(No Model.) 2 Sheets—Sheet 1.

J. STEPHENSON.

CABLE CAR.

No. 455,774. Patented July 14, 1891.

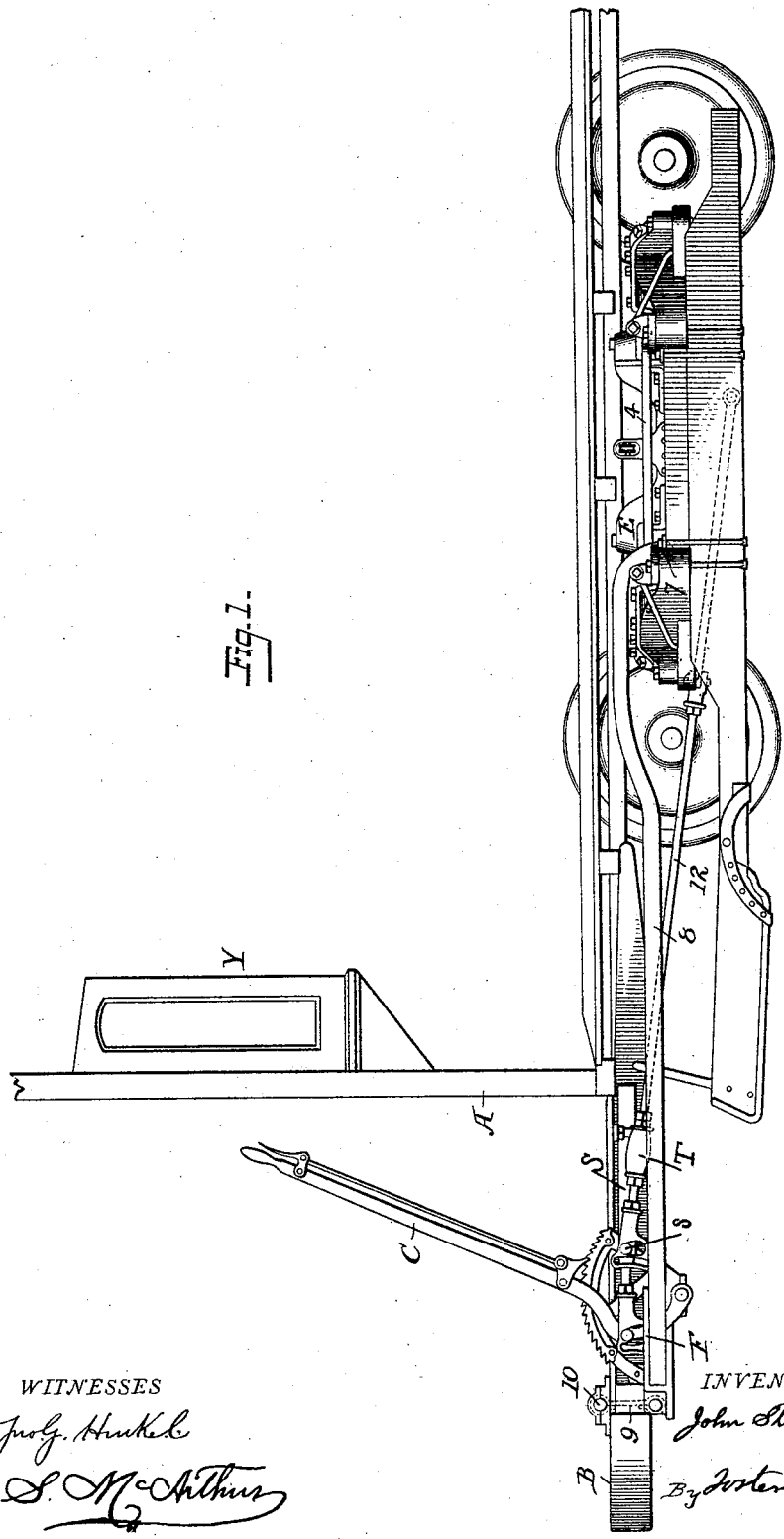

Fig. 1.

WITNESSES

Jno. G. Hinkel

H. S. McArthur

INVENTOR

John Stephenson

By Foster & Freeman

Attorneys

(No Model.) 2 Sheets—Sheet 2.

J. STEPHENSON.

CABLE CAR.

No. 455,774. Patented July 14, 1891.

