

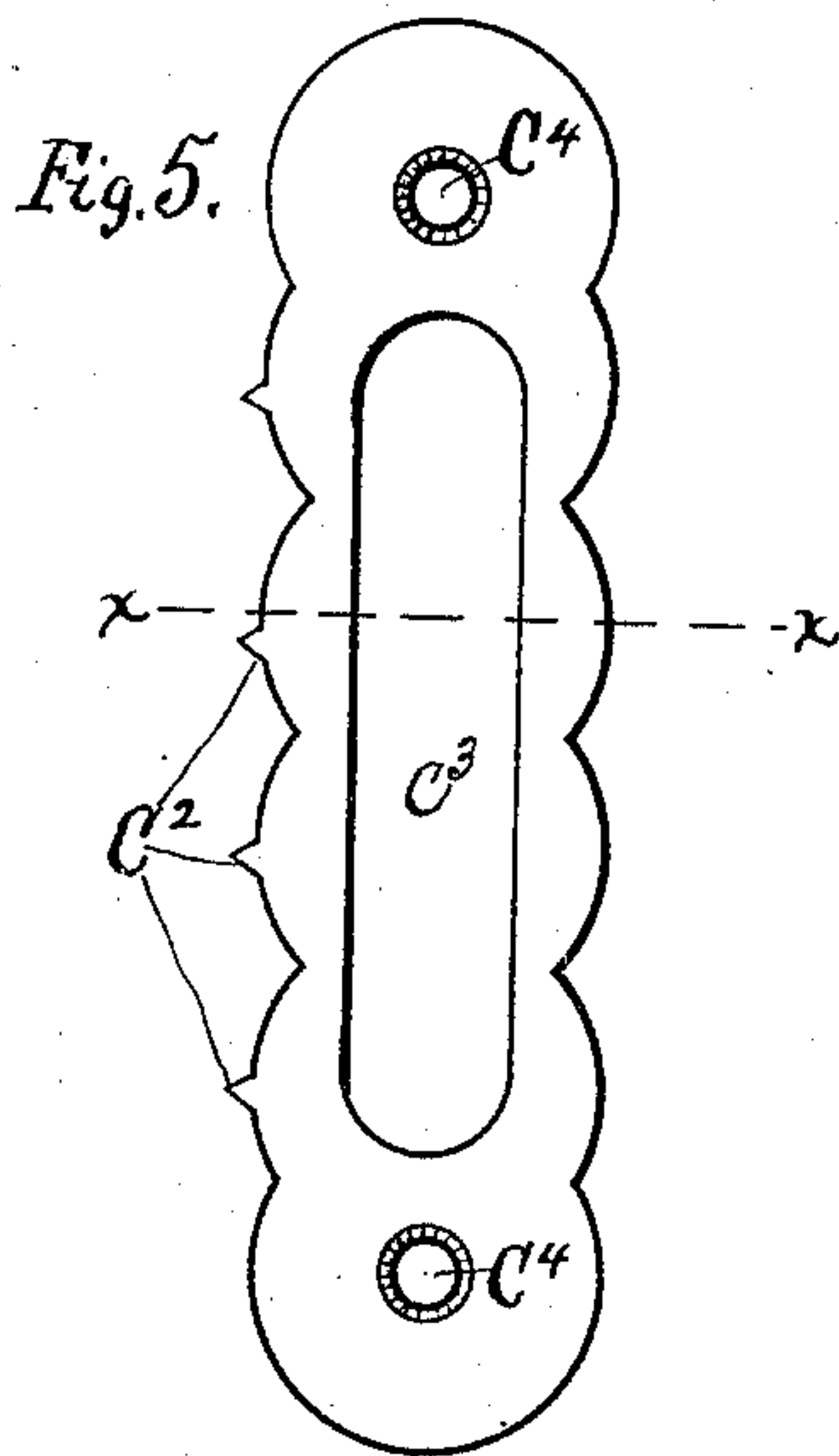
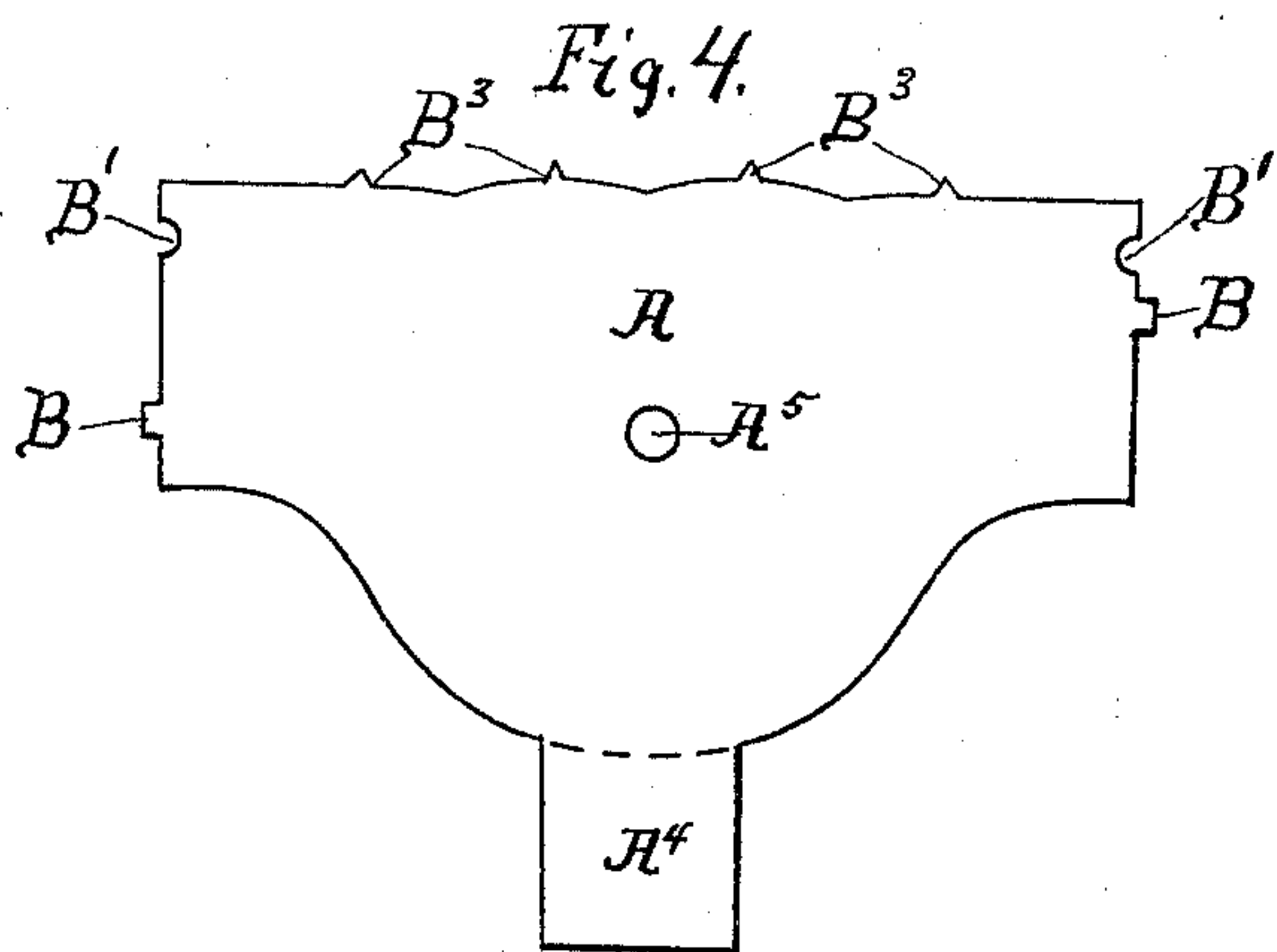
