

No. 607,070.

Patented July 12, 1898.

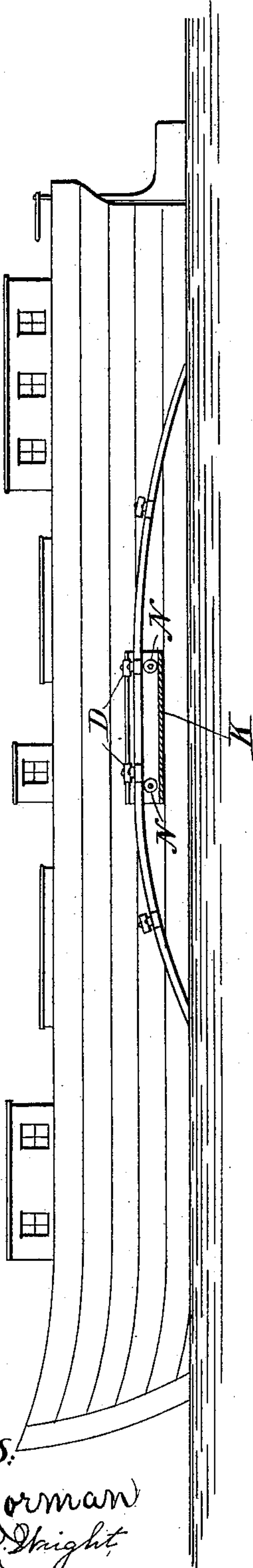
A. NORMAN.

ELECTRIC CABLE FOR DRIVING CONVEYANCES.

(Application filed Apr. 19, 1897.)

(No Model.)

Fig. 4.



Witnesses:
Wm. Norman
Sylvia R. Knight

Fig. 1.

