

(No Model.)

F. W. CANALES.
TROLLEY.

No. 567,118.

Patented Sept. 1, 1896.

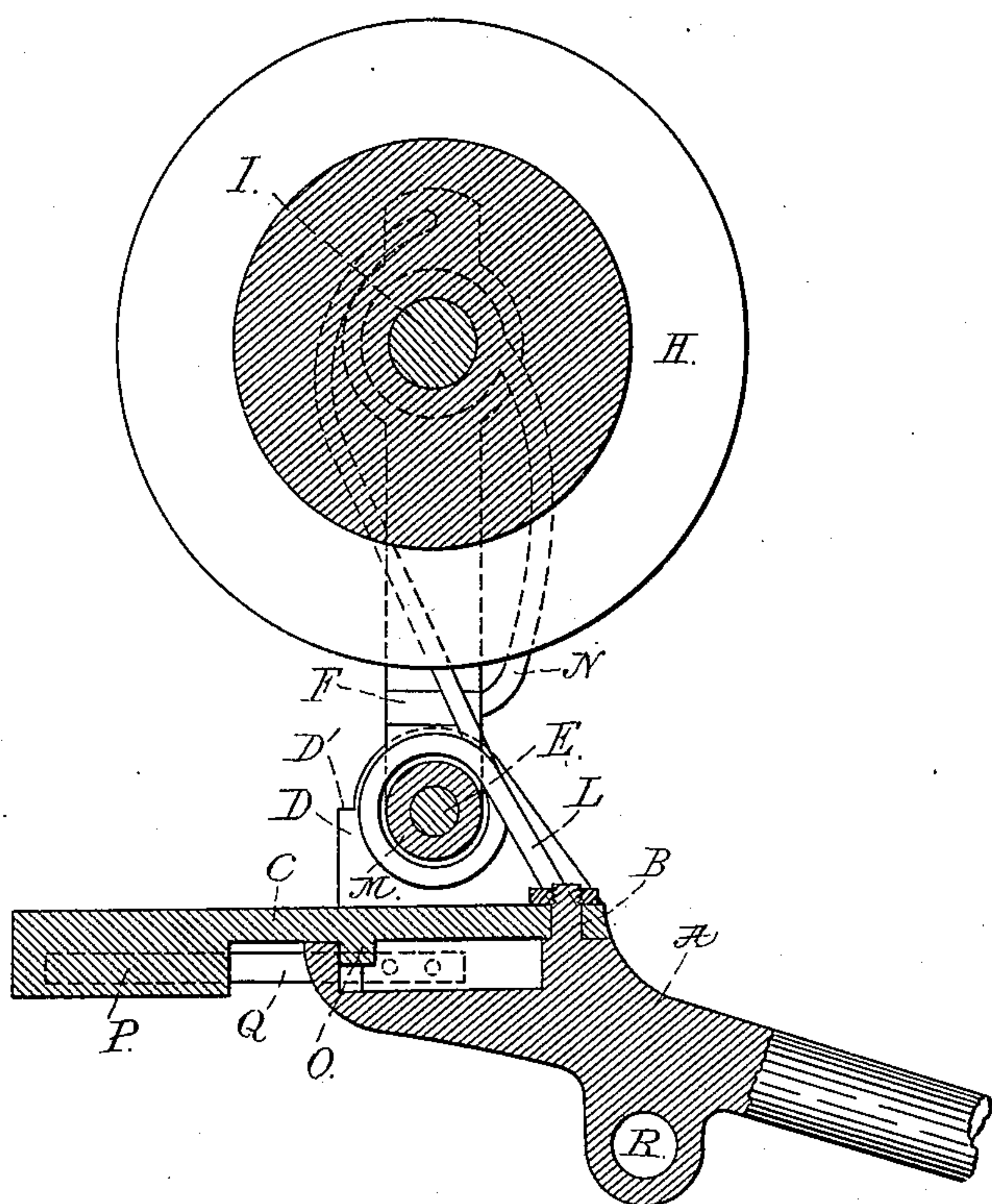


Fig. 1.

