

No. 638,692.

Patented Dec. 12, 1899.

J. BANWELL.
MANHOLE FOR ELECTRIC CONDUITS.

(Application filed July 19, 1899.)

(No Model.)

2 Sheets—Sheet 1.

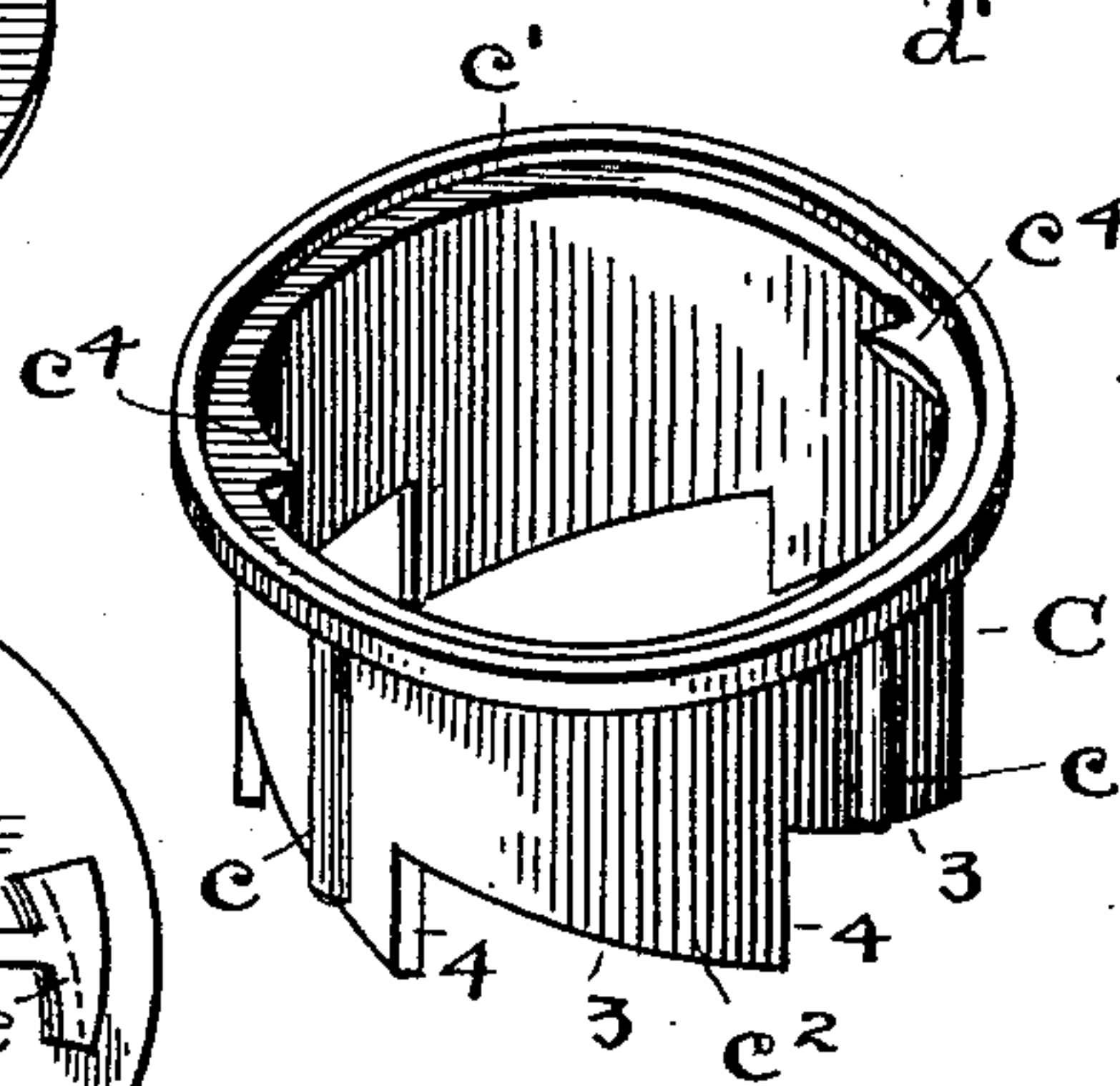