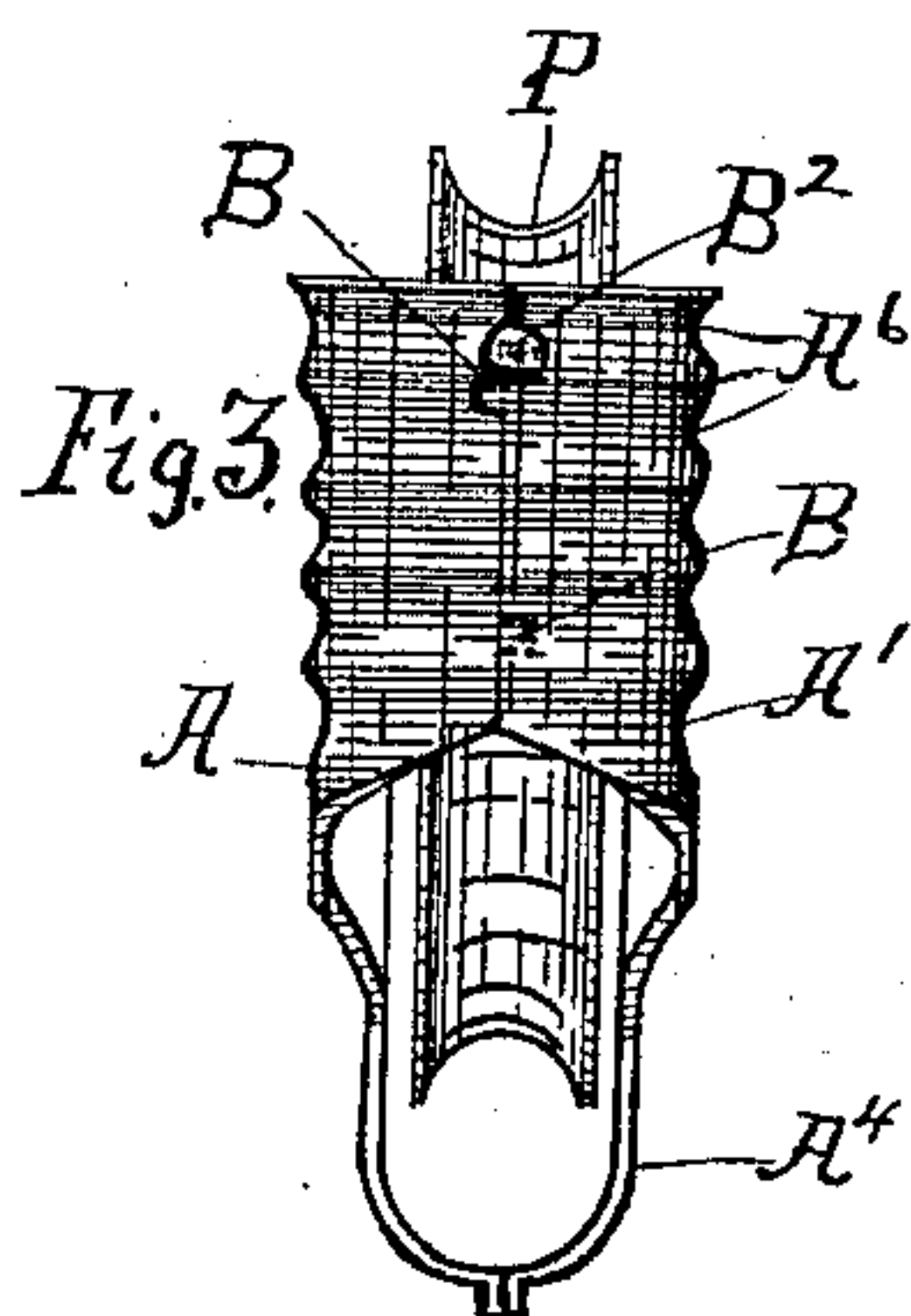
