(No Model.)

R. MACRAE.

TROLLEY.

No. 451,211. Patented Apr. 28, 1891.

Fig. 1.

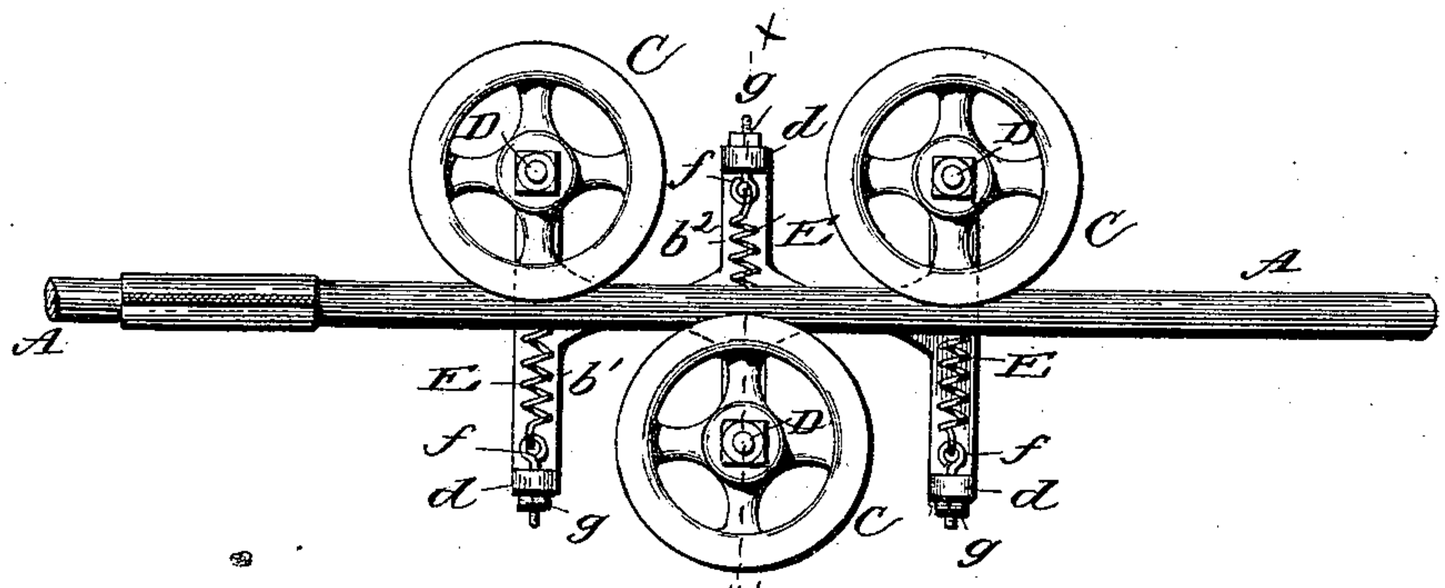


Fig. 2.

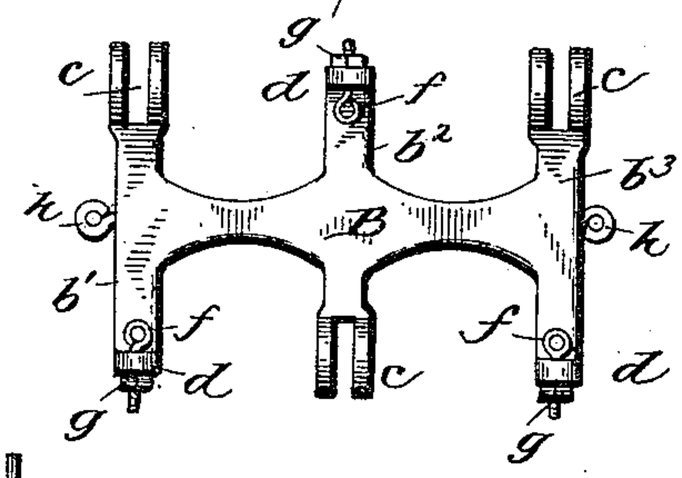


Fig. 3.

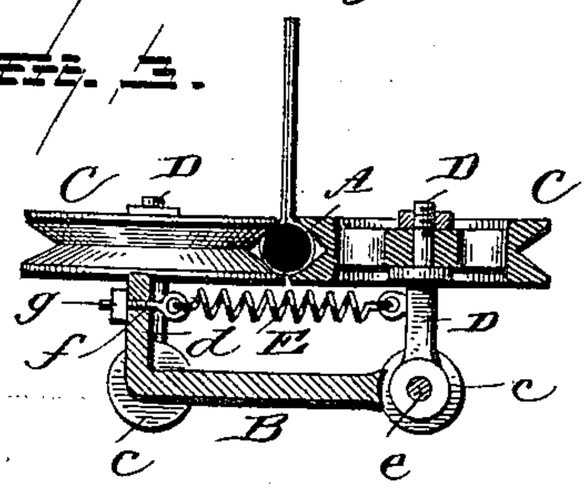
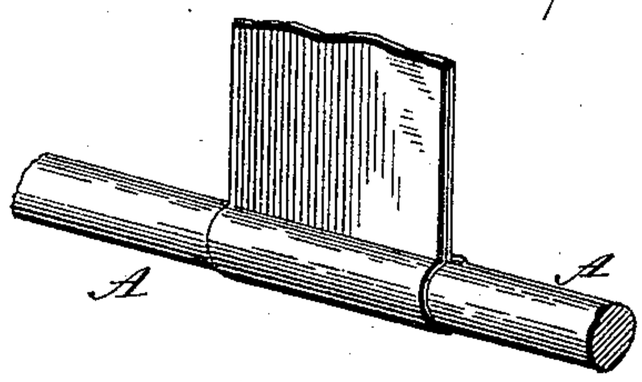


Fig. 4.



