

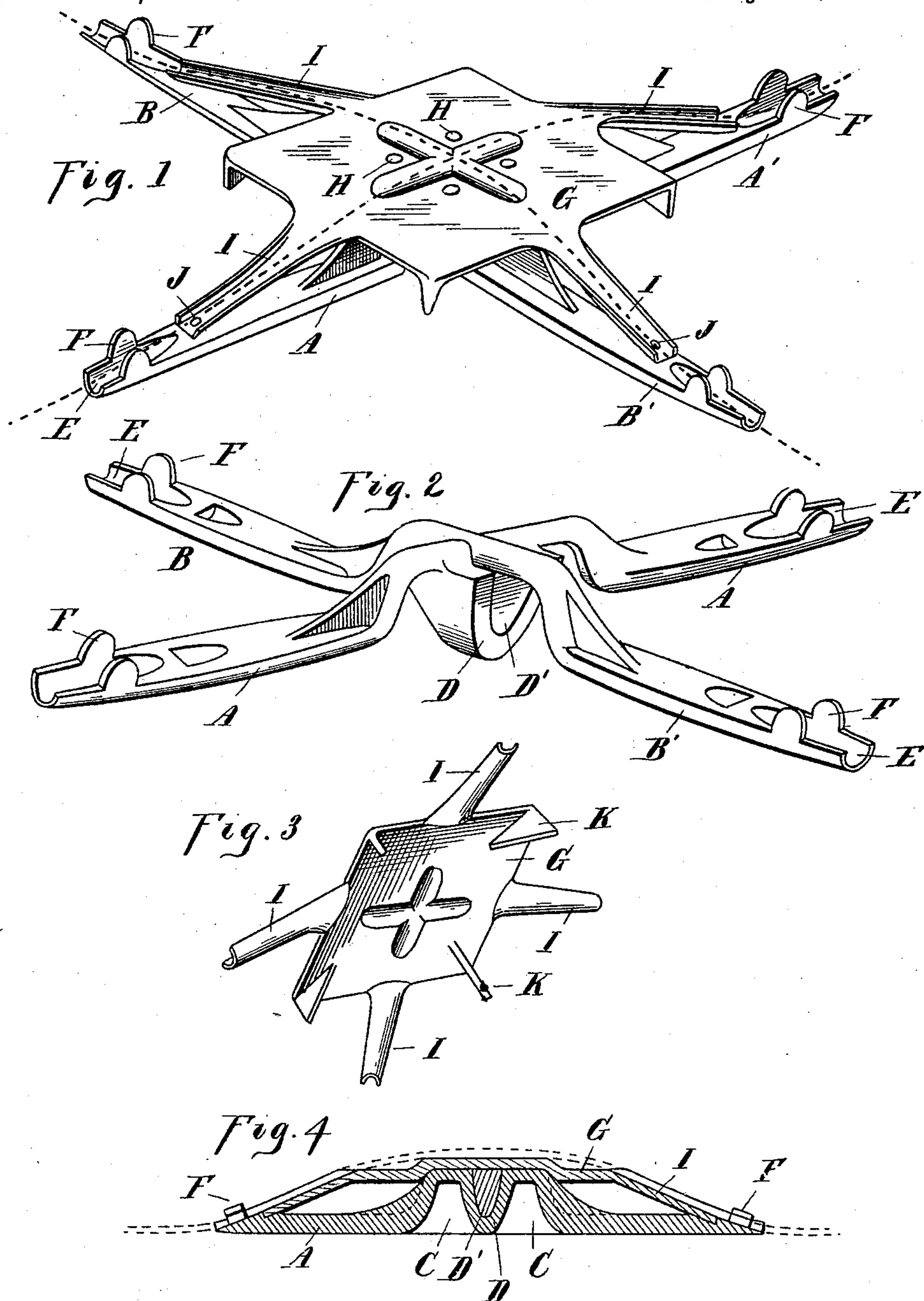
(No Model.)

J. KUEHNLE.

CROSSING FOR OVERHEAD TROLLEY WIRES.

No. 452,576.

Patented May 19, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

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CROSSING FOR OVERHEAD TROLLEY-WIRES.

SPECIFICATION forming part of Letters Patent No. 452,576, dated May 19, 1891.

Application filed January 2, 1891. Serial No. 376,535. (No model.)

To all whom it may concern:

Be it known that I, JOHN KUEHNLE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Crossings for Overhead Trolley-Wires of Electric-Railway Systems, 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 overhead trolley-wires of electric-railway systems; and the invention consists in the novel construction, arrangement, and combination of parts whereby both wires cross each other in a manner enabling underneath trolleys on either wire to pass the crossing-point without breaking the electric connection between the wire and the trolley at any point or deflecting the trolley from its course, either up or down, in the slightest degree, all as more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of my crossing with the crossing trolley-wires represented by dotted lines. Fig. 2 is a similar view with the cover or plate removed. Fig. 3 is a detached perspective view of the cover or plate looking at its under side. Fig. 4 is a vertical section in the plane of one of the trolley-wires.

