

995,435.

Fig. 1

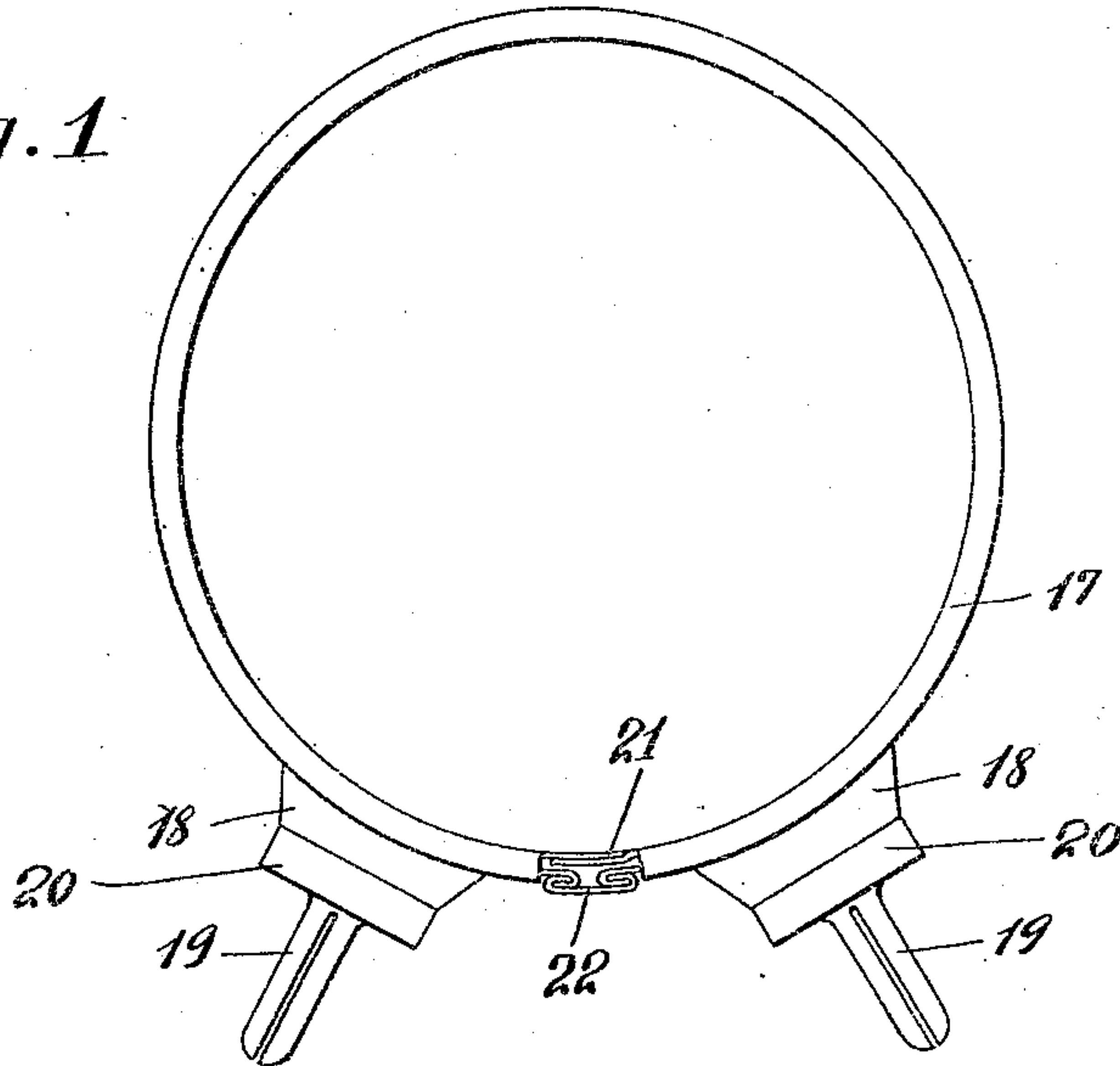


Fig. 2

