

(No Model.)

W. W. CHARLES & R. W. KING.  
COMPOUND RAILWAY RAIL.

No. 551,362.

Patented Dec. 17, 1895.

Fig. 1.

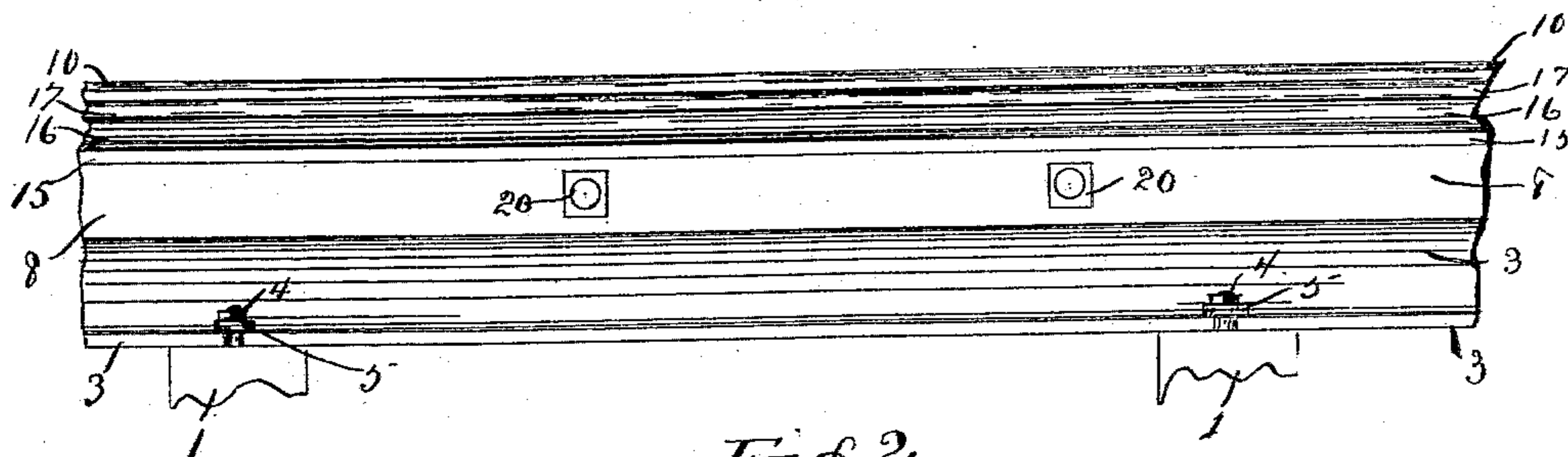
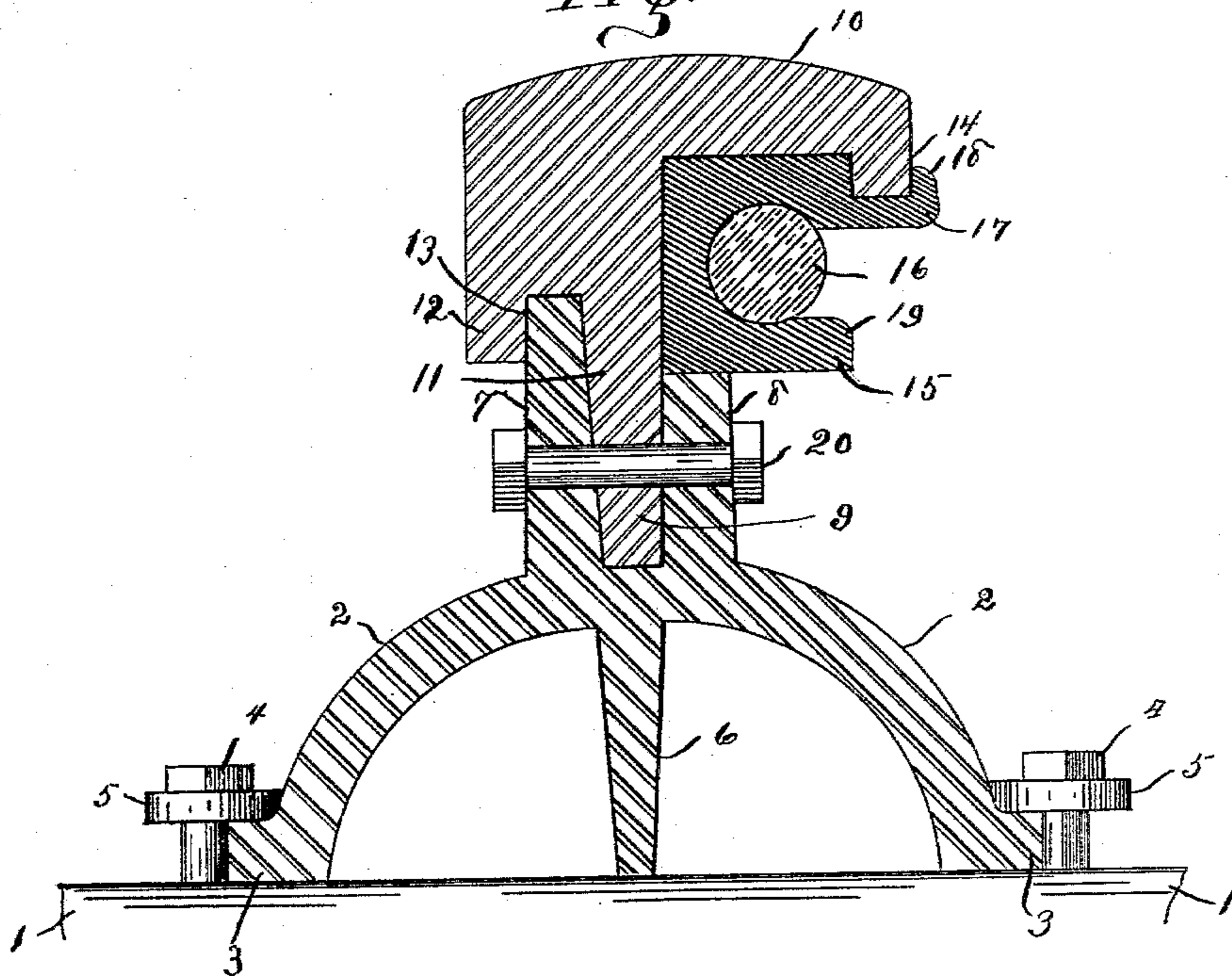


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## COMPOUND RAILWAY-RAIL.

