

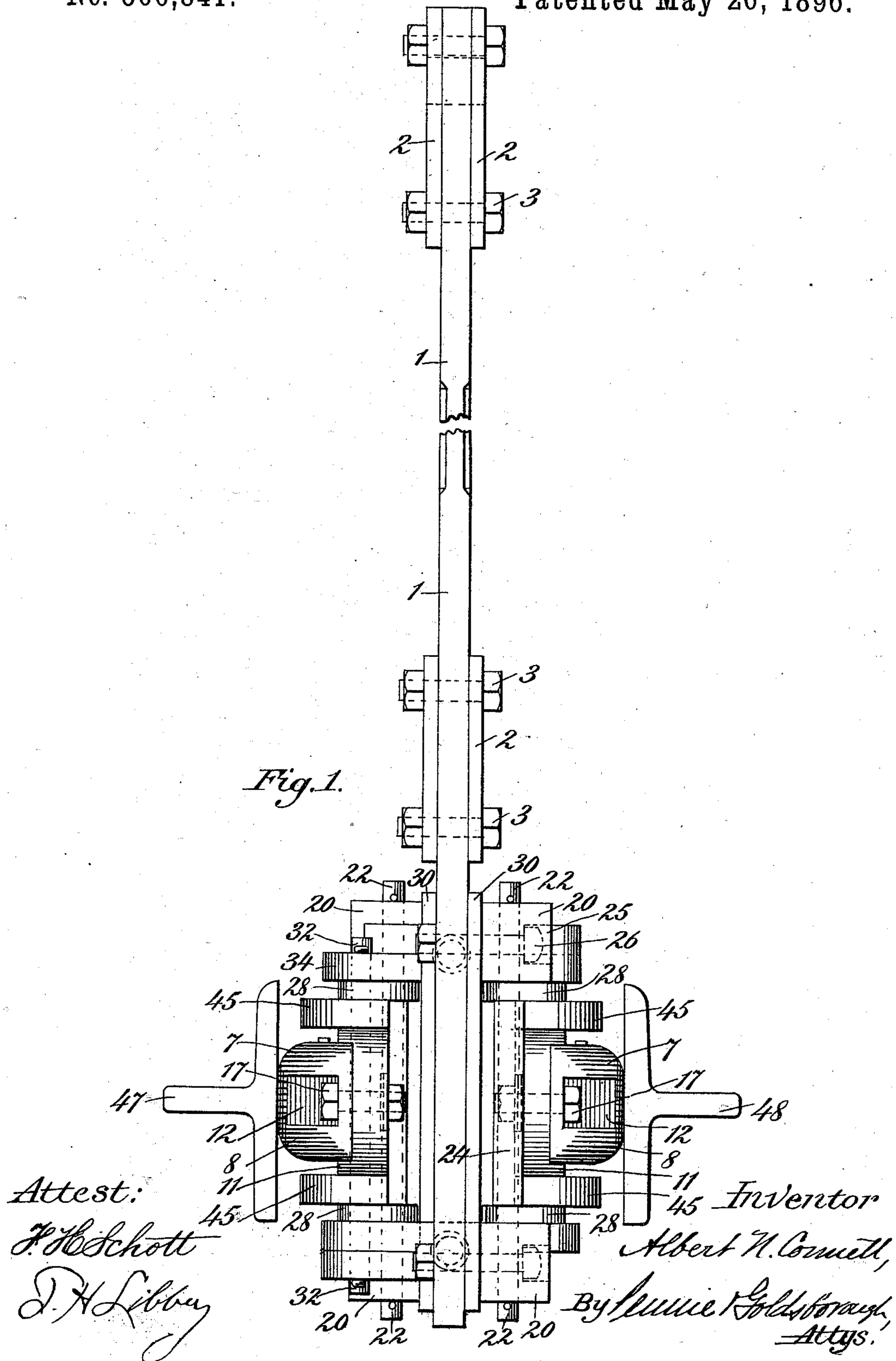
(No Model.)

3 Sheets—Sheet 1.

A. N. CONNETT.
CURRENT COLLECTOR FOR ELECTRIC RAILWAYS.

No. 560,841.

Patented May 26, 1896.



