

Jan. 25, 1944.

W. W. HALBROOK

2,340,055

PROTECTIVE DEVICE

Filed Jan. 1, 1942

2 Sheets-Sheet 1

FIG. 1

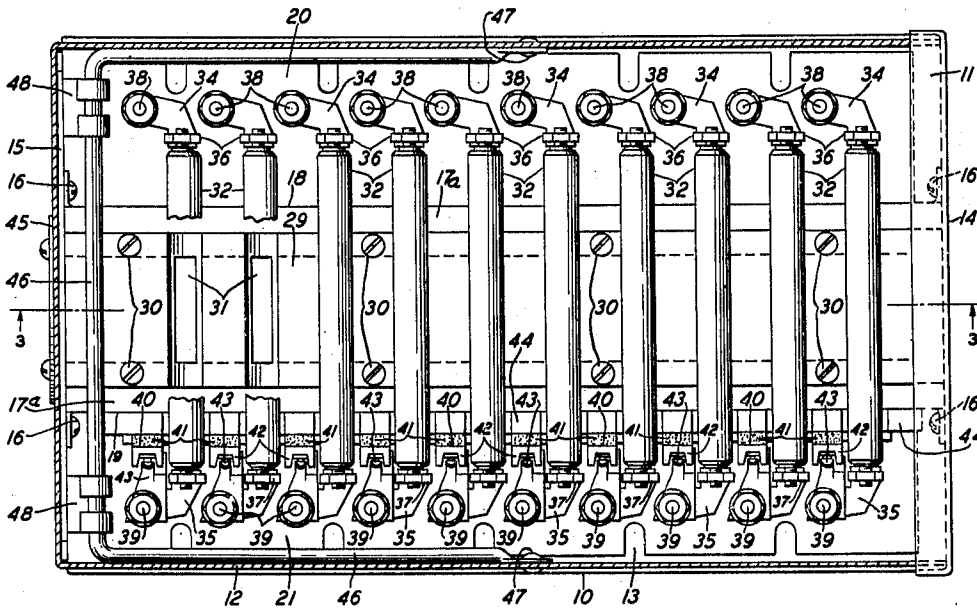
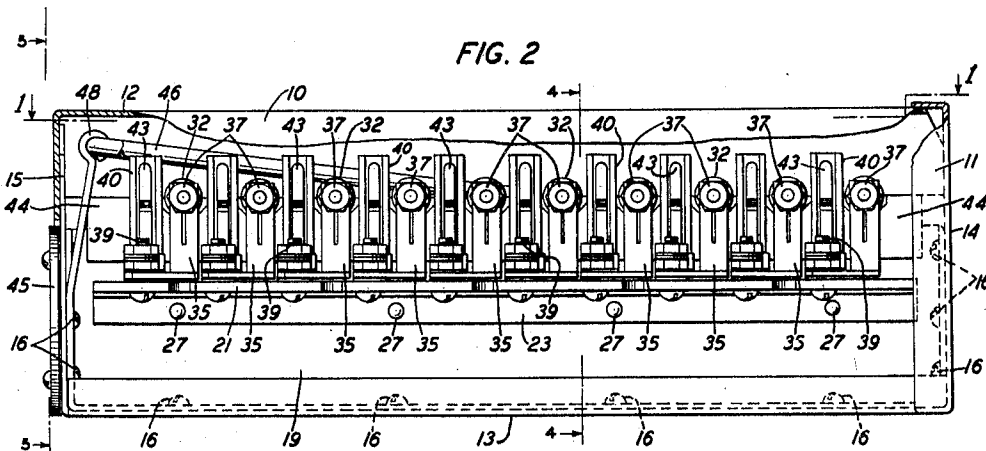