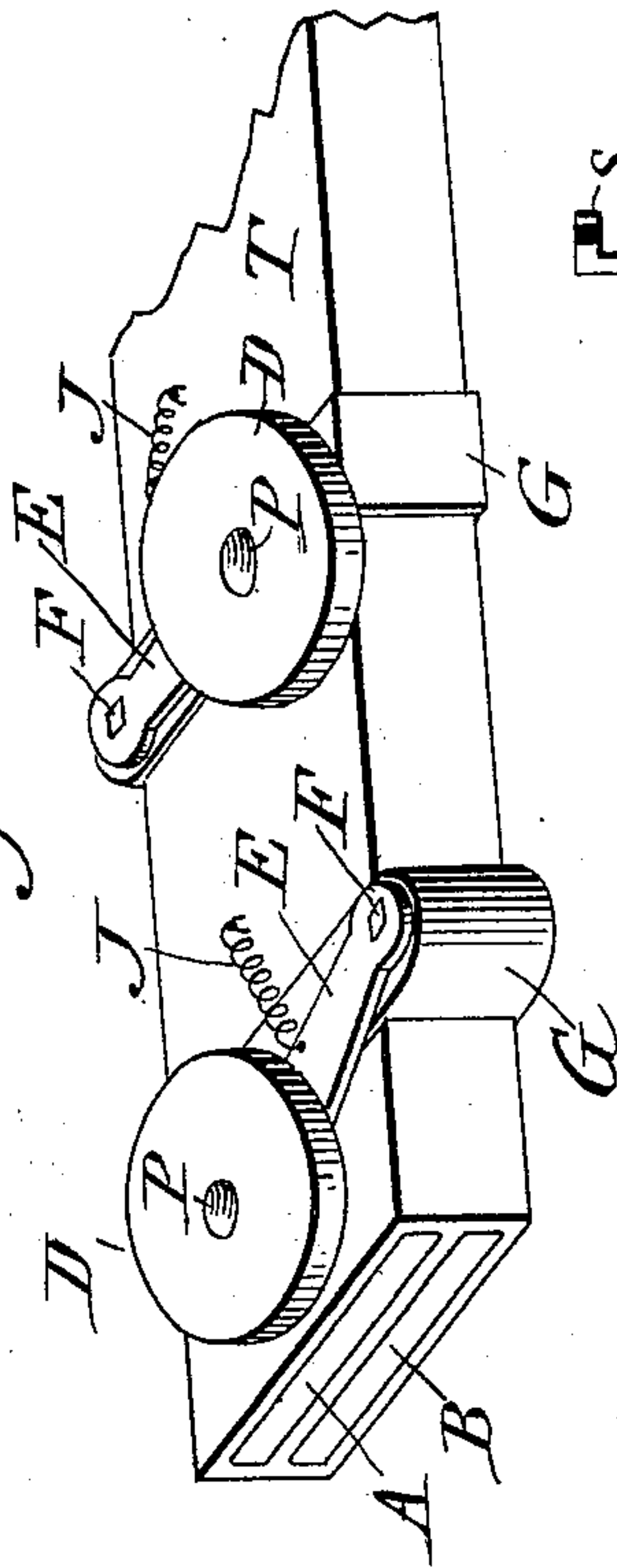


Fig. 3.

