Feb. 19, 1929. 1,702,911

C. C. McARTHUR ET AL

STRAIN INSULATOR

Filed Feb. 26, 1926

Fig. 6

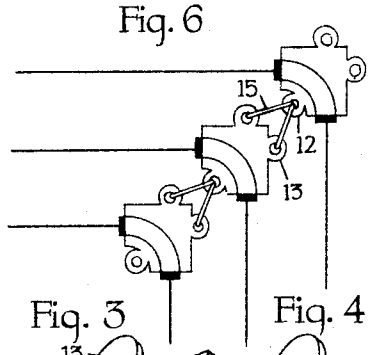



Fig. 1

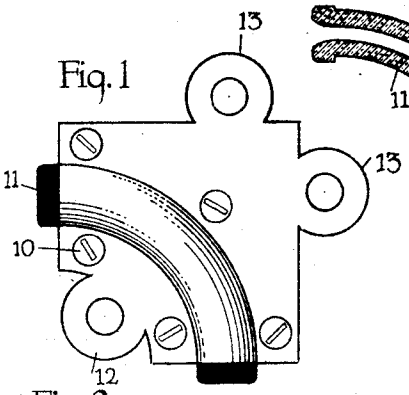



Fig. 5

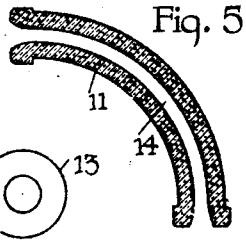



Fig. 3

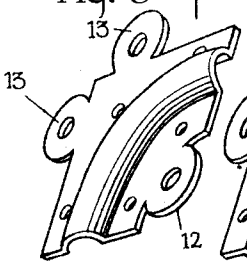



Fig. 4

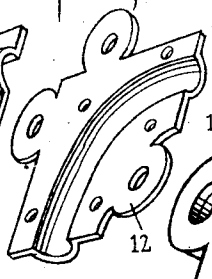



Fig. 2

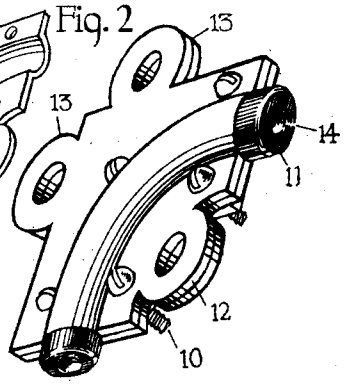
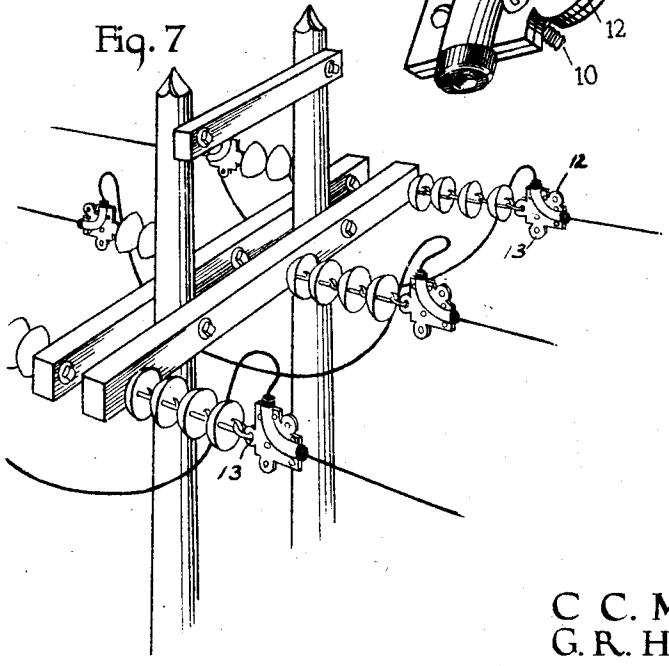



Fig. 7




C. C. McArthur
G. R. Hotchkiss *INVENTORS*

*BY* Emil F. Lange

*ATTORNEY*.

Patented Feb. 19, 1929. 1,702,911

# UNITED STATES PATENT OFFICE.

C C. McARTHUR, OF LINCOLN, AND GUY R. HOTCHKISS, OF COLLEGE VIEW, NEBRASKA.

## STRAIN INSULATOR.

Application filed February 26, 1926. Serial No. 90,855.