FIG. 2



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FIG. 3

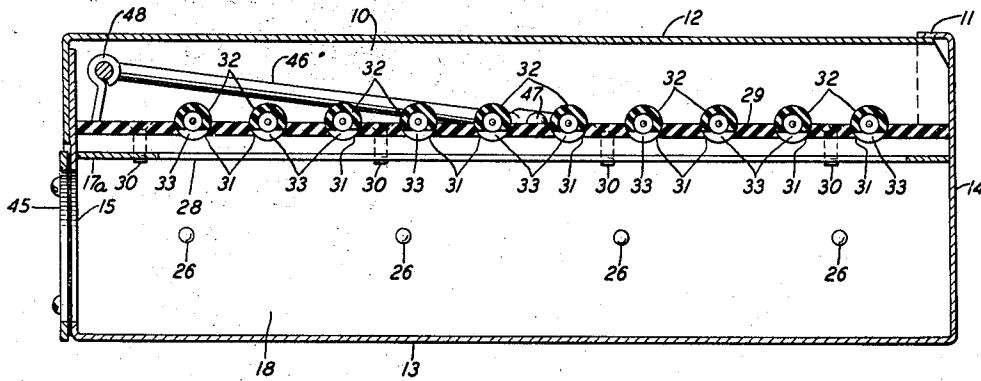


FIG. 4

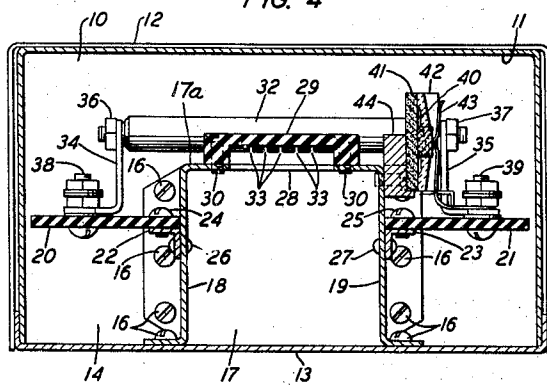
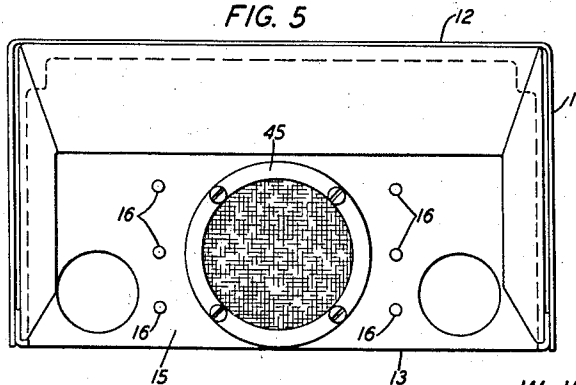


FIG. 5



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UNITED STATES PATENT OFFICE

2,340,055

PROTECTIVE DEVICE

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Application January 1, 1942, Serial No. 425,365

6 Claims. (Cl. 200—133)

This invention relates to protective devices and more particularly to such devices for protecting telephone lines and station apparatus from the dangers resulting from exposure to nearby power lines and from lightning discharges.

In the protection of telephone lines it is the usual custom to install at the subscriber's premises a protective device designed to afford protection from induced surges of current or the accidental contact with adjacent power lines and from high voltages induced by discharges of lightning.

Protection against the light charges induced by lightning or other surges is provided by means of suitable protector blocks having spaced apart elements which provide a path to ground for the charge. In order to afford protection against heavy discharges, for example, excess current resulting from accidental contact with a power line or heavy lightning discharges, fuse elements are provided which will blow, open the circuit and prevent the flow of current when subject to a current greater than the carrying capacity of the fuse.

In those instances where the fuse is caused to blow, due to the line being subjected to excess voltages, the resulting gases emanating from the fuse in the vicinity of the terminal will have a tendency to become conductive due to ionization and may sustain an arc which might cause damage. It is therefore necessary that some means be provided for insuring that the ionized gases do not come into contact with the terminals.

It is therefore the object of this invention to provide a protective device in which the gases emanating from the blown fuses will not come in contact with the fuse terminals but will be condensed in a suitable chamber or harmlessly expelled to the outside atmosphere.

A further object of the invention is the provision of a protective device in which a multiplicity of fuses and protector blocks are mounted in a neat, compact and efficient arrangement.

In accordance with the preferred form of my invention, I have provided on the inside of a suitable housing, or box, a chamber having a plurality of horizontal slots on the face thereof, which communicates with the interior of the chamber.

The fuses adapted to be mounted in the housing are positioned in the slots with their vent holes in alignment therewith and having their end terminals secured to suitable clips or binding posts. When a fuse blows and the gas is discharged out of the vents in the fuse, it will not

come in contact with the terminals in the housing but will be collected in the chamber where it will condense or expel slowly to the outside atmosphere through suitable vents in said chamber, thereby preventing accumulation of ionized gases in the vicinity of the terminals which are located on the interior of said housing.

The features of my invention will be more clearly understood from the following detailed description when read in connection with the drawings of which:

Fig. 1 is a top plan view taken on line 1—1 of Fig. 2;

Fig. 2 is a side elevation of Fig. 1 with the side of the housing broken away;

Fig. 3 is a longitudinal sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is an end elevation taken on line 5—5 of Fig. 2.