My improved crossing consists of a metallic spider having arms A A' B B', arranged in pairs diametrically in line with each other and corresponding to the angle of the crossing wires. The inner ends of these spider-arms are provided on the under side with scores or notches C on either side of a central boss D, and the outer ends of the arms are provided on the upper side with grooves E and with ears F upon the sides of the grooves. This spider may be constructed integrally in one piece; but preferably I construct it in two parts, as shown in the drawings, wherein the arms A A' and B B' are respectively cast in separate pieces, with the scores formed by arching the portions connecting the inner ends of the spider-arms and forming the boss integral with one pair of spider-arms with a transverse groove through the middle, into which the central portion of

the other pair of spider-arms is secured, the groove being made, preferably, deep enough to receive a lug D' on said pair of spider-arms, whereby the two pairs of spider-arms firmly interlock with each other and may be securely united in any suitable manner.

The advantage of constructing the spider in parts is mostly for convenience of manufacture and shipping, and it is obvious that it may be constructed in different ways without departing from the spirit of my invention.

G is a contact-plate secured in the center of the spider and extending more or less over the scored or notched portions thereon in a plane which makes the under side of said plate coincident with the arched or scored underside of the spider-arms. This plate may be secured to the spider-arms in any manner which holds it in the described relation thereto, preferably as shown in the drawings, whereby said plate is made intact in one piece and recessed upon its under side to receive the top of the arched or scored portions of the spider-arms, whereby the under side of the plate is brought in a plane coincident with the under side of the spider-arms at the scored portions thereof. This plate is then secured to the spider-arms by means of screws H, extending through the plate into the boss D or in any other suitable manner. I preferably provide the plate also with four braces I, which are in coincident vertical plane with the spider-arms and are inclined downwardly and sufficiently to be united with the ends of the spider-arms. These braces I preferably provide with grooves upon their upper sides to receive the crossing wire and their lower ends secured thereto by screws J or by brazing. They also provide the under side of the plate with guard-flanges K, depending from the under side of the plate.

In practice, the parts being constructed and arranged as described and shown, they are intended to operate as follows: The four spider-arms are secured to the crossing wires at the point of crossing by engaging the wires, respectively, into the grooves E on the outer ends of the spider-arms and bending and clamping the ears F firmly upon the wires, with the crossing wires entering the grooved braces I and passing over the plate G. The

crossing being thus secured, it will be seen that the crossing wires are arched over the top of the crossing, while the spider-arms are thereby brought with their under side directly in line with the under side of the trolley-wires, and thus the underneath trolley will pass from the trolley-wires onto the spider-arms without being either deflected up or down, and after the trolley has passed underneath the plate G its flange will be brought into contact with the under side of the plate G without being either raised or depressed, the scored portions of the spider-arms permitting the flanges to cross from one spider-arm to the opposite one without a moment's break of contact. At the same time it will be seen that the central boss D, if properly shaped, guides the trolley between the scored portions during the interval while it loses its contact with the spider-arms.

The object of my flange K is merely that of an additional safety-guard to guide the trolley in passing under the plate G, so as to direct the flanges into the scored portions. The plate G, made integrally, extending over the center of the spider, forms the protecting-cover to prevent snow or ice from obstructing the crossing, and in providing it with braces I it forms the truss for the spider.

What I claim as my invention is—

1. The combination, with two trolley-wires crossing each other, of a metallic spider having arms the outer ends of which engage with the trolley-wires and the inner ends of which are scored to form passages for the trolley-flanges, a central hub adapted to engage between the flanges of the trolley, and a metallic bearing over the passages flush with the flange of the trolley, substantially as described.

2. The combination, with two continuous trolley-wires crossing each other, of a metallic spider having arms the outer ends of which engage with the trolley-wires and the inner ends of which are scored to form passages for the trolley-flanges, and a metallic plate secured upon said spider and having its under side flush with the top of the trolley-flange passages, substantially as described.

3. The combination, with two continuous trolley-wires crossing each other, of a metallic spider having arms the outer ends of which engage with the trolley-wires and the inner ends of which are scored to form passages for the trolley-flanges, a metallic plate centrally secured upon said spider, having its under side flush with the top of the trolley-flange passages, and braces for said plate

secured to the arms of the spider, substantially as described.

4. The combination, with two continuous trolley-wires crossing each other, of a metallic spider having arms the outer ends of which engage with the trolley-wires and the inner ends of which are scored to form passages for the trolley-flanges, a metallic plate centrally secured upon said spider, having its under side flush with the top of the trolley-flange passages, braces for said plates secured to the arms of the spider, and depending guide-flanges formed on the inside of the plate, substantially as described.

5. The combination, with two continuous trolley-wires crossing each other, of a metallic spider having arms the outer ends of which engage with the trolley-wires and the inner ends of which are scored to form passages for the trolley-flanges, a central hub adapted to engage between the flanges of the trolley, and a plate recessed to receive the inner ends of said spider-arms flush with the top of the trolley-flange passages, substantially as described.

6. The combination, with two continuous trolley-wires crossing each other, of a metallic spider provided with arms curved upon their outer ends and scored upon their inner ends to form passages for the trolley-flanges, a central hub adapted to engage between the flanges of the trolley-wire, a plate having recesses upon its under side, into which the inner ends of the spider-arms engage, braces extending from said plate to the outer ends of the spider-arms, and a guide-flange depending from the under side of said plate, all combined and arranged substantially as described.

7. The combination, with two trolley-wires crossing each other, of a metallic spider consisting of two parts interlocking by a central depending hub adapted to engage between the flanges of the trolley, substantially as described.

8. A crossing for overhead trolleys, consisting of a metallic spider formed of two or more parts crossing each other and depending interlocking means rigid on the spider for uniting the parts and adapted to engage between the flanges of the trolley, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN KUEHNLE.

Witnesses:

M. B. O'DOHERTY,
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