No. 676,035. Patented June 11, 1901.

H. HALBERSTADT.

SYSTEM OF ELECTRIC PROPULSION.

(Application filed Jan. 26, 1900.)

(No Model.)

Fig. 1.

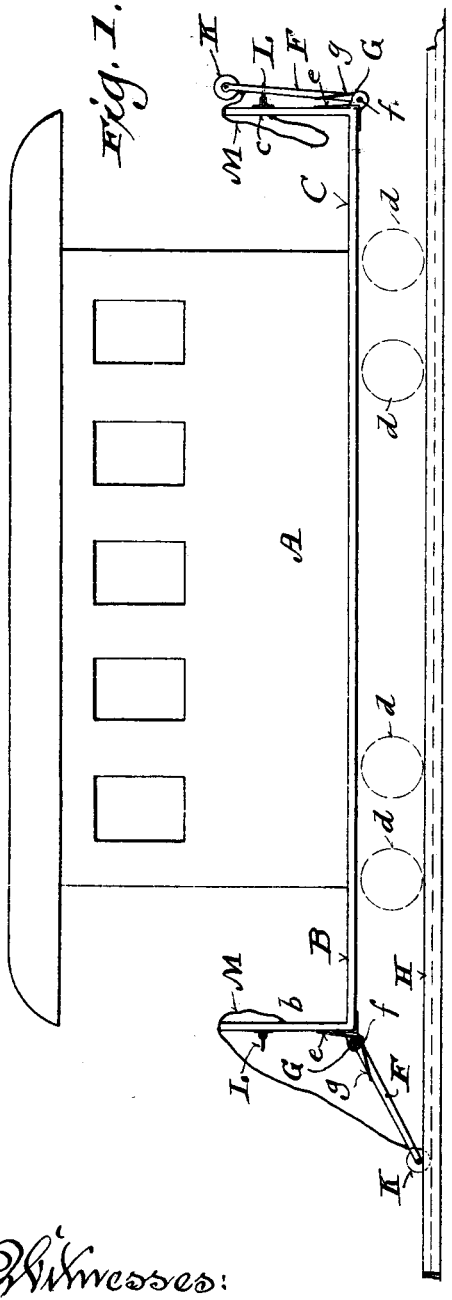


Fig. 4.

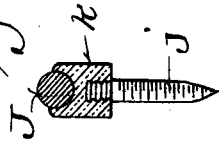


Fig. 2.

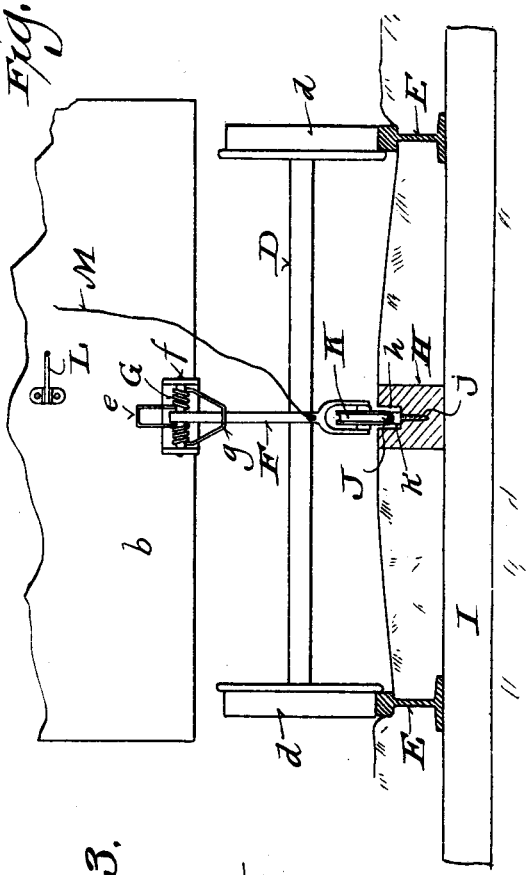
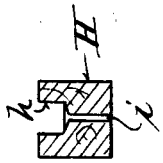


Fig. 3.



Witnesses:
Geo. W. Young
B. C. Roloff

Inventor:
Henry Halberstadt
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

HENRY HALBERSTADT, OF KENOSHA, WISCONSIN.

SYSTEM OF ELECTRIC PROPULSION.

SPECIFICATION forming part of Letters Patent No. 676,035, dated June 11, 1901.

Application filed January 26, 1900. Serial No. 2,835. (No model.)

