

R. H. MANSON.
 PROTECTIVE DEVICE FOR ELECTRICAL APPARATUS.
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1,025,532.

Patented May 7, 1912.

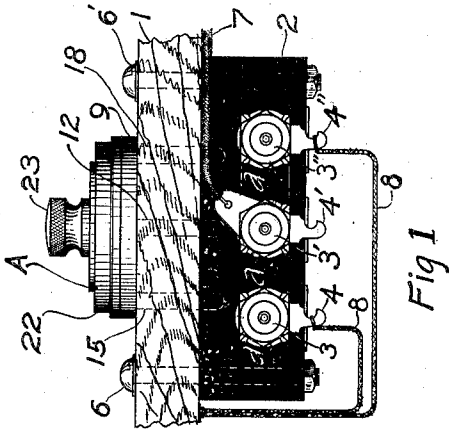


Fig 1

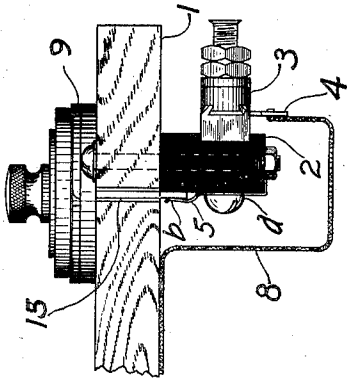


Fig 2

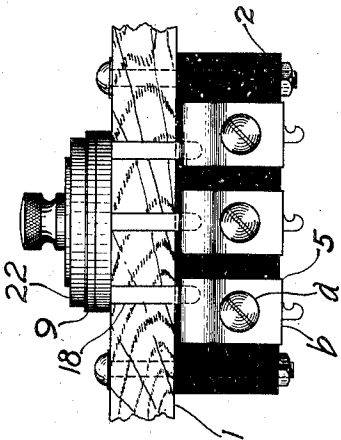


Fig 7

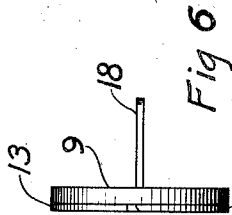


Fig 6

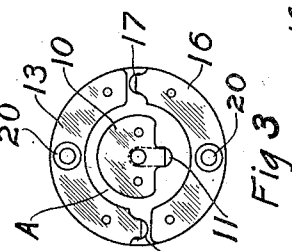


Fig 3

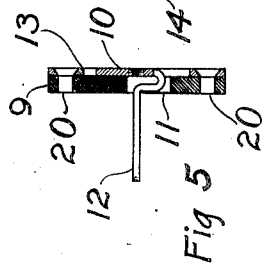


Fig 5

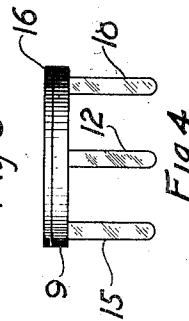


Fig 4

Witnesses
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UNITED STATES PATENT OFFICE.

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PROTECTIVE DEVICE FOR ELECTRICAL APPARATUS.

1,025,532.

Specification of Letters Patent.

Patented May 7, 1912.

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To all whom it may concern:

Be it known that I, RAY H. MANSON, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Protective Devices for Electrical Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to protective devices for electrical apparatus, such as are used to protect the apparatus from high voltage destructive discharges of current and more particularly to such as are used as a guard against injury done by discharges of lightning.

I contemplate the use of my device with telephones, but may apply it wherever such a device may be useful.

The use or non-use of a lightning arrester upon a telephone is determined largely by the character of the telephone line upon which the arrester is to be used, upon the section of the country in which the telephone is installed, or upon local laws and regulations. For example, when telephones are used in rural sections lightning arresters are desired, and when they are used in sub-tropical climates where thunder storms are of frequent occurrence, such protection is practically imperative. In some sections the local laws require that lightning arresters shall be mounted outside the building. In this case to use a phone with an arrester thereon duplicates that instrument and increases the expense unnecessarily. On the other hand, in urban sections, a lightning arrester is not necessary. To design and manufacture two lines of apparatus, such as telephones to supply these divers demands, entails considerable expense and trouble to the manufacturer. To meet this contingency, I have designed apparatus having circuit connections and a lightning arrester to be used therewith. The lightning arrester is adapted to be mounted upon or removed from the telephone according to the desire. This enables me to supply the same telephone to the trade which demands such an instrument and to the trade which demands it without, permitting me to exercise such economy in designing, manufacturing and marketing these instruments.

My invention will be best understood by reference to the following description when taken in connection with the accompanying illustrations, showing one specific embodiment thereof, while its scope will be more particularly pointed out in the appended claims.

Figure 1 is a side elevation of my device. Fig. 2 is an end elevation. Fig. 3 is a plan view of the arrester with the carbon block removed. Fig. 4 is a side elevation of the same. Fig. 5 is a vertical cross section through the center line of Fig. 3. Fig. 6 is a side elevation of the same. Fig. 7 is a side elevation of the device as shown in Fig. 1, illustrating the other side.

Referring to the drawings and the embodiment of my invention, there shown, I have illustrated my invention as applied to a telephone.

1, is a side or end of the telephone box.

2 is a block of insulation mounted upon the side of the box and fastened there by bolts 6 and 6'. Binding posts 3, 3' and 3'' are mounted upon one side of the block 2. 4, 4' and 4'' are conducting clips connected with these binding posts, both the binding posts and clips being fastened to the block by bolts *a*. On the other side of the block, spring clips 5 are held in position by the bolts *a* and are placed in electrical contact with the binding post and the clips 4 by these bolts. The upper end *b* of the clips 5, is resilient and tends to engage the side of the block.

