

C. M. SPECK & C. F. EARL.
TROLLEY POLE.
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976,942.

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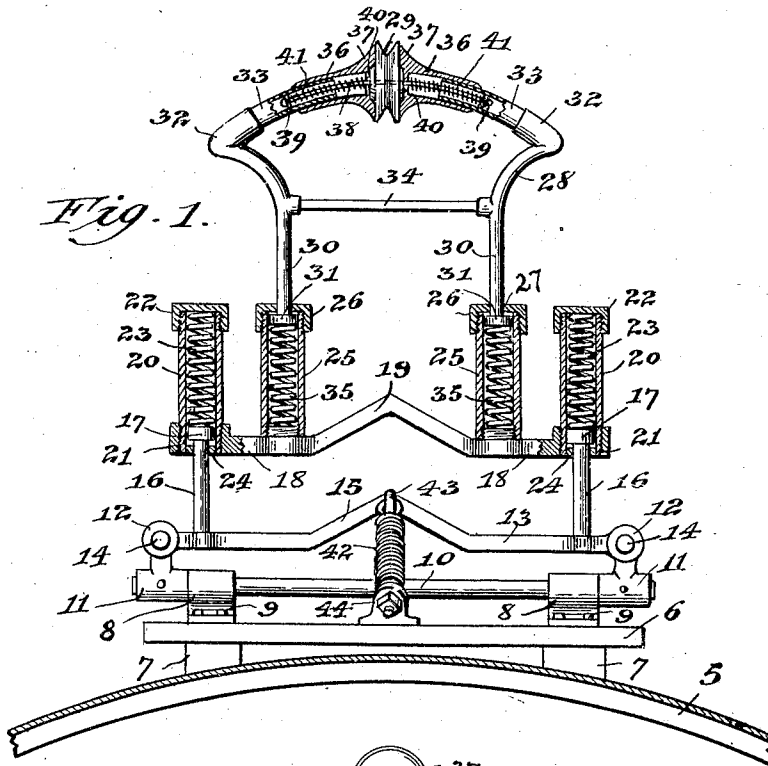


Fig. 1.

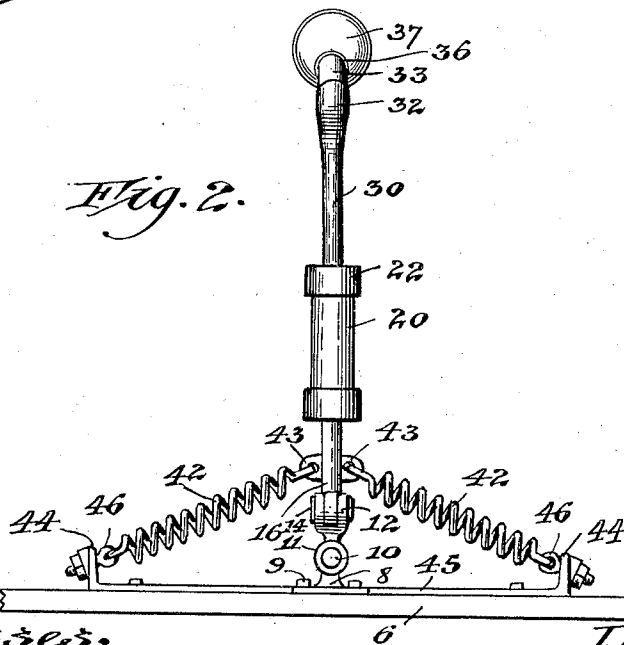


Fig. 2.

Witnesses,
S. S. Mann
Allen H. Moore

Inventors,
Charles M. Speck.
Clarence F. Earl.
By *Offield, Towle & Smith*
Attys.

UNITED STATES PATENT OFFICE.

CHARLES M. SPECK AND CLARENCE F. EARL, OF CHICAGO, ILLINOIS.

TROLLEY-POLE.

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To all whom it may concern:

Be it known that we, CHARLES M. SPECK and CLARENCE F. EARL, citizens of the United States, residing, respectively, in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Trolley-Poles, of which the following is a specification.

The invention relates in general to a trolley pole and arm, the latter carrying a contact wheel which is, at all times, in engagement with the feed wire.

The principal object of the invention is to provide a device whereby the contact wheel and feed wire are in constant engagement, irrespective of the irregularities of the track, curvature of the feed wire, direction of motion of the car, cross wires, or of any other conditions which usually arise to displace the contact wheel from the feed wire.

Further advantages of the invention will appear throughout the specification and are more specifically pointed out in the claims.

In the accompanying drawing Figure 1 is a front elevational view of our improved device, a portion of the same being shown in section. Fig. 2 is a side elevational view of Fig. 1.

Referring now more particularly to the drawing, (5) represents the top of a car to which a base board (6) is secured by means of the supports (7). The base board (6) preferably lies in a horizontal position. To the base-board (6) are secured two or more journal bearings (8) by means of the bolts or screws (9), engaging the base-board. Pivotaly mounted within the journal bearings (8) is a shaft (10), the journal bearings being so spaced, relative to the shaft, that the ends of said shaft are free and upon which are mounted the sleeves (11), each sleeve being provided with a pair of integral upright ears or lugs (12), between which the ends of the main frame (13) are confined by the bolts (14). The main frame is bent, shown at (15), into a V, for a purpose hereinafter described. Secured to the main frame (13), in any suitable manner, are the pistons (16) provided with the usual piston heads (17) which are disposed vertically relative to the main frame (13).

