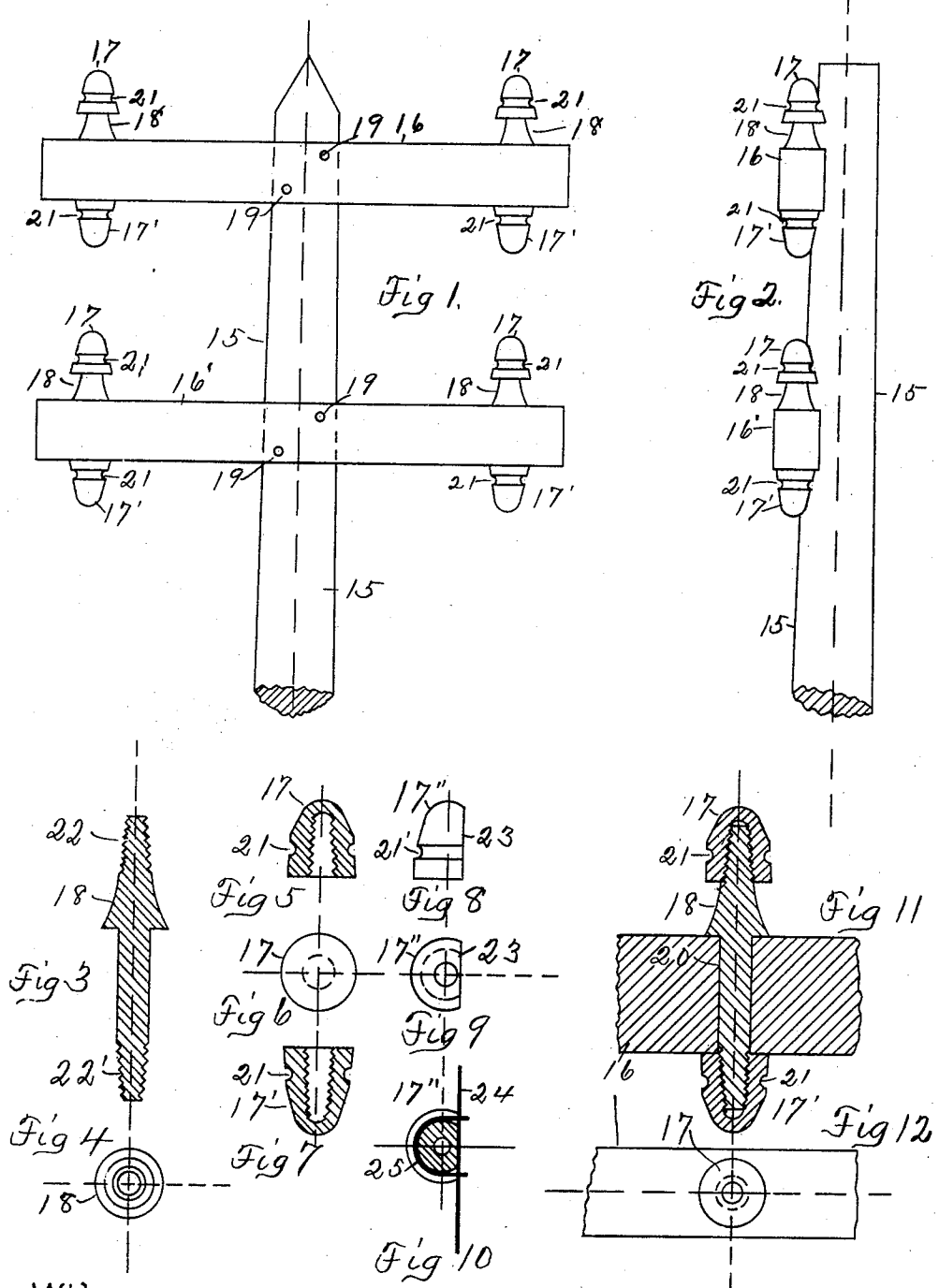


(No Model.)

C. F. CARROLL.
INSULATOR PIN AND INSULATOR.

No. 547,660.

Patented Oct. 8, 1895.



Witnesses
Miss H. D. Newton.
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Inventor.
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UNITED STATES PATENT OFFICE.

CHARLES F. CARROLL, OF MANISTEE, MICHIGAN, ASSIGNOR OF ONE-HALF
TO THOMAS SCOTT, OF SAME PLACE.

INSULATOR-PIN AND INSULATOR.

SPECIFICATION forming part of Letters Patent No. 547,660, dated October 8, 1895.

