



(No Model.)

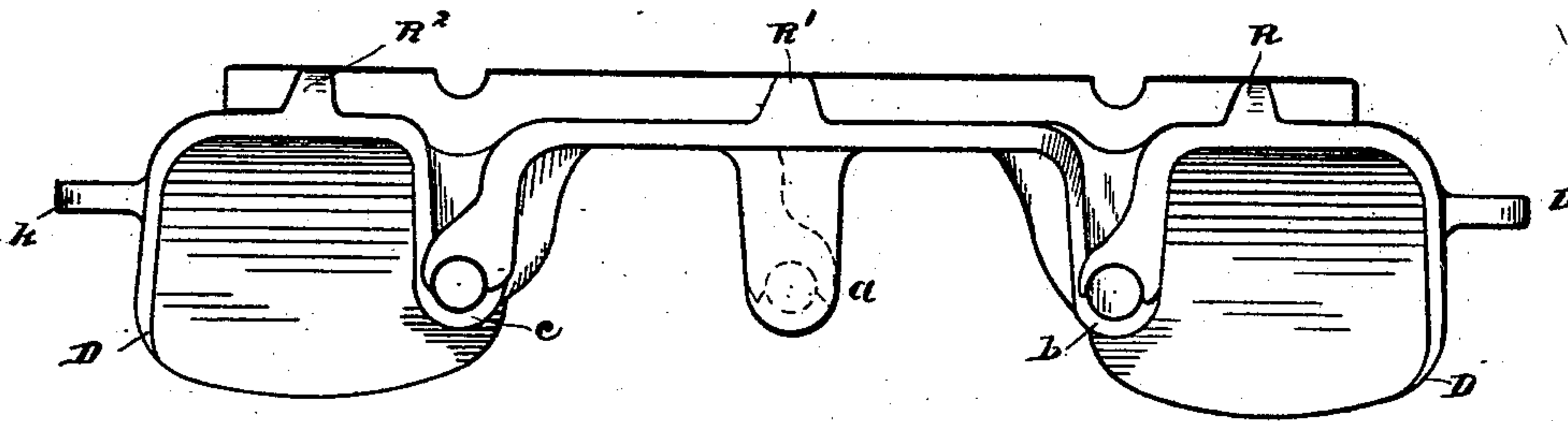
2 Sheets—Sheet 2.

F. M. ZIMMERMAN.  
TROLLEY WIRE SWITCH.

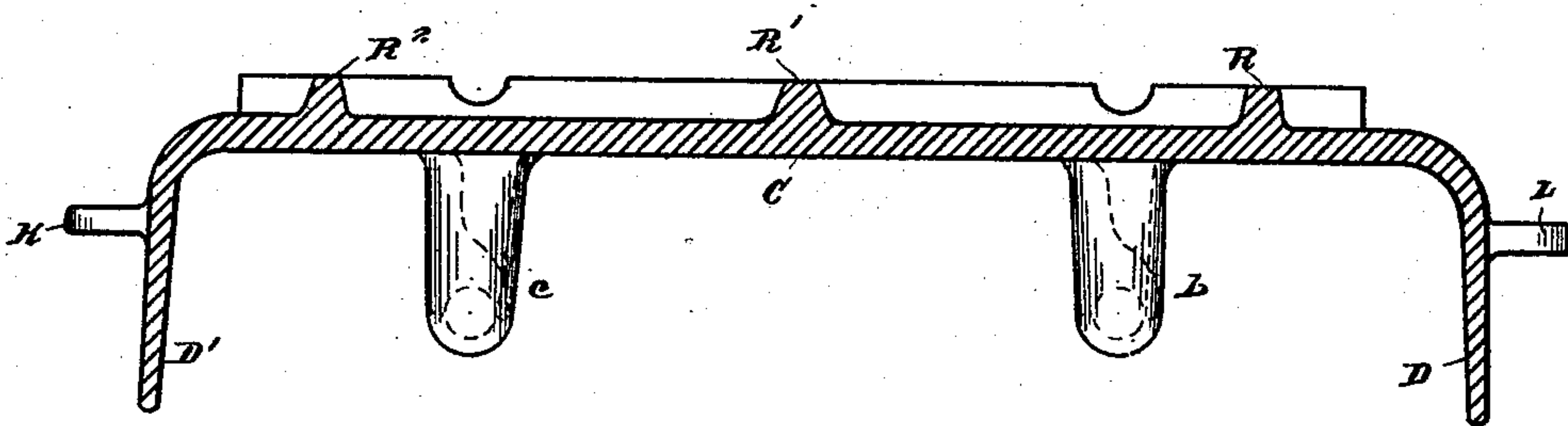
No. 534,592.

