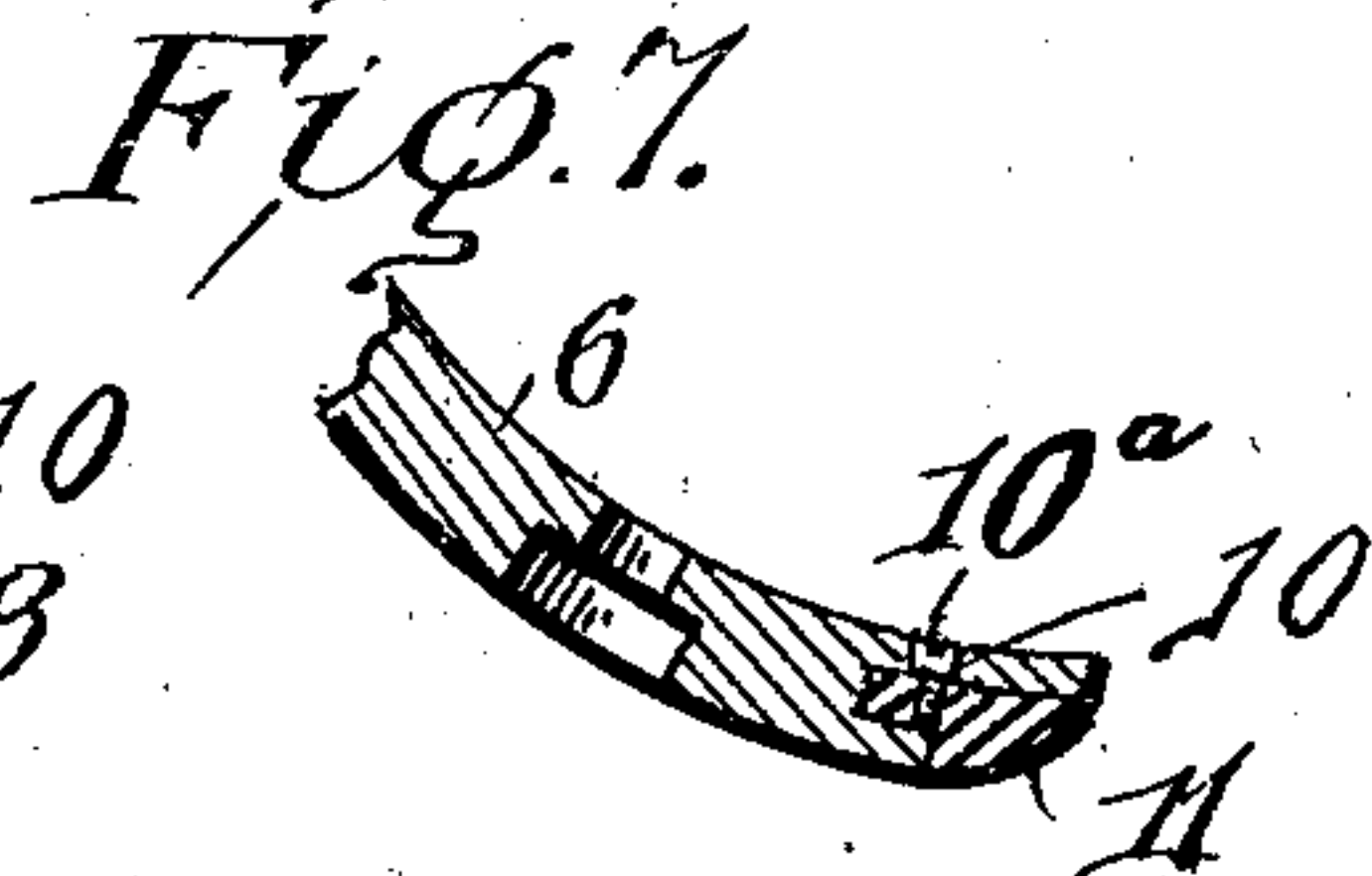