The object of our invention is the provision of an insulator for electric wires, having marked advantages, both for low and high voltage lines, over the insulators at present used. Among these advantages are simplicity of construction and use, the ease with which adjustments may be made after the line has been installed, and the doing away with the necessity of splicing wires which are normally subjected to considerable tension. Other objects will be mentioned in the following description.

Referring now to the drawings,

Figure 1 is a side view of our strain insulator.

Figure 2 is a perspective view of the insulator shown in Figure 1.

Figures 3 and 4 are perspective views of the clamping parts of the insulator.

Figure 5 is a sectional view of the insulating core of the insulator.

Figure 6 is an illustration showing the manner in which the insulators may be arranged in corner constructions.

Figure 7 is an illustration showing the use of the same insulator for the connections of wires carrying a high tension current.

The insulator shown in Figures 1 to 7 inclusive comprises two plates as shown in Figures 3 and 4, which are held together by means of bolts 10 with a two-part insulator 11 clamped between the plates. The plates in outline have the form shown in Figure 1. A curved groove is formed in each plate, the grooves being each one quadrant in length. The plates shown in Figures 3 and 4 are rights and lefts, differing only in the position of the groove. In section the groove is semicircular or nearly so. At its inner corner each plate has an apertured ear 12 and at the diagonally opposite corner it has a pair of apertured ears 13, which are positioned opposite the respective openings to the bore of the insulator 11 and in tangential alignment therewith.

The insulator core is shown at 11 in Figure 5. It consists of two parts each having the form of one of the grooves described in connection with the description of the clamping plates. At their outer ends the parts 11 are slightly enlarged and each part 11 has a groove 14 running therethrough from end to end. The groove 14 is somewhat enlarged at both of its ends as shown in Figure 5. The wire is, of course, seated in the grooves 14 and tightly clamped therein, the object of the enlarged entrance being to distribute the strain when the wires are being swayed in the wind or otherwise. The two plates are clamped together by means of the bolts 10 and these are so positioned that the clamping action is uniformly distributed over the insulators. Since this clamping action is exerted against all of the enclosed parts of the wire the wire is held so tightly that it would break before it could slip in the insulator. In the arcuate type of insulator this clamping action is all the greater because of the curved shape, which itself resists slippage.

This type of insulator is found to be very useful in numerous places. In corner constructions the wire can be held under rigid tension and at the same time be made to pass around the corner without the necessity of splicing. If it is desired to have a number of parallel wires at the corner they may be arranged as shown in Figure 6 with each apertured ear 12 connected to a pair of ears 13 of an adjacent insulator by means of a pair of connectors 15. The insulator will also be found useful in connections for high voltage wires by using them in the manner shown in Figure 7. As such wires often have great length between supports, they sag in time to such an extent as to become a menace. With the use of the ordinary constructions it is necessary to take up the slack between the supports by cutting the wire and then splicing. The splicing, however, is objectional especially in wires which are subjected to considerable tension. The splicing is never satisfactory unless the splice is soldered, but the heating of the wire incidental to the soldering is very apt to weaken the wire so that it will break under tension. With our insulators, however, it is possible to take up the slack between supports and to permit the wire to sag at the support only. If it becomes necessary to take up the slack in such wires this can be done at the support where the wire is not under tension and where the heating of the wire would have no disagreeable consequences. The slack may in fact be taken up in the form of loose coils at the towers.

Our insulator will be found to be useful wherever insulators are used. Our first insulators were originally designed for use with radio, but they will function equally well with telegraph, telephone, and power lines.

Having thus described our invention in such full, clear, and exact terms that its con-

struction and operation will be readily understood by others skilled in the art to which it pertains, what we claim as new and desire to secure by Letters Patent of the United States is:

1. A strain insulator including a clamp comprising two complementary parts, each being provided with a curved groove, the grooves being each substantially one quadrant in length and also complementary to each other, said clamp being also provided with a single aperture adjacent its edge on the concave side of the groove and with a pair of spaced apertures adjacent its edge on the convex side of the groove, a core of insulating material seated between said complementary parts and within the grooves thereof, said core being provided with a passageway for wire, and means for tightening said clamp for compressing said core.

2. A strain insulator including a clamp comprising two complementary parts, each of said parts being provided with a curved groove having a length of substantially one quadrant, an insulating core seated in the grooves of said clamp, said core being provided with a bore extending therethrough, and means on said clamp for securing said insulator in position, said means being in tangential alignment with the bore of said core at an extremity thereof.

In witness whereof we affix our signatures.

C. C. McARTHUR.
GUY R. HOTCHKISS.