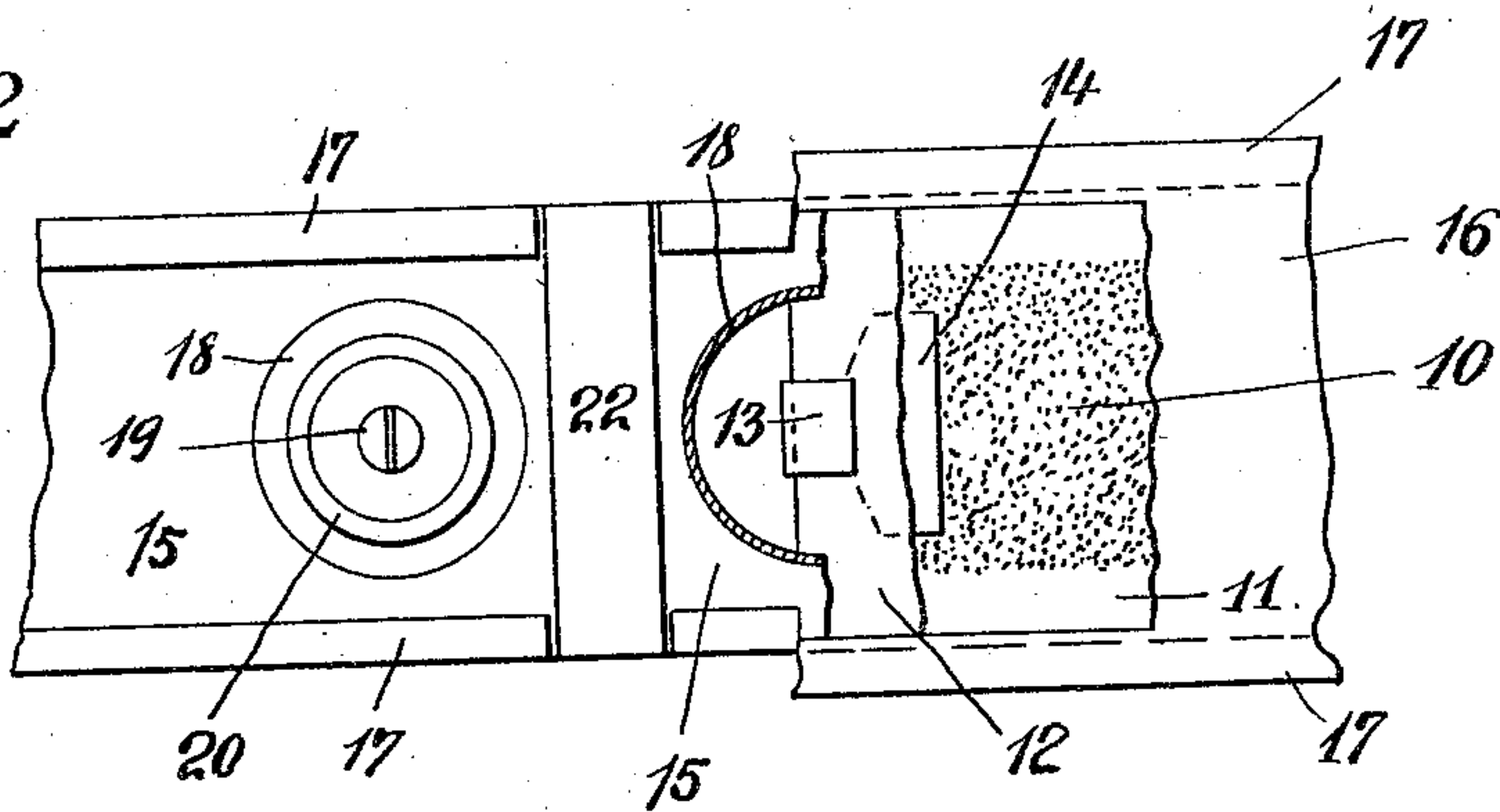
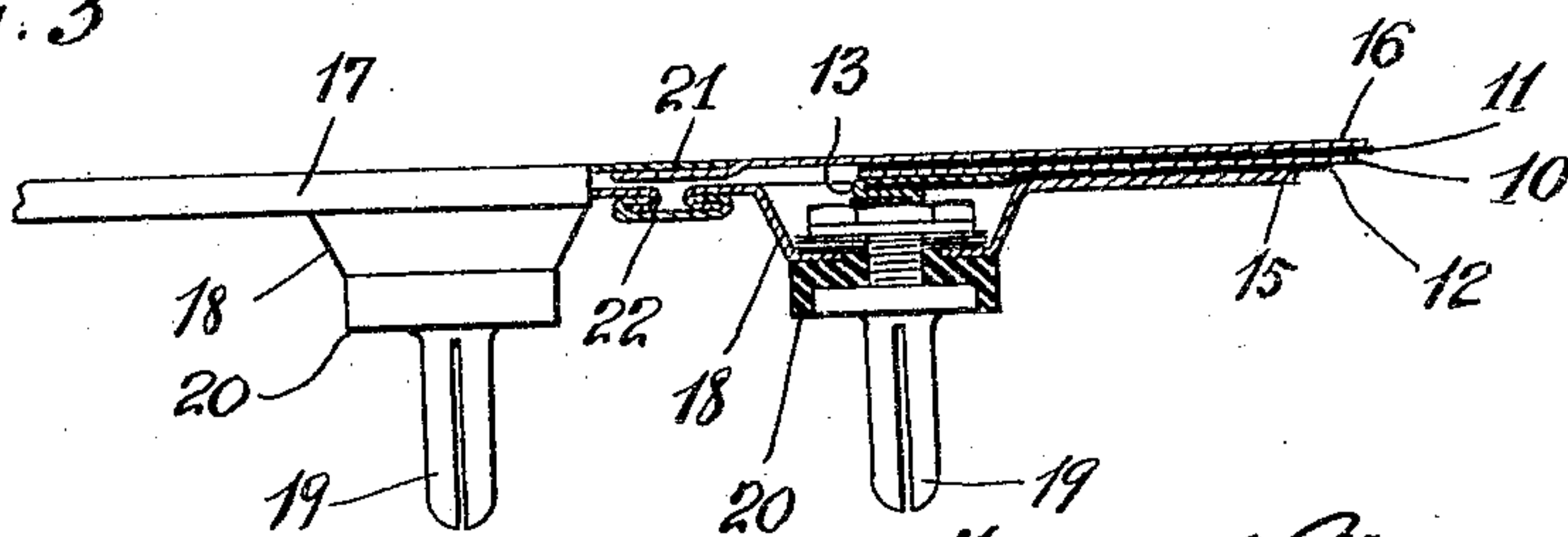