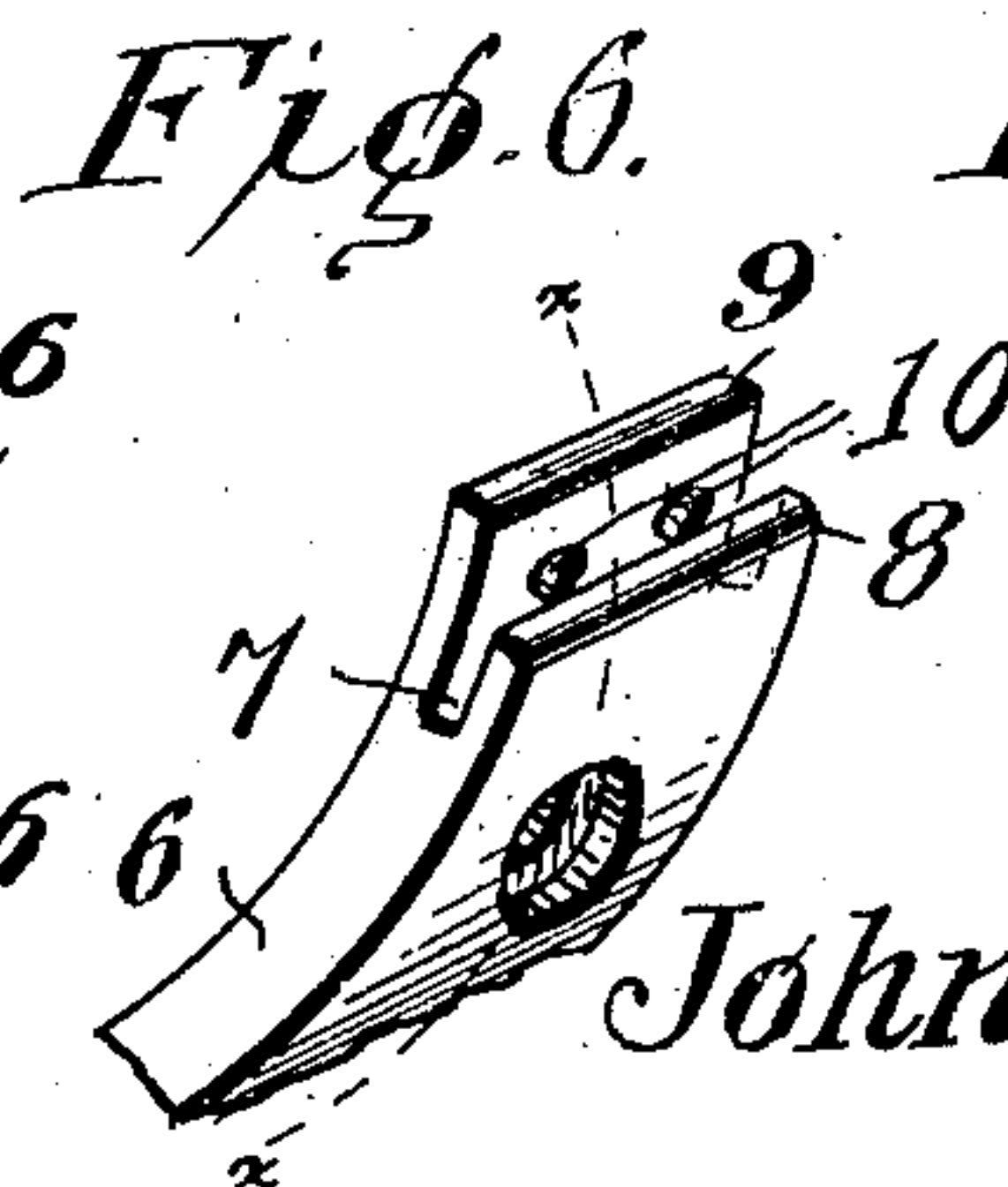