At 7 I show a conductor which leads to one of the binding posts, each binding post can be connected by a similar conductor to electrical apparatus, to ground or making other connections.

At 8 I show conductors which lead to the telephone apparatus and which are connected to the clips 4 and 4''.

At A, I show the lightning arrester which consists of a base 9. This base is pierced with three holes 11, 14 and 17. Three conducting members 10, 13 and 16 are mounted upon one side of the base 9. A finger extends from each of these through the holes in the base to the other side thereof. The finger of 10 is shown at 12; that of 13 is shown at 15 and that of 16 at 18. The arrester is pierced at 20 to permit the same to be attached by screws or other means to the mounting plate as shown in Figs. 1 and 2.

A carbon block 22 is then fastened over the three conducting members by a knurl headed screw 23. The carbon block 22 is insulated from the conductors 10, 13 and 16 by mica or other suitable insulating material. The mounting plate is pierced adjacent to the clips 5 to allow the fingers of the arrester to pass through and engage these clips. The telephone is manufactured with the bar 2 and appurtenances attached thereto. If it is desired to use a lightning arrester, such an instrument as I have shown may be mounted upon the instrument by forcing the fingers through the openings in the mounting plate and between the clips 5 and the block 2. These clips engage the fingers completing the electrical connections. The arrester is then fastened by screws or other means to the instrument and the same is adapted to be used where a lightning arrester type phone is desired. The center member 10 may be connected to ground. The other members may be connected to the line conductors. In case of a high voltage discharge, passing over the line, the same arches through the carbon block to the center member and passes to ground.

It will thus be seen that I have accomplished the purpose of producing a device which enables me to manufacture a single type of telephone for the two uses which I have mentioned. While I have shown this particular form, I do not desire to be limited thereto, but seek such protection as the claims allowed in this case may extend to me. I have shown this single form alone because it will be obvious to those skilled in the art that numerous and extensive departures from the form and details of the apparatus here shown may be made without departing from the spirit of this invention, the same being herein shown solely for the purpose of clearly illustrating one specific embodiment.

I claim—

1. In a device of the class described, the combination of a casing, an insulating terminal rack mounted on the inside of said casing, binding posts mounted on said rack, spring clips connected to said binding posts and attached thereby to said rack, electric conductors connected to said terminals and leading to the exterior of said casing, the casing being perforated adjacent each clip, a lightning arrester consisting of a base, a pair of substantially semi-circular conducting members mounted thereon, but insulated from each other by the base, each of such members terminating in a finger which passes downward through an opening in the base, said fingers being substantially diametrically opposite each other, a third conducting member mounted on said base within said semi-circular members and having a metallic finger integral therewith

passing through a third opening in said base, said fingers adapted to pass through the openings in the casing and engage the clips when the lightning arrester is mounted on the casing.

2. In a device of the class described, the combination of a casing, a terminal rack mounted upon one side of said casing, terminals for electric conductors mounted on said rack, spring clips connected to said terminals, said casing being perforated adjacent each clip, a lightning arrester consisting of a base having a plurality of perforations therein, a pair of conducting members arranged upon the periphery of a circle, a finger upon each of said members turned down and passing through said openings in the base, a third conducting member mounted within the circle, and likewise having a finger bent downward and passing through the opening in the base, said fingers adapted when the arrester is mounted on the casing to pass through the opening therein and engage the clips upon the rack.

3. In a device of the class described, the combination of a casing, an insulating member mounted on the inside of said casing, electrical terminals carried by said member, conductors connected to said terminals, spring clips carried by said member and connected to said terminals, said casing being perforated adjacent to said clips, a lightning arrester including a pair of substantially semi-circular conducting members and metallic fingers carried by said arrester and connected to the conducting members thereof, said arrester adapted to be removably mounted on the outside of the frame and when so mounted to fit with its bottom flat against the casing, said fingers adapted to penetrate the perforations in the casing spanning said casing engaging the spring clips to connect said conductors to the conducting members of the arrester and to retain the arrester on the frame, substantially as described.

4. In a device of the class described, the combination of a casing, an insulating terminal rack mounted on the inside of said casing, binding posts mounted on said rack, spring clips connected to said binding posts, the casing being perforated adjacent the spring clips, electric conductors connected to said binding posts, a lightning arrester consisting of a perforated base, a pair of substantially semi-circular conducting members mounted upon the periphery of a circle on the base and insulated from each other by the base each of such members terminating in a finger bent downward and passing through perforations in the base, said fingers being substantially diametrically opposite each other, a third conducting member mounted within the circle

but spaced apart from said semi-circular
conducting members, a finger on such third
member passing downward through a third
perforation in the base substantially on a
5 line with said other two fingers, said ar-
rester adapted to be removably mounted
on the outside of the frame and when so
mounted, to fit with its bottom flat against
the casing, said fingers adapted to pene-
10 trate the perforations in the casing span-
ning said casing engaging the spring clips

to connect said conductors to the conduct-
ing members of the arrester and to retain
the arrester on the frame substantially as
described.

In testimony whereof, I affix my signa-
ture in the presence of two witnesses.

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RAY H. MANSON.

Witnesses:

A. D. T. LIBBY,
F. O. RICHEY.