

No. 677,741.

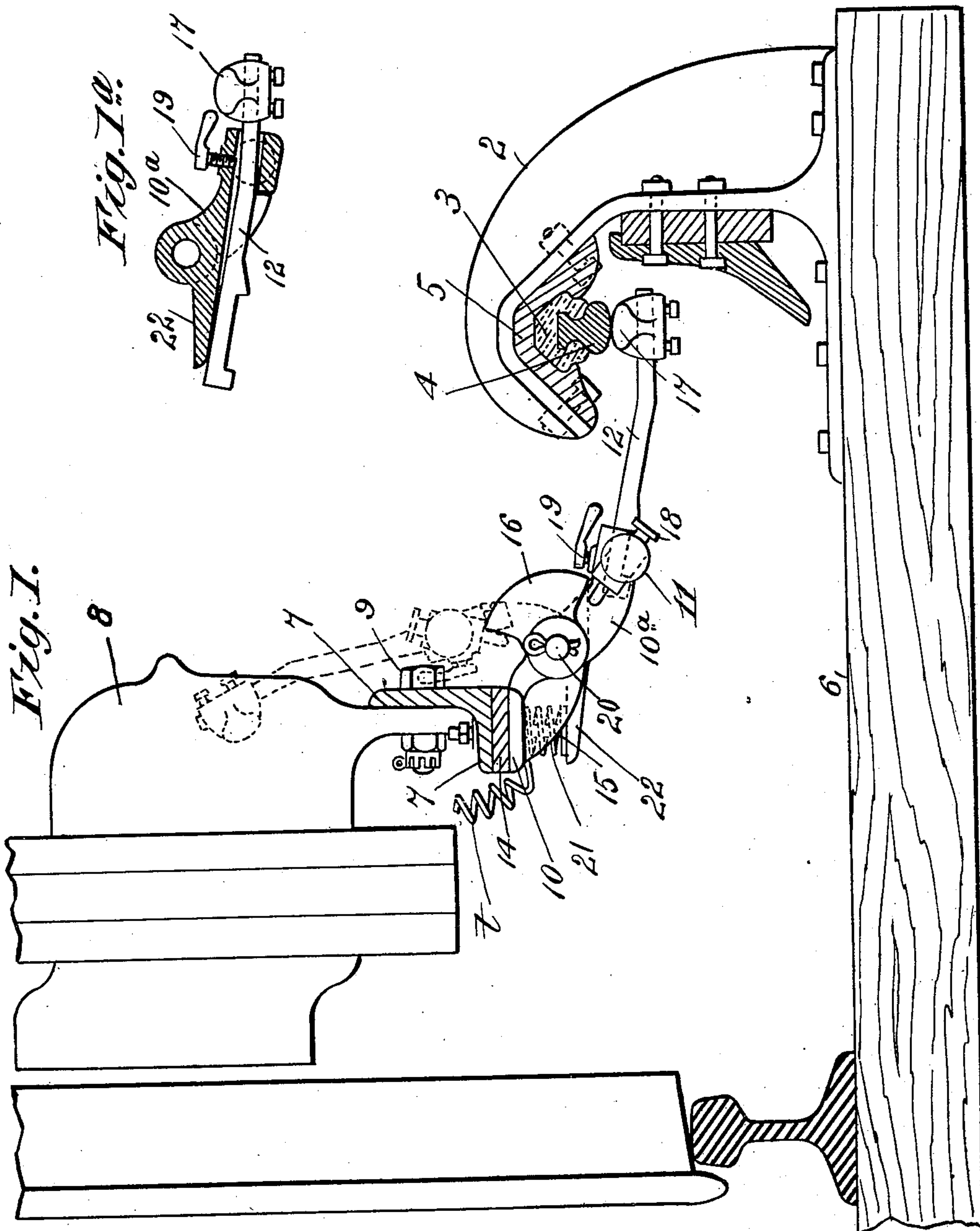
Patented July 2, 1901.

H. C. HASTINGS & L. E. WALKINS.
MEANS FOR SUPPORTING AND MANIPULATING CONTACT SHOES OF ELECTRICALLY
PROPELLED RAILWAY CARS.