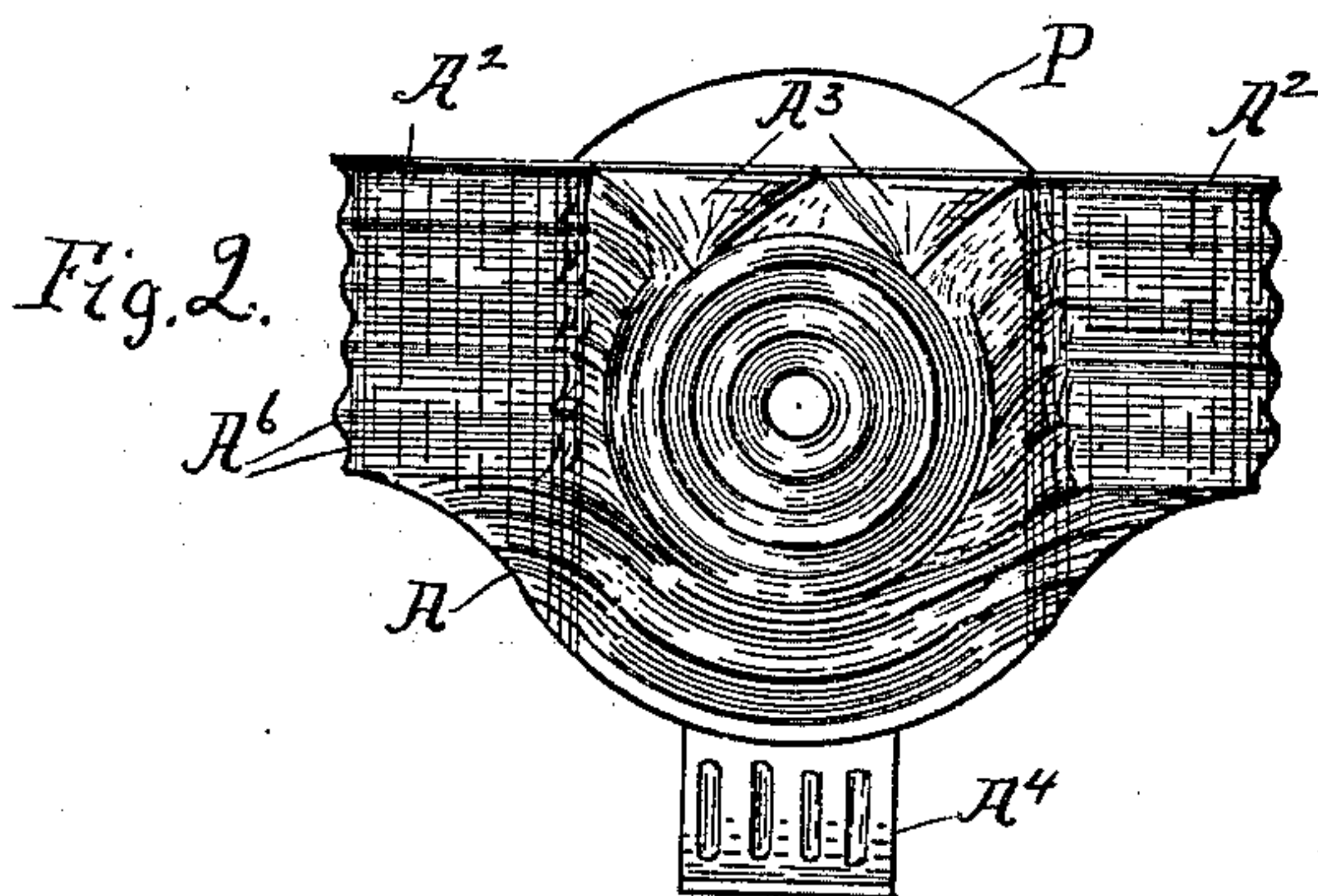
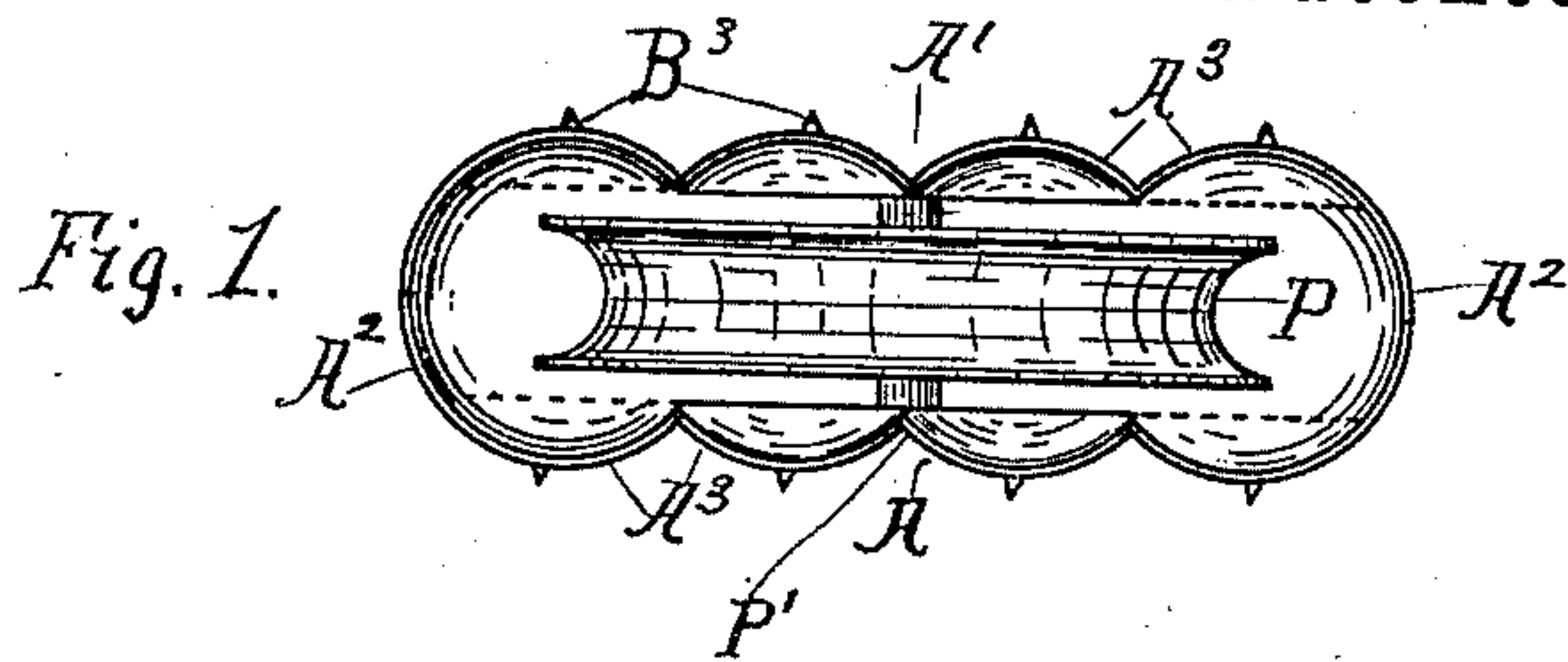
(Model.)

