

No. 671,515.

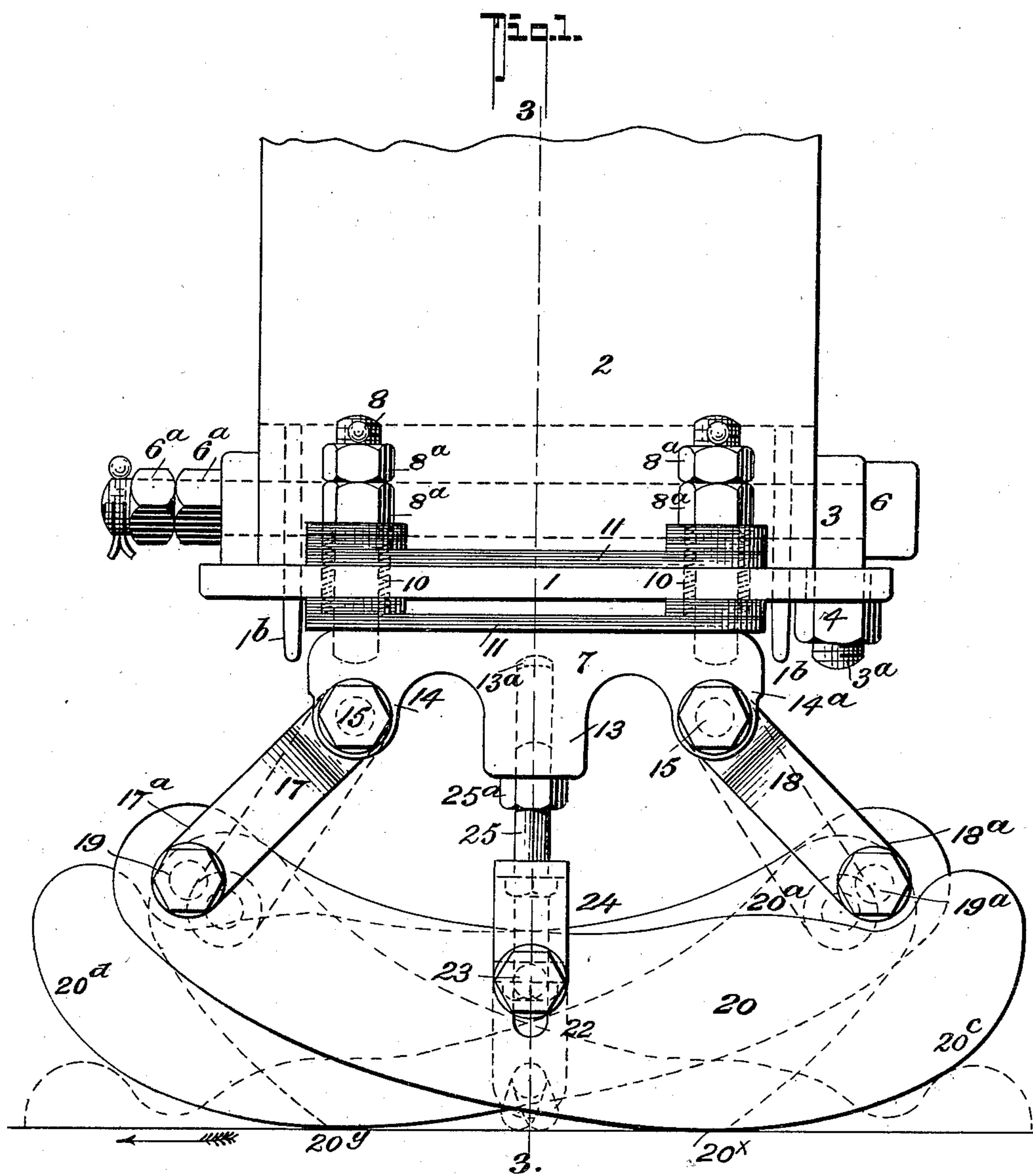
Patented Apr. 9, 1901.

G. T. HANCHETT & J. McL. MURPHY.
CONTACT SHOE FOR ELECTRIC RAILWAYS.

(No Model.)

(Application filed July 27, 1900.)

