

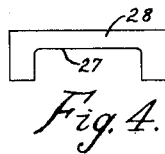
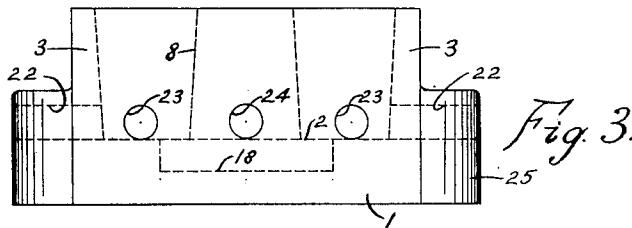
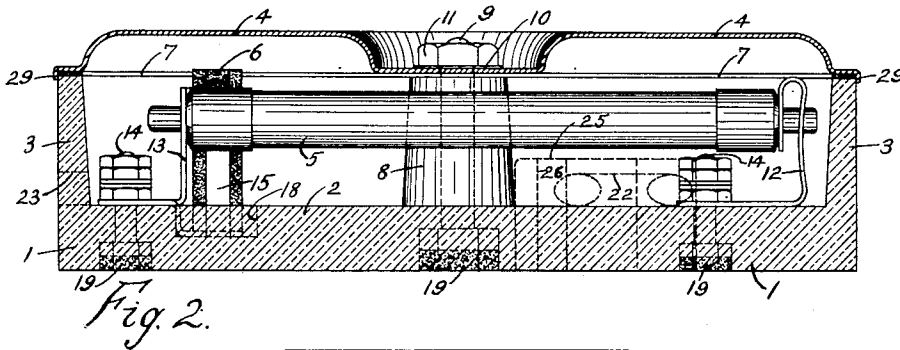
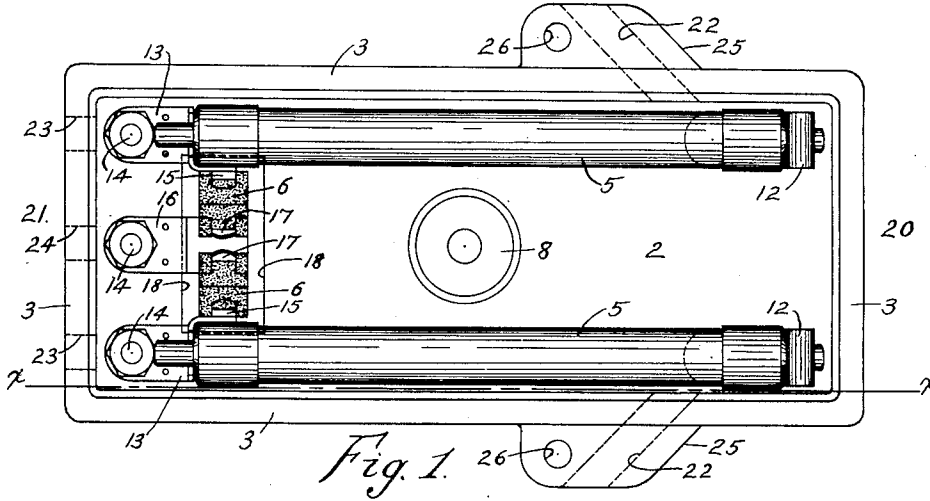
No. 839,117.

PATENTED DEC. 25, 1906.

F. B. COOK.

WEATHERPROOF SUBSTATION PROTECTOR.

APPLICATION FILED JULY 30, 1906.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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WEATHERPROOF SUBSTATION-PROTECTOR.

No. 839,117.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed July 30, 1906. Serial No. 328,424.

To all whom it may concern:

Be it known that I, FRANK B. COOK, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Weatherproof Substation-Protector, of which the following is a specification, reference being had to the accompanying drawings, illustrating same.

My invention relates to individual protectors, and more particularly to inclosed protectors adapted for outside use in connection with substations of telephone or telegraph systems or the like.

The principal objects of my invention are to provide an improved inclosed protector comprising suitable protective devices for protecting electrical circuits and apparatus from various forms of injurious electricity, to provide an improved casing for such a protector, and to provide simplicity of construction and an accessible arrangement of parts in such a protector.

Other objects will be apparent from the following specification.

In the accompanying drawings, showing the preferred form of my invention, Figure 1 is a plan view of the individual protector with the cover removed, showing the arrangement of protective devices inside the casing. Fig. 2 is a cross-sectional view of Fig. 1, taken on line *x x*, showing the elevation of the protective devices within the casing. Fig. 3 is a left end view of Fig. 1, and Fig. 4 is a view of the preferred form of dielectric used in the lightning-arresters of this invention.

Like characters refer to like parts in the several figures.

The casing 1 of the protector is made of some suitable insulating material, preferably porcelain, and is preferably constructed with a flat base portion 2 and side portions 3 3, adapted to accommodate a cover 4, so as to form a completely-inclosed box for the inclosed fuses 5 5 and lightning-arresters 6 6. The cover 4 is preferably made of sheet metal, preferably formed as shown, there being a turned-over edge portion 29 on the cover adapted to fit over the edges of the side portions 3 3 to make a finished joint. Between the cover 4 and the side portions 3 3 is placed a rubber gasket 7 to make the joint between the cover 4 and the side portions 3 3 air and moisture tight. The porcelain base is provided at its center with a post 8 between the fuses 5 5, through which a bolt 9 extends to

securely hold the cover 4 in place, the upper end of bolt 9 preferably not extending higher than the flat portion of cover 4 for convenience of handling and packing. A gasket 10, of fiber or other suitable material, is placed underneath the nut 11 to make the joint between the latter and the cover 4 air and moisture tight. Each inclosed fuse 5 is securely clamped in place by spring members 12 and 13, which are secured to the base portion 2 by bolts 14 14, respectively. Each spring member 13 is provided with a portion 15, preferably bent, as shown, to fit in a suitable groove in a lightning-arrester 6 to hold same in place. Lightning-arresters 6 6 are suitably held in place between spring members 15 15, respectively, and ground-spring 16, which is provided with turned-up portions 17 17 to fit in suitable grooves in the lightning-arresters.