Witnesses
L. C. Hills.
E. A. Bond.

Inventor;
Roderick Macrae,
E. B. Stocking
Attorney.

UNITED STATES PATENT OFFICE.

RODERICK MACRAE, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE DONALDSON-MACRAE ELECTRIC COMPANY, OF SAME PLACE.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 451,211, dated April 28, 1891.

Application filed July 24, 1890. Serial No. 359,741. (No model.)

To all whom it may concern:

Be it known that I, RODERICK MACRAE, a citizen of the United States, residing at the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in trolleys for overhead wires for use upon electric cars; and it has for its object, among others, to provide an improved device of this character which will not readily leave the wire, no matter whether the wire be taut or loose, and which jolting of the car will not throw the trolley off of the wire. I provide, preferably, three rollers or pulleys, two upon one side of the wire and the other arranged substantially midway between the two and bearing upon the opposite side of the wire. I also provide a yielding connection between the roller-spindles and some fixed part of the frame, and also provide for adjustment thereof, so as to exert more or less tension, as occasion may require.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a top plan showing my improved trolley in position on the wire. Fig. 2 is a like view of the trolley-frame detached. Fig. 3 is a section through the line $x\,x$ of Fig. 1. Fig. 4 is a perspective view of a portion of the wire, showing my improved manner of suspending the same.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a portion of the overhead wire upon which the trolley is designed to travel. In order to afford as little obstruction as possible to the passage of the trolley, I suspend the wire by the means shown in Fig. 4, which consists of a strip of thin material bent around the wire, as seen, and serving to support it without offering much obstruction or resistance to the passage of the trolley.

B designates the trolley-frame, which is shown best in Fig. 2, and consists of a body portion, from which extend at each end centrally the arms b', b^2, and b^3, each arm having at one end ears c, between which the spindles of the pulleys are pivoted, and at the other end with upwardly-extending lug d, as seen best in Fig. 3. The ears and lugs are alternately arranged upon the three arms, as seen in Fig. 2, so that the rollers when secured in position will be alternately arranged—that is, two upon one side and one upon the other side, arranged midway between the other two—as seen in Fig. 1.

C are the pulleys of any approved construction, and these pulleys are journaled upon suitable pintles or spindles D, which at their lower ends are pivotally secured between the ears c of the frame by means of suitable pins e.

E are springs connecting each pulley-pintle with the opposite lug d, as seen in Fig. 3, the connection with the pintle being made in any suitable manner; but the connection of the other end of the spring with the lug is adjustable, so as to regulate the tension of the spring as occasion may require. In the drawings I have shown the end of the spring as connected to an eyebolt f, which is threaded through the lug and provided upon its outer end with an adjusting-nut g, as seen best in Fig. 3.

The frame should be provided with suitable provisions for the connection of the trolley-wire. I have shown such at h in Fig. 2.

The operation will be readily understood. The trolley is to be dragged after the car, and by the construction shown in the connection between the trolley and car may be flexible and the track may be arranged to one side of the overhead wire. The springs allow for any inequality in the wire or for any jolts or vibrations of the car or slack in the wire. The alternating arrangement of the pulleys tends to keep the trolley always upon the wire, for should any one of the pulleys get off the wire the others will still keep in contact therewith.

Various modifications in detail may be re-

sorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. A trolley consisting of a frame and pulleys supported thereon on vertical pivoted pintles and arranged to bear upon the side of the wire, substantially as specified.

2. A trolley consisting of a frame and alternately-arranged pulleys carried by pivoted vertical pintles, as specified.

3. A trolley consisting of a frame and alternately-arranged pulleys carried by pintles pivotally secured to the frame, and springs arranged to act upon said pintles, substantially as and for the purpose specified.

4. A trolley consisting of a frame provided with arms having alternately-arranged ears and lugs, pintles pivotally held between the ears, pulleys on the pintles, and springs connecting the pintles with the lugs, substantially as specified.

5. A trolley consisting of a frame, vertical pintles pivotally held therein, and pulleys carried by the said pintles and arranged two upon one side and one upon the other side in the space between the said two, substantially as specified.

6. The trolley described, consisting of the frame having arms provided at one end with ears and at the other with a vertical lug, the pintles arranged vertically and pivoted between the ears of the arms, the pulleys on the pintles, the springs connected at one end with the pintles, the eyebolt passed through the lug and having the other end of the spring connected thereto, and the adjusting-nut on the end of the eyebolt, substantially as and for the purpose specified.

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

RODERICK MACRAE.

Witnesses:
THOS. KELL BRADFORD,
H. K. BROWN.