Fig. 3



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ELECTRICAL RESISTANCE.
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995,435.

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2 SHEETS—SHEET 2.

Fig. 4

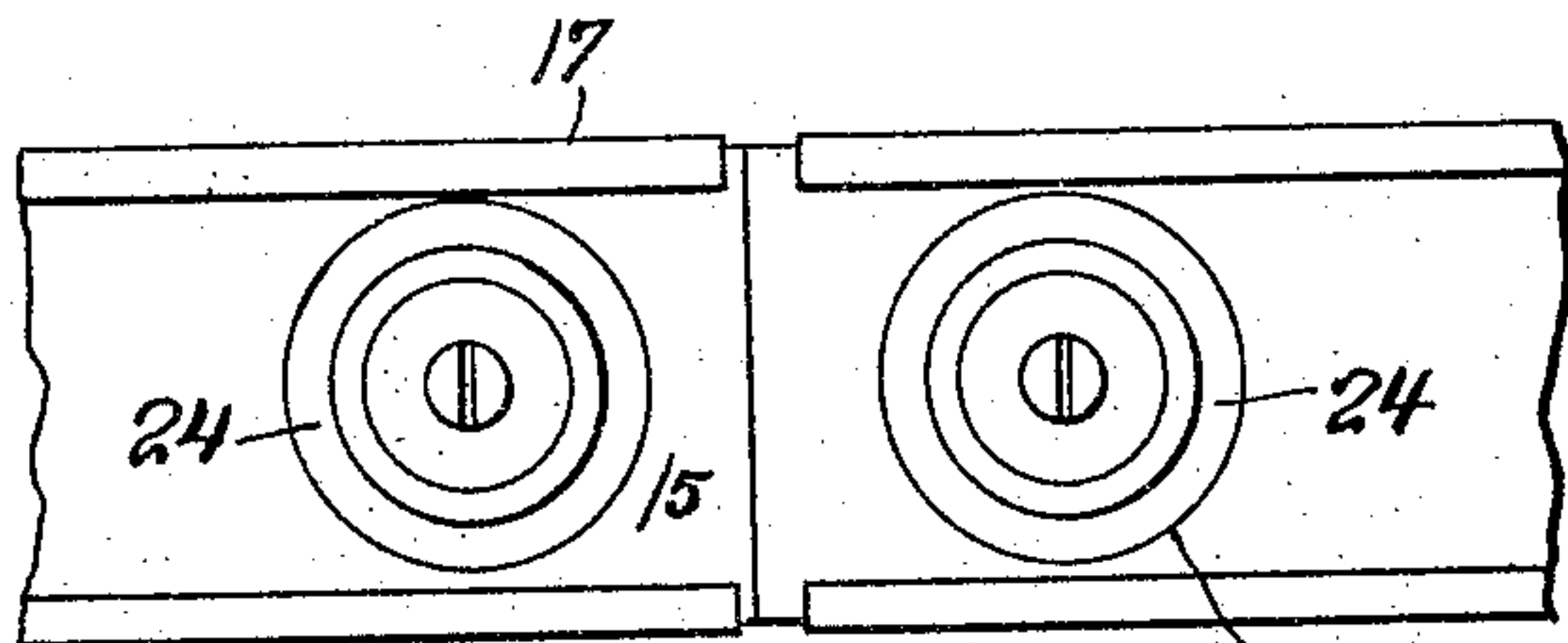


Fig. 5

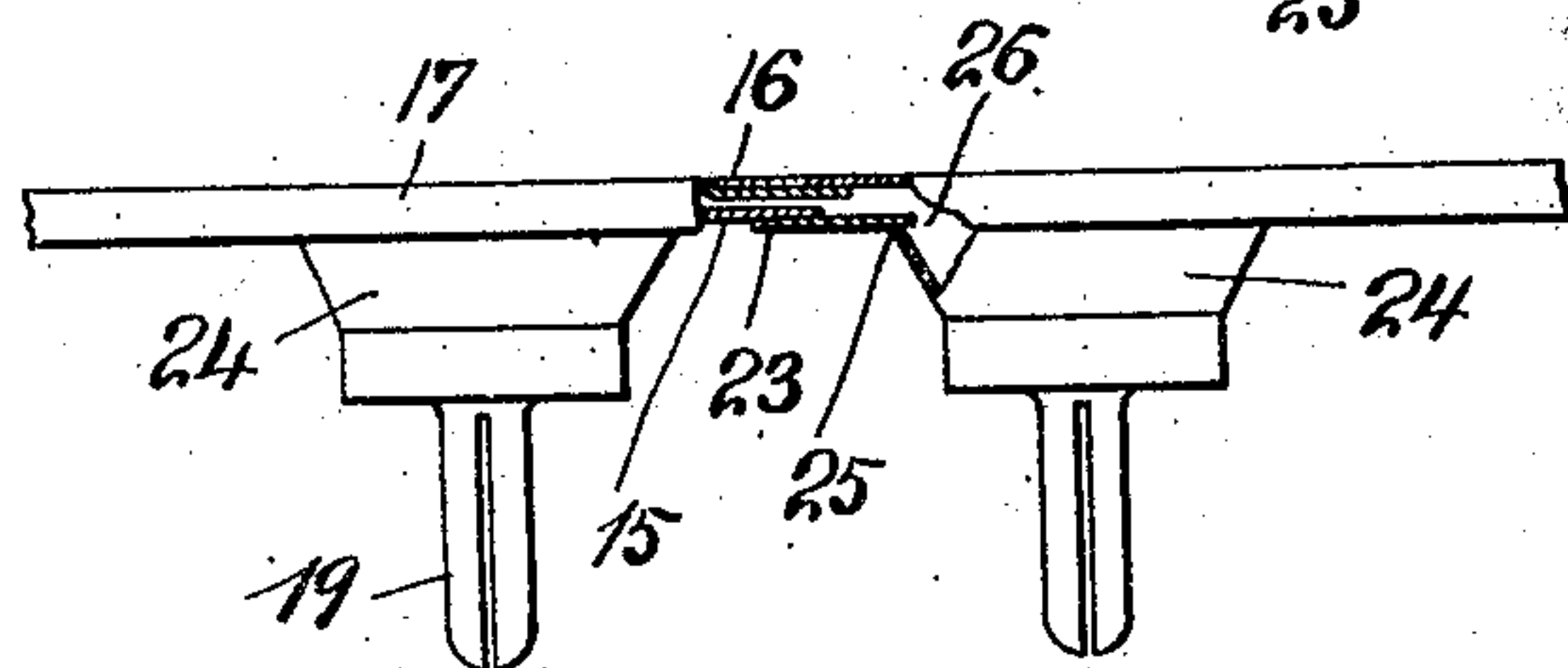


Fig. 6

