

(No Model.)

2 Sheets—Sheet 1.

D. M. DE WITT & W. K. ELLIOTT.  
ELECTRIC RAILWAY SYSTEM.

No. 564,054.

Patented July 14, 1896.

FIG 1

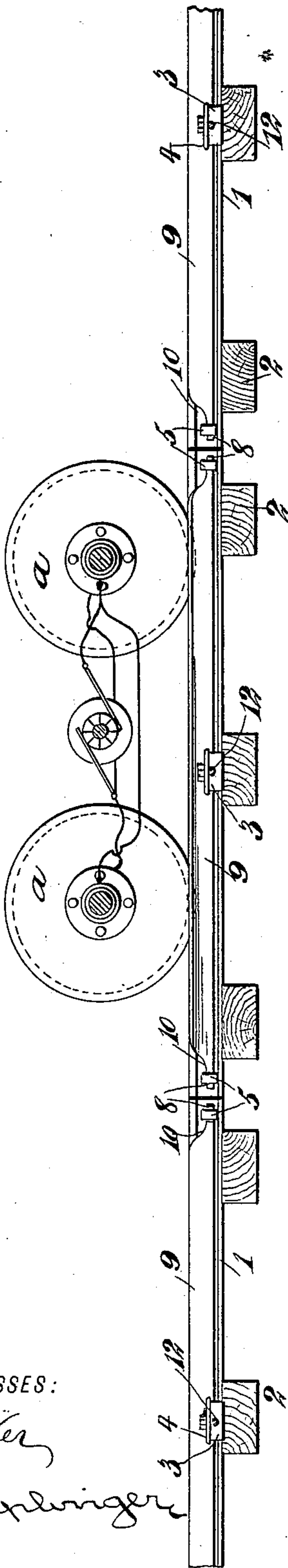
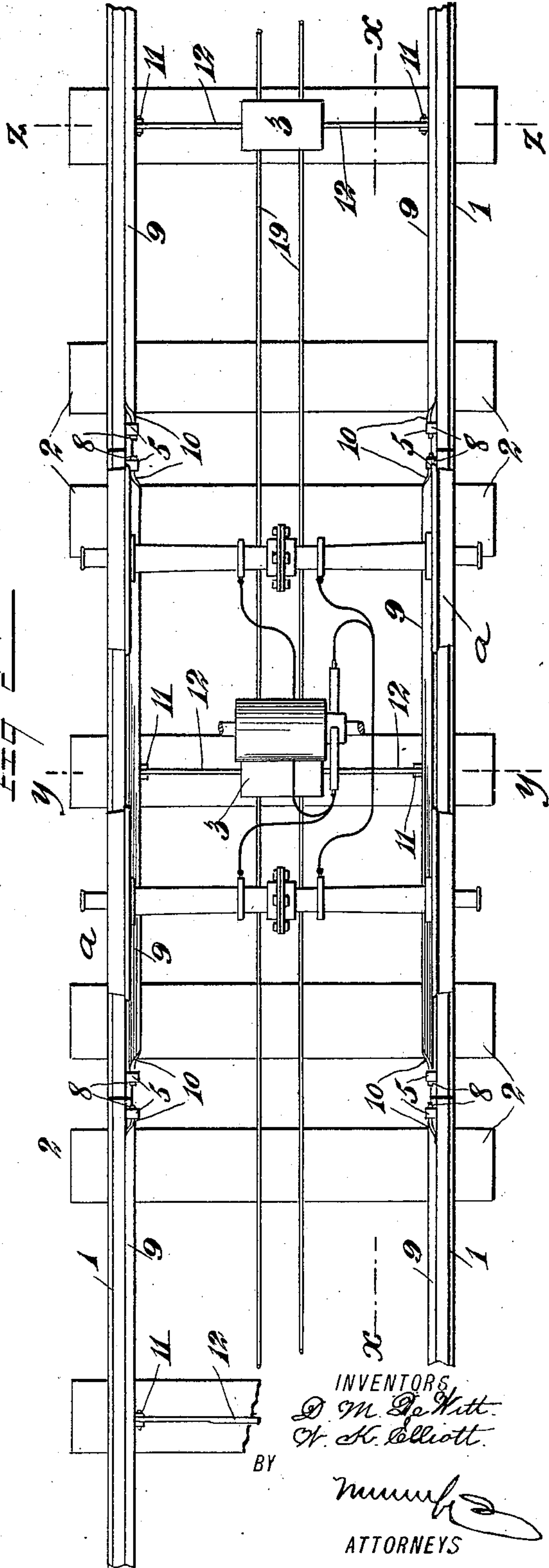


FIG 2



WITNESSES:

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W. K. Elliott.