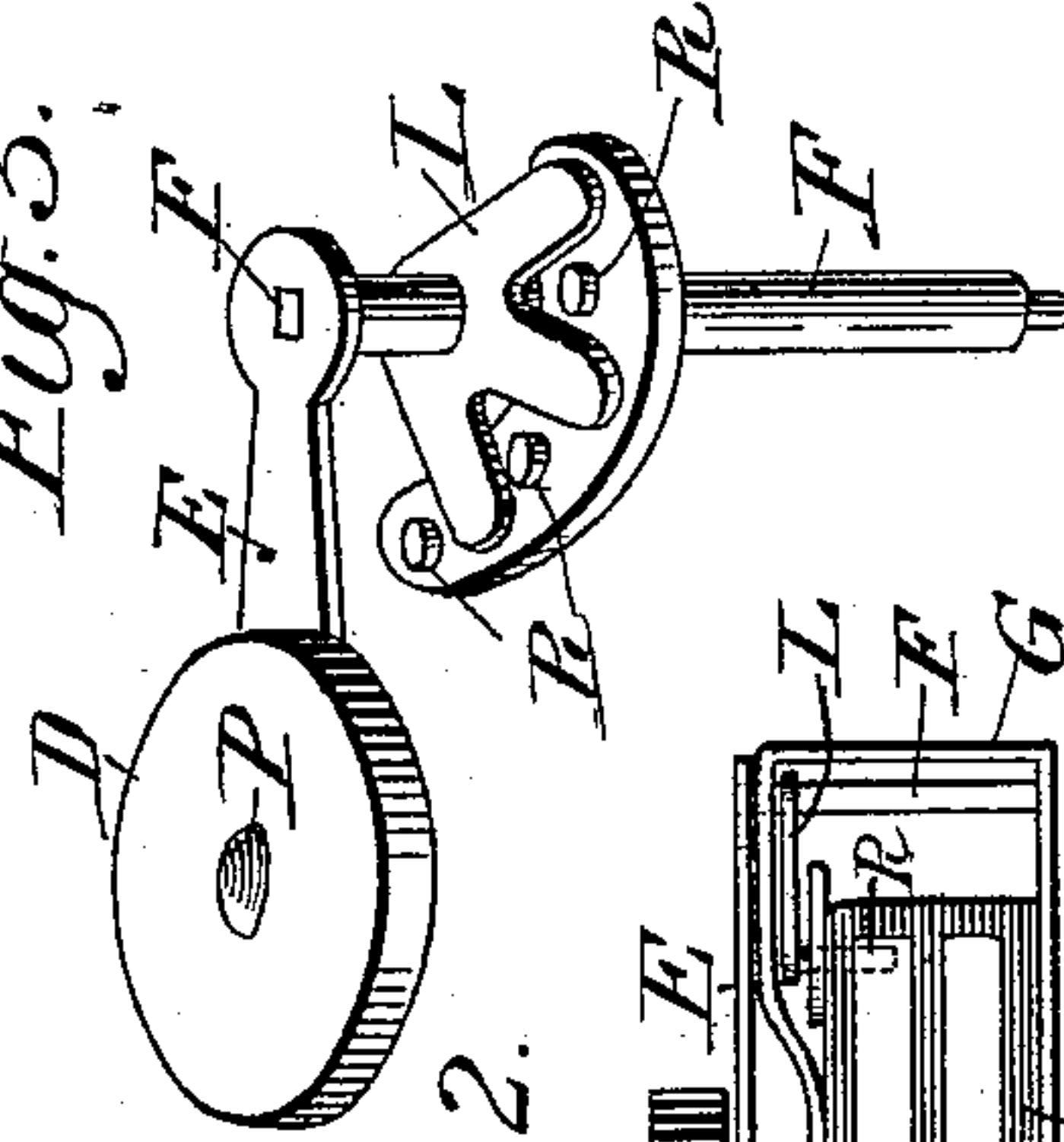


Fig. 2.