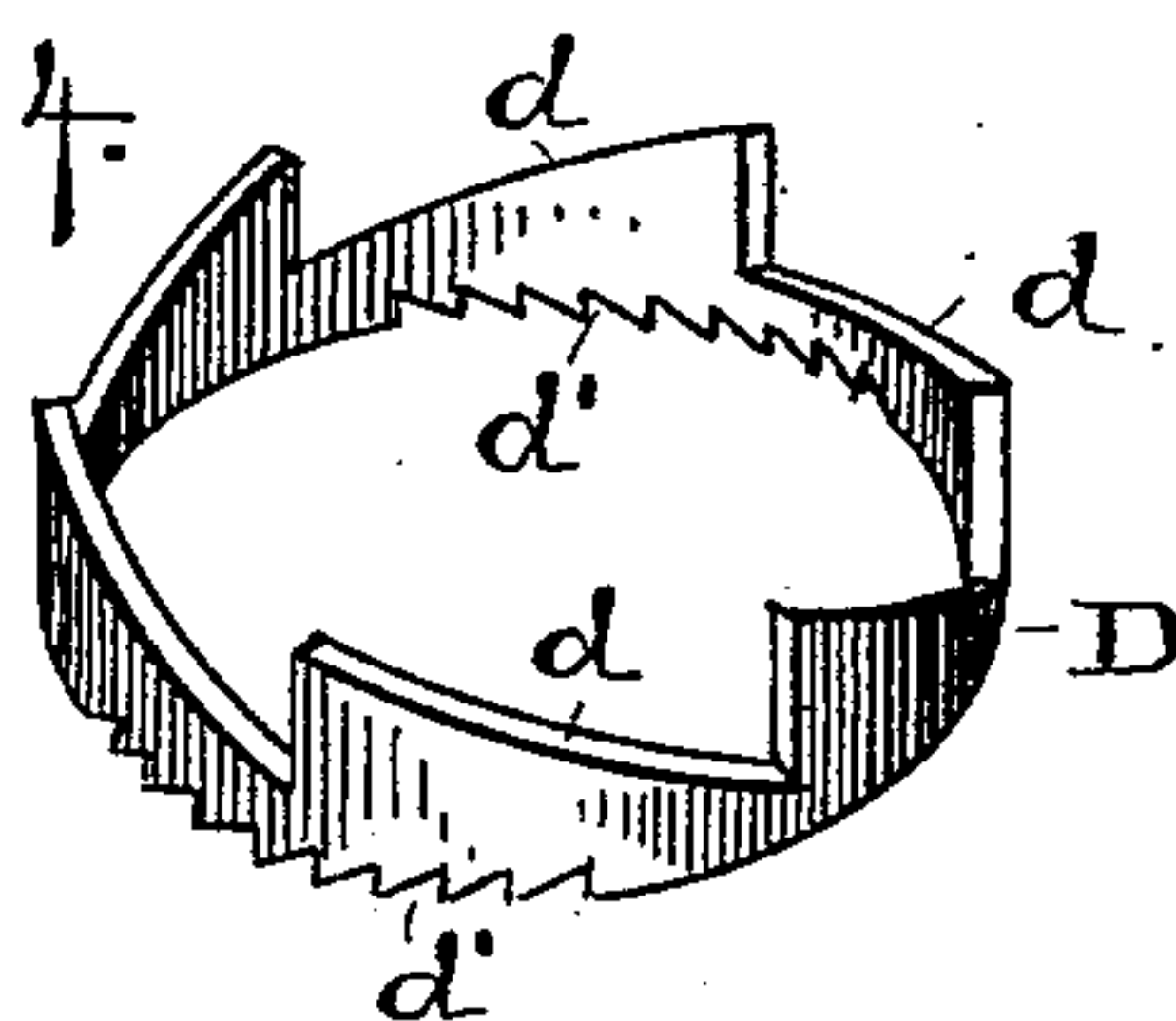
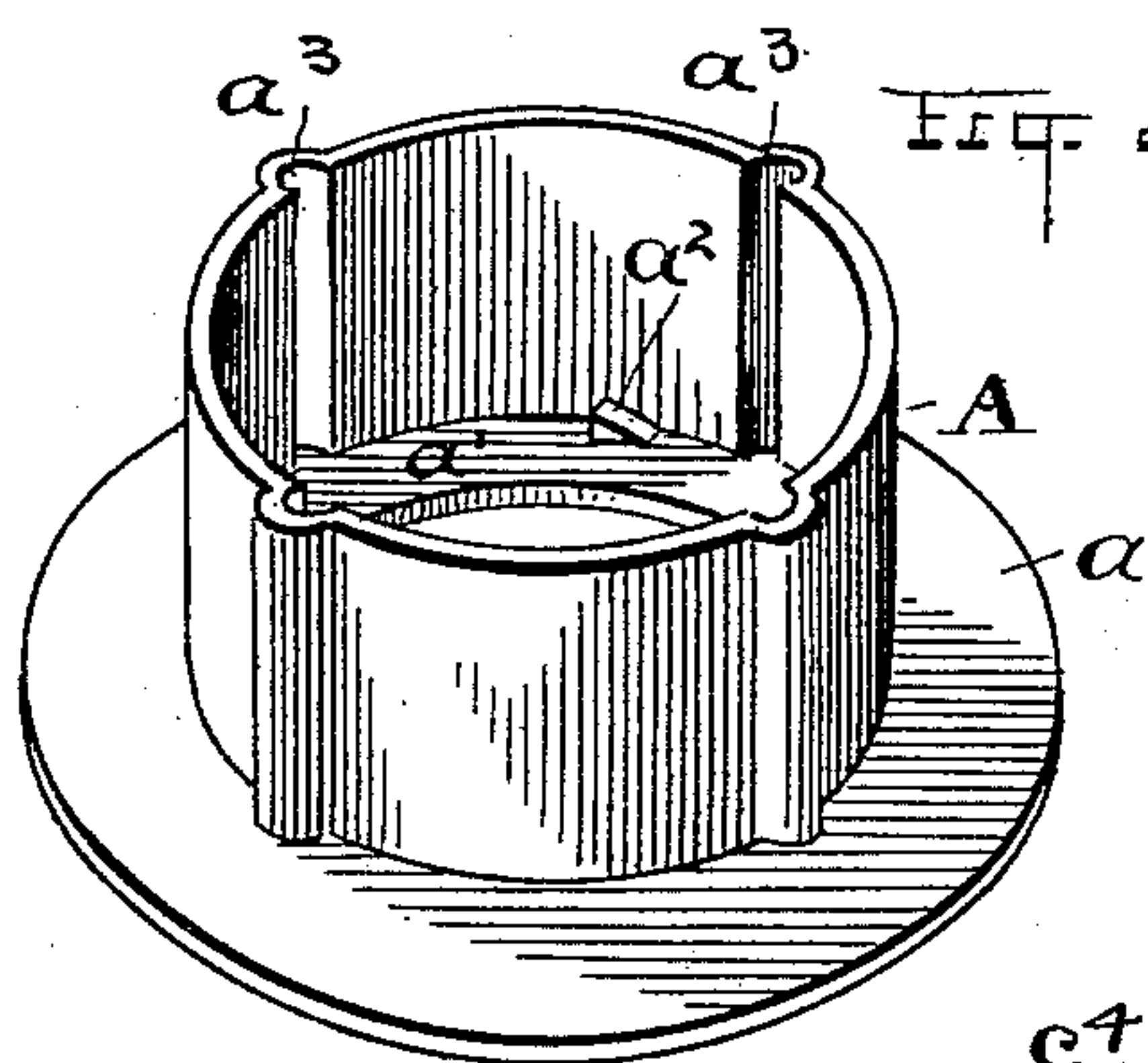
