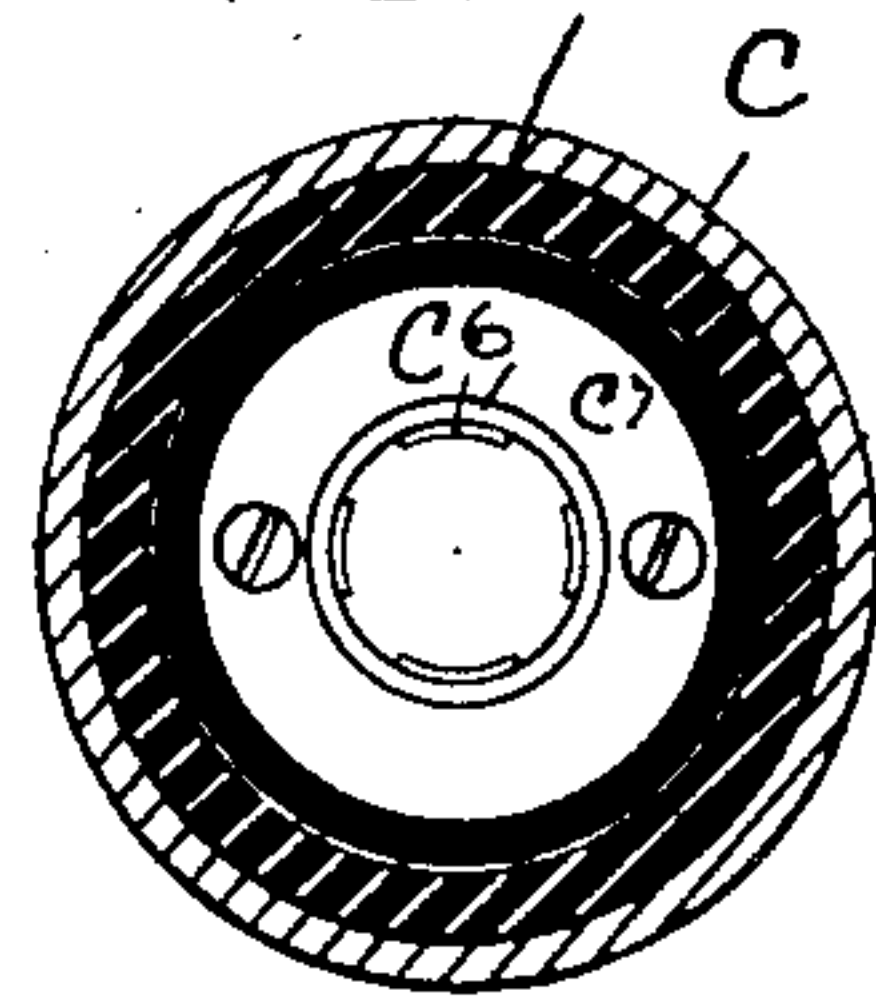


Fig. 5.