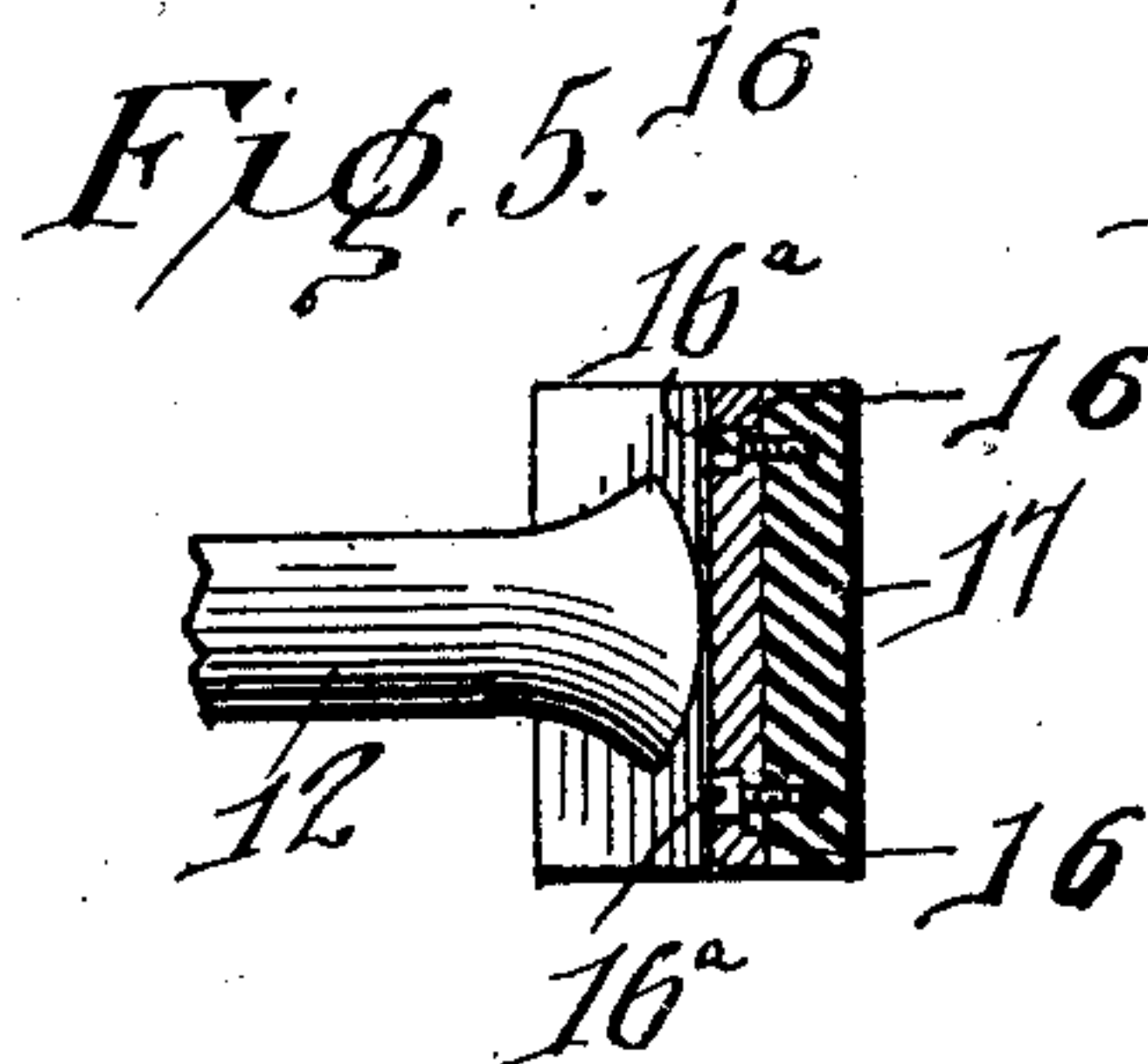
