

T. E. MURRAY.

FUSE CASE.

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991,005.

Patented May 2, 1911.

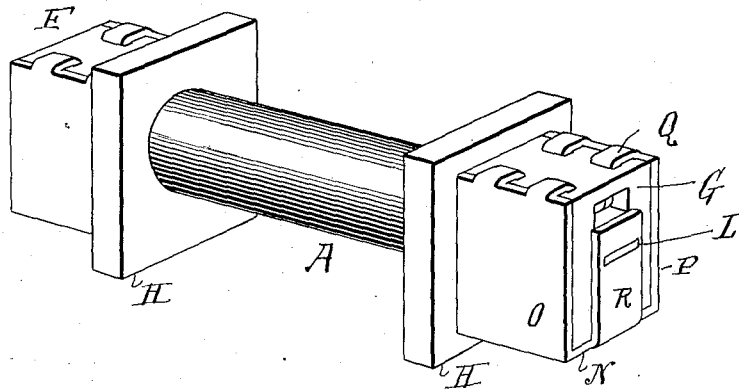


Fig. 1.

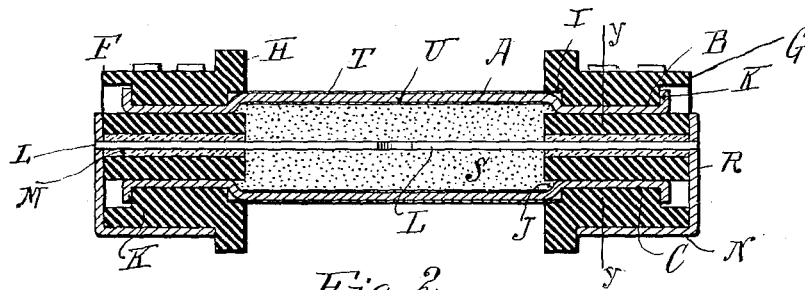


Fig. 2.

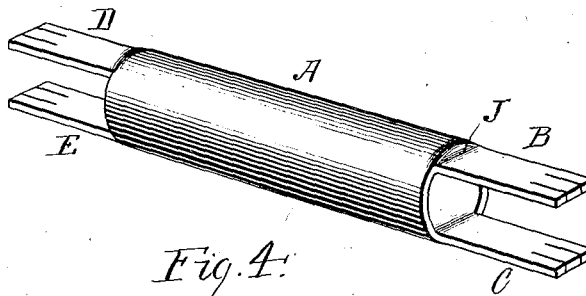


Fig. 4.

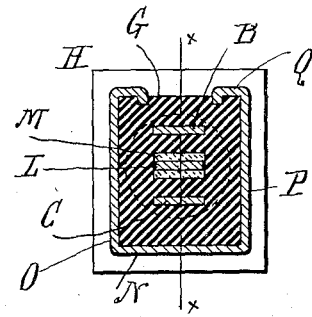


Fig. 3.

Witnesses:
Allen A. Hoese.
May T. The Harry.

Inventor
Thomas E. Murray
 By *his* Attorney
Frank Benjamin

UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

FUSE-CASE.

991,005.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Fuse-Cases, of which the following is a specification.

The invention is a fuse case, and consists in the construction thereof, whereby the use of bolts or other separate fastenings and of cemented joints between the parts to be united is obviated, while at the same time the whole device is simplified and made exceedingly strong so as to be capable of withstanding the shock of a blowing fuse conveying currents sufficiently great to shatter ordinary fuse cases. The fuse case body is a tube of or reinforced with, strong metal, such as iron or steel, which is united and locked to its end holders, which are preferably of porcelain, by simple bending of its own material, and the metal contacts electrically connected to the fuse strip are also in like manner joined to said holders.

In the accompanying drawings—Figure 1 is a perspective view of my improved fuse case. Fig. 2 is a longitudinal section on the line *x, x* of Fig. 3. Fig. 3 is a transverse section on the line *y, y* of Fig. 2, and Fig. 4 is a perspective view of the tubular fuse case body detached from the end holders.

Similar letters of reference indicate like parts.

The fuse case body A is to be made of metal, preferably iron or steel, in tubular form, and, as shown in Fig. 3, is provided at each end with two flat and parallel projections B, C and D, E. The holders F, G are alike, and are made preferably of porcelain or other refractory insulating material. Each end holder is flanged, as shown at H, and is provided with two parallel slots to receive the projections B, C and D, E. The inner ends of the slots are preferably shouldered at I to form abutments for similar countersunk shoulders J formed at the junction of the projections B, C, D, E with the case body A. At the outer ends of the slots are countersunk shoulders, against which shoulders the flanged over extremities K of the projections B, C and D, E bear. In this

way the case A is firmly locked in the holders by bending its own material and without the use of bolts or other separate fastening devices, or of cemented joints. Centrally disposed in each holder is a longitudinal slot, through which slots pass the fuse strip L, which extends through the case body A. The slot is preferably somewhat larger in cross sectional area than the fuse strip, and may be filled with plaster or like material, as shown at M. On the outside of each holder is a metal contact plate which is bent to cover the bottom and two sides of the holder, as shown at N, O, P, and abuts against the flange H. Said plate is secured in place by integral bent over lugs Q which rest upon the upper surface of the holder. Another portion R of the contact plate extends upwardly from the bottom and lies against the outer face of the holder. In the portions R of the contact plates are formed slots to receive the extremities of the fuse strip, so that said fuse strip is thus electrically connected to said contact plates.