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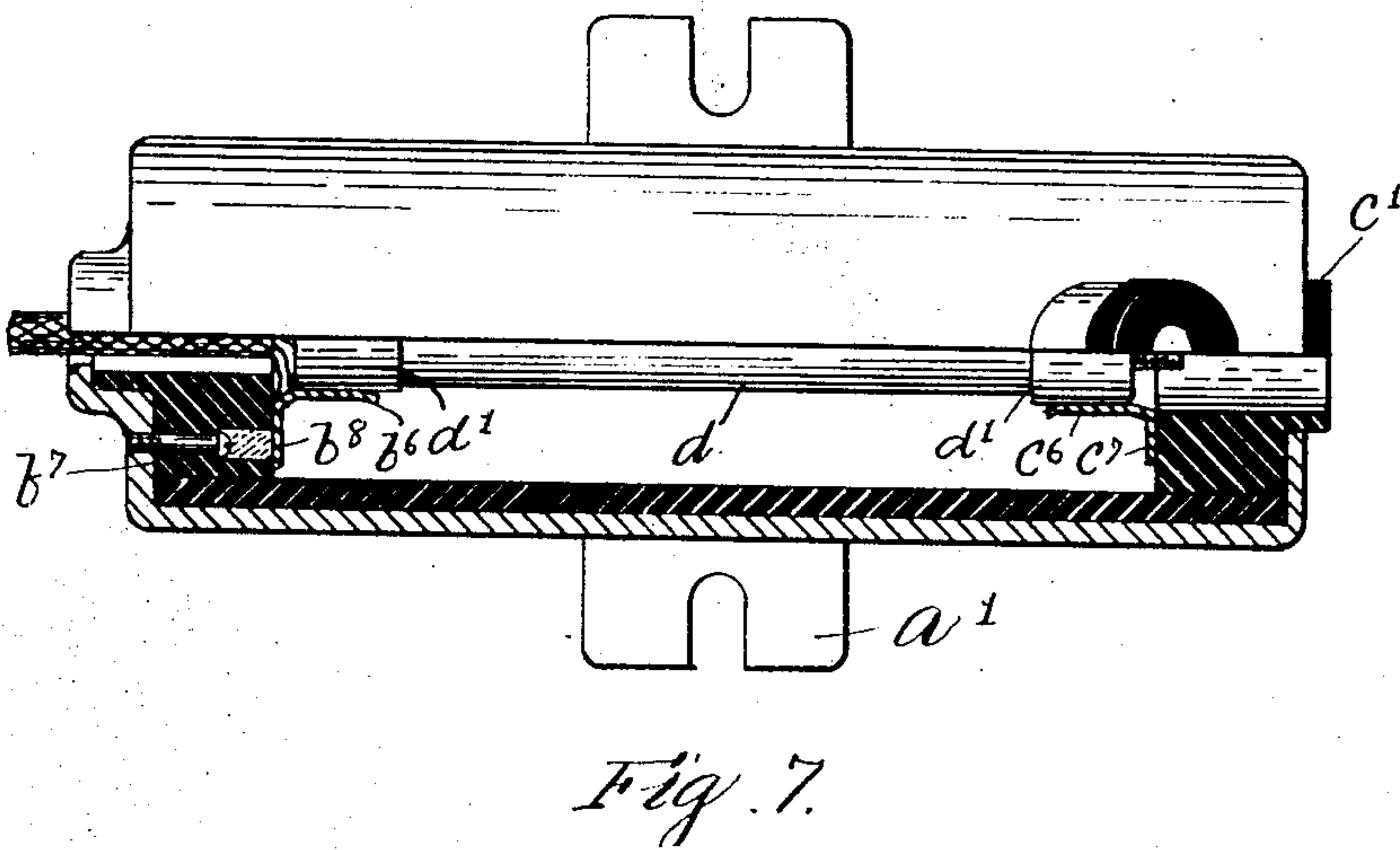
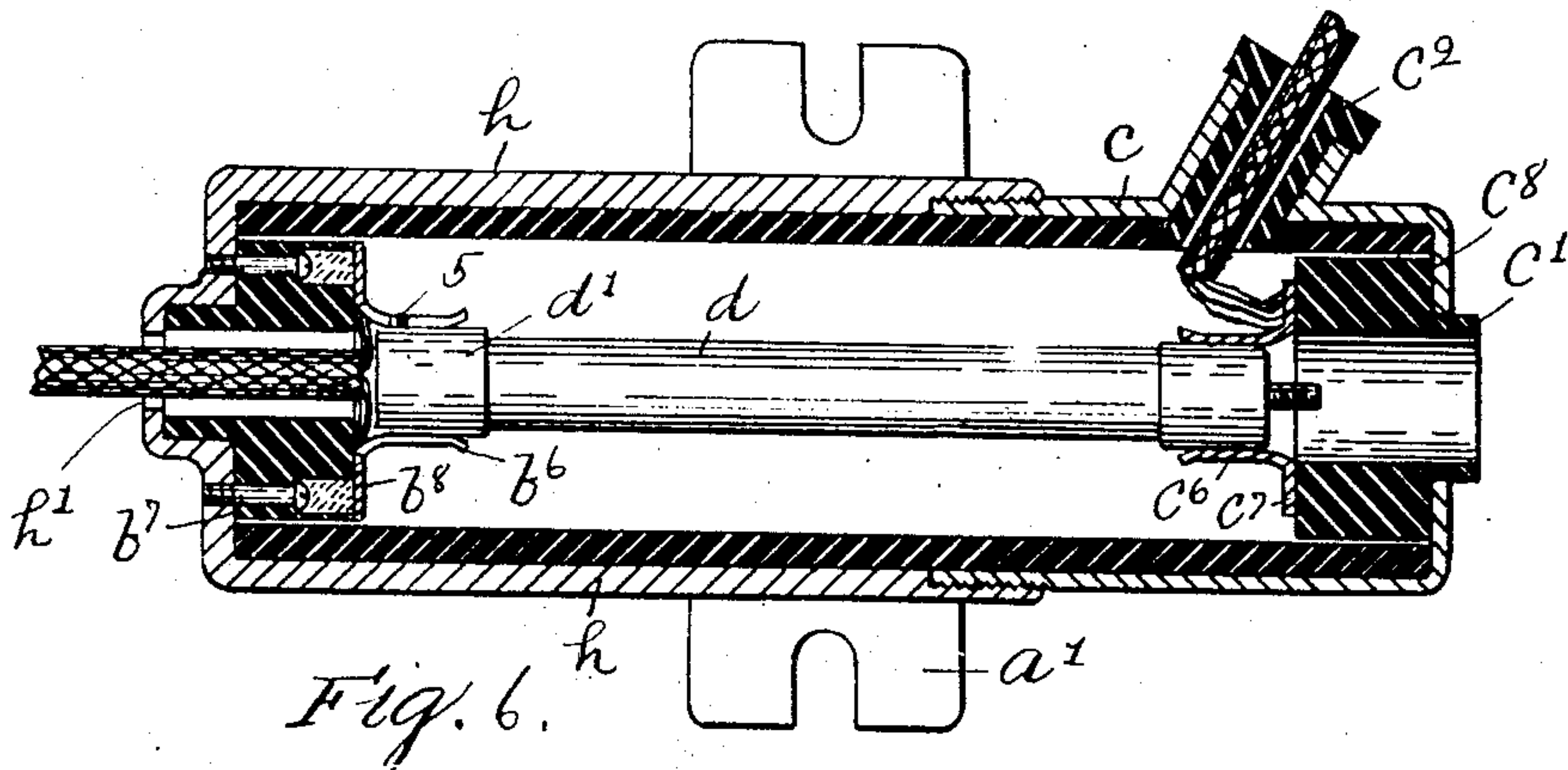
No. 898,061.