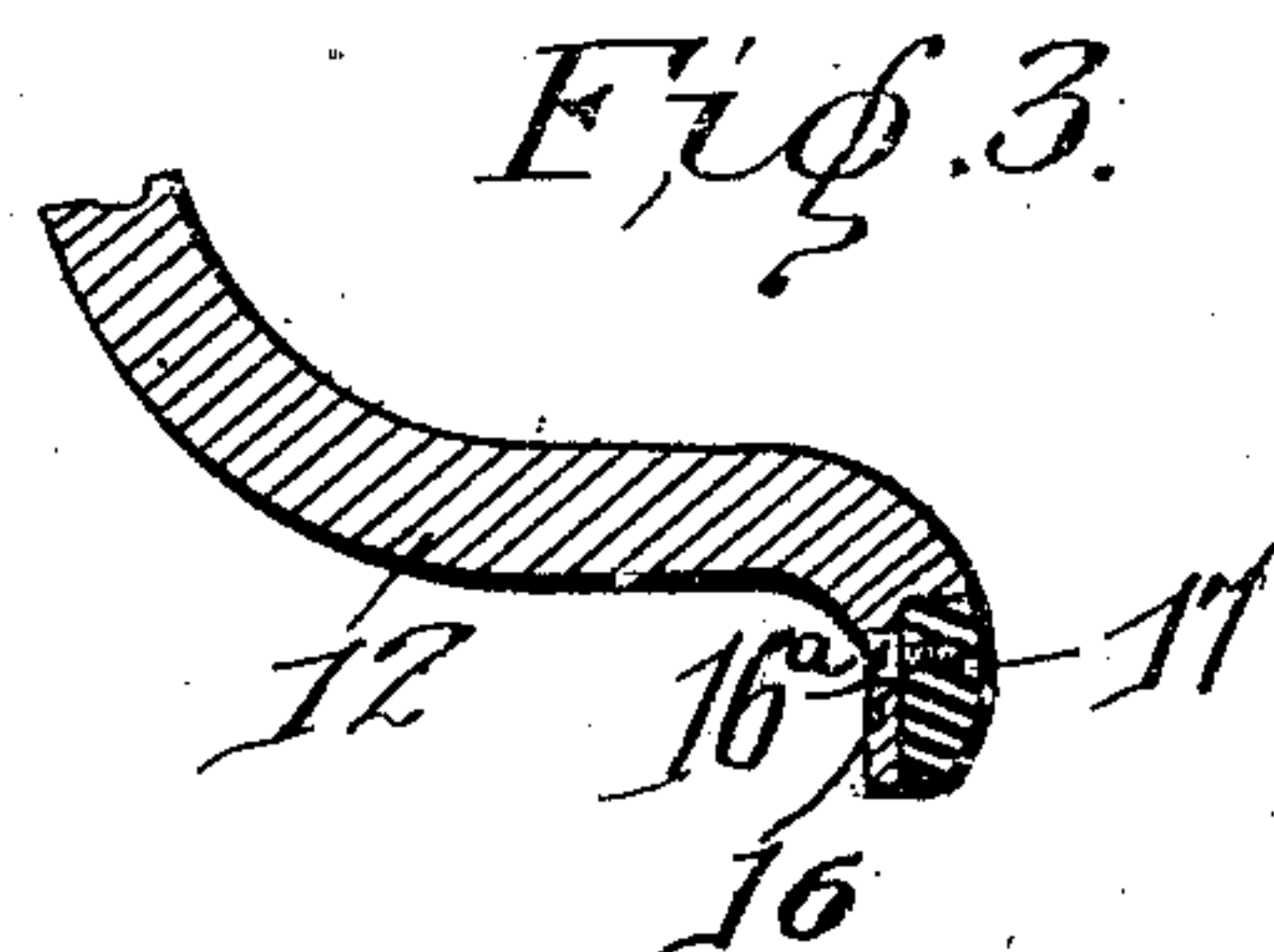