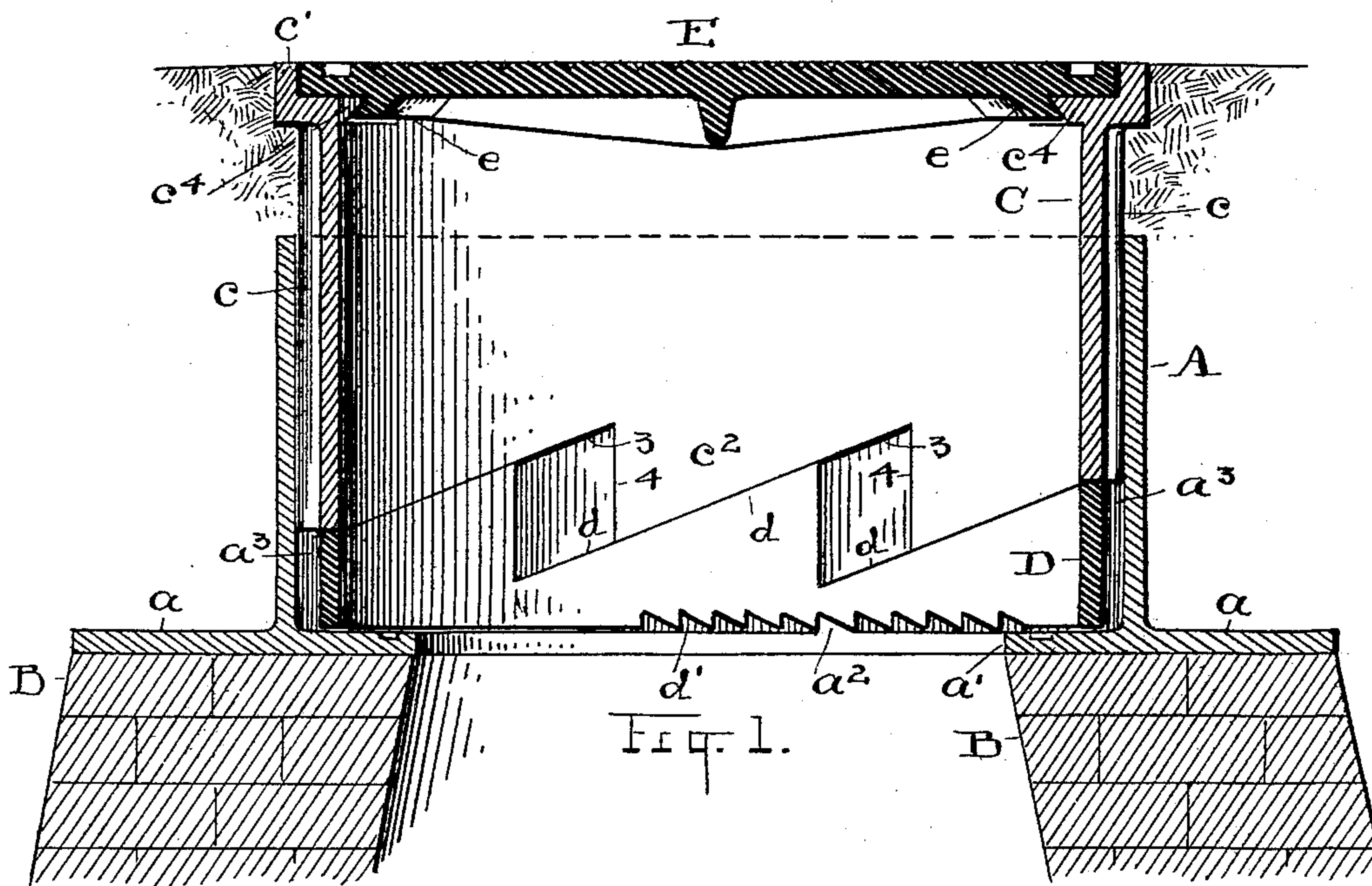
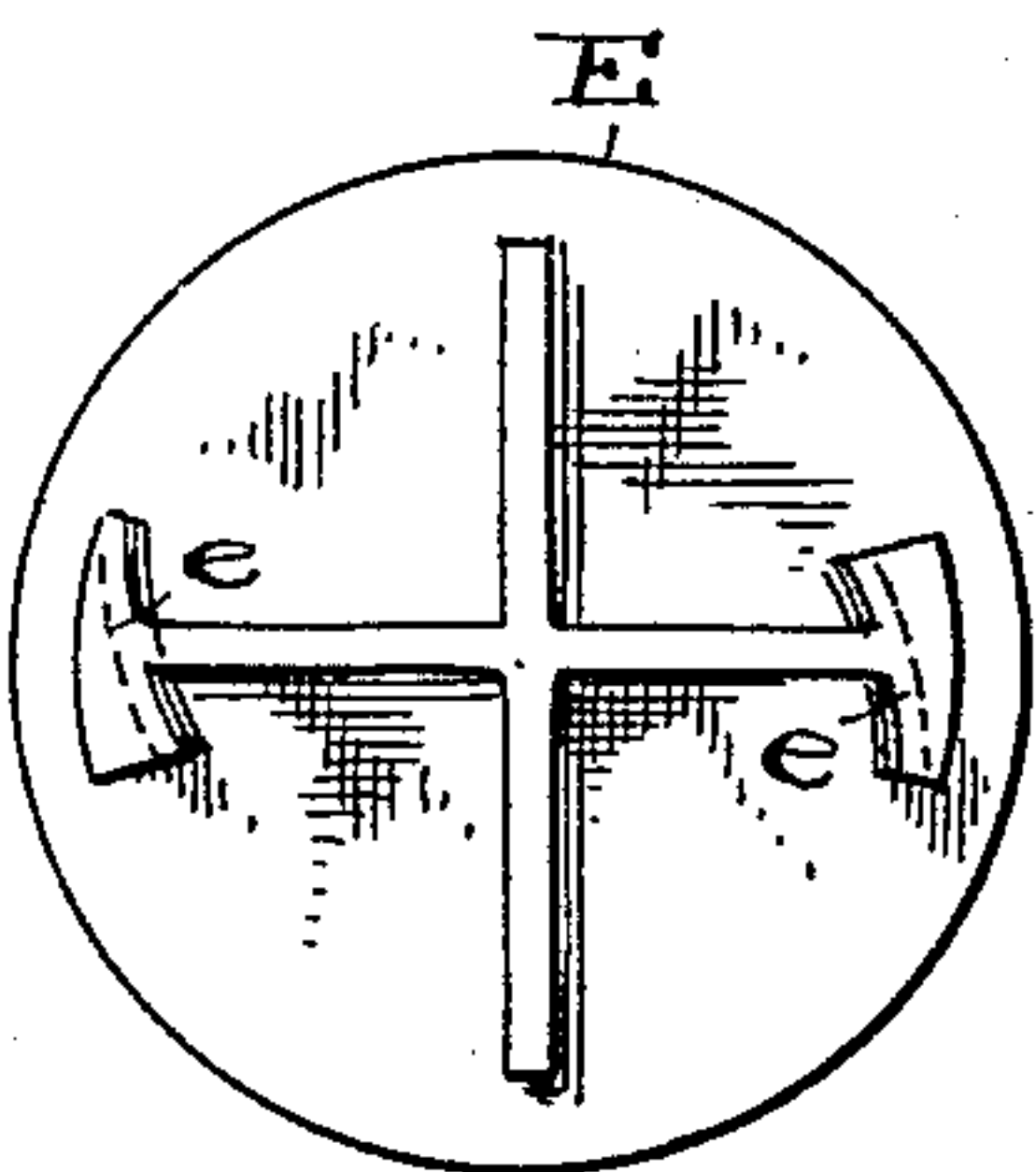