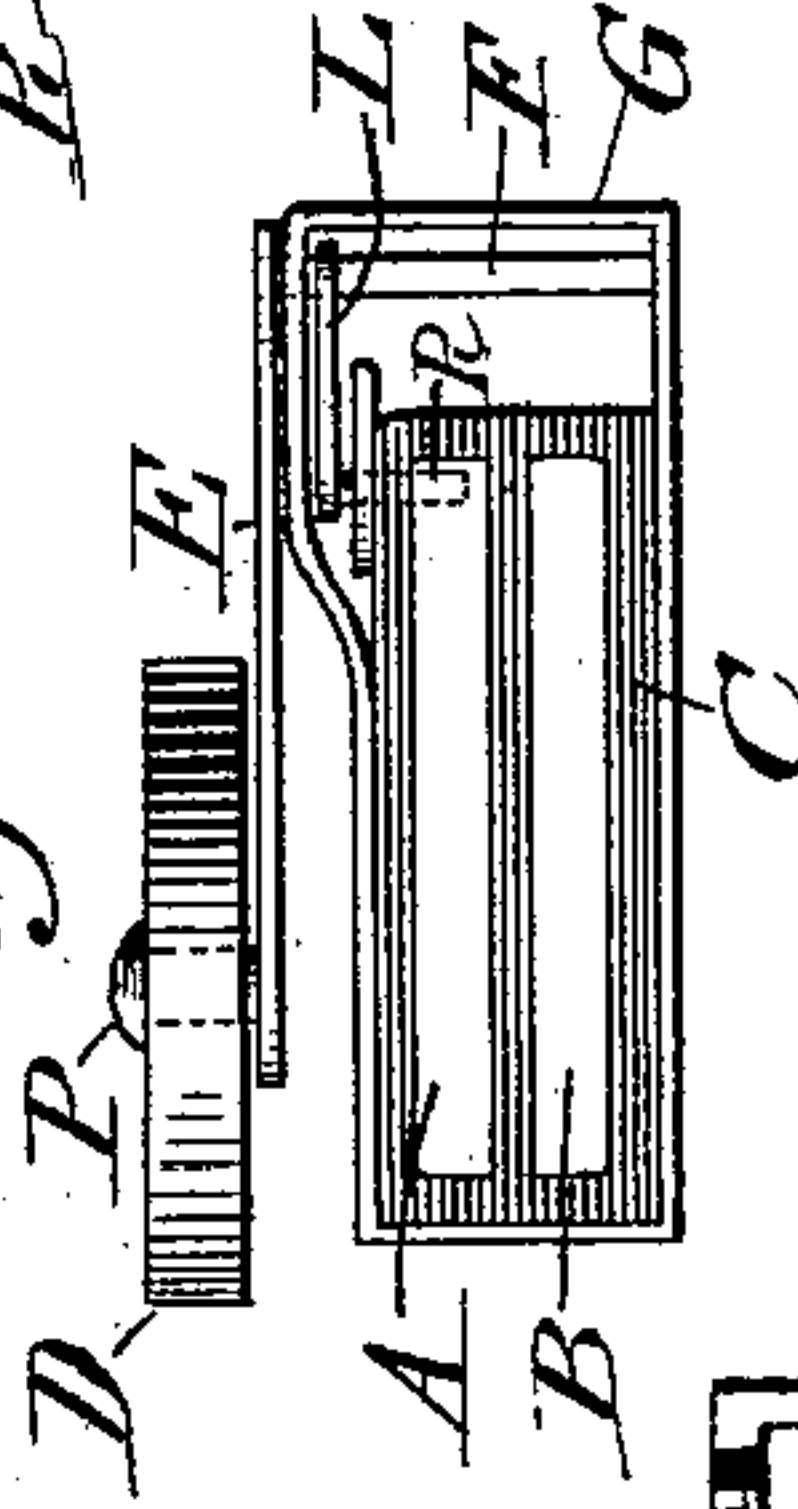
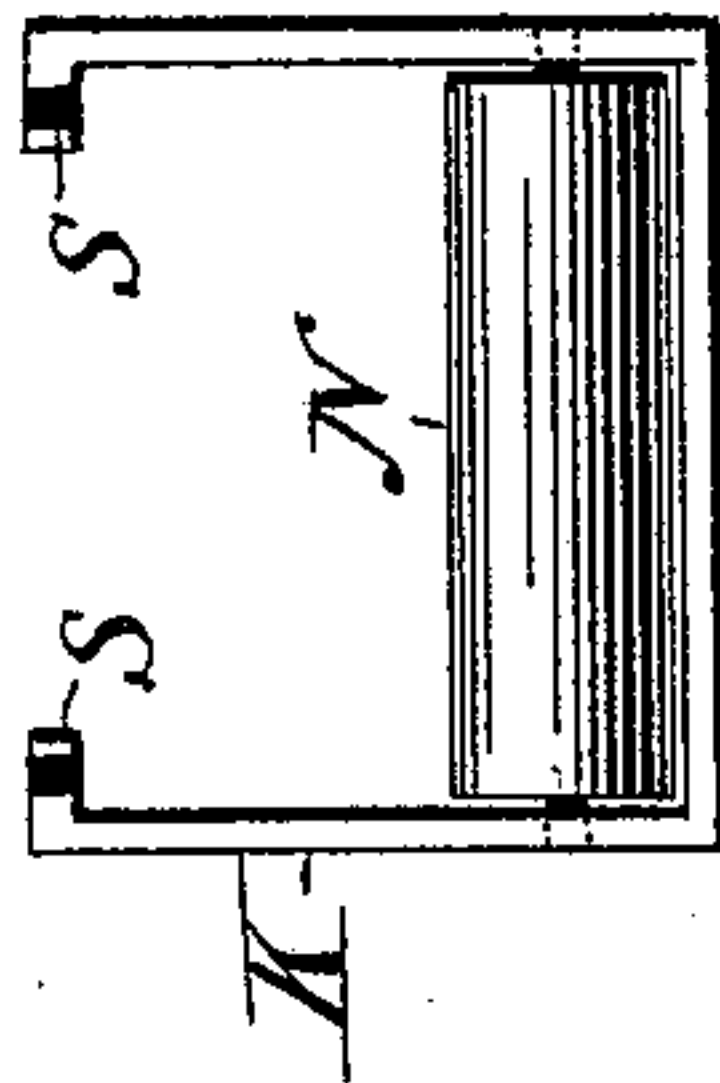