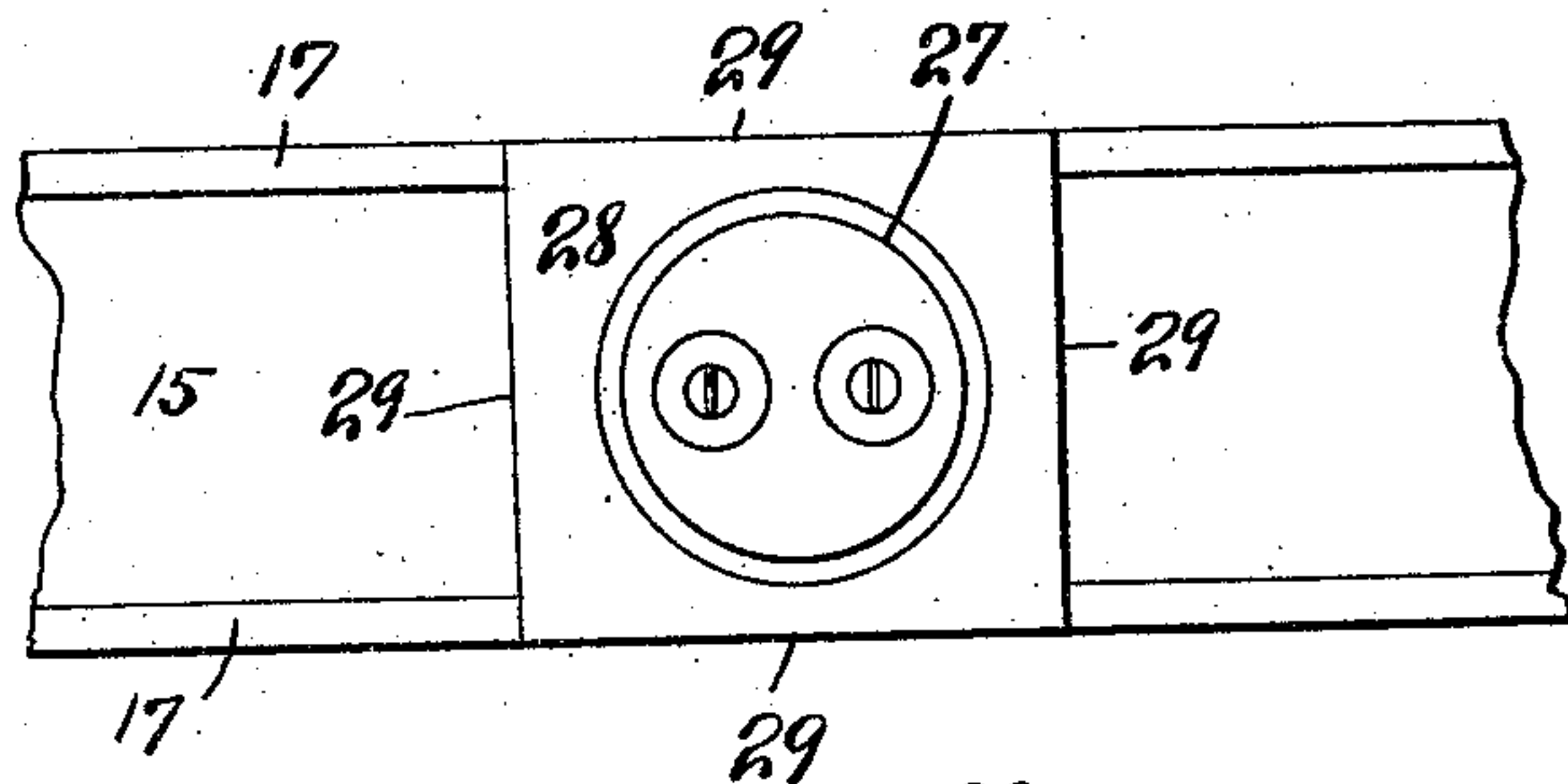


Fig. 7

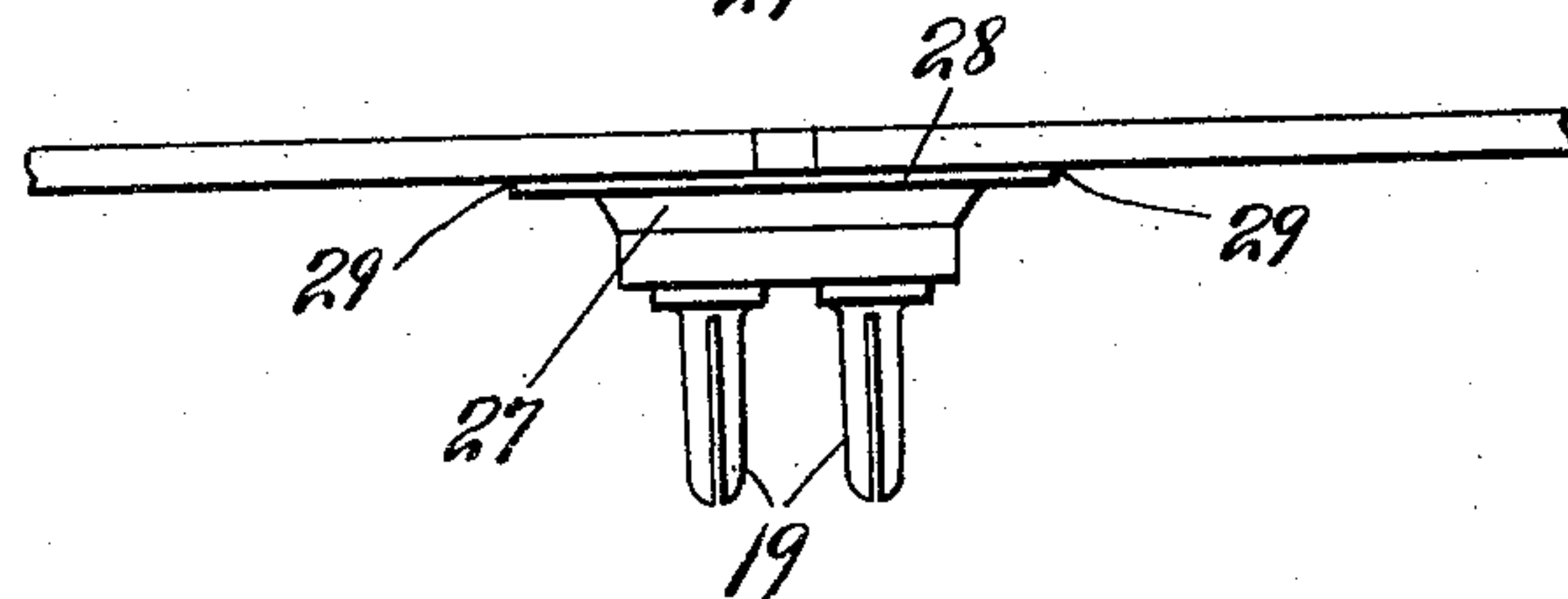
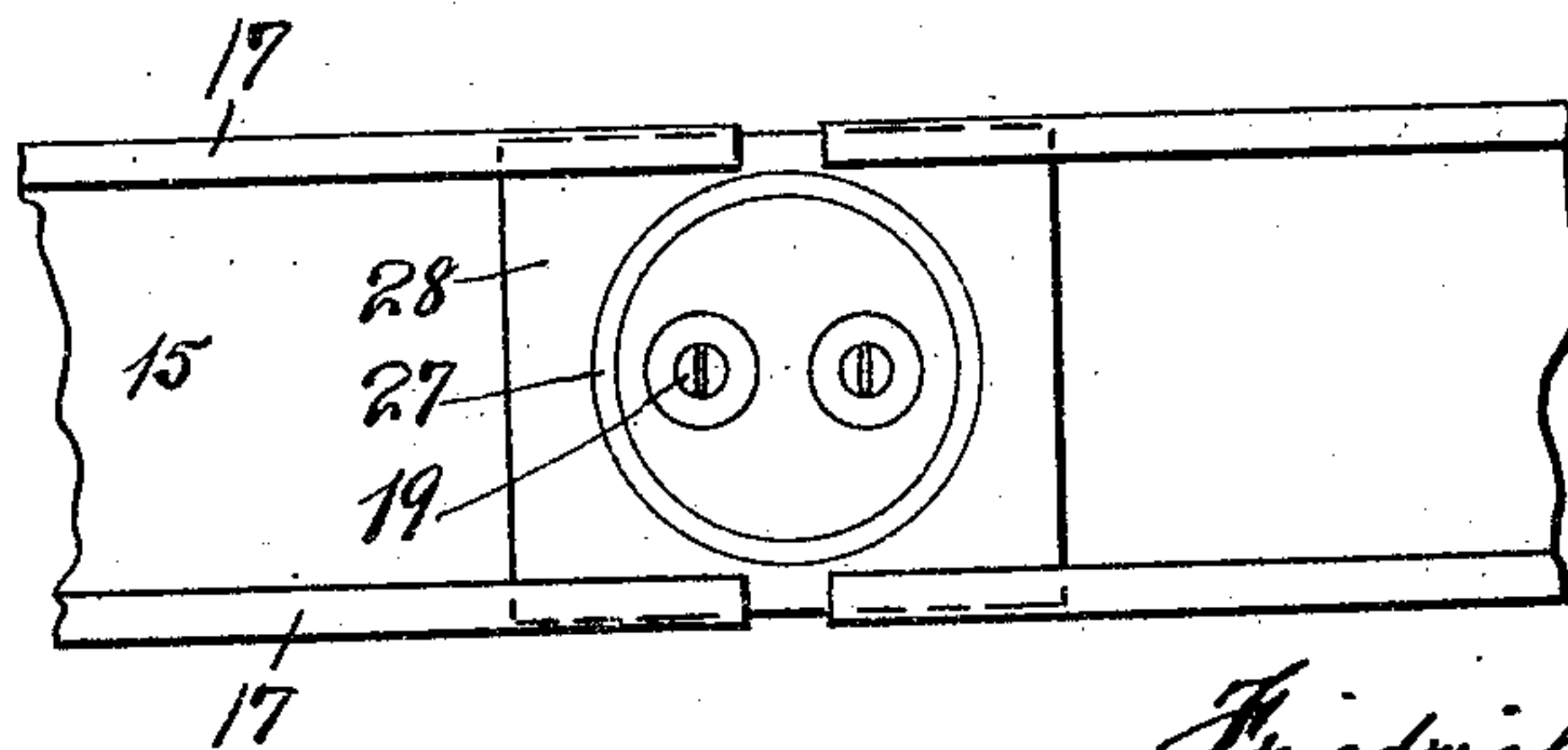


