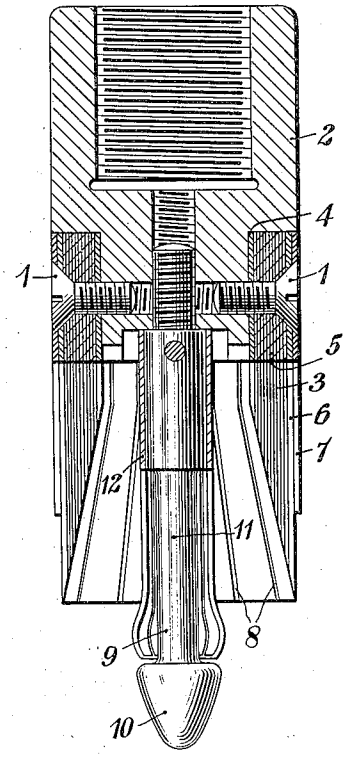
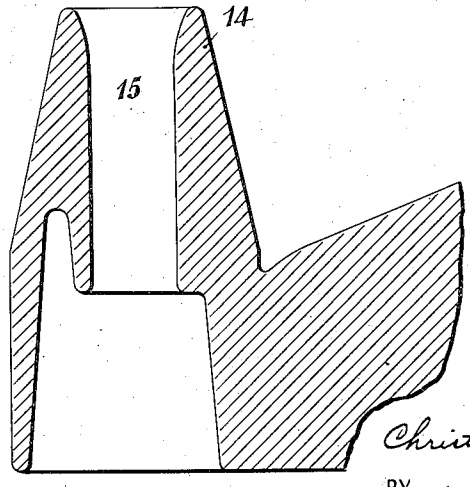
No. 896,192. PATENTED AUG. 18, 1908.

C. AALBORG.

TERMINAL PIECE FOR ELECTRIC CIRCUIT BREAKERS.

APPLICATION FILED MAY 2, 1906.





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TERMINAL PIECE FOR ELECTRIC CIRCUIT-BREAKERS.

No. 896,192. Specification of Letters Patent. Patented Aug. 18, 1908.

Application filed May 2, 1906. Serial No. 314,857.

To all whom it may concern:

Be it known that I, CHRISTIAN AALBORG, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Terminal Pieces for Electrical Circuit-Breakers, of which the following is a specification.

My invention relates to electrical circuit-breakers and particularly to terminal pieces therefor.

The object of my invention is to provide a circuit-breaker terminal piece of simple construction that shall insure a materially greater current-carrying capacity for a circuit-breaker of given dimensions than has heretofore been practicable.

The single figure of the accompanying drawing is a longitudinal sectional view through a pair of circuit-breaker terminal pieces that embody my invention.

Secured, by means of tap screws 1, to the reduced lower end of a cylindrical block 2 that is recessed and threaded in its upper end to receive the terminal of an electrical circuit conductor (not shown), is a tube 3 the lower end of which has a frusto-conical inner surface. The tube 3 comprises an inner metallic bushing 4, a plurality of layers 5 of thin sheet metal, such as copper, and two outer sleeves 6 and 7, the outermost sleeve 7 being shorter than the sleeve 6. The layers of thin sheet metal 5 may be formed by rolling a strip of material about the bushing 4 until the desired thickness is obtained, or, less conveniently, by placing a plurality of cylinders of progressively increasing diameters, one outside another. The lower, open end of the tube 3 is then beveled interiorly so that the free ends of the laminæ form an inwardly and upwardly tapered surface and is divided into a plurality of flexible sections by means of radial cuts or splits 8 that extend from its outer end toward and nearly to the smaller end of the cylindrical block 2.

Located within and projecting somewhat below the open end of the tube 3 is a rod 9, that is screw-threaded into the smaller end of the cylindrical block 2, and is provided with a knob 10 at its lower end and with a reduced intermediate portion 11. Surrounding the body portion of the rod 9 is a sleeve 12, the lower end of which is split longitudinally and shaped and enlarged as shown.