BY

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ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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Fig 3

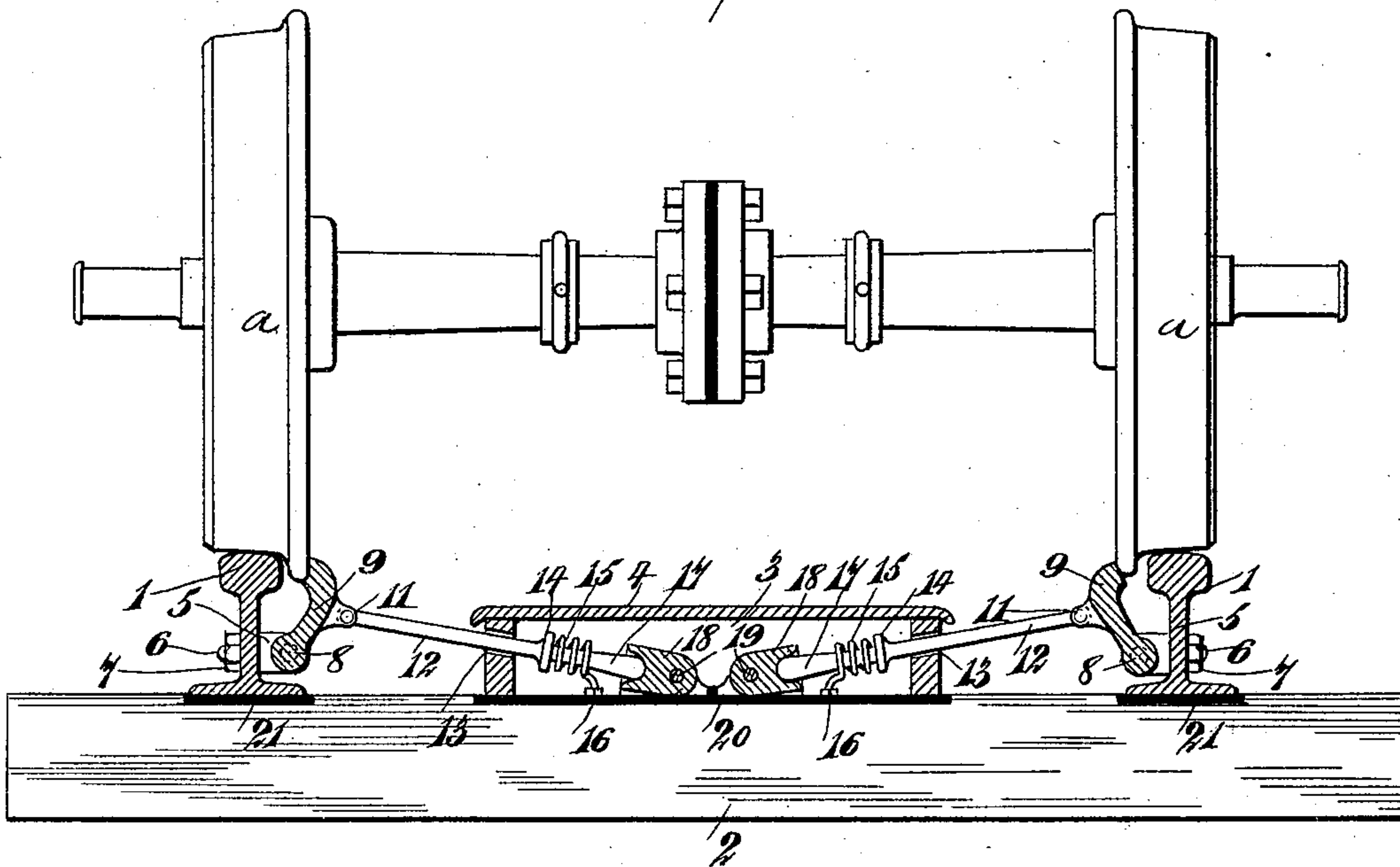
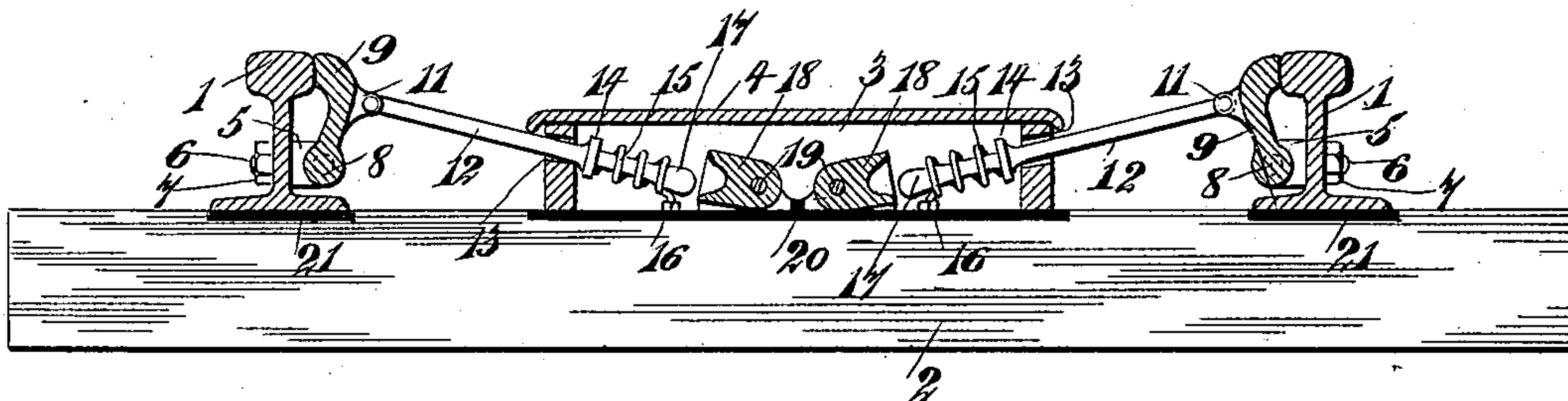