As shown in the drawings, a housing 10 which comprises a body portion 11 and a cover 12 has secured to the rear wall 13 and the two ends 14 and 15 of said body portion, by means of the screws 16, a chamber 17 which extends the full length thereof. The chamber 17 is somewhat narrower than the housing 10 and has secured to each side thereof, at right angles with respect to the side walls 18 and 19 of said chamber, the insulating terminal strips 20 and 21. These strips are mounted on the angle strips 22 and 23 by means of the screws 24 and 25 and are secured to the side walls 18 and 19 by means of the rivets 26 and 27 as shown in Figs. 2 and 4.

The top wall 17a of the chamber 17 is provided with a rectangular aperture or opening 28 which extends the full length of the chamber. An insulating panel 29 is secured by means of screws 30 to the top of the chamber in such a manner as to completely cover the opening 28, as shown in Figs. 1, 3 and 4. As shown in these figures the panel 29 is provided with a plurality of transverse slots 31 which extend the full width of the panel and communicate with the interior of the chamber 17. These slots are spaced apart and have their longitudinal edges tapered to fit the contour of the fuses 32 which are adapted to be positioned therein with the vent holes 33 centrally located with respect to the slot 31 as shown in Figs. 3 and 4.

The terminals on the ends of the fuses 32 are secured to the upstanding lugs or ears 34 and 35 positioned on each side of the chamber 17 by means of the nuts 36 and 37. These lugs are

secured to the insulating strips 20 and 21 by means of the binding posts 38 and 39 which provide connections for the telephone line wires and the subscribers' lines (not shown).

As shown in Figs. 1, 2 and 4 the protectors 40, which comprise the two members 41 and 42, are supported on the insulating strip 21 by means of the springs or clips 43 which are secured to the bottom portion of the lugs 35 by means of the nuts on the binding post 39, bear against the outer member 42 and hold the protector in close contact with the metal ground strip 44 which is connected to ground.

In order to permit the accumulated gases, which have been discharged into the chamber 17 by the fuses 32, to be expelled to the outside atmosphere, a screened opening 45 is provided in the bottom of the chamber as shown in Fig. 5.

The cover 12 is hingedly supported on the body portion 11 by means of the bail type hinge 46 which is secured to the cover at 47 and to the body portion at 48.

While the protective device of this invention has been shown and described as being mounted in a housing, it is not intended to be restricted to such use, since it may, when used indoors, be mounted directly on a wall or the like with the terminals and fuses exposed and the gas chamber mounted directly on the wall.

While I have shown and described the preferred form of my invention, it is understood that it is not to be limited to the precise detail shown and that various modifications and changes may be made therein without departing from the spirit of the invention.

What is claimed is:

1. A protective device comprising a chamber, an opening in said chamber, a panel of insulating material mounted over said opening, a slot in said panel, a vented fuse positioned in said slot and having its vented portion located therein, and means on said chamber for supporting said fuse and for making electrical connections thereto.

2. A protective device comprising a chamber, an opening in said chamber, a panel of insulating material mounted over said opening, a slot

in said panel, a vented fuse positioned in said slot and having its vented portion located therein, means on said chamber for supporting said fuse and for making electrical connections thereto, and means in the wall of said chamber for the ventilation thereof.

3. A multistation protective device comprising a chamber, a plurality of slots located in the wall of said chamber and communicating with the interior thereof, vented fuses mounted in said slots and having their vented portions located therein, means on said chamber for supporting said fuses and making electrical connections thereto and low voltage protector blocks connected to said fuse supports.

4. A multistation protective device comprising a chamber, an opening in said chamber, an insulating panel mounted on said chamber over said opening and having transverse slots therein, vented fuses mounted on said panel and having their vented portions located in said slots, means on said chamber for supporting said fuses and making electrical connections thereto.

5. A multistation protective device comprising a chamber, an opening in said chamber, an insulating panel mounted on said chamber over said opening and having transverse slots therein, vented fuses mounted on said panel and having their vented portions located in said slots, means on said chamber for supporting said fuses and making electrical connection thereto and low voltage protectors connected to said fuse supports.

6. A multistation protective device comprising a chamber, an opening in said chamber, an insulating panel mounted on said chamber over said opening and having transverse slots therein, vented fuses mounted on said panel and having their vented portions located in said slots, means on said chamber for supporting said fuses and making electrical connection thereto, low voltage protectors connected to said fuse supports, and means in the walls of said chamber for the ventilation thereof.

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