H. P. MOORE.
FUSE BOX.

PATENTED SEPT. 8, 1908.

APPLICATION FILED APR. 8, 1907.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HARRY P. MOORE, OF NEWBURYPORT, MASSACHUSETTS, ASSIGNOR TO CHASE-SHAWMUT COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

FUSE-BOX.

No. 898,061.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed April 8, 1907. Serial No. 366,908.

To all whom it may concern:

Be it known that I, HARRY P. MOORE, of Newburyport, county of Essex, State of Massachusetts, have invented an Improvement in Fuse-Boxes, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to fuse-boxes, and while valuable for nearly all such boxes, it is particularly valuable for boxes used with electric currents of high voltage or in dangerous places, such as boxes used with transformers. Such fuse boxes are frequently placed on poles and other places which are dangerous and inconvenient of access and exposed to the weather. In examining or renewing fuses in the boxes hitherto in use both hands of the lineman are often required and if the fuse case is wet or there is any defect in the wiring of the box or the lineman is in the least careless, accidents are liable to occur and often have occurred.

My invention has for its object the construction of a fuse-box much easier to install than those hitherto in use, and one in which the fuse may be examined and renewed with the use of one hand only, and with little or no danger of receiving a shock.

My invention has other advantages which will be readily observed.

To accomplish these results my fuse-box is so constructed that the fuse may be withdrawn and replaced without opening the box or separating its component parts; also, it is provided with fuse-supports, contained within it, which are electrically connected with the circuit wires, and with an end opening so disposed with respect to the fuse-supports as to permit of the withdrawal and replacement of a fuse; and is provided with one or more rotatable or otherwise adjustable members, forming component parts of it, each having an opening for a circuit wire, so arranged that the turning of said member or members will change the positions of the openings to adapt them to receive the circuit wires coming from different directions.