2 Sheets—Sheet 1.

S. PALMER.
SASH CORD GUIDE.

No. 391,817.

Patented Oct. 30, 1888.



Witnesses:

Frank C. Curtis.
A. Davenport.

Inventor:

Stephen Palmer,
by Geo. Amosby,
att'y.

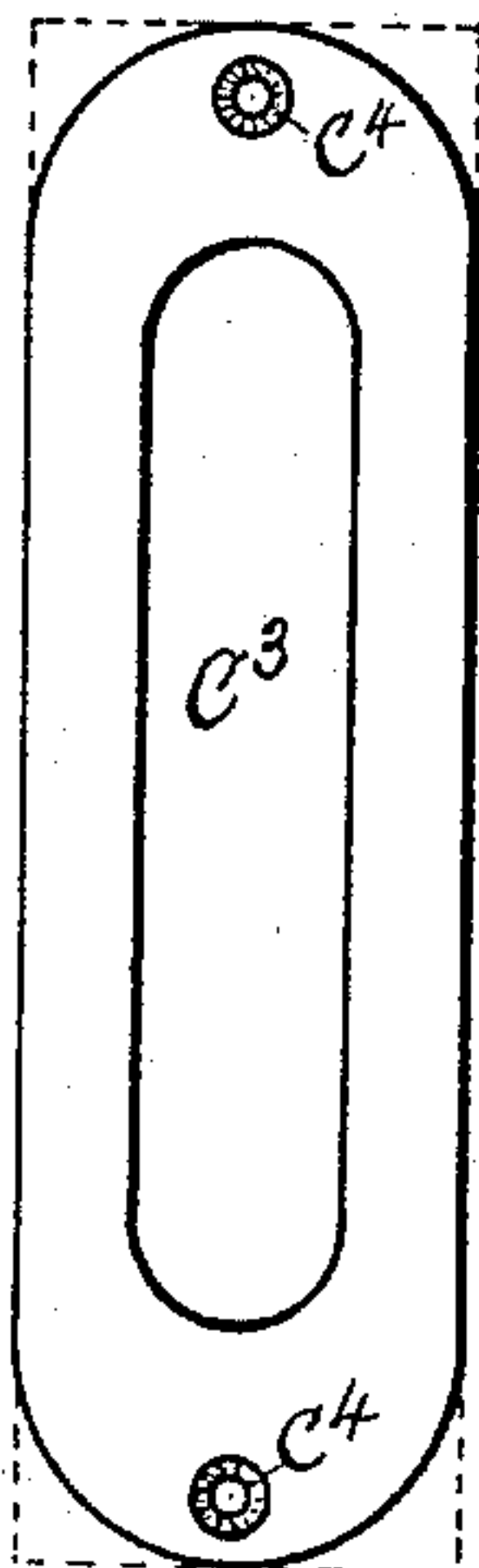
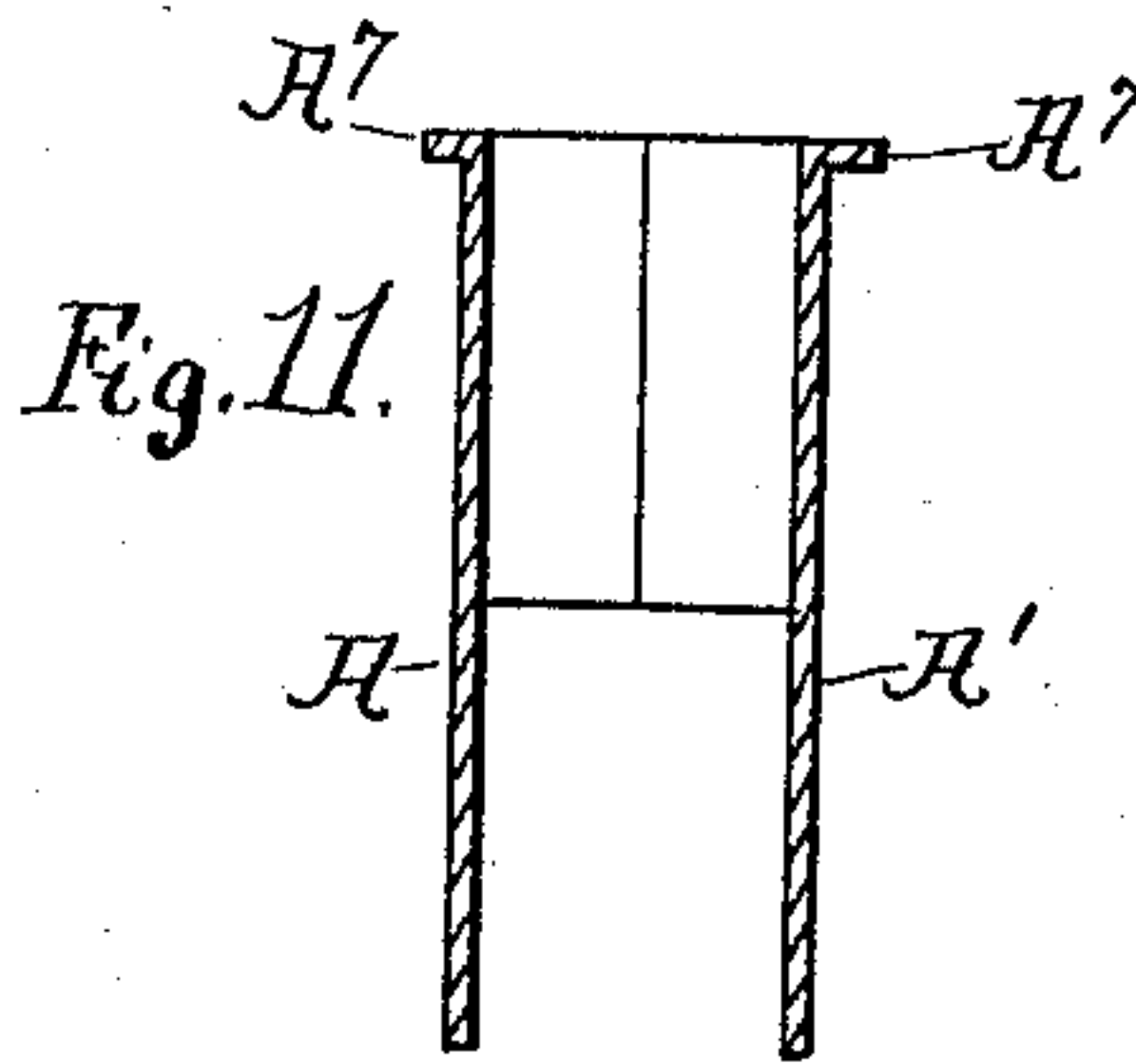
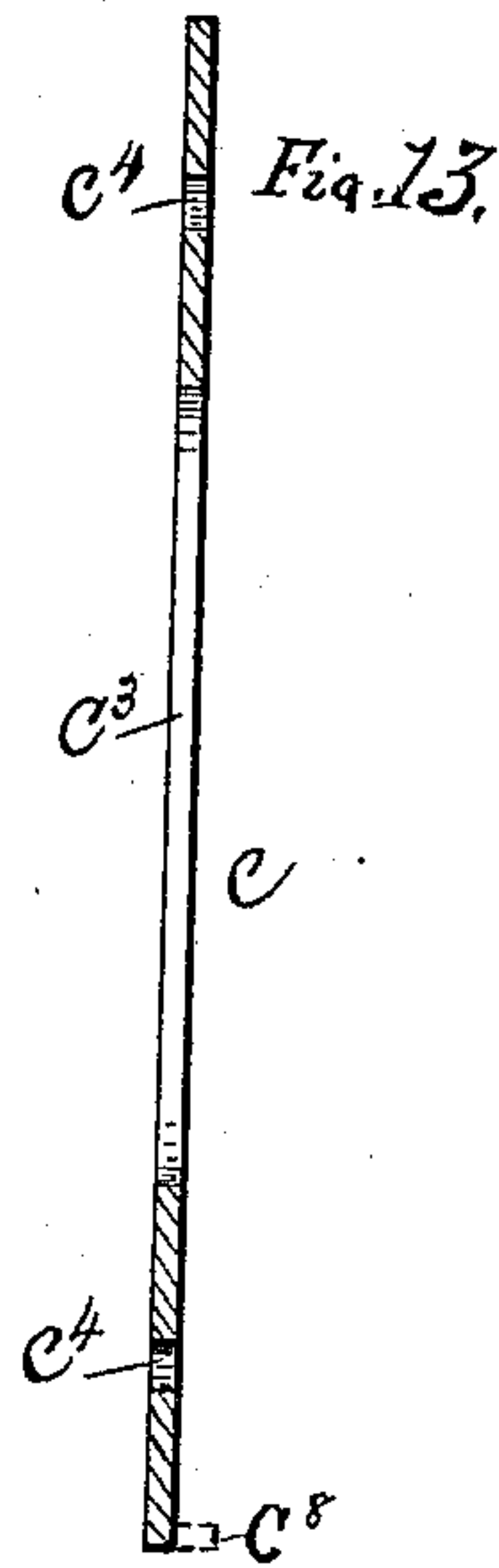