Fig 4



WITNESSES:

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# UNITED STATES PATENT OFFICE.

DAVID M. DE WITT, OF MORRILLTON, AND WILLIAM K. ELLIOTT, OF LITTLE ROCK, ARKANSAS.

## ELECTRIC-RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 564,054, dated July 14, 1896.

Application filed January 29, 1896. Serial No. 577,297. (No model.)

*To all whom it may concern:*

Be it known that we, DAVID M. DE WITT, of Morrillton, in the county of Conway, and WILLIAM K. ELLIOTT, of Little Rock, in the county of Pulaski, State of Arkansas, have invented a new and Improved Electric-Railway System, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in that class of electric-railway systems wherein the line conductors extend along the entire length of the line of track and are inclosed within a suitable conduit, and normally insulated from the track-rails, but are provided with contact devices located at intervals along the line and arranged to be actuated by the moving cars in such a way as to be placed in electrical communication with the lead-wire, whereby the energy for operating the motor of the car is transmitted from the conductor through the motor to the line.

The object of the invention is to provide a system of this general character of a simple and inexpensive construction which shall be strong and durable and provided with contact devices which are not liable to become deranged or broken while in use.

The invention contemplates certain novel features of the construction, combination, and arrangement of the various parts of the improved railway system, whereby certain important advantages are attained and the construction is made more simple and inexpensive, and the system is otherwise better adapted and more convenient for use than various other systems heretofore employed, all as will be hereinafter fully set forth. The novel features of the invention will be carefully defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a section taken longitudinally through a portion of a line of railway constructed in accordance with our invention, the plane of the section being indicated by the line  $x x$  in Fig. 2. Fig. 2 is a plan view showing a portion of a line of railway constructed in accordance with our invention. Fig. 3 is a transverse vertical section taken

through the railway constructed in accordance with our invention in the plane indicated by the line  $y y$  in Fig. 2; and Fig. 4 is a sectional view similar to Fig. 3, but taken in the plane indicated by the line  $z z$  in Fig. 2.

In the views, 1 1 indicate the track-rails, supported in the usual way on ties 2. On certain of the ties 2 are arranged track-boxes 3 of rectangular form, these boxes being suitably spaced apart, as clearly indicated in Figs. 1 and 2, and being provided with close-fitting covers 4. By preference, each track-box will be arranged about centrally between the ends of the rails, as indicated in Figs. 1 and 2, and the opposite ends of the rails on opposite sides of each track-box 3 are provided with inwardly-projecting lugs 5, herein shown as perforated at their inner ends and having screw-shanks 6, which extend through the rails and may serve as means for attaching fish-plates at the joints between the rails, as will be readily understood, said screw-threaded shanks being provided on their outer ends with nuts 7, as clearly indicated in Figs. 3 and 4.