The lightning-arresters 6 6 are preferably set partially within a cut-out portion 18 of the base 2, so as not to project too near the cover 4. Bolts 14 14 and 9 are preferably all inserted from the bottom of base 2 in portions molded therein to fit the heads of the bolts, the heads of the bolts being covered with some insulating material 19, such as sealing-wax. When in use, the end 20 of the protector is the top end thereof. The line conductors preferably extend through passages 22 22, respectively, to binding-posts 14 14, which are connected to spring members 12 12. The conductors leading to the circuit or instrument to be protected extend through passages 23 23 in end 21 of the casing to the binding-posts 14 14, which are connected with spring members 13 13. The ground-conductor extends through passage 24 in end 21 of the protector to binding-post 14, which is connected to ground-spring 16. The casing 1 is provided with side lugs 25 25, provided with holes 26 26 therein, utilized to mount the protector in place. Passages 22 extend through the lugs 25 25 on a downward angle, preferably as shown, so as to drain the water away from the openings of passages 22 22 and not allow it to enter the inclosure of the protector in case of a rain-storm.

When the protector is installed, U-shaped dielectrics 28 are placed in the lightning-arresters 6 6, so that the open side 27 of each dielectric is toward the lower end 21 of the protector. This is for the purpose of allowing dust or particles of carbon to fall from

between the carbon blocks of the lightning-arresters in case such particles tend to accumulate in the arresters.

When connected for use, it will be seen
5 that the inclosed fuses 5 5 are connected in series in the respective conductors of the metallic line-circuit and that the lightning-arresters 6 6 are bridged from the respective conductors of the metallic line-circuit to
10 ground. The operation of these several protective devices in this relation is well understood, and it is not thought to be necessary to go into a detailed description of their operation.

15 I do not wish to limit this invention to the exact details of construction as herein shown, as many slight modifications may be made therein without departing from the scope of the invention.

20 What I claim as new, and desire to secure by Letters Patent, is—

1. An individual protector comprising a box portion made of insulating material, a suitable cover for the box portion to form an
25 inclosure for protective devices, suitable fuses mounted within the box portion and substantially parallel to the base thereof, lightning-arresters at one end of the fuses, between same and mounted substantially
30 vertical regarding the said base, a post of insulating material extending from the said base between the said fuses, a bolt extending through the said post to secure the said cover in place, and suitable passages through the
35 box portion to accommodate electrical conductors leading to the protective devices.

2. An individual protector comprising a box portion made of insulating material, a suitable lid for the box portion, a rubber gasket placed between the said lid and box portion, a bolt extending through the center of
40 the box portion and lid to hold the latter in place, suitable protective devices mounted within the box portion, and suitable passages through the box portion and means for
45 connecting electrical conductors to the said protective devices.

3. An individual protector comprising a porcelain base having side portions extending
50 therefrom to form a box-like portion, a post extending from the base through the box-like portion, a sheet-metal cover adapted to fit the said side portions, a rubber gasket between the said cover and side portions,

suitable protective devices mounted within
55 the inclosure formed by the box portion and said cover, and downwardly-sloping passages extending through the said side portions to accommodate electrical conductors leading to the protective devices.

4. A casing for electrical protective devices comprising a porcelain base having a side extension therearound and a post near the middle, suitable lugs on the said base for mounting same in place, a suitable cover
60 adapted to fit the said side extension, a bolt extending through the said post to hold the cover in place, and downwardly-sloping passages extending from the inside of the casing through the said lugs.

5. An individual protector for outdoor purposes, comprising a porcelain base having a side extension therefrom, a formed sheet-metal cover adapted to fit the said side extension so as to provide an inclosed box portion, a rubber gasket placed between the said
75 cover and the side extension to form a tight joint, a depression formed in the middle of the cover, an insulating-post extending from the said base to meet the said depression, a bolt extending through the said post and cover and having a nut carried within the
80 said depression for holding the cover in place, a suitable washer placed between the said nut and cover, inclosed fuses mounted within the said box portion, parallel with the said base and held in place by spring clamping devices, lightning-arresters mounted vertically
85 on the said base at one end of the said fuses and between same, U-shaped dielectrics within the lightning-arresters, placed so that the open sides thereof extend downwardly, side lugs on the said base for mounting the protector in place, downwardly-extending
90 passages through the said side lugs for accommodating electrical conductors leading to the fuses, and suitable passages through the lower end of the box portion to accommodate conductors leading to the fuses and lightning-arresters.

As inventor of the foregoing I hereunto
subscribe my name; in the presence of two
subscribing witnesses, this 26th day of July,
1906.

FRANK B. COOK.

Witnesses:

FREDERICK R. PARKER,
F. W. PARDEE.