2 Sheets—Sheet 1.



WITNESSES:
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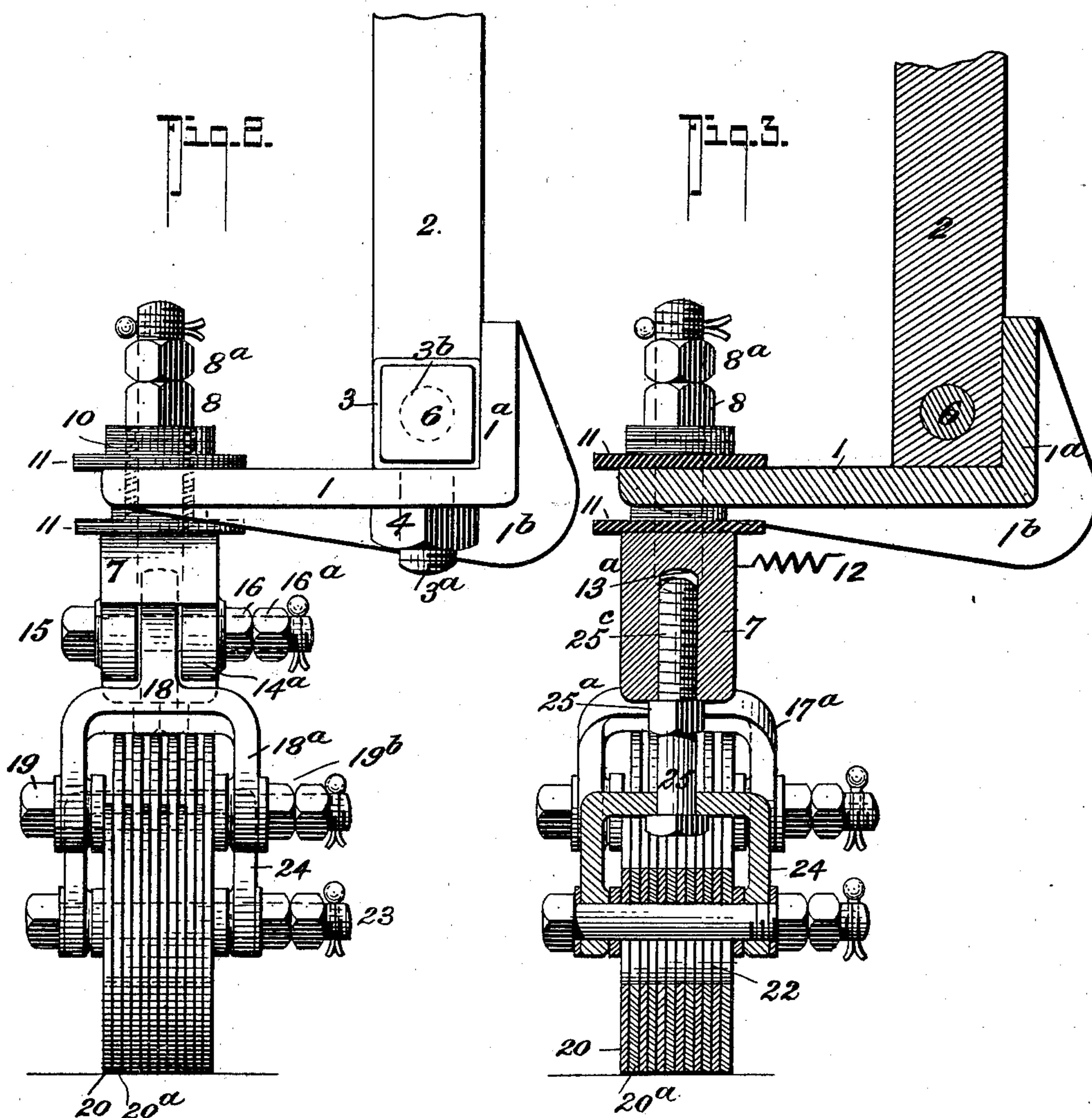
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UNITED STATES PATENT OFFICE.

GEORGE T. HANCHETT, OF HACKENSACK, NEW JERSEY, AND JOHN McLEOD MURPHY, OF TORRINGTON, CONNECTICUT, ASSIGNORS TO THE MURPHY SAFETY THIRD RAIL ELECTRIC COMPANY, OF NEW YORK, N. Y.

CONTACT-SHOE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 671,515, dated April 9, 1901.

Application filed July 27, 1900. Serial No. 25,034. (No model.)

To all whom it may concern:

Be it known that we, GEORGE T. HANCHETT, of Hackensack, in the county of Bergen and State of New Jersey, and JOHN McLEOD MURPHY, of Torrington, in the county of Litchfield and State of Connecticut, have invented a new and Improved Contact-Shoe for Electric Railways, of which the following is a specification.

