(No Model.)

J. KUEHNLE.

CROSSING FOR OVERHEAD WIRES.

No. 426,452. Patented Apr. 29, 1890.

Fig 3

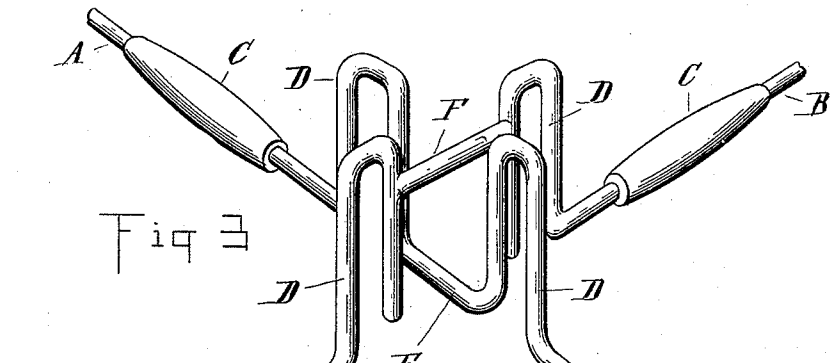


Fig 2

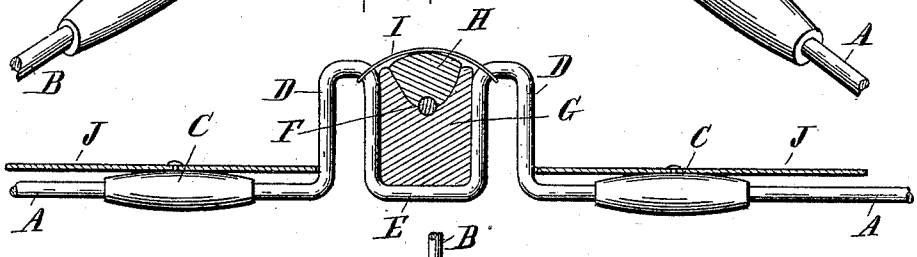
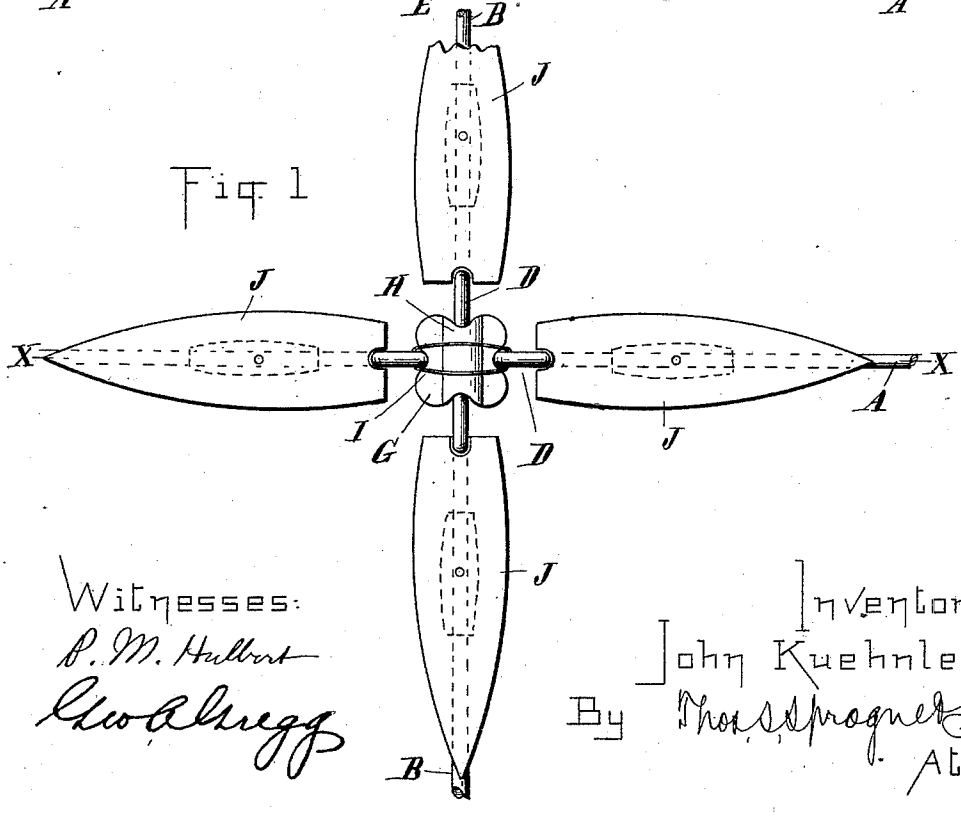


Fig 1



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UNITED STATES PATENT OFFICE.