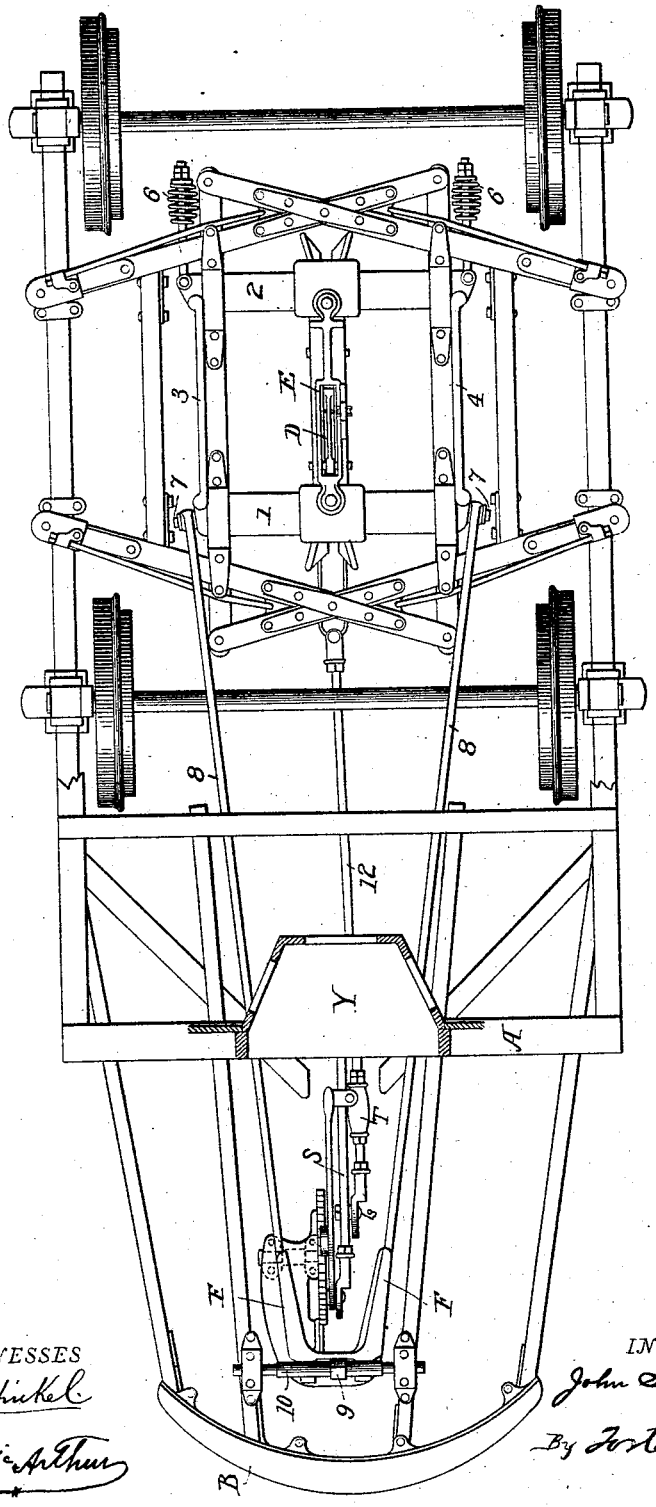

Fig. 2.

WITNESSES
Jno. G. Hinkel
H. S. McArthur

INVENTOR
John Stephenson
By Foster & Freeman
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN STEPHENSON, OF NEW YORK, N. Y.

CABLE CAR.

SPECIFICATION forming part of Letters Patent No. 455,774, dated July 14, 1891.

Application filed November 8, 1890. Serial No. 370,775. (No model.)

To all whom it may concern:

Be it known that I, JOHN STEPHENSON, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Cable Cars, of which the following is a specification.

In cable-grip cars it has been usual for the operator and the grip-operating mechanism to be located nearly at the center of the car-body; but there is now a demand that the operator be stationed at the car-front, so as better to avoid accidents, but without moving forward the grip-machine, which should remain at its old location at the middle of the car-body, so as better to avoid accidents on the roadway. The change of the position of the operator from the center to the end of a cable-grip car would not be difficult if the grip-machine were fixed in its location without provision for horizontal motion, but it is otherwise when the grip-machine must constantly change its relation transversely and longitudinally to the body; and my invention consists in means, hereinafter fully set forth, whereby the operator may occupy a position at the front of the car and yet regulate the movements in connection with a grip-machine capable of longitudinal and transverse motions to a certain extent independent of the car-body.

In the accompanying drawings, Figure 1 is an elevation of sufficient of a one-ended cable-grip-car truck to illustrate my invention. Fig. 2 is a plan of those parts illustrated in Fig. 1 that are below the car-body.

The car-body A is of any suitable construction, and there is a front platform B, where the operator is to be stationed in proximity to the grip-operating lever C.