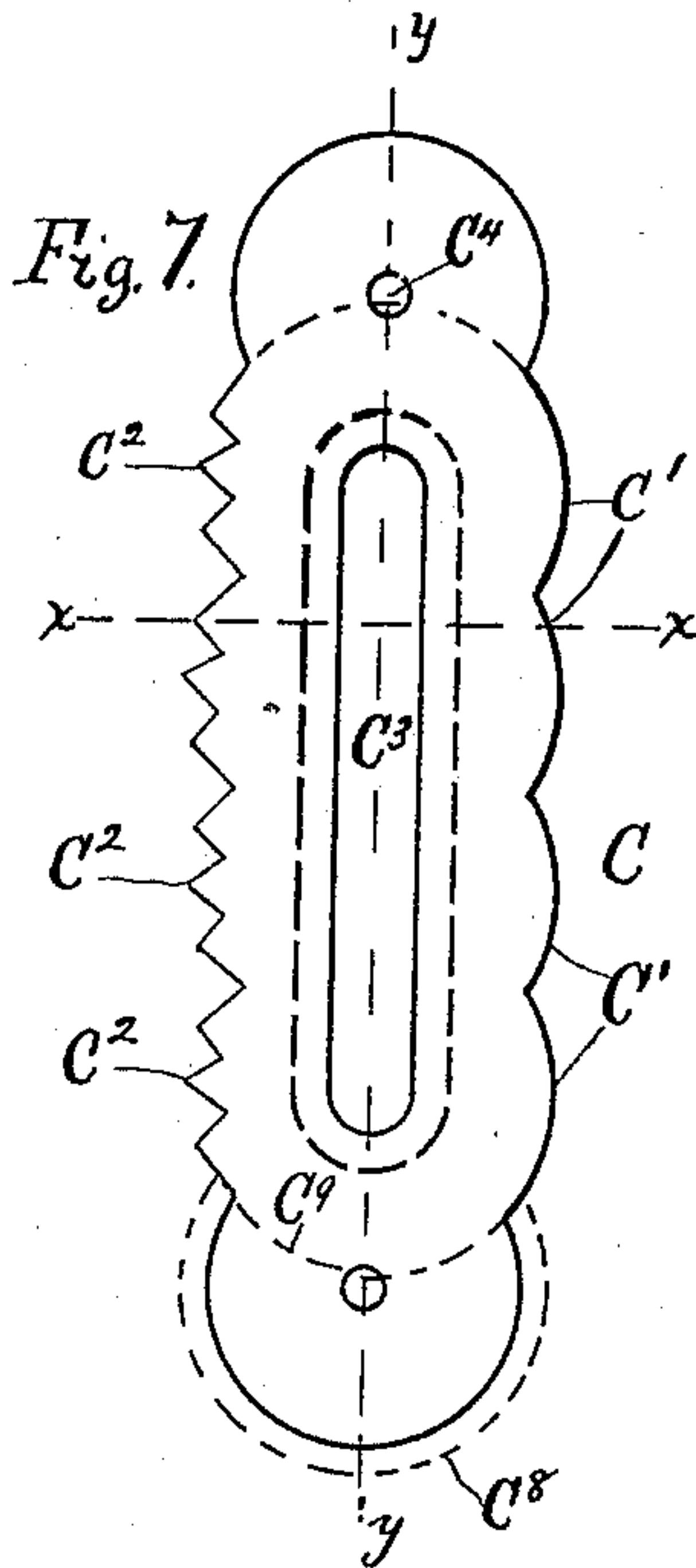
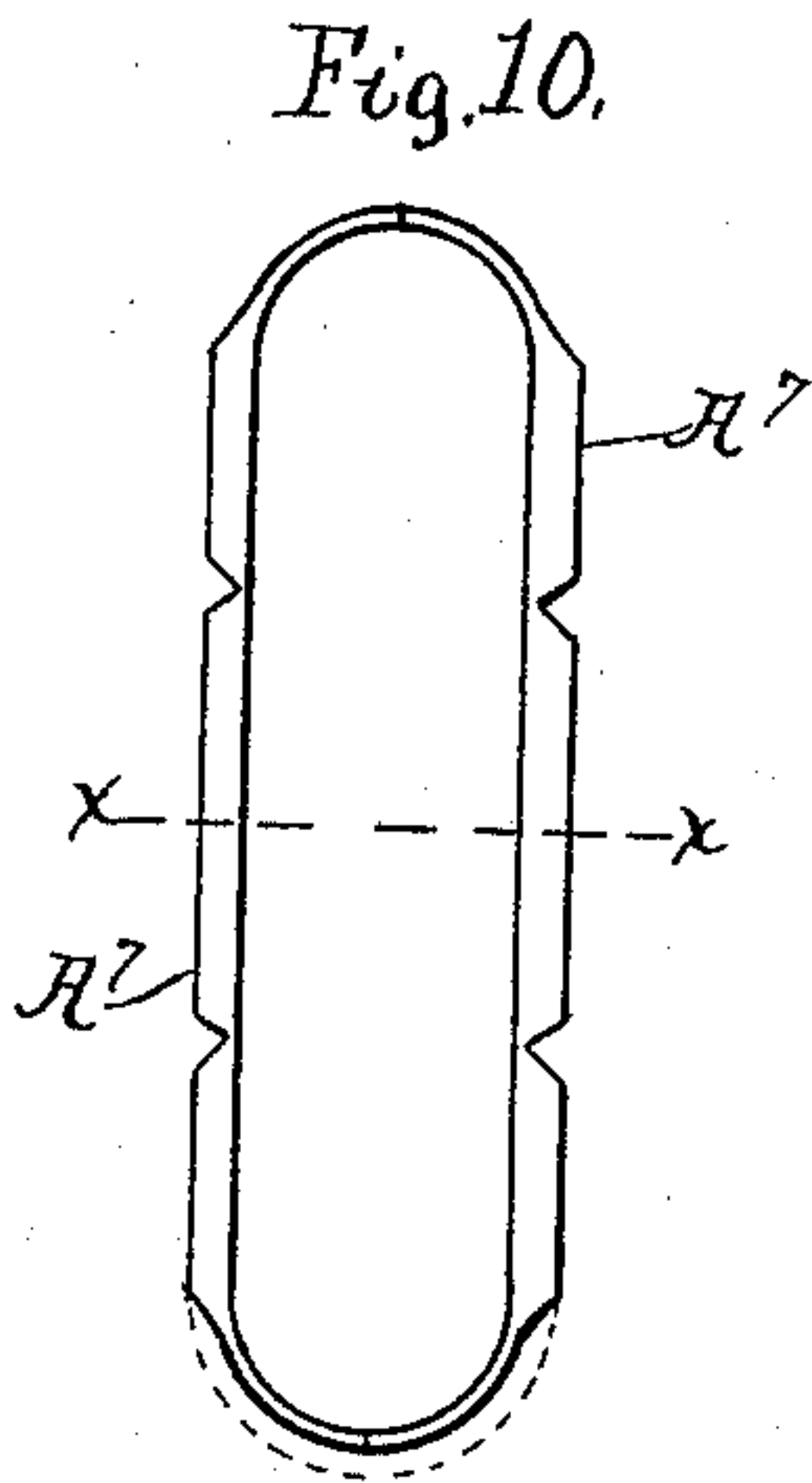
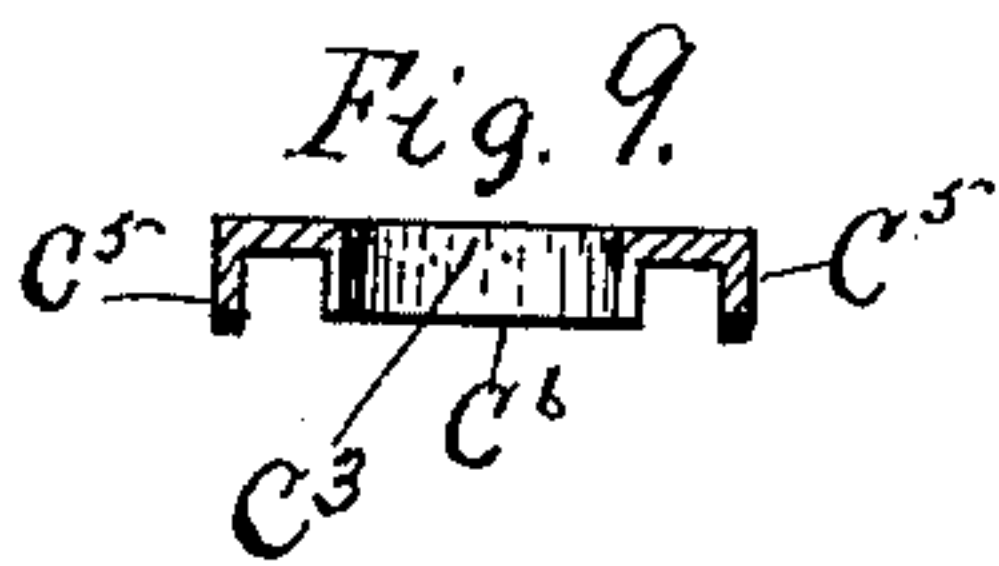
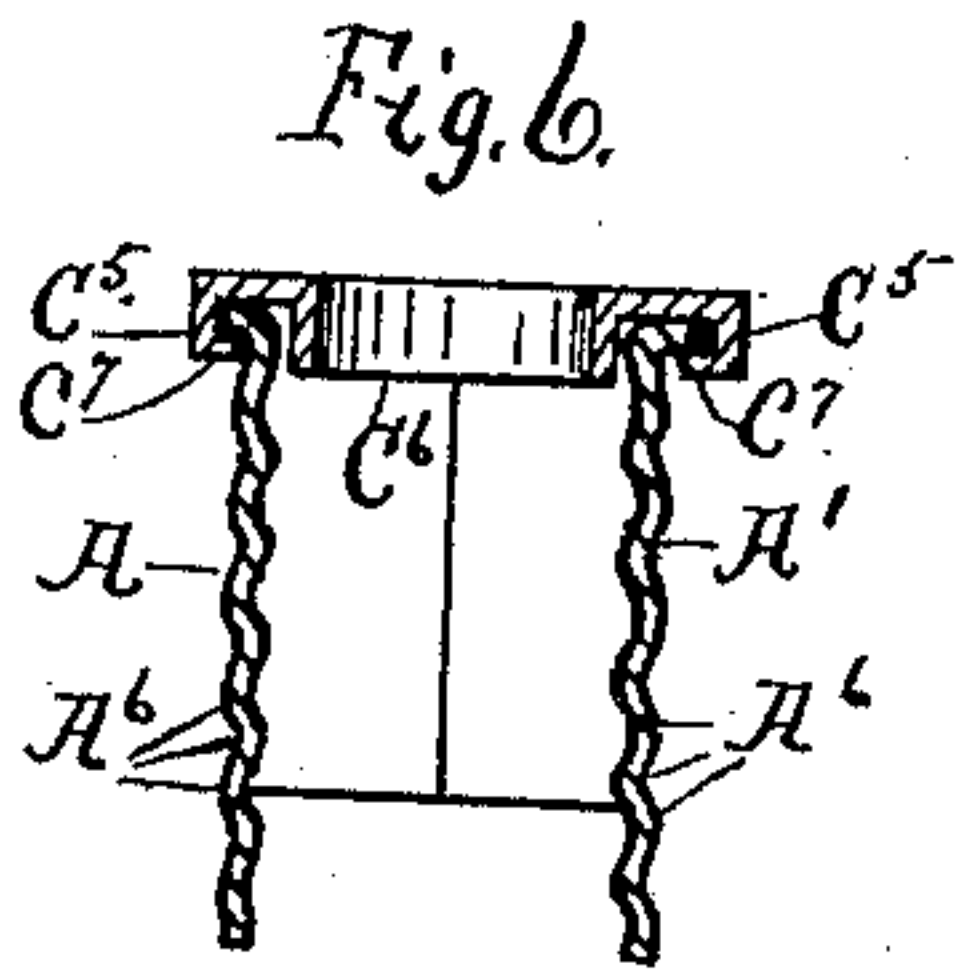
(Model.)