Fig. 4a.



ATTEST

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Fig. 5.

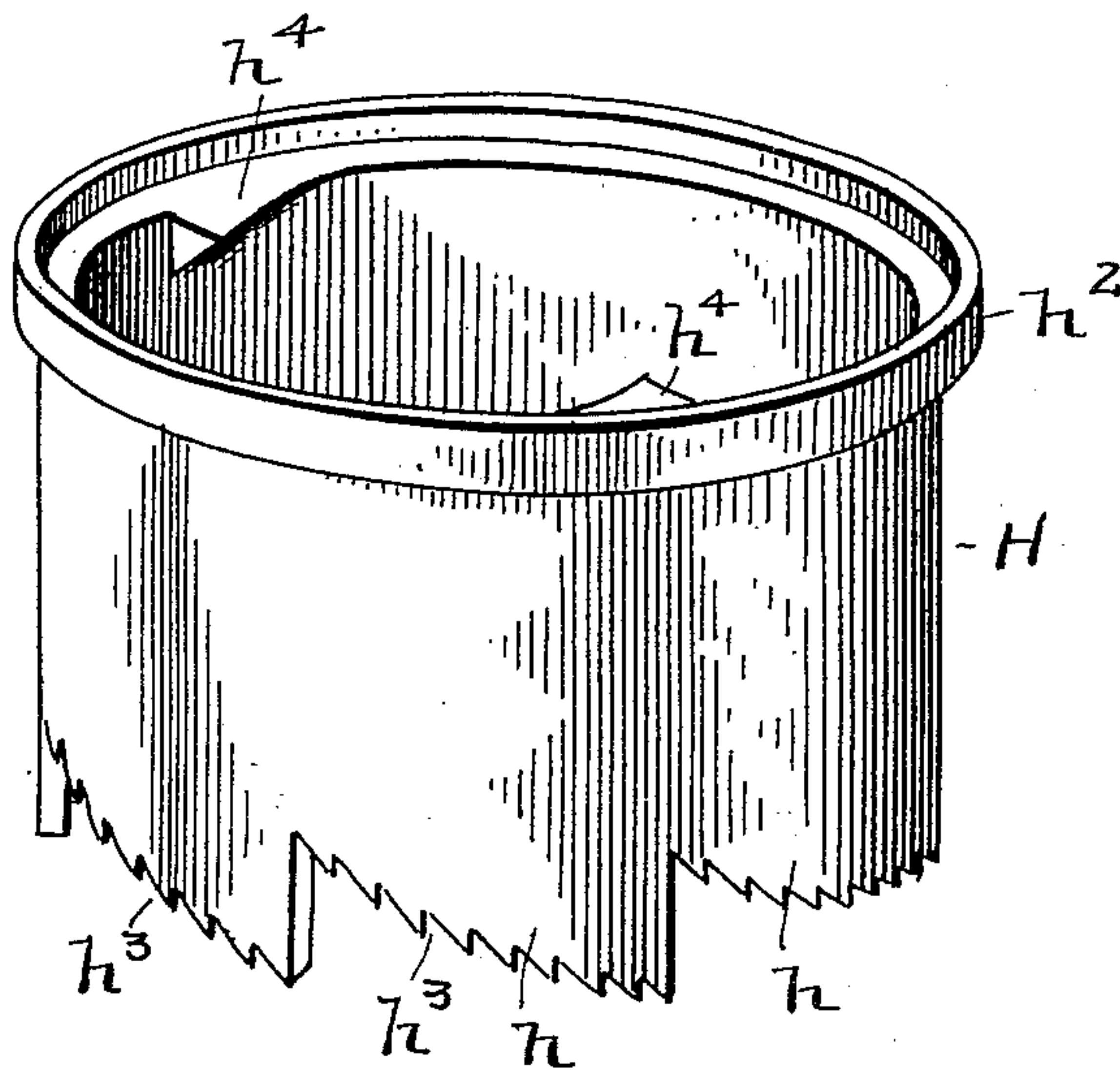
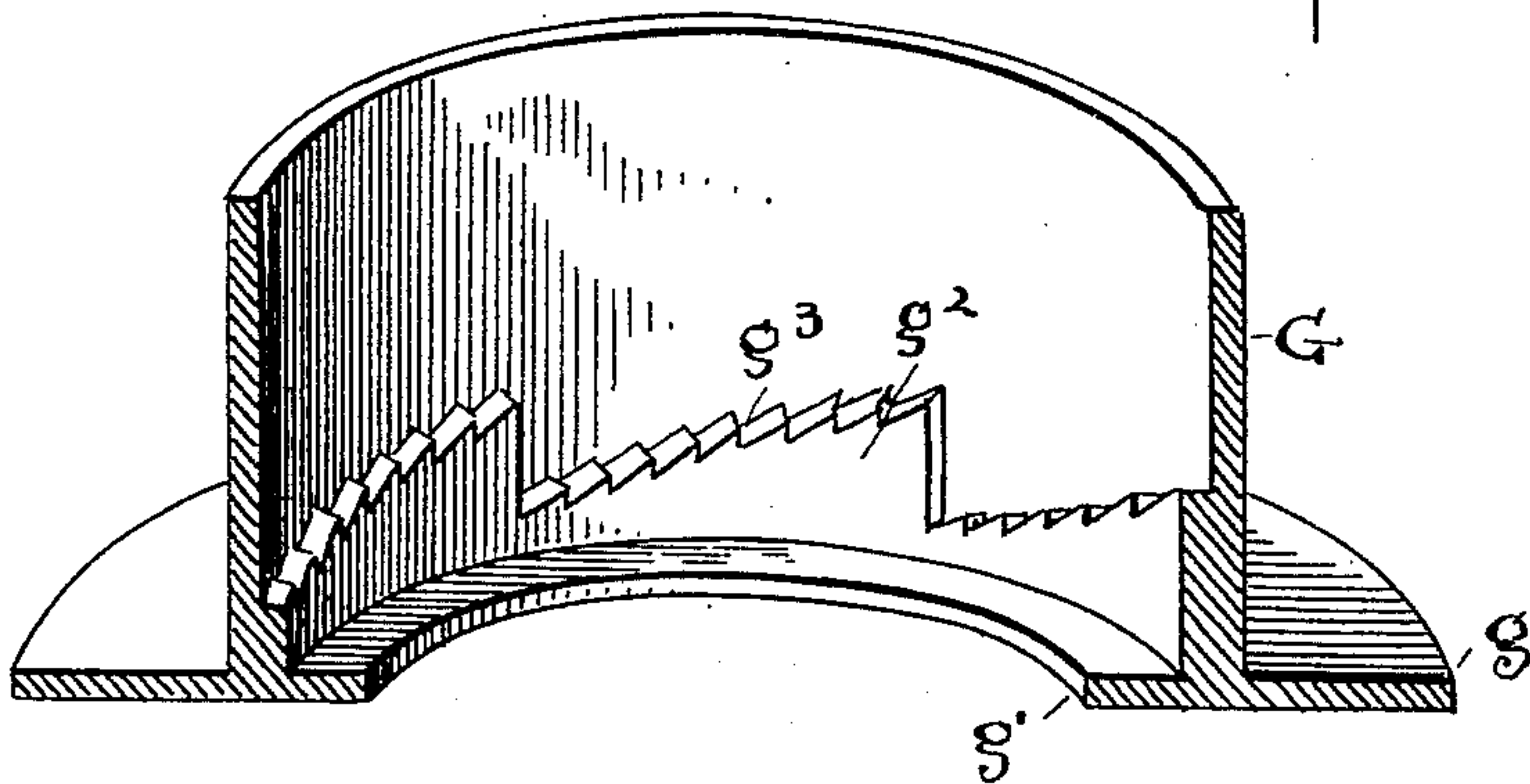