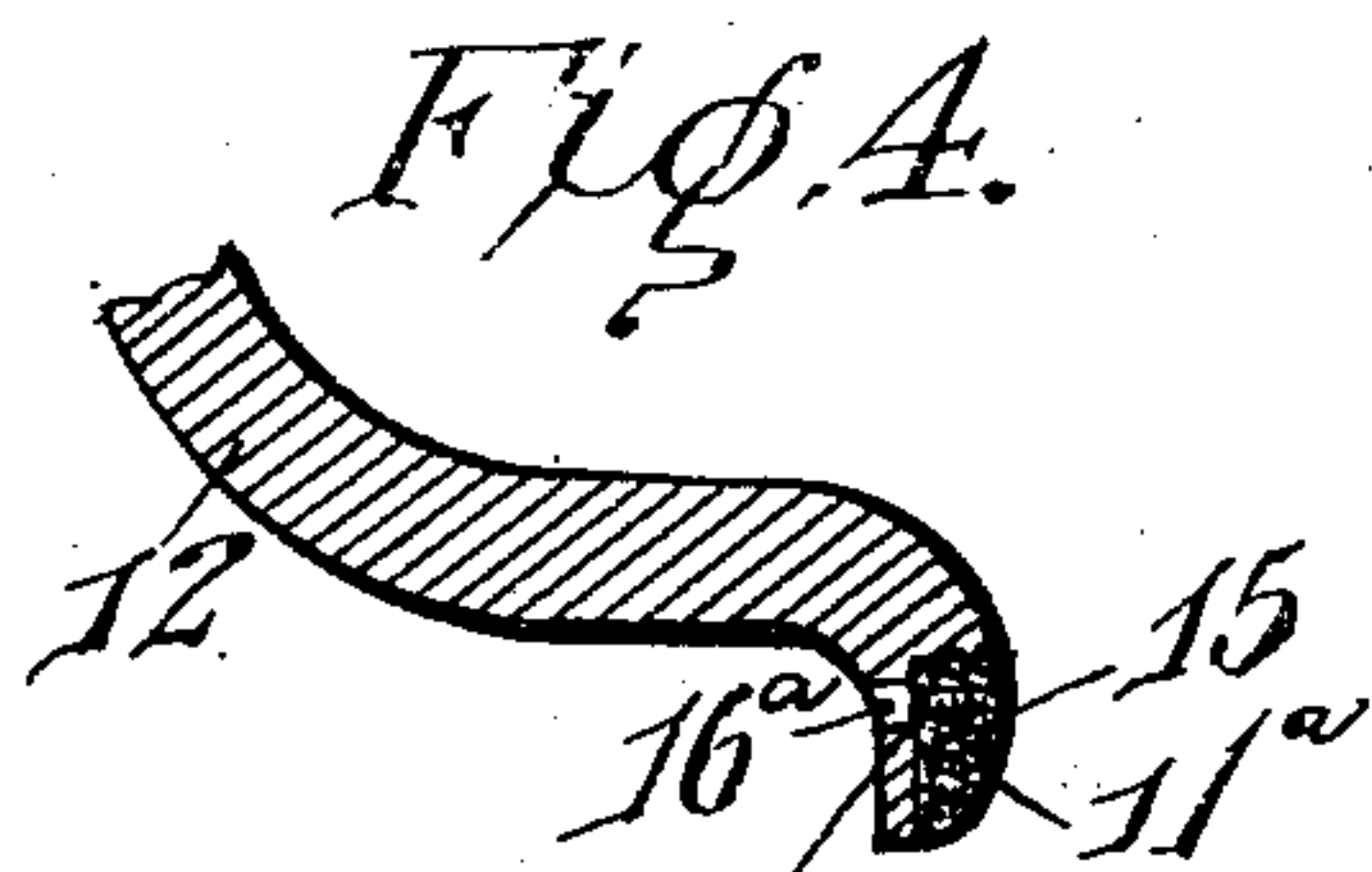