S. PALMER.
SASH CORD GUIDE.

2 Sheets—Sheet 2.

No. 391,817.

Patented Oct. 30, 1888.



Witnesses:

Frank G. Curtis.
A. Davenport.

Inventor:

Stephen Palmer.
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UNITED STATES PATENT OFFICE.

STEPHEN PALMER, OF LANSINGBURG, NEW YORK.

SASH-CORD GUIDE.

SPECIFICATION forming part of Letters Patent No. 391,817, dated October 30, 1888.

Application filed February 27, 1888. Serial No. 265,408. (Model.)

To all whom it may concern:

Be it known that I, STEPHEN PALMER, a resident of Lansingburg, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Sash-Balance Cases; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in sash-balance cases made of sheet metal; and it consists of the novel construction and combination of parts hereinafter described, and pointed out in the claims.

Figure 1 of the drawings is a front face view of my improved device shown without a face-plate. Figs. 2 and 3 are respectively side and end views of the device shown in Fig. 1. Fig. 4 is a plan view of a sheet-metal blank adapted to be swaged into the proper shape to form one-half section of the completed sash-balance case. Fig. 5 is a front face view of a completed case provided with a face-plate. Fig. 6 is a cross-section of same, taken on the broken line *xx* in Fig. 5. Fig. 7 is a plan view of a sheet-metal blank adapted to be swaged into the proper shape to form a face-plate for the case. Fig. 8 is a cross-section of the same, taken at the broken line *xx* in Fig. 7. Fig. 9 is a similar section of the blank after the inner and outer edges have been swaged down to form right-angular flanges. Fig. 10 is a front face view of a modified form of case without face-plate. Fig. 11 is a cross-section of the same, taken on the broken line *xx* in Fig. 10. Fig. 12 is a front face view of the case shown in Figs. 10 and 11, provided with a face-plate. Fig. 13 is a longitudinal section of the blank shown in Fig. 7, taken on the broken line *yy* in that figure.

In my application for a United States Patent for improvements in the construction of sash-balances, filed November 25, 1887, and given the Serial No. 256,034, which application is still pending in the United States Pat-

ent Office, I showed and described a method of making sash-balances and stated the general objects of the invention, to which description reference may be had, as I make use of that method in the construction of the device which forms the subject of this application.