In the lugs 5 at opposite ends of each rail are pivotally mounted rounded extensions or pivot-pins 8, projecting from the ends of contact-rails 9, herein shown as of flattened form having upper portions which extend closely adjacent to the treads of the rails 1, and are provided at their central portions opposite the centrally-arranged track-boxes 3 with inwardly-projecting lugs 11, arranged in pairs and perforated, between which lugs 11 are pivoted the opposite ends of links 12, which extend inwardly through openings 13, formed in the opposite sides of the track-boxes 3, and are provided inside said boxes with collars or enlargements 14, against which abut springs 15, secured, as indicated at 16 in Figs. 3 and 4, to the bottom of the track-boxes and arranged to hold the track-rails 9 normally pressed against the inner sides of the treads of the rails 1, as seen in Fig. 4.

The inner ends 17 of the links 12 are rounded, as clearly seen in Figs. 3 and 4, and are arranged to engage when the contact-rails are pressed laterally by engagement with the car-wheels  $a$ , as seen in Fig. 3, sockets formed in the outer sides of contact-blocks 18,



electrically connected with the line conductors or lead and return wires 19, which extend longitudinally of the track and through the respective track-boxes 3, as shown in the drawings. The track-boxes 3 will be by preference mounted on plates 20 of insulating material, and the conductors 19 will also be insulated at points between the track-boxes, while the track-rails 1 will also be mounted on plates 21 of insulated material, so that leakage of the current will be reduced to a minimum.

In operation as the motor-car passes along the line of railway the flanges of the wheels thereof will engage the ends of the contact-rails 9, said ends being beveled off, as indicated in Fig. 2, so that the wheel-flanges may engage between them and the track-rails and press them away from said rails. When the contact-rails are pressed away from the track-rails, the links 12 are moved longitudinally to place their ends in electrical contact with the contact-blocks 18, whereby the current will flow from one of the conductors 19 through the contact-rail which is connected thereto, and thence through the motor-circuit of the car, back to the other contact-rail 1, and thence through the link 12 to the other conductor 19.

From the above description it will be seen that the improved system is of an extremely simple and inexpensive construction, and is not liable to become deranged or broken while in use, and it will also be obvious from the above description that the invention is susceptible of considerable modification without material departure from its principles and spirit, and for this reason we do not wish to be understood as limiting ourselves to the specific construction of the parts herein set forth.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In an electric-railway system, the combination with track-rails, a track-box, and a conductor extending through the box and provided with a contact in the said box, of a contact-rail pivoted at its lower edge adjacent to one track-rail, and a spring-pressed link having one end pivoted to the contact-rail and its other end projecting into the track-box and adapted to engage the said contact when the contact-rail is swung upon its pivot, substantially as described.

2. In an electric-railway system, the combination with track-rails, a track-box, and a conductor extending through the box and provided with a contact in said box, of a contact-

rail pivoted at its lower edge adjacent to one of the track-rails and adapted to engage with its upper edge the said track-rail, a link having one end pivoted to the outer face of the contact-rail and its other end projecting into the track-box and adapted to engage the contact of the conductor, and a spring surrounding the link in the track-box and normally holding the link out of engagement with the said contact, substantially as described.

3. In an electric-railway system, the combination of track-rails, a conductor extending along the rails, lugs secured to one of the rails, a contact-rail having a flattened form and provided with rounded end portions pivotally mounted in said lugs, a track-box adjacent to the contact-rail, a contact-block therein and connected electrically to the conductor, and a link pivotally connected to the contact-rail and extending into the track-box in position to contact electrically with the contact-block therein when the contact-rail is moved, substantially as set forth.

4. In an electric-railway system, the combination of track-rails, a conductor extending along the same, lugs secured to one rail, a flattened contact-rail having rounded end portions pivoted in said lugs, a track-box adjacent to the contact-rail, a contact-block therein electrically connected to the conductor, a link pivotally connected to the contact-rail and arranged to engage the contact-block in the track-box when the contact-rail is moved, and a spring in said track-box connected to the link and arranged to hold the contact-rail normally pressed against the track-rail, substantially as set forth.

5. In an electric-railway system, the combination with track-rails, a track-box arranged between the track-rails, and lead and return wires passing through said box, of contacts in the track-box and connected with the lead and return wires, said contacts having sockets in their outer sides, a contact-rail pivoted at its lower edge adjacent to each track-rail, links, each having one end pivoted to the outer surface of a contact-rail and its other end projecting into the track-box and adapted to enter the sockets of said contacts, and springs surrounding the links in the track-box and normally holding them out of engagement with the said contacts, substantially as described.

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Witnesses:

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