Arranged above the main frame (13) is a second or supplemental frame (18), having a V-shaped portion (19) substantially intermediate of its length and in registering alinement with the V-shaped portion (15)

of the main frame (13). The purpose of the V-shaped portion 15 of the main frame 13 is to afford a high point for attaching the springs 42, and the V-shaped portion 19 is formed to allow the frame 18 to have the necessary sliding movement on the piston 16, the two V-shaped portions 15 and 19 being so arranged as to allow the top frame to come in contact with the lower frame throughout its entire length.

Secured to the second frame (18) at both ends thereof, are the cylinders (20), the ends of which are externally threaded, and the threads on the lower ends adapted to engage threaded apertures (21) formed in the ends of the second frame. The upper threaded ends of the cylinders (20) cooperate with internally threaded caps (22), which close the upper open ends of the cylinders (20). The pistons (16) and their heads (17) have a sliding engagement with the cylinders (20) and the frames (13) and (18) are held in yielding engagement by the springs (23) within the cylinders (20). The springs (23) normally tend to hold said frames apart; the upper ends of the springs bearing against the caps (22) and the lower ends against the piston heads (17). To prevent the piston heads (17) from being withdrawn from the cylinders (20), collars or washers (24), surrounding the piston rods (16), are pinned or secured to the lower ends of the cylinders in any well known manner.

If desired the piston heads (17) may be threaded upon the piston rods. The springs (23) are confined within the cylinders (20) rather than between the two frames, for the reason that it will permit of greater movement between said frames.

Interposed between the cylinders (20) are the cylinders (25), secured to the supplemental frame (18) in any suitable manner, the lower ends of which are closed and the upper ends externally threaded. Caps (26) are internally threaded to cooperate with the threads on said cylinders, said caps being suitably apertured, as shown at (27), for a purpose hereinafter described. Arranged above the supplemental frame (18) is an arm, designated as a whole by (28) carrying the contact wheel (29). Said arm is preferably made in two sections, each having a downwardly projecting piston (30) with a piston head (31) thereon; the upper portions terminating in elbows (32), to which are secured the hollow supports (33).

Said sections are preferably secured together by means of a stay rod (34), having a threaded engagement therewith. The piston portions (30) extend within the cylinders (25) and are normally held outward by the springs (35) within the cylinders (25), which are interposed between the piston heads (31), and the frame (18) to which the cylinders (25) are secured.

Slidably mounted upon the hollow supports (33) are the guides (36) which are hollow in cross section, to afford a telescopic engagement with the supports (33); the ends (37) of the guides are flared or beveled and abut against the sides of the contact wheel (29). As a means for supporting the contact wheel between the guides (36), a journal pin or rod (38) is provided, passing through a central aperture in the contact wheel and having its ends secured to and within the supports (33), by means of apertured plates within and secured to the supports through which the ends of the pin pass and are headed over, as shown at (39).

Shoulders (40) are formed at the adjacent ends of the guides and confined between the shoulders (40) and the ends of the journal pin (38) are the centering springs (41), encircling the journal pin within the guides and supports. The springs (41) are of equal strength and tend at all times to center the contact wheel and allow the same to be moved from its normal vertical plane without disengaging the feed wire.

As a means for maintaining the device as a whole in a vertical position, springs (42) are secured, upon opposite sides of the main frame, to the ears (43) in any well known manner; the other ends of the springs being secured to ears (44) formed on the plate (45) that is secured to the base-board (6). Threaded eye bolts and nuts (46) are preferably employed for securing the springs to the ears (44).

It can be readily seen from the foregoing description that the device is capable of adjusting itself to the many conditions or positions that such a device has to assume, as the springs (42) always serve to maintain the device in a vertical position, while the shaft (10) permits it to have a rocking movement longitudinally relative to the body of the car. The frames (13) and (18), being in yielding engagement, provide for any

vertical movement between the feed wire and car body, and the yieldingly maintained contact wheel, capable of sidewise movement, allows for a limited transverse movement of the car, relative to the feed wire. All movements therefore, of the car, relative to the feed wire, have been provided for, and, without limiting ourselves to the particular construction herein shown,

We claim:

1. A trolley pole comprising a main frame member, a second frame member, in yielding engagement with said main frame member, an arm in yielding engagement with said second frame member and a contact wheel connected to said arm and capable of sidewise movement, substantially as described.
2. A trolley pole comprising a main frame member, means for connecting said member to a car body, whereby said member has a rocking movement relative thereto, a second frame member connected to said main frame member and in yielding engagement therewith, an arm connected to said second frame member, and in yielding engagement therewith, a contact wheel carried by said arm and spring means for normally maintaining said contact wheel in a central position relative to said arm, but permitting sidewise movement thereof, substantially as described.
3. A trolley pole comprising a main frame member, means for connecting said member to a car body whereby said member has a rocking movement relative thereto, means for normally maintaining said member in a substantially vertical position relative to said car body, a second frame member connected to said main frame member, spring means for holding said members in yielding engagement, an arm connected to said second frame member, spring means for normally holding said arm and second frame member in yielding engagement, a contact wheel on said arm and spring means for normally holding said contact wheel centrally of said arm, but permitting a sidewise movement thereof, substantially as described.

CHARLES M. SPECK.
CLARENCE F. EARL.

Witnesses:

JAMES R. OFFIELD,
EDMUND G. INGERSOLL.