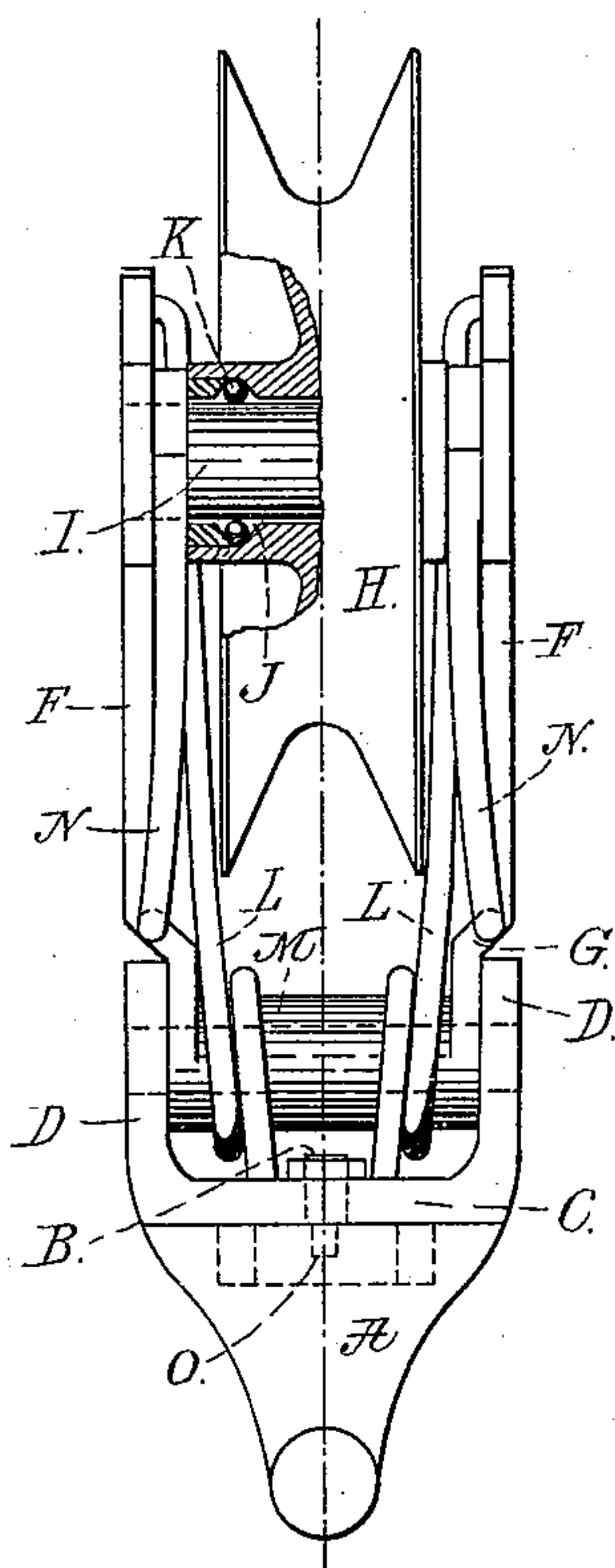


Fig. 2.

Witnesses:

F. J. Shley
H. H. Clifford Jr.

Inventor:

Frank W. Canales
by
Daniel A. Clifford
his attorneys

UNITED STATES PATENT OFFICE.

FRANK W. CANALES, OF PORTLAND, MAINE, ASSIGNOR TO HIMSELF
AND ELMER H. WATERHOUSE, OF SAME PLACE.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 567,118, dated September 1, 1896.

Application filed January 22, 1896. Serial No. 576,387. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. CANALES, a citizen of the United States of America, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Trolleys; 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.

My invention relates to improvements in trolleys for electric-motor cars, and especially to that class of trolleys which have a double tension, a double contact, and a swiveling head, and which serve to hold the trolley-wheel more firmly against the wire and to prevent it from leaving the wire when the car is moving rapidly.

In the drawings herewith accompanying and forming a part of this application, Figure 1 is a vertical section of my improved trolley. Fig. 2 is a front view of the same with a part of the wheel broken away to show the ball-bearings.