Figure 1 shows in plan view a fuse-box embodying this invention. Fig. 2 is a longitudinal section of the fuse-box shown in Fig. 1. Fig. 3 is a longitudinal section of the fuse-box taken on the dotted line 3—3, Fig. 2, the means for removing or replacing the fuse being omitted. Fig. 4 is an end view of the

fuse box. Fig. 5 is a cross section of the fuse-box taken on the dotted line 5—5, Fig. 3. Fig. 6 is a longitudinal section of a modified form of fuse-box to be referred to. Fig. 7 is a view showing in front elevation and partial section another modified form of fuse-box.

The fuse-box comprises a cylindrical or other shaped case, and, as herein shown, said case is composed of a tubular cylindrical intermediate portion *a*, internally screw threaded at each end and two cylindrical end portions *b* and *c* externally screw-threaded at one end adapting them to be screwed into opposite ends of the intermediate portion. The intermediate portion is intended to be securely fastened to a pole or other support, and is, therefore, secured to a base plate *a'*, of any suitable construction, which is adapted to be screwed or otherwise secured to such support. The end portion *b* is made as a cylindrical hollow shell, say of sheet metal drawn to shape, and comprises a cylindrical side wall and an end wall; and the end portion *c* is made in a similar manner, although its end wall has a hole through the center of it, shown at *c'*. Usually the box should be disposed with the opening *c'* in the end portion *c* at the bottom. Each end portion *b* and *c* has a hole through its side wall at any desirable point and said holes are herein shown at *b*², *c*².

The case, constructed as above described or in any equivalent manner, has several advantages, for instance, as the end portions are connected with the intermediate portion by screw-threaded connections, they may be turned relative to the intermediate portion and independently of each other, to bring the holes *b*², *c*², into positions most convenient for the attaching of their respective circuit wires; and the box may be taken apart for the purpose of repairing any defects in its wiring or for any other purpose, with facility and despatch, and without disturbing its fastening to the pole. To secure the end portions in whatever positions they may be caused to occupy, set screws *b*³, *c*³ may be employed, which extend through the wall of the intermediate portion and impinge against the end portions. It will be observed that the end portions are thus independently rotatable with respect to the intermediate portion.

Within the case a lining of insulating material is provided, which extends from end to

end thereof or thereabouts, and which is made tubular to fit the interior of the case, and to adapt it to the particular case herein shown, wherein the end portions are independently rotatable, said tubular lining is made in two parts b^4 , c^4 , which abut together at their inner ends, within the intermediate portion of the case, or approach each other sufficiently to subserve its required functions. The lining is formed with openings b^5 , c^5 , coincident with the openings b^2 , c^2 , in the end portions, so that the circuit wires, which are represented at 2 and 3, will extend through both the wall of the end portions and through the lining thereof, into the interior of the case.

Within the case and at the opposite ends thereof fuse-supports are provided for mechanically supporting the fuse and for electrically connecting it with the circuit wires 2, 3.

The fuse herein selected is of the inclosed type, comprising a cylindrical shell or case d having end caps d' , d'' of conducting material and containing a fuse-wire which is connected with said end caps. Consequently the fuse-supports, which are herein employed, are adapted to engage the end caps of said fuse, but if another form of fuse should be selected the fuse-supports would be necessarily modified to adapt them to engage its terminals.

c^6 represents one of the fuse-supports which is contained in the case and which is connected with the end portion c thereof. Said fuse support consists of a short tube, contracted for the greater part of its length between its ends and formed with one or more side openings, to thereby produce spring acting portions extending in the direction of its length, and a circular flange c^7 extending from one end of said tube which forms a base. The tubular fuse-support is of such diameter as to permit the passage through it of the fuse and to enable its spring acting portions to grasp its end cap, thereby holding one end of the fuse by engaging its end cap. The fuse-support c^6 is mounted upon a block c^8 of insulating material which is contained in the case and which is secured to the end wall of the end portion c . This block has a hole through it, in alinement with the hole through the fuse-support c^6 , and also in alinement with the hole c' through the end wall, and provision is thereby made for the withdrawal and replacement of a fuse, that is to say, the fuse may be withdrawn and replaced through the end opening in the case which is thus provided.