Fig. 5.



Inventor:

Addison Norman

UNITED STATES PATENT OFFICE.

ADDISON NORMAN, OF TORONTO, CANADA, ASSIGNOR OF ONE-FOURTH TO
WILLIAM McCABE, OF SAME PLACE.

ELECTRIC CABLE FOR DRIVING CONVEYANCES.

SPECIFICATION forming part of Letters Patent No. 607,070, dated July 12, 1898.

Application filed April 19, 1897. Serial No. 632,890. (No model.)

To all whom it may concern:

Be it known that I, ADDISON NORMAN, a citizen of Canada, residing at Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Electric Cables for Driving Conveyances, of which the following is a full, clear, and exact description.

The purpose of my invention is to simplify the application of electricity as a power for moving conveyances both by land and water.

It is particularly adapted to all places where it would be inconvenient to lay iron or steel tracks.

This invention is an addition to and an improvement on some of the points claimed in my application filed July 8, 1896, Serial No. 598,492.

This improvement greatly simplifies the mechanism of the cable and switches, making them workable in places where other methods would be impracticable.

The principal features of my invention are doubling of the conductors, one to use as the supply and the other for the return current, changing the form of switches used, and transferring the working conductors from the cable to the cable-guide attached to a conveyance, yet preserving the solid rope form of the cable.

In the accompanying drawings I have illustrated the principal parts of my invention; but I do not wish to confine myself to those particular embodiments, as many modifications may be made without departing from the spirit of my invention.

Figure 1 is a longitudinal view of the cable with its two conductors and switches attached. A B are the two conductors. C is the wrapping and insulating material, that serves to keep them together without allowing them to touch each other and to prevent the current being carried off by everything the cable touches. G and G are metal bands which contain and are a part of the switches. D and D are pulleys attached to the levers E E. The levers E and E are secured to the shafts F F, which pass through the metal bands G G. J and J are springs which hold the levers E E from turning until they are moved by the pul-

leys rubbing against the projections on the carriage attached to a conveyance.

Fig. 2 is a cross-sectional view of the cable and switch, showing the manner in which the shaft F is placed in relation to the conductors, pulleys, and levers.

Fig. 3 is the switch without the band or cable.

Fig. 4 is a view of a boat with a longitudinal section of the guide attached. One of the sides of the carriage is removed to show the rollers on which the cable runs as it supplies the current to the working conductor of the guide.

Fig. 5 is a cross-sectional view of the cable-guide, showing the projections S S, which are working conductors, and the roller N, on which the cable runs.

The two conductors A B are continuous throughout their whole length. They may be of any desired shape, as round, flat, or square. In most cases I prefer the flat form, as shown in Figs. 1, 2, and 4.

The switches I have designed to be used with this cable are made each of five parts. They consist of pulley, shaft, fingers, and a U-shaped piece. In addition to these I use a band of metal around the cable, which serves the purpose of holding and retaining the switch part proper in place, and at the same time it excludes water and air.

The metal band G, which is fastened tightly around the insulating material which covers the conductors, is distended or enlarged at one side to make room for the shaft F and other accessories that may be found necessary to use. To the top of the shaft F is attached the lever E in such a firm manner as to insure its movement whenever the lever is moved.

The pulley D is secured to the lever E by a pivot P, on which it is allowed to freely revolve. Below the band G, or rather between the upper and lower parts of it, are rigidly fastened the metal fingers L. Any other form of connection will do. Below these fingers is a U-shaped piece of metal, secured to the insulating material which covers the cable by three screws, which pass through it into the conductor below. The screws R have large heads, which stand well up above the U-shaped piece. The fingers and U-plate are so adjust-

ed that there is no contact between them when the switch is in its normal position; but when it is turned by the pulley rubbing against the working conductor of the cable-guide the fingers rest on the heads of the screws R R R.

5 The guide for the cable may be made of any desirable material so long as two strips of metal are secured to the two projecting pieces S S for the pulleys D D to run against and present enough resistance to turn the switches.

10 The guide I have shown in the drawings is in the shape of a trough, in which are placed three or more rollers for the cable to run on.

Projecting from the sides of the carriage, 15 above the cable, are two pieces S S, made of or faced with metal. The two projections are so adjusted as to make them press against the pulleys with sufficient force to turn them out of their normal position, and thereby turn 20 the switches as the cable passes over the rollers in the guide. The pulley of the switch connected with the supply-conductor runs against one of the projections, and the pulley of the switch in connection with the return- 25 conductor runs against the other projection, and the motor of the conveyance is in connection with both, and thereby a continuous current is kept up.

Having described my invention and its purpose, I desire to secure by Letters Patent the following claims: 30

1. An electric cable consisting of continuous positive and negative conductors, insulating material between and surrounding the said conductors, and a switch for each conductor attached to and surrounding the cable. 35

2. The combination of an electric cable consisting of continuous positive and negative conductors, insulating material between and surrounding the same, switches carried by said cable, and means carried on a conveyance for raising said cable from its path and closing said switches. 40

3. The combination of an electric cable consisting of continuous positive and negative conductors, insulating material between and surrounding the same, switches carried by said cable, and a guide carried by a conveyance for raising said cable from its path and closing said switches, said guide being provided with rollers and with current-collecting and switch-closing plates. 45 50

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Witnesses:

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WM. C. NORMAN.