Jan. 1, 1924 1,479,669

J. E. McCLAIN

INSULATOR PROTECTOR

Filed March 4, 1920

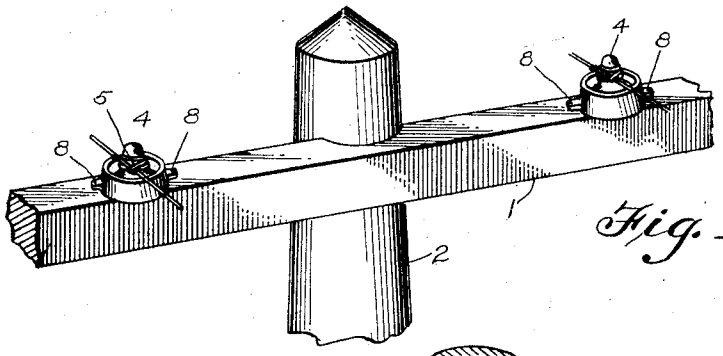



Fig. 1.

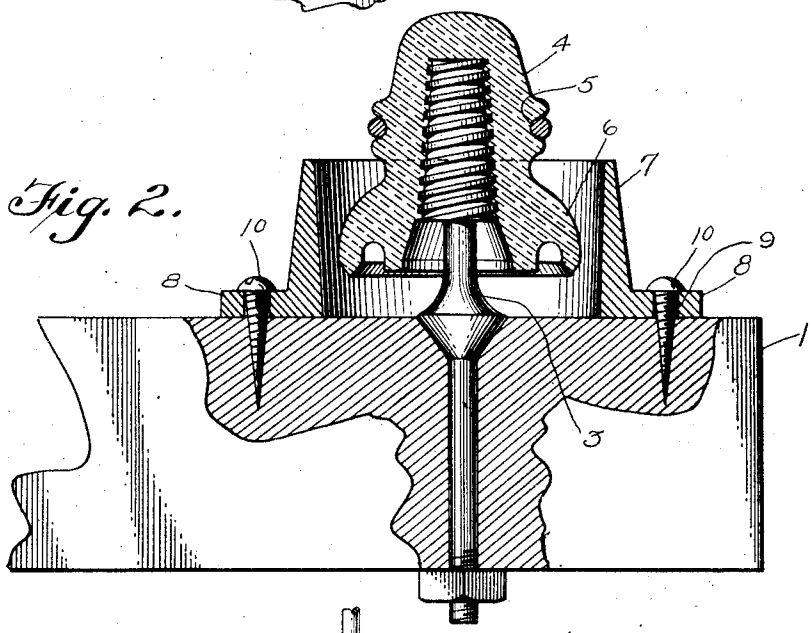



Fig. 2.

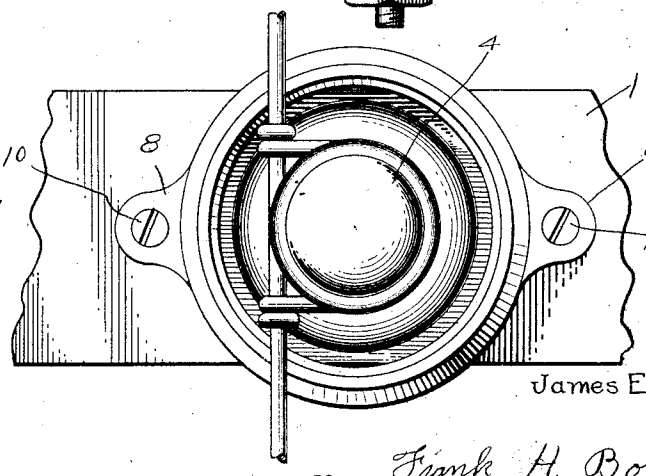



Fig. 3.

Inventor

James E. McClain.

By Frank H. Borden

his Attorney

Patented Jan. 1, 1924. 1,479,669

# UNITED STATES PATENT OFFICE.

JAMES ERNEST McCLAIN, OF GREENVILLE, TEXAS, ASSIGNOR OF ONE-HALF TO JAMES H. DINSMORE AND BRUCE M. McMAHAN, BOTH OF GREENVILLE, TEXAS.

## INSULATOR PROTECTOR.

Application filed March 4, 1920. Serial No. 363,309.

*To all whom it may concern:*

Be it known that I, JAMES ERNEST McCLAIN, a citizen of the United States, residing at Greenville, county of Hunt, and State of Texas, have invented certain new and useful Improvements in Insulator Protectors, of which the following is a specification.