SPECIFICATION forming part of Letters Patent No. 551,362, dated December 17, 1895.

Application filed April 10, 1895. Serial No. 545,268. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIS W. CHARLES, of Evansville, county of Vanderburg, and State of Indiana, and RICHARD W. KING, of Wichita, county of Sedgwick, and State of Kansas, have invented a certain new and useful Compound Railway-Rail; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

Our invention relates to a compound railway-rail and one especially adapted to be used in electrical railway systems. For this latter purpose the rail contains an electric conduit and wire so located that a trolley from the car may contact with it continuously.

Our device also embodies a compound rail from which the electric conduit may be omitted and which hence can be used as an excellent substitute for the ordinary railway-rail.

The features and advantages of our invention will more fully appear and be set forth in the drawings and the description following.

Figure 1 in the drawings is a side elevation of our rail showing the side containing the electric rail and conduit. Fig. 2 is a cross-section of our rail considerably enlarged as compared with Fig. 1.

Upon a suitable cross-tie 1 made preferably of metal is secured the base 2. This base is curved in cross-section, being a segment of a circle usually less than a semicircle. Each side is provided with a horizontal flange 3 to stiffen the rail and enable it to be secured to the ties by means of bolts 4 and the washers 5. The central portion of the rail is reinforced and supported by a downwardly-extending web or support 6, preferably wedge-shaped—that is, thicker at the top than at the bottom—and resting directly upon the cross-ties. Extending upward from the central portion of the rail are the wedge-shaped webs 7 and 8, being thicker at the bottom than at the top and having between them the wedge-shaped recess 9, which is wider at the top than at the bottom. When the electrical conduit is used, one of these upwardly-

extending webs is shorter than the other, as shown, and it is preferably placed on the outside when laid on the track.

The crown 10 has extending downward from its center a wedge-shaped web 11 that is thicker at the top than at the bottom and is substantially of the same dimensions as the recess 9 of the base, into which it is adapted to fit snugly. Between the flange 12 and the web 11 is a recess 13 into which the upper portion of the web 7 from the base is adapted to fit snugly. On the other side of the crown 10 is another flange 14 with a recess between it and the web 11 to receive the electrical conduit 15, which fits snugly in such space and between the crown and the top of the web 8, so that pressure on the crown of the rail will be transmitted to such web 8 substantially to the same extent as if such web extended up to the crown. This conduit 15 should preferably be made of material calculated to resist such pressure and of course be thoroughly non-conductive.

The conduit 15 is centrally hollowed and is open on the side, enabling it to receive the wire 16, which when jumped into its seat is held in place by the flange 17, which extends under and about the flange 14, having the lip 18 fitting snugly against the outside edge of the crown of the rail, so that a trolley suspended from the car will be kept from contact with the crown of the rail by such lip 18. This trolley extends downward from the car outside the rail and has an inward extension adapted to be kept in contact with the wire 16. The corner 19 of the conduit is preferably rounded to keep the seat of the rail well drained.

The crown and the base of the rail are held together by the bolts 20, which are preferably draw-bolts, that extend through the webs 7 and 8 of the base and 11 of the crown. In this manner the crown and base are drawn toward each other as the webs are being clamped together, thus securing the two parts of the rail very tightly together and making them as substantial as a solid simple rail. Of course it is understood that the joints of the crown are not located where the joints of the base are,

but preferably about fifteen feet from such joints, so as to make practically a continuous rail.

From this description, it is seen that we have a rail that is light and yet possessing remarkable strength; that it is practically continuous, and the parts are so arranged that the rail will not be broken by cold; also, the amount of carbon in the base and crown may differ, enabling us to make the crown very hard to resist the pounding of the wheels while the base may be so softened as to resist breakage, thus rendering the breaking of the rail as a whole practically impossible. By making the webs wedge-shaped we render the formation of the parts simpler and cheaper and especially do they fit more tightly together and thus increase the strength of the rail when joined. By the use of the web-support under the base we make a skeleton base that is as strong as the solid base that has heretofore been used. This skeleton base also can be used for conduit purposes for telegraph, telephone, or electric wires in electric-railway systems. The supply-wires can be placed under the base and be thoroughly protected.

It is furthermore apparent that the conduit shown by us is simple and cheap in its construction and yet is located where it is safe and out of danger. The conduit can be

placed in when the parts of the rail are combined and it can be removed merely by removing the bolts 20 without interfering with the base. The wire 18 can be jumped into place and drawn out without removing the conduit or interfering with the rail.

What we claim as our invention, and desire to secure by Letters Patent, is—

A railway rail comprising a base with two upwardly extending webs one of which is shorter than the other, a crown having a downwardly extending web fitting between the two webs from the base and also a downwardly extending flange along the edge of such crown on the same side of the rail as the shorter web from the base, and an electrical conduit resting upon such shorter web and held in place by the downwardly extending flange along the edge of the crown and provided with a side slot, substantially as set forth.

In witness whereof we have hereunto set our hands this 12th day of March, 1895.

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