To all whom it may concern:

Be it known that I, HENRY HALBERSTADT, a citizen of the United States, and a resident of Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Systems of Electric Propulsion; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates especially to a system of operating electric street-cars; and it consists in certain peculiarities of construction and arrangement of the trolley and feed-wire whereby the danger from overhead wires is obviated, all as will be more fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a side elevation of a street-car and its attachments and connections embodying my present invention. Fig. 2 is a detail front elevation, partly in section, of a portion thereof drawn to an enlarged scale. Fig. 3 is a transverse section through the feed-wire-supporting beam. Fig. 4 is a detail elevation of one of the feed-wire holders.

Referring to the drawings, A represents a motor-car of any approved construction, and B C the platforms thereof, said platforms being provided with the usual upright ends or dashboards, (marked *b c*, respectively.)

D designates one of the axles, and *d d* the wheels moving upon the track-rails E E in the usual manner, said track-rails being each electrically continuous. Each car has a trolley-pole F, secured to each end or platform upon a journal *f*, said pole being normally held in the downward position (shown at the left hand in Fig. 1) by a spring G on said journal *f*, the upper part *e* of said spring bearing against the front of the upright end *b* of the platform, and the lower part *g* of said spring bearing on the said pole F and keeping it in its downward position.

Midway between the track-rails E E and resting upon the ties I I, that support said track-rails, I place a line of beams H, each formed with a central longitudinal groove *h* in its upper surface, from which groove at intervals drain-holes *i* extend down through the bottom of said beam, leading to the space between the said ties I I. At convenient intervals screws or spikes *j* are driven down through the groove *h* into the beam H, and to the upper ends of said screws or spikes are secured heads *k*, of insulating material—such as glass, fiber, or hard rubber—having a groove in the upper surface thereof for the reception of the continuous feed-wire J. The free ends of the described trolley-poles F are forked in the usual manner and carry the trolleys K for engagement with said feed-wire.

In practice the current for the propulsion of the car is always taken from the rear, according to the direction in which the car is moving, and hence when one of the trolleys is in service the other must be kept out of the way, as shown at the right-hand end of Fig. 1, where the adjacent trolley-pole F is shown elevated, and held in that position, by means of a suitable hook-latch L, against the force of the spring G, and if it becomes necessary to propel the car in the opposite direction from that in which it has been traveling it will only require a moment to pull up the trolley, by means of a suitable rope or cord M, and fasten the trolley-pole by the latch L, and to free the other trolley-pole from its latch, when the force of the spring G will instantly cause the trolley on said other pole to assume an operative position on the feed-wire J in the groove *h* of the beam H.

The feed-wire J is supported at a sufficient distance below the top surface of the beam H to guard against any danger from accidental contact therewith, and the space between the continuous central row of beams H and the track-rails is suitably filled in, by preference with other beams or planks resting on and secured to the track-ties.

I have not deemed it necessary to show the motor and its connections, as same may be of any well-known type.

A very important and novel feature of my invention consists in the attachment of the described trolley-poles at each extreme end of the car-platforms, so as to project outward therefrom, as they are thus entirely removed from proximity to the car-wheels and are always in plain sight and within manual reach of the motorman and conductor, and this greatly contributes to the safety of my device, as even in the event of the breakage of the described ropes or cords M the trolley-

poles could be instantly lifted, either by hand or by the usual switch-hook always carried beside the motorman on his platform, and thus the possibility of accident or loss of life or limb of a person upon the tracks is reduced to a minimum.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a system of electric propulsion, the combination with a motor-car having a platform at each end thereof, of a trolley-pole journaled to each platform, and carrying a trolley at the end thereof, a spring on each trolley-pole for keeping the latter normally in a downward-projecting position, and a latch on each platform for supporting the adjacent trolley-pole in an elevated position against the force of said springs.

2. In a system of electric propulsion, the combination with a pair of electrically-continuous track-rails, of a line of beams, supported upon the track-ties intermediate of said track-rails, said beams having longitudinal grooves in the upper surface thereof, a series of pointed screws or spikes driven down through said grooves into but not through said beams, a series of heads of insulating material secured to the upper ends of said screws or spikes, below the top surface of said beams, and said heads having grooves in the upper surfaces thereof, a continuous feed-wire supported by said heads and fitting loosely within the said grooves therein, below the top of said beams, and a series of drain-channels extending at intervals from said groove through the said beams.

3. In a system of electric propulsion, the combination with a motor-car having a platform and dashboard at each end thereof, of a pair of trolley-poles, each of which is journaled to the outer central part of one of said platforms, a trolley carried by the outer end of each trolley-pole, a spring secured to the journal of each trolley-pole and having oppositely-extending loops one of which bears against said trolley-pole and the other against the outer face of the adjacent dashboard, a cord or analogous flexible device secured to each trolley-pole adjacent to the trolley thereon, and a latch on the outer face of each dashboard in line with the adjacent trolley-pole.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HENRY HALBERSTADT.

Witnesses:
H. G. UNDERWOOD,
N. E. OLIPHANT.