(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

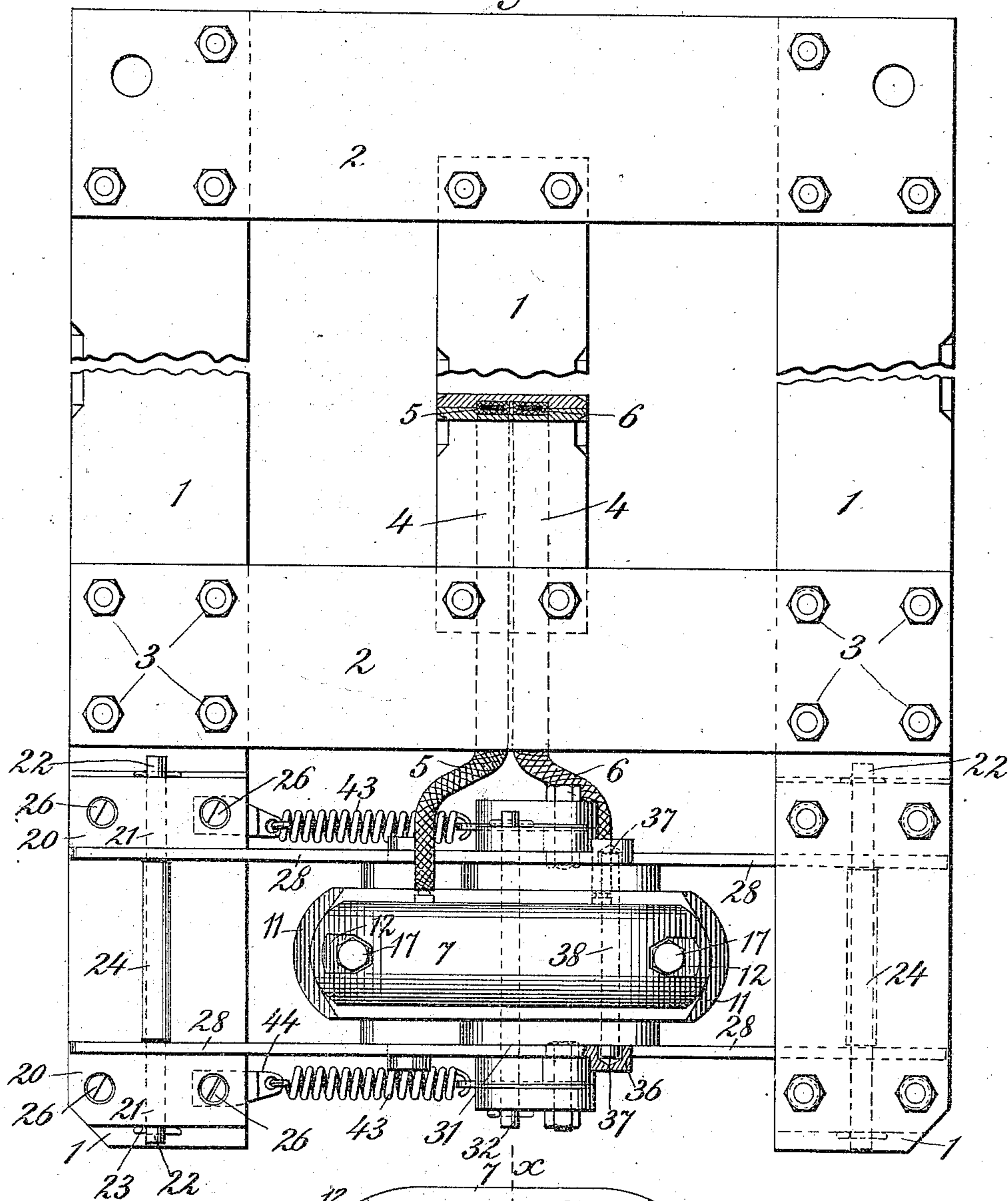
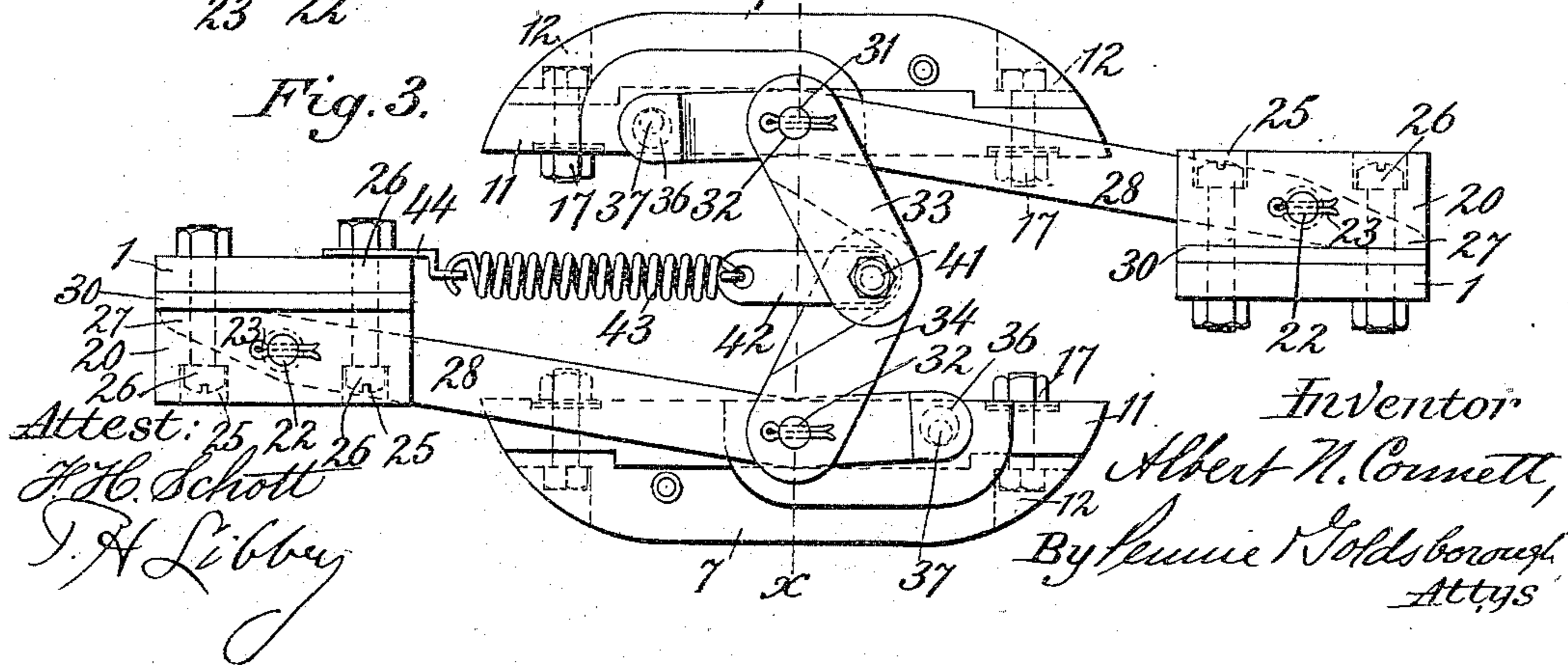