(Application filed Feb. 21, 1901.)

2 Sheets—Sheet 1.

(No Model.)



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2 Sheets—Sheet 2:

Fig. 2.

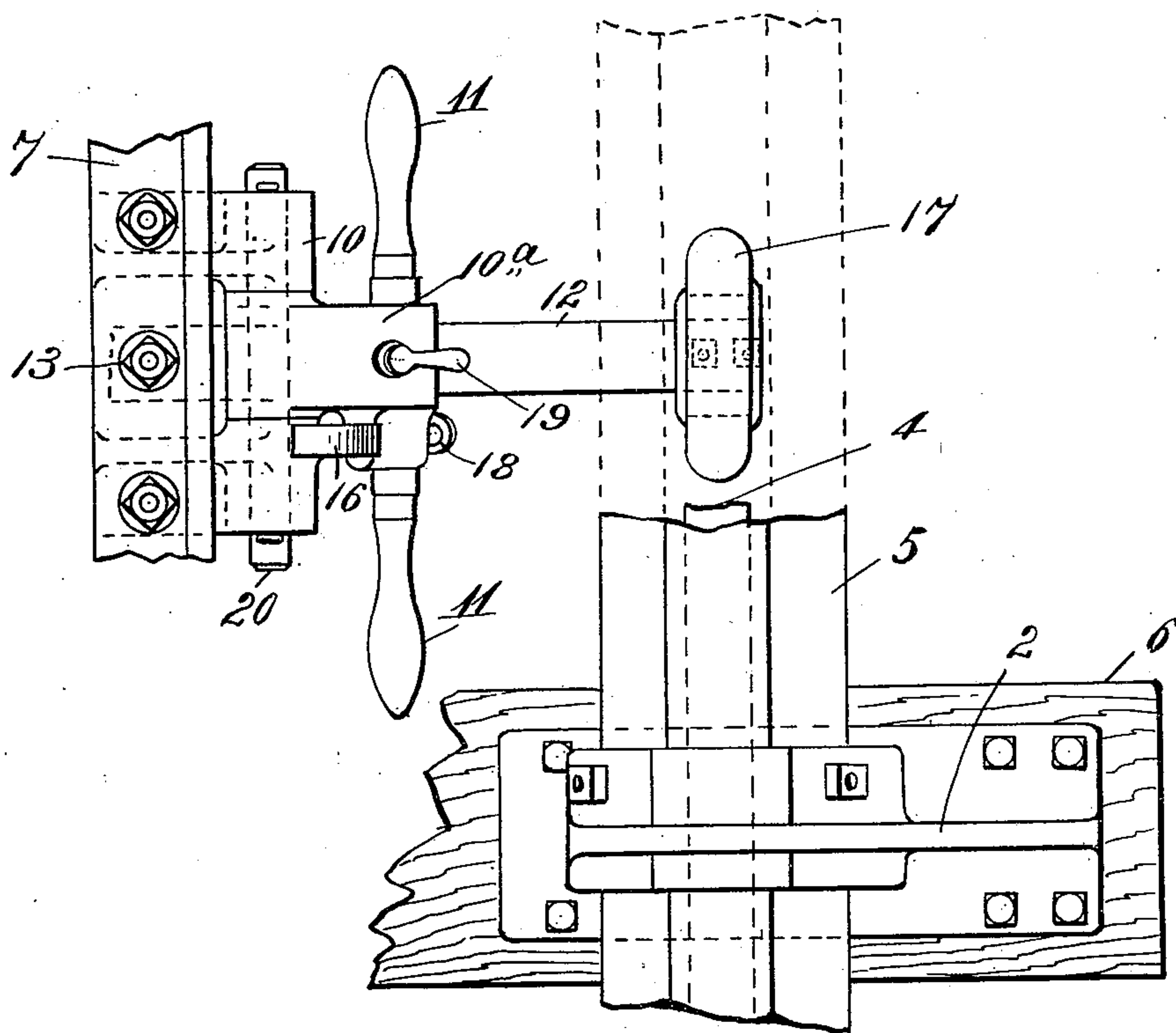
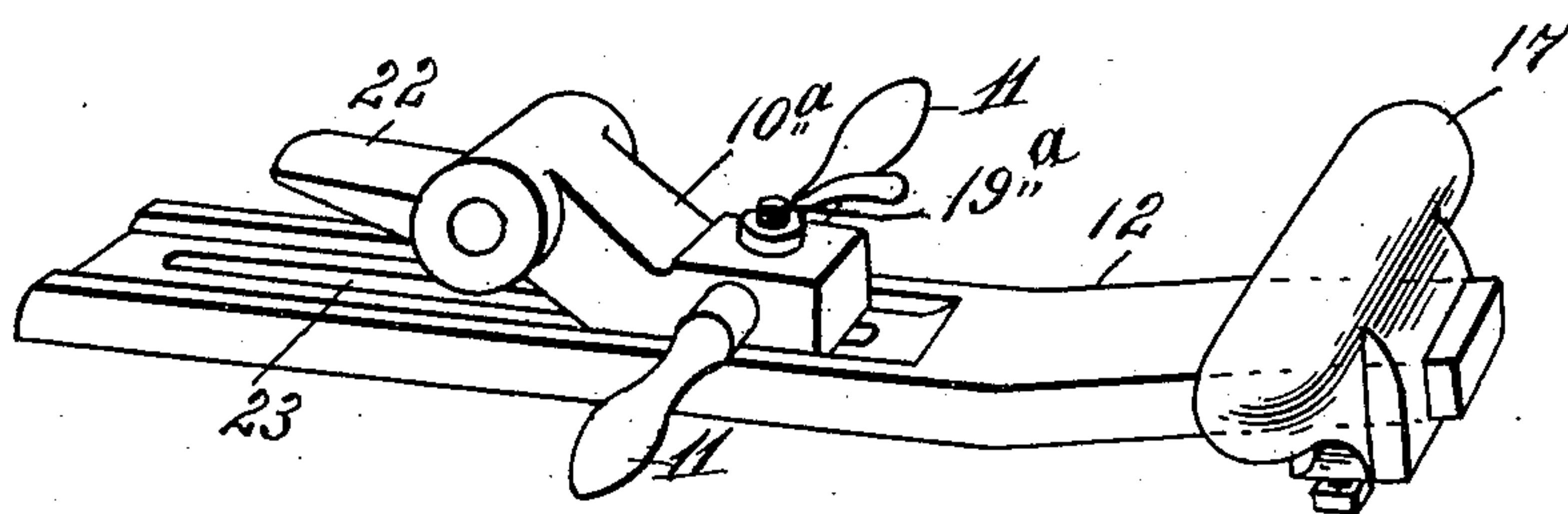