Fig. 8



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UNITED STATES PATENT OFFICE.

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ELECTRICAL RESISTANCE.

995,435.

Specification of Letters Patent. Patented June 20, 1911.

Application filed October 4, 1910. Serial No. 585,205.

To all whom it may concern:

Be it known that I, FRIEDRICH BÖLLING, a citizen of the Kingdom of Prussia, and residing in Oberursel, near Frankfort-on-the-
5 Main, Germany, have invented certain new and useful Improvements in Electrical Resistances, of which the following is a specification.

This invention relates to electrical resistances and has for its objects to provide an
10 electrical resistance of simple and practical construction containing certain novel and useful features as hereinafter set forth in the specification, while reference is had to the accompanying drawings which latter are
15 to be understood as merely illustrating my invention and in no way as showing the only possible form of an electrical resistance constructed according to this invention.

20 In the drawings, Figure 1 is a plan view of a ring formed electrical resistance embodying the invention, Fig. 2 is a side elevation of the terminal ends, partly broken away, Fig. 3 is a fragmentary plan view of
25 the terminal ends partly in section, Figs. 4 and 5 are elevations and plan view respectively of a modified form of the invention, Figs. 6 and 7 are similar views showing another modification, and Fig. 8 is an elevation
30 showing still another modification of the invention.