Application filed June 6, 1893. Serial No. 551,927. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. CARROLL, a citizen of the United States, residing at Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful improvements in insulator-pins and insulators for supporting or carrying electrically-charged wires that are used mainly for telegraph, telephone, and electric street-car systems; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in insulator-pins and insulators, which consist in a pin that has a sufficient length to pass through the cross-arm of a telephone, telegraph, or electric street-car pole. The upper portion of the said pin is enlarged to prevent it from passing too far through the said cross-arm, while the bottom end of the said pin is threaded to receive any ordinary glass insulator. The upper end of the said pin is also threaded to receive another insulator. Thus one pin will carry two electric wires and thereby double the number of wires on the same number of cross-arms. It also puts the wires directly under each other, so a lineman can walk under the wires and readily detect any cross of wires or other electric leakage.

A further object of my invention is to so construct an insulator that it will not work off from the pin by gradually unscrewing itself off from its pin, and this is accomplished by flattening the side of the insulator in the wire-receiving groove, so that when the line-wire is laid into the flat portion of the wire-receiving groove and properly fastened there it cannot work itself loose enough from the insulator to allow the insulator to unscrew itself after the cross-arm or pin has shrunk and dried up in the course of time.

A further object is to avoid the use of porcelain knobs fastened on to the cross-arms with screws, which soon work themselves loose.

My invention is also valuable for return metallic circuits, as the wire carrying the current is on the upper row of insulators and

the return-wire is on the lower row of insulators of each cross-arm.

Referring to the accompanying drawings, Figure 1 represents a front view of the upper portion of an electric-wire pole and showing the general arrangement of parts. Fig. 2 represents an edge view of Fig. 1. Fig. 3 represents a sectional view of the pin used to hold the insulators. Fig. 4 is an end view of Fig. 3. Figs. 5 and 7 are vertical sectional views of ordinary glass insulators. Fig. 6 is an end view of Figs. 5 and 7. Fig. 8 represents an outside view of an insulator flattened on one side to receive the line-wire. Fig. 9 represents an end view of Fig. 8. Fig. 10 is a cross-section of Fig. 8 through the groove 21' and showing the way the electric wire is attached. Fig. 11 represents a vertical view of a portion of a cross-arm with the pin and the upper and lower insulators in their respective positions when in use. Fig. 12 represents a top view of Fig. 11.

Similar numerals refer to similar parts throughout the several views.

Numeral 15 is an ordinary electric telegraph, telephone, or electric street-car pole for supporting and carrying the electric wires of the system or systems, the lower ends of which are fastened into the ground or to some other stationary object.

Numerals 16 and 16' in the several views are cross-arms securely fastened to the poles 15.

Numerals 17 and 17' are glass insulators, to which the electric wires are attached.

Numeral 17'' is an insulator similar to 17 and 17', with one side flattened at 23, against which the line-wire is attached.

Numerals 18 are the pins used to hold the insulators.

Numerals 19 are screws or bolts used to securely fasten the cross-arms 16 to the poles 15.

Numeral 20 is a hole to receive the pin 18.

Numerals 21 and 21' are grooves to receive the electric wires.

22 and 22' are threads cut on the top and bottom ends of the pins 18, which hold the insulators 17, 17', and 17''. The insulators 17, 17', and 17'' are also threaded inside to correspond with the threads 22 and 22' of the pins.

23 is where the insulator 17'' is flattened.

24 represents an electric wire carrying the current.

25 is a binding-wire to fasten the wire 24 to the insulator 17''.

In carrying out my invention take any number of these cross-arms 16 and 16' and securely fasten them to the poles 15 above each other, as illustrated in Figs. 1 and 2.
 10 Bore or drill the desired number of holes 20 in the cross-arms 16 and 16', as shown in Fig. 11, and insert the pins 18 from the top side, and then screw on the insulators 17', which securely fasten the pins 18 in their
 15 respective places. To the top ends of the pins 18 screw on the insulators 17. In the grooves 21 of the insulators are satisfactorily fastened in the usual manner the electric or line wires of the system using my invention. As a sub-
 20 stitute for the insulators 17 and 17', I have constructed the insulator 17'' with the groove 21', flattened on one side at 23. Then lay the electric or line wire 24 against the flattened portion 23 of the insulator 17'', which
 25 is securely fastened by the binding-wire 25. By flattening the insulator at 23 and fastening the electric or line wire as above described it prevents the insulators from working off from their respective pins 18 and allowing
 30 the electric or line wires to fall to the ground

or crossing each other, which is very important in line practice. These insulators 17'' may be substituted in practice for the ordinary insulators 17 and 17'.

I am aware that prior to my invention insulator-pins have been constructed that pass through the cross-arms of telegraph-poles. I therefore do not claim such a combination broadly; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In insulator-pins and insulators, the combination of an insulator-pin constructed long enough to pass through the cross-arm of a telegraph or telephone pole, an insulator on the lower end to act both as an insulator and a fastener, with the cross-arm, all substantially as shown and described.

2. An insulator for supporting or carrying electrically charged wires, flattened on one side to prevent it from turning after the electric or line wire is fastened thereto, in combination with an insulator-pin and the cross-arm of a telegraph or telephone pole, all substantially as shown and described.

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Witnesses:

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