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES BANWELL, OF CLEVELAND, OHIO, ASSIGNOR OF THREE-FOURTHS TO
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MANHOLE FOR ELECTRIC CONDUITS.

SPECIFICATION forming part of Letters Patent No. 638,692, dated December 12, 1899.

Application filed July 19, 1899. Serial No. 724,395. (No model.)

To all whom it may concern:

Be it known that I, JAMES BANWELL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Manholes for Electric Conduits; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to manholes for underground conduits for electric wires and other purposes and wherever the invention can be advantageously used; and the invention consists in a sectional and adjustable construction which will afford all the necessary up-and-down movement of the grade-reaching member to adjust it to grade and security for holding such member firmly when adjusted, all substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of one form or style of my new and improved manhole. Fig. 2 is a perspective of the base section or member of the casing shown in Fig. 1. Fig. 3 is a perspective elevation of the upper internal adjustable section or member, and Fig. 4 is a perspective elevation of the adjusting-ring which in use sustains the inner member. Fig. 4^a shows a bottom plan of the cover. Figs. 5 and 6 illustrate one modification of the foregoing construction, and others still might be suggested. Fig. 5 is a perspective elevation of the inner adjustable member or section, and Fig. 6 a perspective sectional elevation of the lower section or member.

It is well known that nowadays the streets of cities generally are utilized for the laying of electric cables for various uses—such as telephones, electric-light, telegraph, and other cables and wires—and that access to the conduits receiving these cables is by numerous holes of a size to allow a man to enter the conduit for inspection, repairs, and the like. These openings, furthermore, very generally are in the paved streets, where vehicles travel, and hence where both firmness and evenness of surface are demanded in any construction

of manhole that is put down. It must be so firm that it will not be affected by the heaviest loads passing over indefinitely, and it must be even or flush with the surface of the street to avoid objectionable jogs or depressions on the one hand or too great elevation on the other, and thus forming an obstruction to horse and vehicle. A very slight difference either way is an aggravation not allowed. For these reasons it has been found that any ordinary or common means of adjustment, as by screws and slots or the like, are practically insufficient, for the reason that they will not stand the pounding and strain that comes on them. Then, again, all such arrangements are liable to work loose and become dangerous. Then, again, in putting down a conduit its depth unavoidably varies here and there so much that scarcely any two measurements to the surface are alike and every fraction of an inch either way must be provided for and taken up in the adjustments to be made. Hence, also, these adjustments should not only be easy, but at least approximately accurate for small differences—say for a half-inch or even less at times—so that the top of the manhole and the cover thereon cannot only be made flush with the pavement without difficulty, but that they will remain that way in spite of everything that may pass over them.

To these several ends I have invented the construction as herein shown, and for convenience reference will first be made to the structure disclosed in Sheet 1 of the drawings.

In the views, A represents the main or base section of the manhole, which is of cylindrical or circular outline and has an outer supporting-flange *a* about its bottom to rest on the wall B of the mouth of the conduit. The said wall B may be built approximately to the desired elevation, preciseness in this respect not being needed with my adjustment. Another flange or ledge *a'* is formed on the inside of the body A about its bottom in this case; but it might be higher up. However, the better construction is at the bottom, so that it may rest on the wall B, as shown, Fig. 1, and get the support required to sustain the severe strains liable at times to come from above.

Otherwise a much stronger flange a' would be required. On this flange or ledge are one or more dogs or projections a^2 , serving a purpose hereinafter described. Vertical inside
5 flutes or channels a^3 also appear at intervals in the body of the casing A and extend down a sufficient distance as may be thought necessary, and one or more of these or their equivalents may be used.