It is well known that the cost of maintaining an electric power line in rural districts is increased by the breakage of the glass insulators used for supporting the wires. Most of this is caused by persons using the insulators as targets for stones and rifles, and since the insulators are made of frangible material they are readily broken upon impact.

There has therefore developed a necessity for protectors for the insulators which will prevent the missile from striking the insulators, and my invention pertains particularly to a device of that type.

I am aware that there has been some activity in this art, but as far as known those which have been developed have some sort of contact with the insulator or with the pin upon which it is mounted. The difficulties attendant upon their use are, however that there is a liability to "short circuit" the current through the protector and further, that the impact of a missile upon the protector is transmitted directly to the insulator itself or to the pin supporting it. It is therefore necessary to provide a protector which has no contact whatever with the insulator and this is what I have done.

In the construction of my invention I have had the following objects in view: to produce a protector which would surround the insulator yet would not completely enclose it, so that the wiring is not interfered with in any manner; which is simple in construction so that it could be manufactured at a minimum of cost, which could readily be applied to the insulators now in use, and which is so made that if struck by a missile of any sort it would be deflected away from the insulator.

In carrying out my invention I provide a metallic wall spaced from and surrounding the lower part of the insulator and mounted preferably directly upon the cross arm supporting the insulator, and having no contact whatever with the insulator nor its supporting pin. This wall surrounds the "skirt" of the insulator leaving the rounded top thereof uncovered so that the wiring is not affected in any manner. There is no necessity for covering the top of the insulator as it is strong enough to resist any but a direct blow, and any advantage in protecting this part is more than offset by the disadvantage from interference with the wiring.

In the accompanying drawings forming a part of this specification:

Figure 1, is a perspective view of a cross arm with several insulators mounted thereon, disclosing the relation of the protectors to the insulators,

Figure 2, is a vertical section through an insulator, the protector and the cross arm showing the manner of securing the protector in place, and

Figure 3, is a top plan of the same as Figure 2, showing the spacing of the protector with relation to the insulator.

The cross arm 1, is usually of the ordinary wooden construction now in use but might be of any material or form and is fastened to the pole 2, or other support in the customary manner. At certain intervals the insulator pins 3, are driven into the cross arm upon which the insulators 4 are screwed. The insulators are of ordinary construction and have the customary wire receiving groove 5, and enlarged skirt 6. It is the skirt that it is most necessary to protect.

The protector comprises in the preferred form, an annular shell 7, made of cast iron and thick at the base and tapering to a comparatively thin ring at the top. The shell is open at both ends and both the inner and outer surfaces are at an angle to the vertical. This inclination of the surface is such that a missile from the ground is deflected upwardly and away from the top of the insulator. If the protector is struck radially by a shot from the ground the missile is deflected in its course sufficiently as to cause it to pass away from the top of the insulator, the impact on the protector being very slight due to the angle of the wall thereof, and thus reducing to a minimum the chance of breaking the protector or penetrating the protector and breaking the insulator. If the missile strikes a glancing blow it is deflected by the annular wall. Lugs 8, extend radially from the shell 7, and have

holes 9, through which bolts or spikes 10, pass in order to fasten the protector to the cross arm.

The shell is connected directly to the cross arm and is spaced from the insulator and has no contact therewith. It will be noted that the lower part of the insulator is covered and the part that is exposed to a shot from the ground is very small.

I prefer to construct the protector as an annular shell but it is obvious that it need not be annular, as long as it is substantially vertical and has no connection with the insulator nor its supporting pin.

The provision of an open end bottom obviously prevents an accumulation of water or snow, and insures against a short circuit from that cause.

I claim:

1. As an article of manufacture an insulator protector comprising an open ended annular shell of cast metal, said shell being formed so that its outer wall is at an angle to the perpendicular when in position so as to reduce to a minimum the shock of impact of a missile from the ground, integral lugs extending from the base for securing the shell in position on a bar, the bottom surface of said shell and said lugs being a plane so that the shell may be affixed to any width of bar.

2. The combination with an insulator and its pin of a bar upon which they are mounted, a protector comprising an open ended annular shell formed of cast metal surrounding but spaced from the insulator and its pin, said shell being thicker at the base than at the top and formed so that its outer wall is at an angle to the perpendicular when in position on said bar, integral lugs extending from the base of said shell for holding the shell in position on the bar, the base of said shell and the bottom surface of said lugs being in a plane so that the shell may be supported in its proper spaced position from said insulator on said bar, whatever the width of said bar may be, the inclination of said wall acting to reduce the shock of impact of a missile from the ground to a minimum.

In testimony whereof, I have hereunto subscribed my name.

JAMES ERNEST McCLAIN.