10 This invention relates to improvements in that type of trolley or current pick-up devices more particularly intended for use on sectional-conductor or third-rail electric-railway systems; and it more particularly refers to
15 improvements on the contact-shoe devices disclosed in the copending application of John McLeod Murphy, Serial No. 717,809, filed May 22, 1899.

20 The present invention consists in certain improved features of construction and novel arrangement of parts, all of which will hereinafter be fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in
25 which—

Figure 1 is a side elevation of our improvement, the adjustability of the drag-plates after having been worn being shown in dotted lines. Fig. 2 is an end elevation of the same.
30 Fig. 3 is a vertical cross-section on the line 3 3 of Fig. 1.

In the Murphy contact-shoe, described in the other application referred to, a plurality of transversely-arranged pick-up or contact
35 members is provided and each of the said pick-up members is vertically movable independent of the others, the whole being arranged to swing in a longitudinal plane. Our present invention embodies generally the
40 same principle of construction; but instead of each contact-plate being supported at its opposite ends upon a transverse member or shaft, as is the case in the Murphy shoe before referred to, the contact-plates in the
45 present arrangement are each pivotally hung at one end only, the said plates constituting the entire series being, however, alternately hung from the supporting-frame—that is, one plate is pivotally supported at one end, and

the next or adjacent plate is pivotally hung 50 at the opposite end adjacent the pivotal end of the first plate, adjustable devices being also provided, whereby the entire series of plates as their contacting surfaces become worn can be set so as to properly engage 55 with the conductor-rail or other current-transmitting means.

Our present invention also comprehends a novel means for suspending the several shoe or contact plates in such manner as to effect 60 an easy, positive, and uniform contact-making of the shoe over irregular rail-surfaces and also to maintain at all times a perfect contact-making between the pick-up devices and the conductor-rail. 65

In the practical construction of our improved pick-up or contact-making shoe the drag-plates are pendently supported from a hanger-frame, the peculiar construction of which also forms a feature of this invention. 70

The hanger-frame consists of a horizontally-disposed longitudinally-extending base member 1, having an upturned right-angled extension 1^a and a series of strengthening-ribs 1^b. This frame 1 is supported upon a hanger 75 2, projected down from the car-body in any suitable manner, the said frame 1 being firmly attached to the said hanger 2 by two eyebolts 3, one at each end, the shanks 3^a of which extend down from the base 1 to receive the
80 securing-nuts 4, while the eye portions 3^b thereof form end bearings for the holding-bolt 6, which also extends through the lower end of the hanger 2 and is held secure by the lock and jam nuts 6^a 6^a, as shown. 85

7 designates a hanger U-shaped in cross-section (see Figs. 2 and 3) and extending lengthwise of the frame 1, it being pendently hung therefrom, as best shown in Fig. 1, by reference to which it will be noticed that the 90 said hanger 7 is hung on screw-bolts 8, that pass up from the base 1 and which are held fast by the lock and jam nuts 8^a 8^a.

In practice the hanger 7 is insulated from the remainder of the frame or supporting 95 means, and for such purpose the bolts 8 pass through insulated washers 10, insulated plates 11 being also used to cut out the hanger 7

from the frame. The take-off wire 12 is joined to the drag-plates in any approved manner.

13 indicates a hub portion projected downwardly from the center of the hanger 7, of which it forms a part, and such hub portion has a vertical threaded bore 13^a, the purpose of which will presently be explained.

The forward and rear ends of the hanger 7 have pendent apertured lugs 14 14^a, and in each of the lugs 14 14^a is mounted a stud-bolt 15, held fast by the lock and jam nuts 16.

17 indicates a link member pivotally hung on the front bolt 15, and 18 indicates a similar link member hung upon the rear bolt 15. Each link member 17 and 18 has its lower end terminating in a bifurcated hanger 17^a 18^a, having a width greater than that of the combined width of the entire series of rail-contacting or drag plates 20 20^a, and in the lower ends of the bifurcated hangers 17^a 18^a is mounted a stud-bolt 19 19^a, held secure by the jam and lock nuts 19^b.