JOHN KUEHNLE, OF DETROIT, MICHIGAN.

CROSSING FOR OVERHEAD WIRES.

SPECIFICATION forming part of Letters Patent No. 426,452, dated April 29, 1890.

Application filed March 11, 1890. Serial No. 343,541. (No model.)

To all whom it may concern:

Be it known that I, JOHN KUEHNLE, a subject of the Emperor of Germany, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Crossings for Overhead Electric Traction-Wires and other Wires, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in crossings for wires of electrical traction and other purposes; and the invention consists in the peculiar construction and arrangement of parts, all as more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a plan of my crossing; Fig. 2, a longitudinal section on line *x x* in Fig. 1, and Fig. 3 a perspective view of the crossing with the insulating-connection removed.

A A and B B are the terminals of two electric wires which cross each other on the same plane at an angle, and the crossing is designed to form an electrical connection between the respective terminals of the wires to mutually support the wires and insulate them from each other, and also for the purpose of allowing a trolley to pass the crossing, providing said crossing is of the kind to make contact on the under side of the wires. To this end the terminals of the respective wires are secured in any suitable manner—such as by means of the couplings C—to the ends of a pair of metallic bridges constructed in the following manner: I preferably use a strong wire for the purpose and bend it in the form shown—that is, each of the bridges is formed with two vertical loops D, which form upward bends in each wire. In one of the bridges the two loops are connected by the horizontal connection E, integrally formed with the bridge, and the other by a horizontal section F, which is in a different plane, preferably near the top of the loops. These bridges, being thus constructed, are secured in relation to each other at the proper angle of the crossing by inserting a block of insulating material G between the four loops. By wedging this block firmly between the loops the two bridges are held in required relation to each other dependent upon the form of the insulating-block, which, if it is made square, will hold the two bridges at right angles to each other. To prevent the accidental displacement, I preferably form the cross-bar F of one of the bridges quite near the upper end of the loops and form in the insulating-block a central depression to receive said cross-bar. Then an extra piece of insulating material H is used to cover the cross-bar on top, and may be held in place by a binding-wire I, or in any other suitable manner. It will be seen that by thus connecting the bridges they are not only held in firm relation to each other and mutually support the wires, but all danger of metallic contact is positively avoided.

In using such a crossing for the under side trolleys of electric traction-wires, I place upon each arm of the crossing a lancet-shaped guide-plate J, which I secure thereto in any suitable manner. The points of these plates being turned outward, the approaching trolley will be engaged with its peripheral flanges by the first guide-plate which it meets and be carried safely to the opposite arm of the crossing, and by the guide-plate on said crossing into contact with its wire on the other side of the crossing. The flanges of the trolley will pass through the loops of the other bridge without coming in contact therewith.

By using a block of rubber for the insulating material the connection will stand a great deal of wear and tear and impart a certain flexibility to the crossing, which will prevent its being injured under the varying contingencies of use.

The whole device is inexpensive, and is a safeguard for crossing electric traction-wires, electric-light wires, and other wires without danger of metallic contact, and will be found of great use.

Instead of the couplings C, other means may be employed for connecting the terminals of the wires to the arms of the bridges.

I intend to make this crossing as an article of manufacture, with the couplings and everything attached thereto ready to connect to the wires.

It is obvious that by changing the form of the insulating-block the bridges of the crossings may be joined at any desired angle.

What I claim as my invention is—

1. In a crossing for electrical wires, the metallic bridges, each formed with double loops connected by a cross-bar in different planes and joined together by a block of insulating material secured between the respective loops and cross-bars of the bridges, substantially as described.

2. In a crossing for electric wires, the metallic bridges, each formed with a pair of upwardly-projecting vertical loops connected by cross-bars in different planes, the interposed insulating-block, and the securing-wires, substantially as described.

3. In a crossing for electrical wires, the metallic bridges, each formed of wire with a pair of upwardly-projecting vertical loops connected by a cross-bar in different planes, respectively, the couplings at the end of the arms, and the insulating-block secured between the loops and cross-bars, substantially as described.

4. As a new article of manufacture, a crossing for electric wires, consisting of two metallic bridge-wires, each provided at its outer ends with screw-couplings or equivalent means for fastening wires thereto and near the center with a pair of upwardly-projecting loops connected by cross-bars in different planes, respectively, the insulating-block secured between the loops and cross-bars, and the guide-plates J, all arranged to operate substantially as and for the purpose described.

In testimony whereof I affix my signature, in presence of two witnesses, this 28th day of February, 1890.

JOHN KUEHNLE.

Witnesses:
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