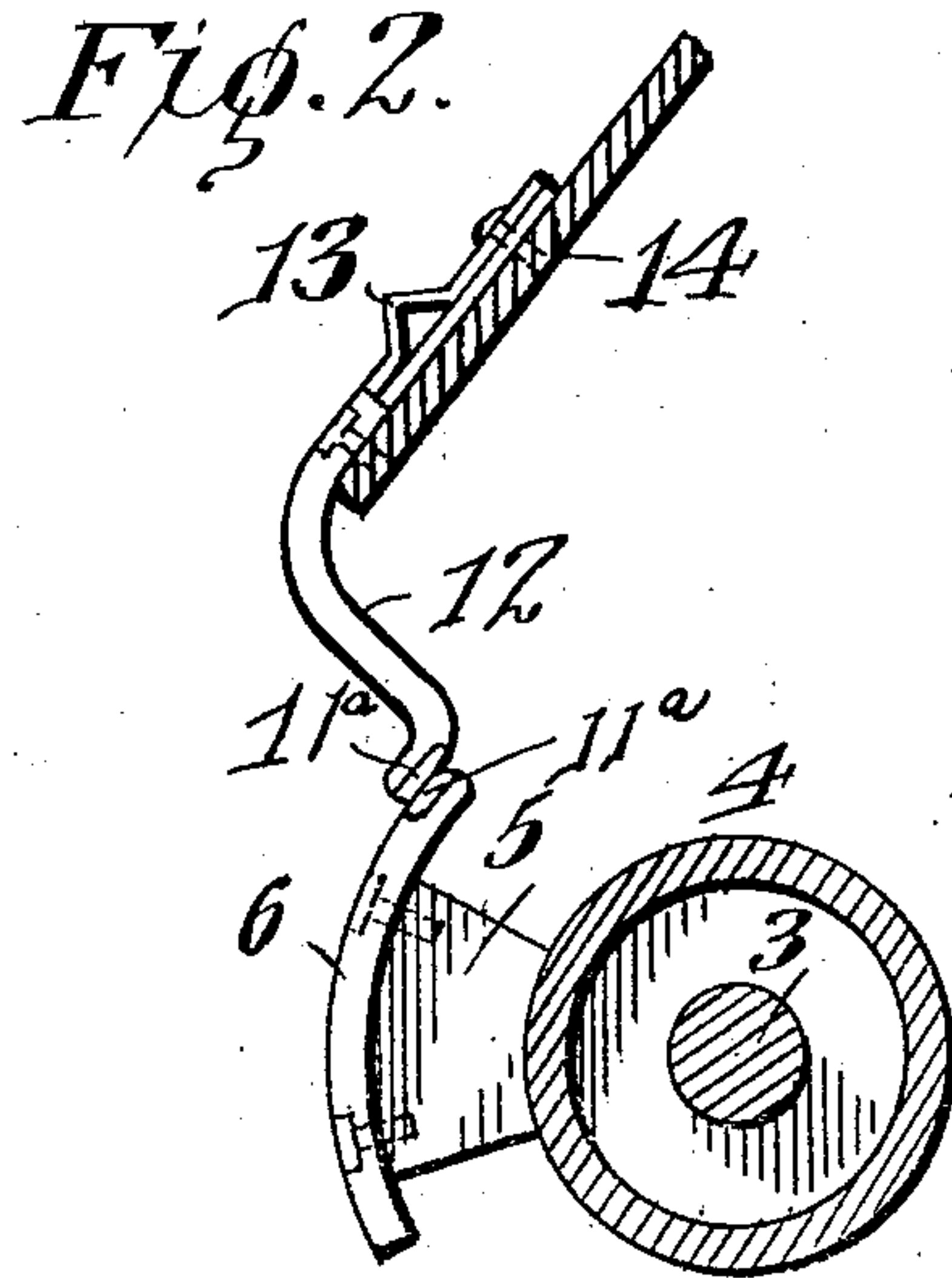