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MEANS FOR SUPPORTING AND MANIPULATING CONTACT-SHOES OF ELECTRICALLY-PROPELLED RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 677,741, dated July 2, 1901.

Application filed February 21, 1901. Serial No. 48,224. (No model.)

To all whom it may concern:

Be it known that we, HERBERT C. HASTINGS and LOUIS E. WALKINS, citizens of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented, jointly, new and useful Improvements in Means for Supporting and Manipulating the Contact-Shoes of Electrically-Propelled Railway-Cars, of which the following is a specification.

This invention relates to third-rail-railroad systems, and pertains to connections between a car of such a system and the third rail thereof, the object being to provide an improved construction of shoe-supporting devices between said car and the third rail whereby the manipulation of the shoe for connecting the same with and disconnecting the shoe from the third rail is greatly facilitated and for disposing of said shoe and its supporting devices conveniently against the side of the car when not in contact with the third rail; and the invention consists in the peculiar construction and arrangement of the shoe-supporting arm and the connections of the latter carried on a car and means for locking said arm and shoe in operative position and for unlocking the same, whereby they are removed from under and away from the third rail in substantially the plane of the contact-surface thereof and disposed of as aforesaid.

In the drawings forming part of this specification, Figure 1 is a side elevation showing a portion of a car-wheel, a section of a rail thereunder, a car-axle box in side elevation, shoe-supporting devices, and a shoe thereon connected indirectly with said axle-box. This figure also illustrates a third-rail-supporting bracket, showing said rail in section supported thereunder, said bracket being shown in side elevation, the position of the said shoe and shoe-supporting devices when disconnected from the third rail being indicated in this figure in dotted lines. Fig. 1^a is a sectional view of the shoe-arm support of Fig. 1, a side elevation of said arm therein, and an end view of the shoe on said arm. Fig. 2 is a plan view of the shoe, the shoe-carrying devices, and the connection between a section of a tie-bar extending in practice between the

axle-boxes of a car-truck and of a portion of the third rail and the superposed cover thereover and of the supporting-bracket thereof and the sleeper on which said bracket is supported. Fig. 3 is a perspective view of a modified construction of the shoe-supporting arm and its connection for attachment to a car and illustrates the position of the shoe thereon.

Referring to the drawings, 2 indicates the bracket forming the support of the third rail 4 of the railroad system herein referred to. Said third rail is shown in position under the curved extremity of said bracket, and a part of said rail is also shown in Fig. 2. 5 indicates an inverted trough-like covering of sheet metal, preferably attached to said bracket 2 by bolts, as indicated in Fig. 1. In said Fig. 1, 7 indicates the usual tie-bar, which extends between the pedestals of the axle-boxes 8 of a car-truck, and is shown in this figure as bolted to the lower portion of the axle-box by the requisite number of bolts 9. Hinge-brackets 10 for the shoe-arm carrier 10^a are bolted by bolts 13 to said tie-bar 7, and said carrier 10^a is attached to said hinge-bracket 10 by the pintle 20. Extending in opposite directions from the sides of said shoe-arm carrier 10^a are handles 11, which in practice are covered with suitable insulating material; and said handle serves for swinging the shoe-arm 12 and the shoe 17 thereon upwardly, as indicated in dotted lines in Fig. 1, and for returning the shoe 17 to a downward position when to be again connected with the third rail 4. Said shoe is bolted to the arm 12 in the manner illustrated. On said hinge-bracket 10 is a fixed segment 16, which serves in connection with a bolt 18 to hold the said shoe-arm carrier 10^a in different positions, as described below. This bolt 18, one end of which (when the shoe and the arm are in the positions shown in Fig. 1 for operative action with the third rail 4) has its upper extremity reaching under the lower edge of said segment 16, thereby holds that arm from upward movement when the shoe 17 and its arm 12 are moved toward the car to disconnect the two from the third rail. Upon moving the shoe, as last described, the set-screw 19, having a wrench-

handle fixed thereon, as shown, is turned to free said arm from said carrier 10^a and to permit the arm and the shoe to be moved away from said third rail 4 rearwardly, more or less, as illustrated in Fig. 1^a, thereby bringing said shoe 17 and its arm 12 to a position free from the said third rail, which permits them to be swung upwardly, as aforesaid. A rearwardly-extending arm 22 is provided on said shoe-arm carrier 10^a, which arm 22 extends under the part of said hinge-bracket 10, as shown in Fig. 1, and between said arm 22 and said hinge part 10 is a spiral spring 21, which acts normally to swing the third-rail contact-shoe 17 against the third rail, thereby holding said shoe in proper electric contact therewith. For the purpose of holding said spring in position on said arm 22 a bolt 15, having a head on its lower end, resting on the upper side of said last-named arm, has a shank passing upwardly through said spring 21 and through the parts beneath the tie-bar 7 and through the flange of the latter, as shown, and has a nut thereon, as shown, near its upper end, which prevents said spring and bolt from displacement when the arm 22 shall be swung downwardly from under said spring in carrying the shoe-supporting parts upward to the position indicated, as aforesaid, in Fig. 1.

14 indicates suitable insulating material between said tie-bar 7 and the part of said hinge-bracket 10 which is held under said tie-bar, as before described.

35 An electric connection *t* is shown in Fig. 1, which forms part of a line between any suitable source of electricity and the arm 12 and its shoe 17 and the devices supporting said arm. Said arm may have suitable insulating material applied to that part of the same which is grasped for moving the same within the arm-carrier 10^a. The handle of the set-screw 19 and the head of the bolt 18 are in practice protected by insulating-covering also.