In assembling the device, the projections, as B, C, at one end of the case body are inserted and secured in the holder as described, and the exterior metal contact plate is applied and the fuse strip is inserted. Space in the slot in the holder which is not occupied by the fuse strip is then filled with wet plaster which is permitted to harden, and the contact plate being applied, the extremity of the fuse strip is electrically connected thereto. The body of the fuse case is filled with any suitable comminuted refractory insulating material, as shown at S, and, finally, the other holder is applied in the manner already described. The resulting structure is solid and compact, free from bolts or like fastening devices, or from parts joined by cement, and hence having no parts to work loose or become separated. It is especially designed for fuses conveying heavy currents, and to withstand the shock incident to the blowing of such fuses. The flanges H form barriers between the metal body of the fuse case and the metal contact plates of the holders so as to prevent any possibility of a spark passing between them. It is preferable to provide the case body in-

side and out with a paper sheathing, T, U, to protect the metal from oxidation, and as a guard to prevent contact of the operator's hand with the metal. The metal must be
 5 strong enough to resist the shock, but its relative thickness to the sheathing is immaterial, so that the tube may be correctly described as either a metal tube sheathed with paper, or as a paper tube reinforced with metal.
 10 In using the device, the holders are inserted in the usual spring slips connected to circuit terminals, so that circuit is completed through the fuse by way of the metal covering plates, which, as is obvious, are completely insulated from the fuse case body
 15 by the solid refractory material of the holders.

I claim:

1. The combination of a tubular case body
 20 of metal, holders of refractory insulating material, means for securing said case body at its ends in said holders, a fuse strip in said case body, and contacts on said holders electrically connected to said strip.

25 2. The combination of a tubular case body of metal, holders of refractory insulating material having openings receiving the ends of said case body, in which openings said case body is secured by bending the material thereof, a fuse strip in said case body and
 30 said holders, and contacts on said holders electrically connected to said strip.

3. The combination with an inclosed fuse strip, of a tubular case body of flexible metal,
 35 holders of refractory insulating material having openings receiving the ends of said case body, and flexible metal contact plates on said holders electrically connected to said strip; the said case body and the said plates
 40 being secured to said holders by bending the metal into suitable engagement therewith.

4. The combination of a tubular case body of metal having integrally formed projections at its extremities, holders of refrac-
 45 tory insulating material, means for securing said projections in said holders, a fuse strip in said case body and said holders, and contacts on said holders electrically connected to said strip.

50 5. The combination of a tubular case body of metal having integrally formed projections at its extremities, holders of refractory insulating material having slots receiving said projections and provided with
 55 countersunk shoulders at their ends, over which the extremities of said projections are flanged, a fuse strip passing through said case body and said holders, and contacts on said holders electrically connected
 60 to said strip.

6. The combination of a tubular case body of metal having integrally formed projections at its extremities, the said projections being bent to form shoulders at their junc-

tions with said case body, holders of refrac- 65 tory insulating material having slots receiving said projections, each slot having a countersunk shoulder at its ends, the inner shoulders forming abutments for the said first-named shoulders and the outer should- 70 ders receiving flanged over extremities of said projections, a fuse strip in said case body and holders, and contact plates on said holders electrically connected to said strip. 75

7. The combination of a tubular case body of metal, holders of refractory insulating material, means for securing said case body at its ends in said holders, a fuse strip extending through said case body and holders, 80 and a contact plate covering two sides and the bottom of each holder and having a portion extending over the end face of said holder, the said last-named portion being electrically connected to an extremity of 85 said fuse.

8. The combination of a tubular case body of metal, holders of refractory insulating material, each having a flange at one end, means for securing said case body at its ends 90 in said holders, a fuse strip in said case body and holders, and contact plates on said holders and electrically connected to said strip; the flanges on said holders being disposed between said case body and said con- 95 tact plates.

9. The combination of a tubular case body of metal, holders of refractory insulating material, means for securing said case body at its ends in said holders, a fuse strip and 100 a filling of comminuted refractory insulating material in said case body, and contacts on said holders connected to said strip.

10. The combination of a tubular case body of metal holders of refractory insulat- 105 ing material, internal and external sheathings of fibrous material on said case body, means for securing said case body at its ends in said holders, a fuse strip and a filling of comminuted refractory insulating material in said case body, and contacts on said 110 holders connected to said strip.

11. A fuse case having an inclosing case of non-conducting fibrous material reinforced with metal. 115

12. A fuse case having a tubular case of metal with inner and outer sheathings of non-conducting fibrous material.

13. The combination of a tubular case body of metal, a fuse strip therein, holders 120 of refractory insulating material, means for securing said case body in said holders, contact plates on said holders electrically connected to said fuse strip, and barriers of insulating material interposed between said 125 case body and said contact plates.

14. The combination of a tubular case body of metal, a fuse strip therein, holders

of refractory insulating material, means for
securing said case body in said holders, con-
tact plates on said holders electrically con-
nected to said fuse strip, and barriers of in-
5 sulating material formed integrally on said
holders and interposed between said case
body and said contact plates.

In testimony whereof I have affixed my
signature in presence of two witnesses.

THOMAS E. MURRAY.

Witnesses:

GERTRUDE T. PORTER,
MAY T. MCGARRY.