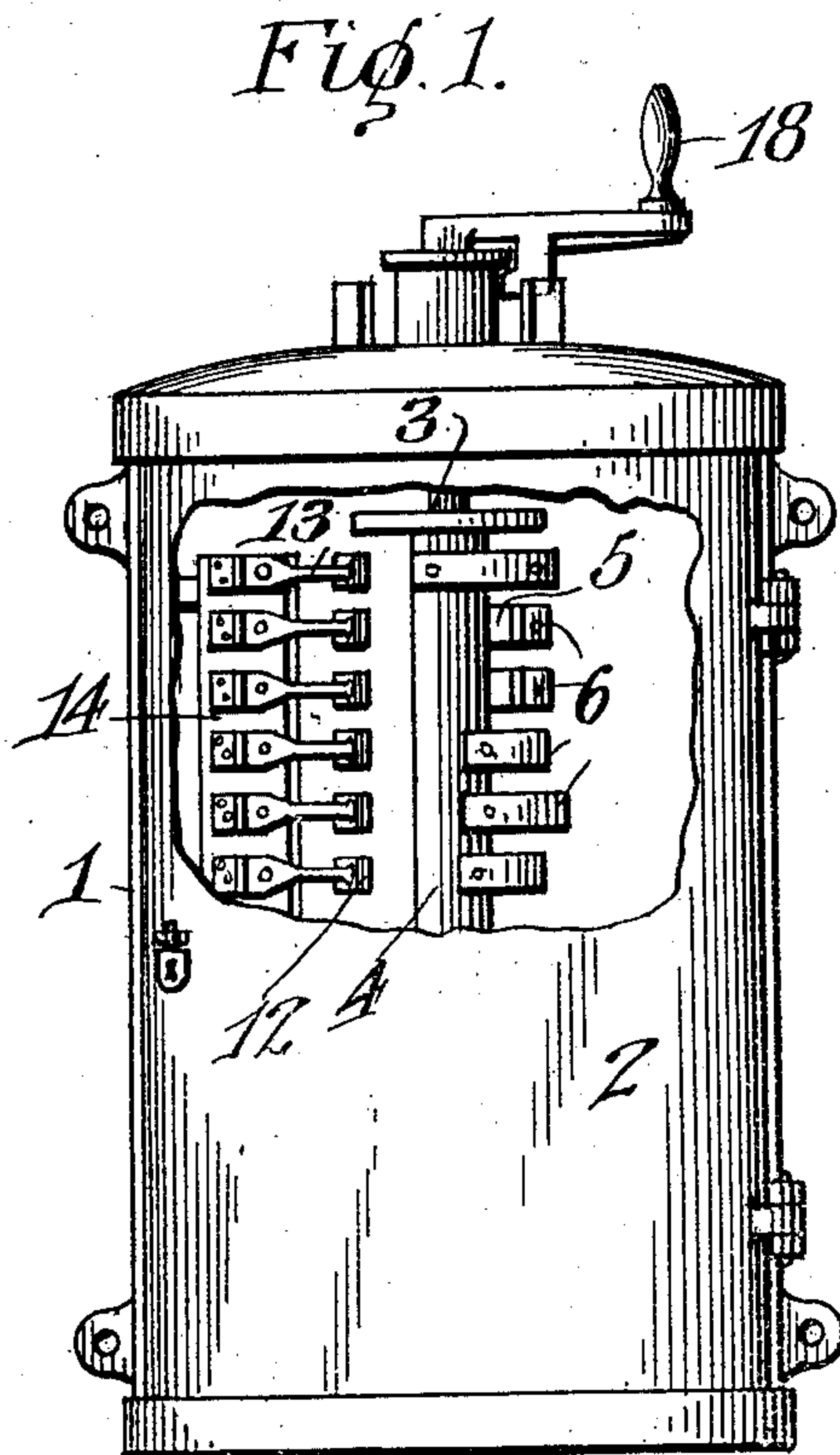