45 The operation of the above-described shoe-supporting devices in separating said shoe from the third rail 4 and removing it from under the same and for replacing the shoe in operative position under said third rail, as in Fig. 1, is as follows: The set-screw 19 is unscrewed, thereby leaving the shoe-arm 12 thereunder free to be moved, together with the shoe 17, from under said third rail toward the axle-box 8, and then by drawing the bolt 18, so that its inner extremity shall be beyond the periphery of the outer border of the segment 16, said arm and shoe may be swung upwardly to the positions indicated substantially by the dotted lines in Fig. 1, said bolt 18 when said arm and shoe are in said upward position becoming automatically engaged by one end with the upper edge of said segment 16, thereby holding said part in the upward position referred to. To replace said shoe beneath and in contact with the third rail 4, the said bolt 18 is withdrawn from engagement with said segment 16, the shoe-arm

12 is carried sufficiently far into the shoe-arm carrier 10^a to allow the end thereof to swing downwardly clear of the side of the bracket 2, which adjoins the car, and the last movement is followed by drawing the shoe-arm 12 out from its carrier sufficiently to bring said shoe to the position under the third rail 4, (indicated in Fig. 1,) after which said set-screw 19 is screwed again against the arm 12, thereby locking the latter to the shoe-arm carrier and holding the parts in operative position for proper electric connection between the car and said third rail. It is obvious that by the described retirement of the said shoe from under the third rail toward the car such a complete separation of said shoe and rail is effected as leaves the car free from electromotor action without swinging the shoe upward, as aforesaid.

The modified construction shown in Fig. 3 provides for the connection of the shoe-arm there shown and indicated by 12 with the under side of the carrier 10^a by said set-screw 19, the under side of said shoe-arm carrier in this instance being received in a groove on the upper face of said shoe-arm 12, whereby the shoe-carrying end of said arm is held against lateral motion, but may slide under said shoe-arm carrier back and forth, as above described, for changing the position of said shoe relative to the third rail 4, as above set forth. The said shoe-arm carrier and arm in this instance are locked together by a bolt 19^a, passing upwardly through a slot 23 in said shoe-arm 12 and through the end of said shoe-arm carrier 10^a and there secured by a nut on which is a handle, as shown. For the purpose of conveniently shifting the position of said shoe 17, as above described, expeditiously it is preferred that the nut shown in Fig. 3 on the bolt 19^a, which locks the two parts there shown together, shall have a permanent handle thereon, which is permanently in position for use.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In an electric-railway system comprising a suspended third rail, presenting its under surface for shoe-contact, a shoe for electrical contact with said under surface of said rail, and means connecting said shoe with a car, whereby said shoe is maintained in operative contact with said under rail-surface, and means whereby the same may be moved horizontally from under said rail toward said car, and thence upward against the side of the car, and means for temporarily securing the shoe and the connected supports thereof in said upward position, substantially as described.

2. In an electric-railway system, comprising a suspended third rail, a shoe for electrical contact with the under side of said rail, a shoe-arm carrier pivotally connected to the side of a car for vertically-swinging movements, an arm to which said shoe is attached having a sliding connection with said carrier,

whereby said shoe is moved in substantially a right line from said car to a contact position under said rail and is withdrawn therefrom, and means for locking said arm and shoe in
5 either of said two positions, substantially as described.

3. In an electric-railway system of the class described, an arm carrying the contact-shoe of the third rail, a swinging arm-carrier piv-
10 otally connected to the side of a car, means for slidably connecting said arm and carrier, a segmental projection on a fixed part of said pivot connections adjoining the car, and a
15 sliding bolt on said carrier engaging said projection and retaining said carrier, supporting-arm, and shoe, in upwardly or downwardly swung positions, substantially as described.

4. In an electric-railway system comprising a suspended third rail, a shoe for electrical contact with the under side of said rail, and
20 means connecting said shoe with a car whereby said shoe is maintained in operative contact with said rail, and whereby the same may be moved from under said rail and swung
25 upward to a position opposite the side of said car, and means whereby said shoe may be supported in said removed position, substantially as described.

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