The circuit wire 3, entering the opening c^2 , is electrically connected with the fuse-support c^6 , and as said support is made of conducting material and engages the end cap of the fuse, said fuse will be electrically connected with the circuit wire. At the oppo-

site end of the case a fuse-support b^6 is provided, which consists of a spring socket which is adapted to receive the opposite end of the fuse, here shown as a plurality of spring acting fingers projecting from a base, which are adapted to engage the end cap of the fuse. The fuse-support b^6 is mounted upon a block b^7 of insulating material which is contained in the case and which is secured to the end wall of the end portion b . The fuse-support is arranged on the block, in alinement with the fuse-support c^6 , and with the end opening at the opposite end of the case. A circuit wire 2, entering the opening b^2 , is electrically connected with the fuse-support b^6 , so that the fuse, when engaged by said fuse-support, will be electrically connected with said circuit wire. A metal plate b^8 may be used in making this connection.

For the purpose of facilitating the withdrawal and replacement of the fuse one of its end caps may be provided with a screw-threaded pin opposite the end opening in the case, and a handle e is provided, which is of suitable diameter to project through said end opening and which has at one end a screw-threaded socket adapted to receive the threaded pin on the end cap and to be thereby connected therewith. By means of said handle the fuse may be withdrawn or replaced.

If desired the fuse may be locked in engagement with the fuse-supports, in any convenient manner, as for instance, as here shown one of its ends is provided with a laterally extended pin, 5, see dotted lines Fig. 2, and one of the fuse-supports is formed with a bayonet slot also shown by dotted lines Fig. 2, which is adapted to receive said pin 5, and by turning the fuse in its support it will become locked. If the fuse-support is constructed to firmly engage and hold the fuse, such locking means may be omitted.

In practice when the box is on a pole the handle may be left attached to the fuse, and the lineman should attach the new fuse to another handle before climbing the pole. If this is done one hand only and no care or skill are required to replace the old fuse with a new one and neither the box nor the fuse need be touched and the operation may be performed even in wet weather or after dark with a minimum of danger.

Referring to Fig. 6 the shell or case of the box is composed of two pieces instead of three, which are screwed together, one of which is attached to the base a' and the other is movable connected with said fixed member. The movable member is constructed substantially the same as the member c , shown in Figs. 1 to 5, but the other member h has its opening h' for the circuit wires at the end.

Referring to Fig. 7 the shell or case is made in one piece which is attached to the base a' .

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. A fuse-box consisting of a case having an opening at one end for the withdrawal of the fuse and having openings for the circuit wires, fuse-supports contained in said case to which the circuit wires are attached, said fuse-supports being disposed in alinement with said end opening, one of said fuse-supports having an opening through it for the fuse and the other fuse-support consisting of a socket having spring acting fingers which engage the fuse and a locking device for locking the fuse in position in said supports, substantially as described.

2. A fuse-box consisting of a cylindrical case having end walls and having openings for the circuit wires and having an opening through one of the end walls for the withdrawal of the fuse, fuse-supports contained in said case and attached to the end walls thereof to which the circuit wires are attached, said fuse-supports being disposed in alinement with said end opening, one of said fuse-supports having an opening through it for the fuse, and the other fuse-support consisting of a socket having spring-acting fingers which engage the fuse, a fuse contained in said case which engages the fuse-supports having at one end means for the attachment of a handle, and a detachable handle extending through the opening in the end wall which engages the fuse, substantially as described.

3. A fuse-box consisting of a supporting-plate, and case mounted thereon having an opening at one end for the withdrawal of the fuse and having openings for the circuit wires, fuse-supports contained in said case and attached thereto and circuit wires extending through the openings in said case and attached to said fuse-supports, whereby the connections of the circuit wires with the fuse-supports are entirely concealed, substantially as described.

4. A fuse-box consisting of a case having an opening at one end for the withdrawal of the fuse and having openings for the circuit wires, a tubular fuse-support in said case at the open end thereof, to which one of the circuit wires is attached, said fuse support being arranged concentric to the end opening, and having spring-acting portions for engaging the outer end portion of the fuse and a socketed fuse-support in said case at the opposite end thereof, to which the other circuit wire is attached, said fuse support being arranged in alinement with the aforesaid tubular fuse-support, and having spring-acting portions engaging the inner end portion of the fuse, substantially as described.