J. SONTAG.
 CONTROLLER ATTACHMENT.
 APPLICATION FILED OCT. 17, 1908.

929,041.

Patented July 27, 1909.



John Sontag. ^{Inventor}

Witnesses

L. A. Cotten.

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By

E. C. Srooman,
 his Attorney.

UNITED STATES PATENT OFFICE.

JOHN SONTAG, OF WEST NEW YORK, NEW JERSEY.

CONTROLLER ATTACHMENT.

No. 929,041.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed October 17, 1908. Serial No. 458,268.

To all whom it may concern:

Be it known that I, JOHN SONTAG, a citizen of the United States, residing at West New York, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Controller Attachments, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in insulating the segments and fingers of a circuit controller, and has for its object to provide means to prevent the ends of the segments and fingers from being burned away 15 by arcs being formed between them.

Other objects and advantages of this invention will appear in the course of the following specification.

In the accompanying drawing: Figure 1 20 is a front view of a circuit controller, with a part thereof broken away, Fig. 2 is a top plan view, partly in section, showing a finger and a segment with their supports, Fig. 3 is a longitudinal section through one of the 25 fingers showing the insulating material secured in the end thereof: Fig. 4 is a similar view with fibrous material used as an insulating material; Fig. 5 is a cross sectional view through one of the fingers; Fig. 6 is a 30 perspective view of a portion of one of the segments; and Fig. 7 is a longitudinal section through the same on the line $x-x$ of the Fig. 6.

Referring to the drawing, which illustrates the preferred form of my invention, 35 (1) designates the controller box, which is provided with the usual door (2). Suitably arranged within the controller box is a staff or spindle (3), which carries a cylinder or sleeve (4) adapted to be rotated by said staff. To the cylinder (4) are secured in any 40 suitable manner a plurality of projections or lugs (5) to which are removably secured the contact segments (6) of copper or other 45 good conducting material.

Formed in one end of the contact face of said segment is a groove (7), the lower wall (8) of which is cut away, and as shown, does not project out as far as the upper wall (9). 50 Leading into the groove, from the upper or concave side of the segment are apertures 10, 10, preferably two in number. Adapted to be introduced into the groove (7) is an insulating material (11), which may be either 55 fiber, glass or porcelain, or any other suitable material, which is preferably intro-

duced therein in a plastic state and so shaped as to give the end of the segment a curved or rounded form, or contour, as illustrated. Screws as (10^a), (10^a), are passed through 60 the apertures (10), (10), and screwed into the insulating material, serving to aid in retaining the same in place.

The contact fingers (12) are suitably secured to sheet metal fingers (13), which in 65 turn are fastened to a support or finger bar (14). The contact face of the finger is provided with a recess or cut-out portion (15) into which open apertures (16), (16), preferably two in number, leading from the 70 lower or concave face thereof. An insulating material (17), which can be similar or different to that introduced into the groove (7) of the segment, is put into the recess (15), and screws (16^a, 16^a) are passed 75 through the apertures (16, 16), and screwed into the insulating material to aid in maintaining the same in place. The insulation applied to the finger will also be rounded or curved, as shown. In Fig. 4 I have shown 80 an insulating material of fibrous material, as (11^a), secured in the recess (15) in the end of one of the contact fingers. This same kind of insulating material could be, of course, introduced into the grooves in the 85 ends of the segments.

When the handle (18) of the controller is moved to establish a current the segments (6) will be turned and the insulation carried by them will contact with the insulation of 90 the fingers, and then, as the turning of the segments is continued the metal of the members will contact. When the handle of the controller is turned to break the connection 95 between the segments and the fingers, the segments will travel back and the insulated portions of the members will be the last to separate, and hence no arcing and consequent burning of the fingers and segments 1.00 can result.

What I claim is:

1. In an electric circuit controller, a contact finger having a contact face, the contact face of said finger being provided with a recess in the end thereof, and an insulating 105 material secured in said recess.

2. In an electric circuit controller, a contact finger, the end of the contact surface of said finger being provided with a recess, and an insulating material secured in said recess, 110 said insulation being rounded off to conform to the contour of the end of said finger.

3. In an electric circuit controller, a contact finger, a portion of the end of the contact surface thereof having a recess, an insulating material in said recess, and means adapted to aid in maintaining the insulating material in position.

4. In an electric circuit controller, a contact segment provided with a contact face, said contact face having a groove, the wall of said groove on the contact face side of said segment not projecting out as far as the wall above it, and an insulating material secured in said groove, said insulating material being rounded off to conform to the contour of said contact face.

5. In an electric circuit controller, a contact segment, said segment being provided with a groove, the wall of said groove on the contact surface side of said segment not projecting out as far as the wall above it, an insulating material secured in said groove, and means adapted to aid in maintaining the insulating material in position.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN SONTAG.

Witnesses:

J. PHILIP DIPPEL,
JOHN EDWARD DIPPEL.