T. E. MURRAY.

ELECTRIC FUSE CASE.

APPLICATION FILED DEC. 13, 1910.

991,008. Patented May 2, 1911.

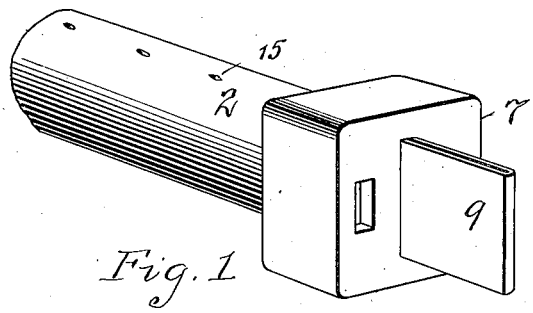

Fig. 1

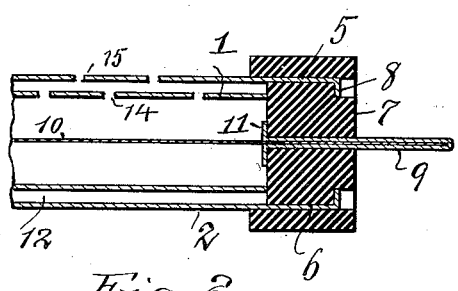

Fig. 2.

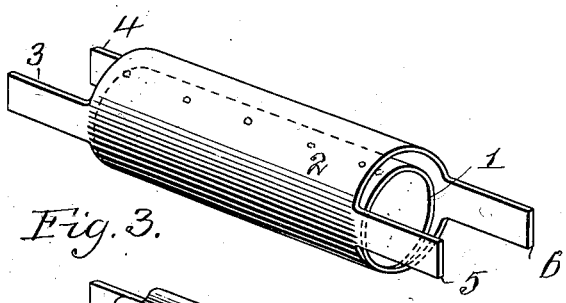

Fig. 3.

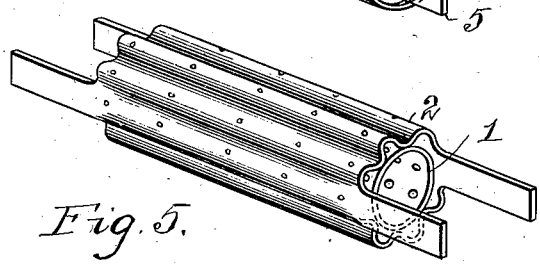

Fig. 5.

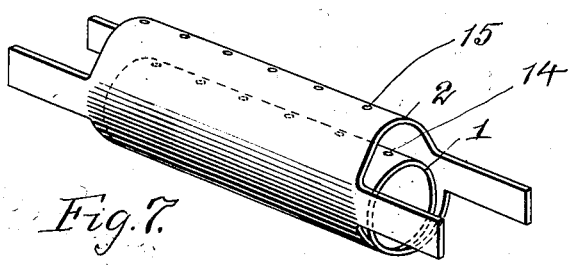

Fig. 7.

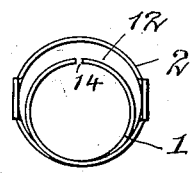

Fig. 4.

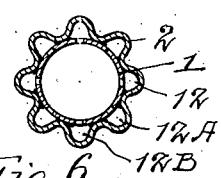

Fig. 6.

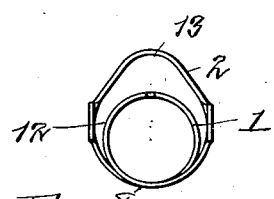

Fig. 8.

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ELECTRIC-FUSE CASE.

991,008. Specification of Letters Patent. Patented May 2, 1911.

Application filed December 13, 1910. Serial No. 597,165.

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 Electric-Fuse Cases, of which the following is a specification.

The invention relates to electric fuses, and consists in the construction of the fuse case in two tubular shells, one inclosing the other so as to form a chamber between them, into which chamber the gas due to blowing of the fuse may escape through an opening, or openings, in the wall of the inner shell, and so relieve said inner shell from bursting pressure: also in the device for holding the ends of the fuse strip in the end pieces which close the extremities of the shell.

In the accompanying drawings—Figure 1 is a perspective view of a part of the fuse case with one end piece in place. Fig. 2 is a longitudinal section thereof. Fig. 3 is a perspective view of a modified form of the fuse case. Fig. 4 is an end view of this modified form. Fig. 5 is a perspective view of another modified form of the fuse case. Fig. 6 is a cross section thereof. Fig. 7 is a perspective view of still another modified form of the fuse case, and Fig. 8 is an end view of said modified form.

Similar numbers of reference indicate like parts.