The objects of this invention include those set forth in said application Serial No. 256,034—viz., to facilitate the operation of shipping large quantities in bulk without injury to the sash-balances; to diminish their weight; to give their cases flexibility, by which the operation of successfully inserting them in mortises made to receive them is attended with much less danger of splitting the wood in which the case receiving mortise is made than if the case were made, as is commonly done, of rigid cast metal; also, to insure greater uniformity in size and form; and my present invention has for a further object providing the various forms of sheet-metal cases shown, when desired, with a thin sheet-metal face-plate with end flanged extensions to serve as attaching-ears, as more fully explained hereinafter.

The approved forms of cases for sash-balances now in use are made of cast-iron, and are provided with end swells, or with a succession of swells on their sides, adapted to fit the auger-holes of which the mortise formed to receive them is made. I prefer to make the case of my improved device with similar swells to fit the auger-holes, although the case may have its sides straight and flat when provided with a retroverted flange along its face edge, as hereinafter more fully explained.

I first cut out from sheet metal blanks of the required shape to form, when swaged up, one side or half-section of the desired case. I then swage the blanks in dies to give them the configuration required to produce the tubular swells adapted to fit the auger-holes. The case is formed by securing two of these blanks together, so that their swells bulge outward and supplement each other to form tubular swells. The pulley or spring is inserted in the usual manner. I have shown a preferred form of blank, A, in Fig. 4, for producing a case with tubular swells like that shown in Figs. 1, 2, and 3. The blank is swaged to form semi-tubular swells A² on the ends and the intermediate swells, A³. The projecting spurs B on

one blank overlap the edges of the supplementing blank to hold the edges of the two blanks in alignment, as shown in Fig. 3. The slots B' in one of the blanks of the supplementing pair of blanks unite with those in the other blank to form apertures B² in the ends of the case adapted to receive an attaching nail or screw driven into the wall of the case-containing mortise. The spurs B³ form marking-spurs, being located at the proper distance apart to indicate, when pressed into the wood where the mortise is to be made, the proper place to insert the auger in boring the holes for the mortise. The projection A⁴ serves to unite the blanks on one side to stiffen the case and form a guide for the cord when passed over the pulley P. The blanks may be formed without this projection when desired, as indicated by the broken line in Fig. 4. The blank is also provided with a central opening, A⁵, adapted to receive and support the pulley-axle P'. To utilize sheet metal of minimum thickness, I provide the blanks with corrugations or depressions and elevations, as shown at A⁶ in Figs. 2, 3, and 6, which may be termed "stiffening-ribs," which may be produced as shown, or by a series of round or angular indentations stamped into the blank at approximately equal depths, which, like the corrugations shown, follow the general outline of the case, all which corrugations are designed to stiffen the case transversely, and references herein to stiffening-ribs apply to these features, and by the use of this term I hereby disclaim any reference to tubular swellings or fastening-ribs running crosswise of the case, shown in older devices of cast metal provided to adapt them to fit a mortise formed of conjoined auger-holes. These ribs may be formed by the same die which forms the swells and at the same operation.

When desired, the swells may be dispensed with, provided a retroverted flange, A⁷, is formed on the face edge of the blanks or case, as shown in Figs. 10 and 11. This flange A⁷ not only supplements the stiffening-ribs in stiffening the sides of the case, but prevents the case from sinking too deep in the mortise, as well as covers the face edges of the mortise, and when desired may be provided with notches or holes, through which it may be fastened by brads or screws.

In Figs. 1, 2, and 3 I have shown the device without a face-plate, but I prefer to provide a sheet metal face-plate for the purpose of producing a better finish and means for more firmly securing it in the mortise.

I have shown in Figs. 7 and 13 two forms of blanks, C, cut from sheet metal by suitable dies, adapted to form face-plates for sash-balance cases. The blanks shown are adapted to be secured upon any form of oblong sheet-metal cases provided with retroverted flanges

on their face edges being provided with a central slot and perforations. The outer edges of the blank and its inner edges surrounding the slot C³ are bent down by swaging-dies to form the outer flange, C⁵, and the inner flange, C⁶, after which operation a plan view of its face is like that shown in Fig. 5. The plate so formed is then placed upon the face of the case with the inner flange within the case and the outer flange inclosing the case. The outer flange is then introverted and bent around the outwardly-projecting edges A³ of the case, or a retroverted flange, like A⁷, (shown in Fig. 11,) to form a retaining-flange, C⁷, Fig. 6, leaving the flanges C⁵ standing at nearly right angles with the face on the ends projecting beyond the case for the purpose of stiffening and strengthening these projections, which are designed for attaching ears, and which are thus made sufficiently rigid to sustain the weight of the sash and its counterpoise. The plate is thus securely held upon the case, and the outer flange prevents the sides of the case from spreading, and the inner flange prevents the sides of the case from being crowded toward each other, thus greatly strengthening the case, and at the same time giving it a finished and ornamental appearance. The points C² are not bent down, but left projecting to form the marking spurs C², as shown in Fig. 5.

I do not claim, broadly, a sheet-metal sash-balance case.

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

1. The combination, with the walls of a sheet-metal sash-balance case formed from struck-up blanks having elevations and corresponding depressions on their surfaces forming stiffening-ribs and retroverted face edges, of a sheet-metal face-plate provided with a central longitudinal slot, end perforations, and case-wall abutting flanges formed along its inner edge, and having around its outer edge flanges turned at an approximate right angle with its face and secured to the retroverted edge of the case-walls by the outer flange introverted thereon, the flanges on the attaching-ears which extend beyond the walls of the case at the ends being left at approximately right angles with the face, substantially as described.

2. A sash-balance case formed of sheet-metal blanks struck up with elevations and corresponding depressions on their surfaces to form stiffening ribs or corrugations, the face-edges of such blanks when so struck up being retroverted and provided with marking-spurs, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of February, 1888.

STEPHEN PALMER.

Witnesses:

GEO. A. MOSHER,
W. H. HOLLISTER, Jr.