By referring now more particularly to Fig. 1 it will be noticed that the plates 20 20^a have their drag-faces curved from their pivoted ends downwardly, the curved lines being gradual, and when said plates are in their rail-engaging points they lie beyond the central line of the hanger-plates, the plates 20 having their drag-surfaces 20^x at a point to the rear of the center, assuming the shoe to be traveling in the direction indicated by the arrow, while the plates 20^a have their bearing-surfaces 20^y in advance of the central line of the shoe. The free end of each of the plates 20 20^a terminates in an upwardly-curved heel 20^c 20^d, the purpose of which is to provide for a free drag of the shoe when the car is moving without danger of wedging the plates 20 20^a. The plates 20 20^a each have a central vertically-elongated slot 22, and through one of the slots 22 passes a bolt 23, the opposite ends of which pass through the bifurcated or pendent members 24^a of the U-shaped hanger 24, supported from the central pendent portion 13 on the U-shaped support 12, and the said hanger 24 is held for vertical adjustment by a screw-bolt 25, that passes through the said hanger and has a head 25^b, which engages the under side thereof, as clearly shown in Fig. 1. The bolt 25 also has a wrench flange or nut 25^a for adjusting the threaded end 25^c of the bolt, which passes up into and engages the threaded socket 13^a of the housing 12.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the operation and advantages of our improved trolley or pick-up shoe will be readily understood.

By suspending each of the plates 20 20^a upon one end only and providing means for holding them from lateral motion without interfering with their vertical swing and placing the said plates alternately—that is, pivoting one at one end of the appliance and the

other at the opposite end thereof—we are enabled to secure a contacting surface which will positively prevent any danger of the contact between the conductor-rail and the pick-up shoe being broken, as each shoe has movement independent of the other, and by reason of one end of the said shoe being free the said end will always gravitate toward the rail and positively ride over any obstructions. Furthermore, by arranging the several plates in the manner shown, particularly providing for vertical adjustment thereof through the media of the hanger 24 and the adjusting-screw 25, the said plates can be readily adjusted as their surfaces become worn to engage with the surface-contact rail.

The aforesaid construction has one great advantage for the reason that the more the plates 20 20^a become worn the greater will become their contacting surface, as will be clearly understood by the dotted positions of the plates 20 20^a, said dotted positions indicating the said plates after they have been worn nearly to the limit. By providing each plate with a vertically-elongated slot 22 the said plates will have perfect free vertical movement and also will allow for a limited longitudinal motion of the said plates, and thereby provide for their dragging over stone, ice, and other irregular obstructions which may be upon the rail. Another and much-desired advantage is that the loose joints and rattle of the plates in the form of contact-shoe referred to in the copending application hereinbefore mentioned are avoided.

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

1. A current-collector comprising a hanger, a plurality of contacting plates, disposed in a longitudinal plane, one plate having a pivotal connection at one end only from the front end of the hanger, said connection including a link member 17, the next plate being similarly pivoted to the rear end of the hanger, substantially as shown and described.

2. A current-collector comprising a hanger, a series of parallel longitudinally-extending contacting plates, said plates being each pivotally supported at one end only, the free end of the alternate plates extending in opposite directions, said free ends terminating in up-turned surfaces, all of the said plates having a longitudinal movement, and means for limiting such longitudinal movement of the plates, substantially as shown and described.

3. A current-collector comprising a series of longitudinally-projecting contacting members whose contact-surfaces are curved upwardly toward both ends, each plate being pivotally supported at one end only on the hanger-frame, the free ends of each alternate set of plates extending in opposite directions, said plates each having independent vertical movement, and means for holding the entire set of plates from moving laterally.

4. A current-collector comprising a suitable

hanger-frame including a laterally-projecting
base member, a longitudinally-extending sup-
port suspended from the base member, a link
member pivotally connected to each end of
5 the said support, a drag-plate pivotally hung
at one end on one link member, its free end
extending in the direction of the other link
member, a second drag-plate disposed paral-
10 lel with the first drag-plate pivotally hung
from the other link member and having its
free end extending in the direction of the first
link member, as specified.

5. The combination with the hanger and
the longitudinally-disposed supporting mem-
15 ber 12, having a central pendent portion pro-
vided with a threaded socket, the bifurcated

link members 17 18 suspended upon the said
member 12, the plates 20 pivotally hung in the
lower end of the link member 17, the plates
20^a, pivotally hung in the lower end of the link 20
member 18, said plates having vertical elon-
gated slots 22, the U-shaped hanger 24, the
rod 23, supported in the hanger and extended
through the slots 22 of the plates 20 20^a, and
the threaded adjusting-bolt 25, all being ar- 25
ranged substantially as shown and for the pur-
poses described.

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Witnesses:

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