In said drawings, A represents the base of the trolley-head, which is adapted to be fitted into the end of the trolley-pole in the usual manner. Pivotaly attached to said head A by means of a pin and bolt B is a plate C. Made integral with the plate C are two uprights D, having a portion of their base cut away, as at D', and which serve as a stop to prevent the movable yoke F from being forced so far backward as to impede the revolutions of the trolley-wheel. Pivotaly attached to said uprights by means of pin E is a movable yoke F. Said arms are made with an offset G near their lower extremities, so as to allow the insertion of a large-sized feed-wire and thus facilitate the conduction of the current from the trolley-wire to the trolley-pole. The trolley-wheel H is pivotaly attached to said movable yoke by means of the axle I. In order to make the trolley-wheel revolve as easily as possible and to avoid any unnecessary friction, I groove the inside of the hub of the wheel near its outer edge, as at J, and insert therein ball-bearings K, the said bearings being held in position in the grooves by the axle I.

Attached to the upper extremity of the movable arms F is a spiral spring L, which is coiled around the cross-bar M of the movable arms and thence extending into the base-plate serves as a spring to hold the trolley-wheel erect, and at the same time serving as a secondary conductor for the electricity from the wheel to the trolley-pole. Also attached to the movable arms of the trolley and adapted to surround the axle I are feed-wires N, extending through the trolley-head.

In order to prevent the trolley-head from moving to the right or left too much, I insert a stop O in the bottom of the movable base and in the movable plate which bears against the inner edge of the trolley-head, thus obviating the difficulty of the trolley-wheel being swung at entirely right angles to the trolley-pole.

In order to keep the trolley-wheel normally parallel with the trolley-pole, I provide the movable head with an arm or tailpiece P, made integral with the movable plate and extending rearwardly. Attached to each side of this arm near its outer extremity are two flat springs Q, running from said arm, on each side thereof, to the trolley-base, said springs being of sufficient power to hold the movable head parallel with the trolley-pole and at the same time to allow said head to adjust itself to curves and switches without bringing any unnecessary wear on the flanges of the trolley-wheel.

Attached to the head of the trolley near its lower extremity is an ear R, to which the trolley-rope is attached.

The object of my invention is to make a trolley that will not jump from the wire, the double tension serving to hold the wheel against the wire more firmly and cause it to be less affected by the jolting motion of the car as it goes over any obstacle, and also on account of the swiveling head to render it less liable to leave the wire on sharp turns and at switches, and also to make the trolley provided with two sets of conductors, whereby the current brought from the feed-wire to the motor is made more effectual.

Having thus described my invention and its use, I claim—

1. In a trolley in combination, a base, a

plate pivotally attached thereto and having uprights made integral therewith a yoke pivotally attached to said uprights, a wheel pivotally mounted in said yoke, means for holding the wheel and yoke erect and means for conducting the electricity from the wheel to the trolley-pole, substantially as and for the purposes set forth.

2. In a trolley in combination, a base adapted to be fitted to a trolley-pole, a plate pivotally attached to said base and having uprights thereon made integral therewith, a yoke pivotally attached to said uprights a wheel provided with ball-bearings mounted within said yoke, a spring attached to said yoke and connected with the pivoted plate, conducting-wires surrounding the axle of the wheel and extending to the base, substantially as and for the purposes set forth.

3. In a trolley in combination, a base, a pivoted plate attached thereto having uprights made integral therewith a tailpiece attached to said pivoted plate, a stop in the bottom of said pivoted plate a yoke pivotally attached to the uprights a wheel provided with ball-bearings pivotally mounted in said yoke, a spring extending from the yoke to the

pivoted plate, conducting-wires surrounding the wheel-axle and extending through the pivoted plate to the base and springs running from the tailpiece to the base, substantially as and for the purposes set forth.

4. In a trolley in combination, a base, a plate pivotally attached thereto having uprights and a rearward extension made integral therewith a wheel-carrying yoke attached to said uprights, springs extending from the upper extremities of said yoke through the pivoted plate to keep said yoke erect; conducting-wires extending from the extremity of said yoke around the axle of the wheel through the pivoted plate, springs attached to each side of the rear extension of the pivoted plate and extending to the base and a stop on the under side of the pivoted plate, substantially as and for the purposes set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 13th day of January, A. D. 1896.

FRANK W. CANALES.

Witnesses:

ELGIN C. VERRILL,
NATHAN CLIFFORD.