Patented Feb. 19, 1895.

*Fig. 3.*



*Fig. 4.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANK M. ZIMMERMAN, OF DETROIT, MICHIGAN.

## TROLLEY-WIRE SWITCH.

SPECIFICATION forming part of Letters Patent No. 534,592, dated February 19, 1895.

Application filed November 2, 1893. Serial No. 489,813. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK M. ZIMMERMAN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Trolley-Wire Switches; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to trolley wire switches, and has for its object an improved form of support for trolley wires, to be used where two trolley line wires branch from a single line wire in connection with the turn-outs or switches in the tracks below.

In the drawings, Figure 1 shows the switch and support in perspective. Fig. 2 is a longitudinal section showing the end approaches over which the wire passes, and especially showing the means of running the trolley smoothly off of the wire onto the switch. Fig. 3 is an end view at the end at which the two wires lead out. Fig. 4 shows a section across the middle of the switch.

The switch is made of electric conducting material of substantially the same character as that of the line wire, the line wire generally being made of copper, and the switch of brass or some similar material slightly harder than copper. At one end of the switch means is furnished for leading in and securing a single wire. At the opposite end means are provided for leading in and securing two wires, the three wires being brought together at a place where their junction will not interfere with the running of the trolley.

The switch consists of a body part A, underneath which at one end is a trolley guide B extending longitudinally along the wire and provided at its outer end with means for securing the wire to it in such a way that the wire cannot move either up or down or sideways. At the opposite end of the switch two similar arms project, and to each of these two arms is secured one of the branch wires. The three arms join the body part of the switch, and between the inner terminals of the two arms springing from one end of the body part, and the one arm springing from

the other end of the body part,—is a tabular or flat part C, on each side of which is a downward extending guard D D'. The ends of the guards D D' overlap the inner ends of the arms *a*, *b*, *c*, and the arms and guards are spaced sidewise sufficiently to permit the trolley wire to run freely off from the arm *a* onto the tabular part C of the body, and off from the tabular part C of the body onto either of the arms *b* or *c*, the direction taken by the trolley being determined by the pressure on the arm supporting the trolley wheel, and this pressure generally being determined automatically by the movement of the car on the switch below.

Each of the arms, *a*, *b*, *c*, is provided at its extreme outer end with a hook, *d*, *e*, *f*, that rests over and presses upon the wire; and between the hook and the body part of the switch is an oblique support *h*, *i*, *j*, upon which the wire rests, and by which the wire is forced upward in a right or bend. The three ends of the wires are brought together above the body part of the switch, and the ends are secured together, and all are secured to the switch piece by means of a clamp E, and appropriate screws or bolts F. The hooks, *d*, *e*, *f*, pressing downward on the wires, and the guide ways *h*, *i*, *j*, lifting the wire abruptly upward, tend to hold the switch and wires very firmly together. The body part of the switch is strengthened longitudinally by ribs R, R', R<sup>2</sup>, and it is supported in its elevated position by a cross wire that is made fast to it at the lugs K, L.

What I claim is—

In a switch for trolley wires, the combination of a tabular body part having its under, tabular, side above the plane of the trolley wire, holding arms *a*, *b*, *c*, each terminating at its outer end with an overlapping hook, and each provided with an upward-leading, wire support between its outer end and the body, and dependent guards D and D', substantially as and for the purposes specified.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANK M. ZIMMERMAN.

Witnesses:

CHARLES F. BURTON,  
MARION A. REEVE.