5. A fuse-box consisting of a case having an opening at one end for the withdrawal of the fuse and having openings for the circuit wires, a tubular fuse-support in said case at

the open end thereof, to which one of the circuit wires is attached, said fuse support being arranged concentric to the end opening, and having spring-acting portions for engaging the outer end of the fuse and having a base, and a socketed fuse-support in said case at the opposite end thereof to which the other circuit wire is attached, said fuse support being arranged in alinement with the aforesaid tubular fuse-support and having spring-acting portions engaging the inner end portion of the fuse and also having a base, separate supports to which said fuse-supports are respectively attached, and means for rigidly connecting them with the case, substantially as described.

6. A fuse-box consisting of a case having an opening at one end for the withdrawal of the fuse and having openings for the circuit wires, stationarily supported fuse-supports of conducting material contained in said case at the opposite ends thereof to which the circuit wires are attached, said fuse supports being arranged in alinement with said end opening, and one of which is open at one end to receive the inner end portion of the fuse, and the other of which is open at both ends to permit the passage through it of the fuse and to engage the outer end portion thereof, combined with a fuse contained in said case having terminals adapted to be engaged and held by said fuse-supports and thereby electrically connected with the circuit wires, and a locking-device for locking the fuse in position in said supports, substantially as described.

7. A fuse-box consisting of a case having an end opening for the withdrawal of the fuse and having openings for the circuit wires, fuse-supports contained therein, to which the circuit wires are attached, said fuse supports being arranged in alinement with said end opening, and means for rigidly connecting said fuse-supports to the end walls of the case, substantially as described.

8. A fuse-box consisting of a case having an end opening for the withdrawal of the fuse and having openings for the circuit wires and having one or more adjustable supports through which the circuit wire openings are formed, fuse-supports contained in said case which are electrically connected with said circuit wires, said fuse supports being arranged in alinement with said end opening, means for rigidly connecting said fuse-supports to the adjustable portions of the case whereby their respective positions remain the same in all positions of adjustment of the portions of the case, and a handle adapted to extend through the end opening of the case and to engage the fuse in all positions of adjustment of the portions of the case, substantially as described.

9. A fuse-box consisting of a case having an end opening for the withdrawal of the fuse

and having openings for the circuit wires and having one or more adjustable portions through which said circuit-wire openings are formed, and fuse-supports contained in said case, arranged in alinement with said end opening, which are electrically connected with said circuit-wires, substantially as described.

10. A fuse-box having fuse-supports within it and an end opening for inserting a fuse, and two openings for circuit wires, and having one or more rotatable portions, each having one of said circuit-wire openings, so disposed that its position may be adjusted to receive wires from different directions by the rotation of the portion in which it is formed, substantially as described.

11. A fuse-box having fuse-supports within it and an end opening for inserting a fuse therein and two openings for circuit wires and having one or more portions adjustable to various positions with reference to the supporting portion of the box, each adjustable portion having one of said circuit-wire openings, so disposed that the opening will be adjusted to receive circuit wires from different directions by the turning of the adjustable portion, substantially as described.

12. A fuse-box having two independently rotatable end portions, each provided with an opening for a circuit wire, and one of which is provided with an end opening for the withdrawal of the fuse, and fuse-supports connected respectively with said end portions, in alinement with the end opening, which are electrically connected with the circuit wires entering the circuit wire openings thereof, substantially as described.

13. A fuse-box comprising an intermediate portion, a support therefor, two independently rotatable end portions connected re-

spectively to the opposite ends thereof, each having an opening for a circuit wire and one having an end opening for the withdrawal of the fuse, and fuse-supports contained in said box, substantially as described.

14. A fuse-box comprising an intermediate portion, a support therefor, two independently rotatable end portions, connected respectively to the opposite ends thereof, each having an opening for a circuit wire, and one having an end opening for the withdrawal of the fuse, and fuse-supports attached to the interior of each end portion, substantially as described.

15. A fuse-box comprising an intermediate portion, a support therefor, two independently rotatable end portions, connected respectively to the opposite ends thereof, each having a side opening for a circuit wire, and one having an end opening for the withdrawal of the fuse, and fuse-supports attached to the interior of each end portion, arranged in alinement opposite said end opening, substantially as described.

16. A fuse-box having an adjustable end portion with an end opening for the insertion of a fuse and an opening for a circuit wire and a fuse-support attached to said end portion adapted to receive the fuse in any position to which the end portion may be adjusted and form an electric connection between the fuse and the circuit wires passing through said opening, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HARRY P. MOORE.

Witnesses:

B. J. NOYES,
H. B. DAVIS.