10 C is the inner and upper member or section of the casing, adapted to fit somewhat snugly in casing A about its side and having vertical ribs or projections c on its outside adapted to rest in the channels a^3 , and thus limit
15 the member C to up-and-down movements and prevent possible rotary movement. The said channels and ribs might be reversed on said members; but the construction shown is deemed the best. About its top the member
20 C has an annular or shouldered offset c' to receive a cover or door, and about its bottom edge are formed a series of teeth c^2 , resembling saw-teeth in some respects and formed especially with long straight inclines 3, parallel to each other and distributed in succession
25 about the entire bottom edge of the said member, so as to afford a continuous and uniform bearing-surface all around. Straight shoulders 4 define the opposite edge of the
30 said teeth, and each tooth is therefore adapted to be used its entire length. Beneath this section or member C is the ring D, having a series of teeth about its top edge, matching identically the teeth c^2 in form and outline,
35 so as to serve as rests for the corresponding edges c^2 above. The inclination of these edges c^2 and d is such as to afford an easy rotation of the ring D to raise or lower the member C, and as their edges match exactly
40 all around and the ring rests on the ledge a' the result is the same, so far as firmness of support for member C is concerned, as if it rested directly upon the said ledge itself. Any available means may be employed to rotate
45 the ring D, and it is held in adjusted position by the serrations d' engaging on the dog or dogs a^2 on rim a' on the lower casing. These serrations or teeth d' are set near enough together to afford a comparatively
50 fine adjustment, and each step is self-locked as it is taken. Thus any desired elevation of member C may be obtained that is within range of this adjustment, and when made the support therefor is practically as complete and
55 stable as if the entire casing were made in one piece.

Obviously all the three parts are separate articles of manufacture, and a broken or injured member can be replaced by another
60 kept in stock by dealers.

In this construction no screws whatever are used, and there is no handwork in the production of the parts except in the casting.

65 E is a door or cover seated on the shoulder c' and provided on its under side with two or more undercut or bevel-edged cams e , adapted to interlock on the rotation of the cover with

like cams or lugs c^4 on the inner edge of the member C. If anything be required to further lock the cover in this engagement, it can
70 be provided by dropping a bolt or screw down in position to prevent interlocking of the cams until it is removed. The top of the cover can be hatched or otherwise roughened, and obvious departures from the exact formations
75 shown may be made without departing from the spirit of the invention.

Figs. 5 and 6 illustrate a single modification of the invention. In this case the structure comprises only two members G and H apart
80 from the cover, which is designed to be the same as in Figs. 1 and 4. The body G is formed, as in Fig. 1, with flanges g and g' and a series of inclines g^2 inside its bottom corresponding in all particulars to the ring D in
85 the other form and serving as a support for the top or inner member H. The said inner member is formed with teeth H about its lower edge, like those in Fig. 3, and the inclined edges thereof match and rest upon the teeth
90 g^2 below. In this case, however, the teeth or inclined edges of both sets of teeth have matching serrations g^3 and h^3 , respectively, adapted to lock the upper section in each adjustment forward or backward, and in this
95 instance the upper section is rotatable in the lower one to effect the desired adjustments, and both sections are smooth about their sides to enable this to be done. Section H has a shoulder H^2 for the cover. An obvious modification of this idea would be to omit the serrations on the teeth and have a series of flutes or channels on one member and ribs on the other to interlock after each adjustment after
100 the manner in Fig. 1, putting the channels close enough together to make adjustments in fractions of an inch. Cams h^4 , like c^4 in Fig. 3, are used.

What I claim is—

1. A manhole for electric conduit and other
110 purposes, comprising an upper and a lower section, the said upper section having a series of inclines about its lower edge and corresponding inclines within the lower section on which said upper section is adjustably supported, substantially as described. 115

2. In a manhole for electric conduits and other purposes, the lower section of the casing having a flanged bottom to rest on the wall of the conduit and a series of inclines
120 within said section about its bottom, in combination with the inner section having a series of inclines about its lower edge parallel to the inclines in the lower section and seated thereon, both sets of inclines terminating with practically abrupt shoulders at the top of each incline, substantially as described. 125

3. A sectional manhole comprising a lower section and an upper section vertically adjustable therein to set it to a given grade-level, said upper section having a succession of teeth about its bottom with inclined bearing edges, and a succession of teeth in the lower section with corresponding inclinations and serving
130

as a rest for the upper section and on which the upper section is raised or lowered, substantially as described.

4. As a new article of manufacture in man-
5 hole-casings, an inner member constructed at its top to receive and hold a cover and having a series of uniform teeth-shaped projections around its bottom with inclined bearing

edges, and an abrupt shoulder at the top of each edge, substantially as described. 10

Witness my hand to the foregoing specification this 15th day of July, 1899.

JAMES BANWELL.

Witnesses:

H. T. FISHER,
R. B. MOSER.