Fig. 3.



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(No Model.)

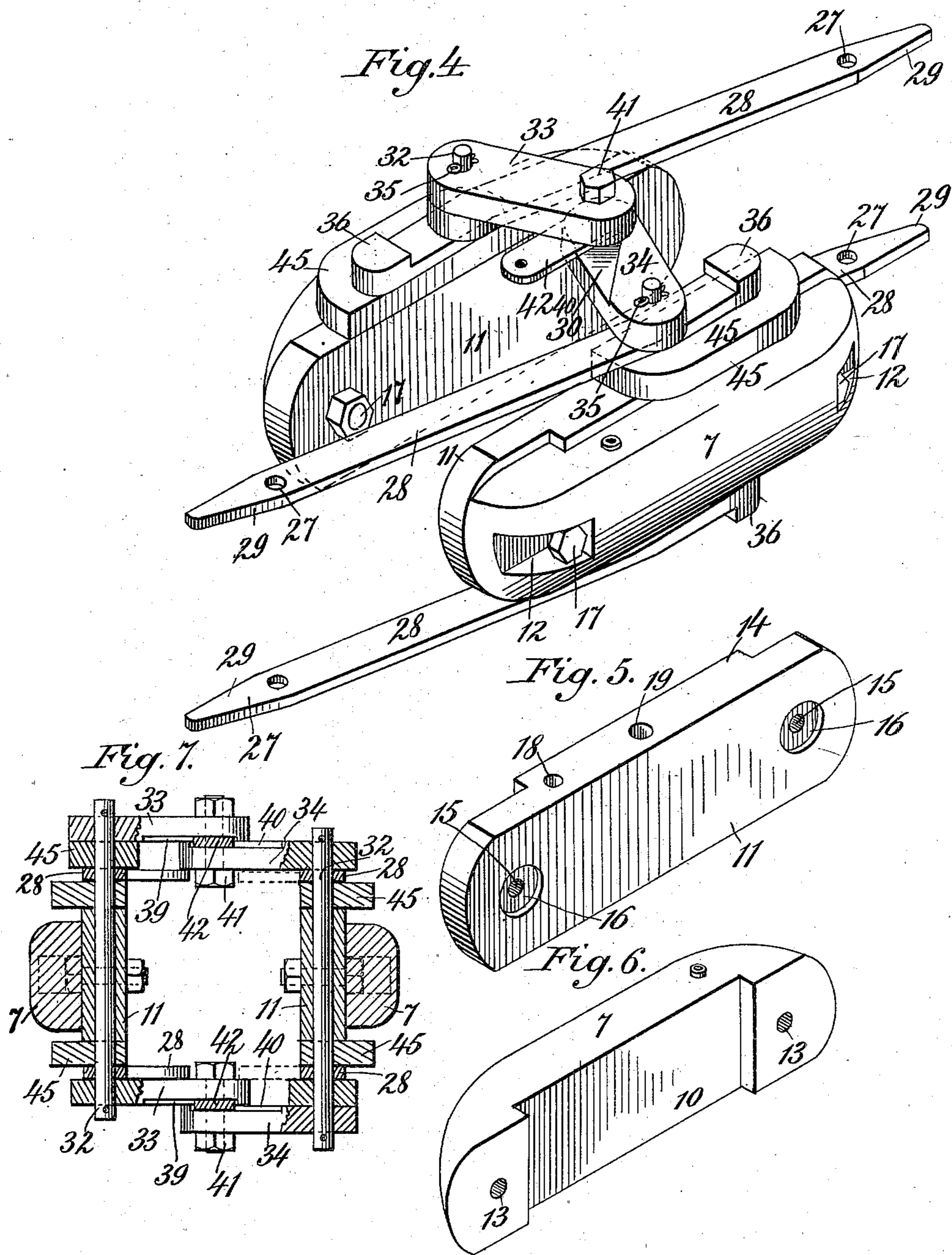
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UNITED STATES PATENT OFFICE.

ALBERT N. CONNETT, OF WASHINGTON, DISTRICT OF COLUMBIA.

CURRENT-COLLECTOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 560,841, dated May 26, 1896.

Application filed January 17, 1896. Serial No. 575,894. (No model.)

To all whom it may concern:

Be it known that I, ALBERT N. CONNETT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Current-Collectors for Electric Railways; and I do hereby 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 appertains to make and use the same.

In an application for Letters Patent of the United States, filed by myself and Jacob S. Detrick, of even date herewith, Serial No. 575,910, there is illustrated and described a current-collecting device for electric railways wherein the contact-shoes are supported independently of the springs which hold them against the conductor-bars conveying the current from the generating-station.

The present invention, although embodying the same generic principles of operation, relates to a modification of the specific construction shown in said application.

In the accompanying drawings, Figure 1 is an end elevation of a traveling contact device embodying my improvements shown in its proper relationship to the supply-conductors. Fig. 2 is a side elevation. Fig. 3 is a plan view of the contact-shoes and their immediate adjuncts. Fig. 4 is a view in perspective of the contact-shoes and some of their ancillary parts. Figs. 5 and 6 are respectively perspective views of one of the insulating-blocks and one of the contact-shoes detached, and Fig. 7 is a central transverse vertical section on the line $x x$ of Fig. 3.

The means for suspending the traveling contact device as a whole below the car may conveniently consist of vertical bars or plates 1, said plates being connected by means of cross-bars 2, secured by bolts and nuts 3, central channels 4 being provided for the motor leads or connections 5 and 6.

The contact-shoes are indicated by the numeral 7, and each consists of a block of metal or other conducting material rounded at its ends and outer sides and recessed on its inner side 10 to fit upon a block 11 of insulating material. The outer face of each shoe 7 is pro-

vided at its ends with recesses 12, communicating with bolt-hole 13.

The blocks 11 are each formed with a projection 14, fitting the corresponding recess of the shoes, and with bolt-holes 15 and coincident countersinks 16 to receive the bolts 17 for securing the blocks and shoes together. Each of the blocks 11 is also provided near one end with a vertical aperture 18, and at its center with a similar aperture 19 for purposes hereinafter explained.