The car-truck is constructed in any suitable manner to properly co-operate with the other parts hereinafter described; but I have illustrated in the drawings the "Stephenson car-truck," which I prefer, because of the better results from its use in this connection.

The truck is constructed so as to afford a central well or space, in which is situated the usual grip-machine D, which is supported by a grip-carrier E, having a rectangular frame consisting of two parallel transverse bars 1 2, united by two parallel rods 3 4 with articulated connecting-joints.

The frame E is constructed to hold the grip-machine, and is free to move sidewise as the position of the cable may require in passing curves or switches, and is also supported to permit an endwise motion, limited by springs 6 6, to cushion the carrier-frame and prevent jerks in starting when the moving cable is seized by the grip-machine. These parts being well known need not be further described.

The front transverse bar of the grip-carrier has journals 7 7, on which are jointed the ends of two side bars 8 8, extending to the front of the car-body and beneath the platform B, where they are connected with a housing F, the said side bars and housing constituting a forward extension of the grip-carrier.

The housing F, forming the terminus of the extension, is suspended by a link 9, hung to a suitable support 10 upon the platform B, which link permits the free movement of the housing transversely as the link slides upon the support 10 or longitudinally or vertically as the link swings upon the support. The housing not only carries the ends of the side bars 8 8 and forms the terminus of the extension, but it also carries the operating-lever C, which has its fulcrum on the housing, so that said lever moves with the grip-carrier, of which the housing forms practically a part. The operating-lever is connected with the grip-machine by a connecting-rod 12, made in two sections and adjusted to a nicety in length by a turn-buckle T. As a result of this construction, the cable when seized controls the grip-machine, which in its turn controls the carrier with its extension and operating-lever, thus preserving all the parts in their proper relation, while the flexible connection of the platform and the housing and the jointing of the side bars with the grip-carrier permit the necessary rise and fall of the platform without straining or altering the relation of the car. If desired, the housing F may be further utilized to carry the operating-levers of the brakes.

It is desirable that a standard grip-machine shall be used throughout any given line to permit the same to be employed interchangeably with the cars, and therefore the rods 12

for connecting the grip-machines with the operating-levers should all be of a fixed length to permit a grip to be removed from one car to another, which is sometimes done by taking the grip-machine from under the car while said machine is yet in the slot-rail and by unhooking the connecting-rod from the hand-lever. Inasmuch, however, as "coach" or "close" cars and "open" or "summer" cars differ in their lengths it is desirable in order to make such changes to make a proper provision for the varying length of the connecting-rods. When the gripman's position is at the car-front, the distance of his operating-handle from the grip-machine controls the length of the connecting-rod between the handle and gripper; but it often occurs that both classes of cars are in service at the same time, and this presupposes a contractible and extensible connecting-rod to the gripper not practicable. Therefore one part of my invention is to afford two wrist-pins, one (the larger) adapted to the longer length of connecting-rod and the other adapted to the shorter; but it not being practicable to put these two wrist-pins on the same actuating-lever I provide a horizontal sliding bar S, connected to the operating-lever C, and place the second wrist-pin *s* on the horizontal bar, so that the two standard lengths may each find its own wrist-pin and the operating-lever continue to do its work regardless of which wrist-pin is in service. The connection is also provided with another method of shortening or lengthening the rod by means of a turn-buckle T, which is only a provision to take up slack occurring by wear of the different joints intervening between the hand of the operator and the jaws of the gripping-machine, and is advantageous in preventing useless motion of the operator. As the operating-lever C must swing backward to an extent greater than the length of the car-platform otherwise required, I avoid the necessity of increasing such length by providing the body of the car with a re-entrant section that receives the end of the lever when the latter is thrown back. Thus the door or equivalent portion of the front of the car has an inwardly-projecting bay portion Y, of such dimensions as to permit the desired movements of the lever.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A cable car having a truck-bearing, a grip-machine carrier extending to the car-front, with a grip-operating lever fulcrumed in the grip-carrier extension, and a rod in two sections united and adjustable in length by a turn-buckle, the rod connecting the grip-machine with its operating-lever, substantially as described.

2. A cable car having its operating-lever at the front and connected with a sliding bar carrying a second wrist-pin, on which is hooked the rod connecting the grip-machine with the operating-lever, substantially as described.

3. A cable car with its grip-operating lever at the car-front and having the end wall or door of a car-body provided with a re-entrant section, furnishing room for swinging the lever, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN STEPHENSON.

Witnesses:
S. A. STEPHENSON,
JOSEPH B. STEPHENSON.