The fuse case is of metal, and is made with an inner tubular shell 1 and an outer inclosing tubular shell 2. The outer shell is provided at each end with a pair of preferably integral projections 3, 4 and 5, 6. The end pieces, one of which is shown at 7, Figs. 1 and 2, are preferably of porcelain, or other refractory insulating material, and are provided on one side with a recess, against the face of which the ends of the shells abut, and with openings through which pass the projections, as 5, 6, the ends of said projections being bent over as shown at 8, and received in countersinks on the outer side of the piece. In each end piece is a central opening which receives a doubled over plate 9 of metal, between the parts of which the end of the fuse strip 10 is held. The extremities of the plate 9 are flanged over at 11 on the inner side of the end piece. The fuse case is thus secured to the end piece by the bending over of the projections 3, 4 and 5, 6; the doubled over plate 9 is secured to the end piece by bending over its ends at 11, and the fuse strip is held by clamping between the parts of plate 9.

In the form of fuse case shown in Figs. 1 and 2, the shells 1 and 2 are concentric cylinders. In Figs. 3 and 4, the case is formed of a single sheet of metal, bent, so that the shell 1 is inclosed by shell 2. Or in other words, in Figs. 1 and 2, an annular chamber 12 is formed completely around the inner shell 1, while in Figs. 3 and 4, the chamber 12 does not entirely surround the inner shell. In the form shown in Figs. 7 and 8, the case is formed of a bent sheet of metal as in Figs. 1 and 2, but the outer shell is not truly cylindrical; said shell being formed with an enlargement or corrugation at 13, so as to give increased size to the chamber 12. In the form shown in Figs. 5 and 6, the inner shell 1 is truly cylindrical and concentric with the outer shell 2, but the outer shell is corrugated, and soldered to the inner shell at its lines of contact therewith. This produces a plurality of chambers 12, 12^A, 12^B, etc., around the inner shell.

In the forms shown in Figs. 1, 2, 3, 4, 7 and 8, a longitudinal line of perforations 14 is made in the inner shell, and a similar line of perforations 15 opposite thereto is made in the outer shell. The perforations in the outer shell are preferably in staggered relation to the perforations in the inner shell. In the form shown in Figs. 5 and 6, a line of perforations in the inner shell communicates with each of the chambers 12, 12^A, 12^B, etc., formed by the corrugations of the outer shell, and in each corrugation a line of perforations 15 may be formed in staggered relation to the inner perforations, as before.

The inner shell may contain the usual filling of refractory material, which embeds the fuse strip; and, if desired, each of the perforations 15 may be closed by a plug of plaster, which is weaker than the metal wall of the inner shell 1, so as to prevent escape of pulverized filling material, if such be used.

The operation is as follows: When the fuse blows, the gas suddenly generated escapes through the perforations 14 to a sufficient extent to relieve the shell 1 from breaking pressure, incidently rupturing the weak plaster plugs in said openings, if the same be present. Said gas passes into the chamber or chambers 12, and thence to the atmos-

phere by perforations 15. In the form of case shown in Figs. 7 and 8, the outer shell is resilient, because under the sudden gas pressure it tends to take a cylindrical form, and hence the energy of the gas is largely spent against this elastic wall, which because it is elastic, is thus protected from rupture.

In the form shown in Figs. 5 and 6, the escaping gas is divided among numerous chambers. It is not essential that the outer shell in this form should be soldered to the inner shell. It may be left loose, and in that case the gas pressure meets an elastic wall as in the form of Figs. 7, 8, because of the tendency of the corrugations to straighten or become obliterated by said pressure.

I claim:

1. A fuse case comprising end pieces each formed integrally of a block of refractory insulating material, and two tubular shells disposed one within the other and both secured at their extremities between said end pieces.

2. A fuse case comprising end pieces each formed integrally of a block of refractory insulating material, and two tubular shells connected together, disposed one within the other and the outer shell being secured at its extremities in said end pieces.

3. A fuse case comprising an inner tubular shell having a plurality of longitudinal lines of openings in its wall, an outer inclosing tubular shell having a corresponding plurality of longitudinal corrugations and attached to said inner shell between the lines of openings in said inner shell, and means for closing the ends of said shells.

4. A fuse case formed integrally of a metallic plate bent to form two tubular shells, one inclosing the other and having an air space between them.

5. The combination of a fuse case, an end piece of refractory insulating material thereon, a doubled over metal plate in said end piece, and a fuse strip entering between the parts of said plate.

6. The combination of a fuse case, an end piece of refractory insulating material, a doubled over metal plate extending through said end piece and flanged over at each extremity on the inner side of said piece, and a fuse strip entering between the parts of said plate.

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

THOMAS E. MURRAY.

Witnesses:

GERTRUDE T. PORTER,

MAY T. MCGARRY.