The terminal piece just described is adapted to be engaged, when the circuit-breaker is closed, by another tubular terminal piece 14 having a frusto-conical external surface, the taper of which corresponds to that of the inner surface of the lower end of the tube 3 with which it is adapted to engage. The rod 9 and the sleeve 12 project into the cylindrical opening 15 in the terminal piece 14, the enlarged end of the sleeve engaging the inner surface. When the terminal pieces are separated after having been in engagement, the enlarged end of the sleeve 12 and the knob 10 on the rod 9 are the last portions of the upper terminal piece to become disengaged from the lower terminal piece, and arcs that form between the terminal pieces will occur between the knob and the flared upper end of the cylindrical opening in the terminal piece 14. Thus all danger of injury to the contact surfaces of the terminal pieces that might be caused by arcs is avoided. When the upper terminal piece is constructed as shown and described a greater area of engagement between terminal pieces is provided, than has heretofore been the case, since each lamina of the tube 3 engages the outer surface of the frusto-conical terminal piece.

If desired, the tube 3 may be formed by a plurality of separate sections composed of a plurality of thin strips of metal and secured in a suitable manner to the small end of the cylindrical block 2, and the details of construction and arrangement may be further modified within suitable limits without departing from the spirit of the invention.

I claim as my invention:

1. A tubular terminal piece comprising a plurality of cylindrical, radially slotted laminæ and having an inwardly tapered open end.

2. A tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end.

3. A tubular terminal piece having an inwardly tapered open end and comprising a rolled strip of sheet metal having radial cuts extending longitudinally inward from said open end.

4. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending

longitudinally inward from said open end, of a rod that is secured to the other end of the terminal piece and projects therefrom through the open end.

5. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end, of a rod that is surrounded by and projects from the tapered end of the tube and the outer end of which is provided with a knob or head, and a flexible tubular sleeve that surrounds the rod behind the knob or head.

6. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end, of a rod that is surrounded by and projects through the tapered end of the tube and the outer end of which is provided with a head or knob.

7. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end, of a rod that is surrounded by and projects from the tapered end of the tube and has a head or knob at its outer end and a reduced intermediate portion, and a flexible tubular sleeve which surrounds the reduced portion of the rod.

8. A tubular terminal piece comprising a plurality of circumferentially laminated sections the ends of which are beveled to form an inwardly tapered open end.

9. The combination with a tubular terminal piece that is laminated circumferentially and cut radially and has an inwardly tapered open end, of a frusto-conical terminal piece to engage the tapered inner surface of said terminal piece.

10. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end, of a rod that is surrounded by and projects from the tapered end of the tube and has a head or knob at its outer end, and another tubular terminal piece having a frusto-conical outer surface to engage the tapered inner surface of the laminated terminal piece and a cylindrical inner surface to engage the rod.

11. The combination with a tubular terminal piece having an inwardly tapered open end and comprising a plurality of cylinders of sheet metal having radial cuts extending longitudinally inward from said open end, of a rod provided with a split sleeve and having a head or knob at its outer end, and another tubular terminal piece having a frusto-conical outer surface to engage the tapered inner surface of the laminated terminal piece and a cylindrical inner surface to engage the rod and its split sleeve.

12. A circumferentially laminated and longitudinally split tubular contact piece the contact end of which has a frusto-conical inner surface.

13. A contact terminal comprising a plurality of cylindrical, longitudinally slotted laminæ having beveled ends forming a frusto-conical contact surface, and a centrally located rod having a resilient split sleeve.

14. A contact terminal comprising a cylindrically laminated and longitudinally slotted member having a frusto-conical inner surface and a central rod having a knob or head and a resilient split sleeve.

In testimony whereof, I have hereunto subscribed my name this 30th day of April, 1906.

CHRISTIAN AALBORG.

Witnesses:
A. G. CORRAO,
BIRNEY HINES.