Secured to opposite sides of the lower ends of the vertical suspending bars 1 are blocks 20, arranged in parallel pairs and provided with alined vertical openings 21 to receive pivot pins or rods 22, secured by cotters 23 and each carrying a loose sleeve 24. The outer faces of the blocks 20 are countersunk at the points 25 to receive the heads of the bolts 26, which secure the blocks in place. Upon these rods 22 are pivoted the outer ends 27 of oppositely-disposed links 28, the links being perforated to accommodate the rods 22 and held pivotally between the ends of the sleeves 24 and the inner faces of the blocks 20. The ends 27 of the links are extended beyond their pivot-rods 22 and beveled at the points 29 to adapt them to strike against the bar 1 or against the insulating-plates 30 between the bar and the blocks 20. From the blocks 20 the links 28 extend toward each other, and at the point 31 each link is provided with an opening to receive the end of a pivot-pin 32, which extends through the opening 19 in the insulating-block 11. These pivot-pins 32 also extend through openings in the outer ends of the respective members 33 and 34 of a toggle-lever, both above and below the shoes, as shown, and thus serve as pivot-supports for both the toggle-levers and links, being secured by cotters 35. The links extend beyond their inner pivots 32 and intermesh in hollow heads or enlargements 36, which take over the ends 37 of vertical pins 38, projecting through the openings 18 in the insulating-blocks 11.

As indicated by dotted lines in Fig. 3 and in section in Fig. 2, the hollow space in each of the heads 36 of the links is of greater diameter than the pins 37. This construc-

tion permits a limited movement of the shoes and insulating-blocks upon the pivots 32, but prevents said shoes from turning far enough to render them liable to strike projections within the conduit.

The toggle members 33 and 34 are recessed at 39 40 at their inner overlapping ends and are pivoted thereat by a bolt 41, which also passes through one end of a shortlink 42, the other end of which is secured to one extremity of a coil-spring 43, the opposite extremity of the spring being secured to a bracket 44 held by one of the bolts 26 of the bearing-blocks 20.

As illustrated in the drawings, the link and toggle mechanism is duplicated, there being a pair of links 28, a toggle-lever, and a spring 43 both above and below the shoes 7. I preferably interpose insulating-plates 45 between each of the links 28 and the blocks 11 and shoes 7.

It will be understood that the current-collector as thus constructed is adapted to travel between the stationary conductors 47 and 48 within an underground conduit, said conductors being electrically connected with the opposite poles of a dynamo or other source of electric energy. The current passes from one of the conduit-conductors through the adjacent contacting-shoe 7 to one of the motor-conductors, and thence to the motor on the car, returning through the opposite motor-conductor, shoe, and conduit-conductor to the generator, as will be readily understood.

By the improved means thus described I am enabled to effect the necessary yielding movement of the contact-shoes without undue strain upon the springs 43, and the shoes are maintained in effective contact with the supply-conductors, whatever the curvature or variation in the roadway.

Having thus described my invention, what I claim is—

1. A traveling contact or current-collector for electric railways, comprising a hanger,

oppositely-disposed contact-shoes, an interposed toggle, and a spring connection between the toggle and hanger; substantially as described.

2. A traveling contact or current-collector for electric railways, comprising a hanger, oppositely-disposed contact-shoes, an intervening toggle, a spring connection between the toggle and hanger, and supporting-links for sustaining the shoes independently of the spring connection; substantially as described.

3. A traveling contact or current-collector for electric railways, comprising a hanger, oppositely-disposed contact-shoes, an intervening toggle, a spring connection between the toggle and hanger, and supporting-links for sustaining the shoes independently of the spring connection, the shoes being pivoted to the links, and the outer ends of the links engaging with the shoes so as to limit the pivotal motion thereof; substantially as described.

4. The combination with the hanger, the insulating-blocks, and the contact-shoes secured thereto, and the spring toggle mechanism, of links pivotally secured at their inner ends to the hanger and near their outer ends to the insulating-blocks, and terminating in hollow heads engaging with stop-pins on the blocks; substantially as described.

5. The combination with the hanger, the insulating-blocks, and contact-shoes, of connecting-links between the blocks and hanger, and toggle-levers connecting the blocks, the arms of said toggle-levers being recessed, and an interposed link connected with one end of a coil-spring, the opposite end of said spring being connected to the hanger; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT N. CONNETT.

Witnesses:

HUGH M. STERLING,
JOHN C. PENNIE.