In the drawings the reference numeral 10 represents the resistance element. The form and nature of this element is immaterial for
35 the purpose of this disclosure but in the present instance the resistance element is shown as a coating of conducting material produced by electrolytical precipitation, or by other process on a strip or leaf 11 of mica
40 or similar insulating material. A second strip 12 of mica or similar material is placed over the strip 11. A clip 13 is placed over the edge of the strip 12, one arm 14 of the clip resting on the conductor 10 which latter
45 does not occupy the full width of the strip 11. The two strips 11 and 12 are contained within a flexible covering formed by the inner and outer cover 15 and 16 of thin suitable metal. The outer cover 16 is wider
50 than the cover 15 and the flanges 17 of the former are bent around the edges of the cover 15 and may either be pinched firmly to retain the cover 15 or the two covers may be soldered together.

The inner cover is provided with terminal
55 heads 18 formed by bending or punching the metal outward and to which are secured the terminal contacts 19, 19 insulated therefrom by suitable insulating washers 20. The terminal contacts contact with the clips 13 as
60 shown it being understood that the construction is alike for the two terminals. In case the resistance is formed as a ring then the ends of the outer cover 16 overlap and are
65 soldered as at 21, and the ends of the inner cover may be joined by a clamp 22, which may also be soldered.

In the form of the invention shown in Figs. 4 and 5 the ends of the inner cover 15
70 also overlap as at 23 and the heads 24 are made separately from the cover 15 but soldered thereto as at 25. This form of the invention possesses the advantage that the cover 15 is easier to make, it being a straight
75 strip of material with openings 26 for the terminals. The solder used to secure the heads 24 is preferably soft solder which melts when the temperature rises above a
80 predetermined degree thereby causing the heads to fall off and thus automatically cuts off the current.

In the form shown in Figs. 6 and 7 the two terminal contacts are carried in the one
85 head 27 which latter is provided with a foot plate 28 which overlaps the flanges 17 of the outer cover 16 and is soldered around the edges 29, thus completely covering the joints of the two covers.

In Fig. 8 the foot plate 28 is inserted
90 under the flanges 17 aforesaid, but otherwise this form embodies the same features as the one shown in Figs. 6 and 7. It will also be observed that the form of the head 27 with the foot plate 28 is useful in cases where it
95 is not necessary to use the inner cover 15. In such instances the square foot 28 will take the place of the cover 15 to cover the end of the conducting element and the cover 16.

The form of the conducting element is, as
100 already stated immaterial, thus a thin strip of metal may be used instead of the coating 10 or wire may be employed and held between the mica strips in any suitable manner. It will also be observed that this resistance element as a whole is very thin,
105 hence very flexible, and it may be used in the form of a ring or straightened out on a curved form, and of course, be placed side

by side. Or again the element may be made very long and bent double upon itself.

Other uses of the invention will readily suggest themselves to those skilled in the art.

5 The invention is susceptible of changes in the detailed construction and I claim all such changes as properly come within the legitimate and intended scope of the invention and the claims.

10 I claim and desire to obtain by Letters Patent the following:—

1. An electrical resistance comprising an insulated conductor, a covering on each side of the same, one of said coverings being
15 adapted to overlap the other lengthwise to inclose the conductor, terminal contacts secured to one of said coverings and insulated therefrom and conducting members for connecting the said conductor to the said terminal
20 contacts.

2. An electrical resistance comprising an insulated conductor, a cover on each side of the same, said coverings being adapted to overlap their respective ends to inclose the
25 conductor, terminal contacts secured to one of said coverings and insulated therefrom and conducting members for connecting the said conductor to the said terminal contacts.

3. An electrical resistance comprising an
30 insulated conductor, a covering on each side of the same, one of said coverings being adapted to overlap the other lengthwise and

each being adapted to overlap their respective ends to completely inclose the conductor, terminal contacts secured to one of said
35 coverings and insulated therefrom and separate conducting members for connecting the said conductor to the said terminal contacts.

4. An electrical resistance comprising an insulated conductor, a covering for the same, 40 a terminal head, a foot-plate on which said head is mounted for securing the said head to the said covering and a terminal contact mounted in the said terminal head.

5. An electrical resistance comprising an 45 insulated conductor, a covering for the same, a terminal head, a foot-plate on which said head is mounted, fusible means for securing said foot-plate to said covering and a terminal contact mounted in the terminal head. 50

6. An electrical resistance comprising an insulated conductor, a covering for the same, a terminal head, a foot plate integral with the latter for securing the said head to the
55 said covering and terminal contacts mounted in the said terminal head.

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

FRIEDRICH BÖJLING.

Witnesses:

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