

(No Model.)

F. S. DAVENPORT.
CONDUIT ELECTRIC RAILWAY.

No. 536,374.

Patented Mar. 26, 1895.

FIG. 1.

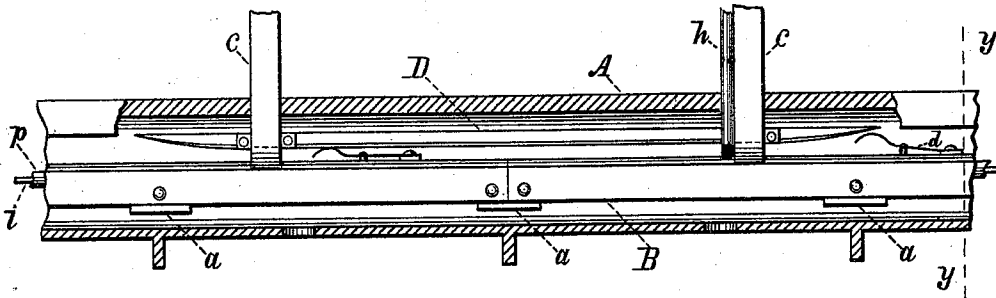


FIG. 2.

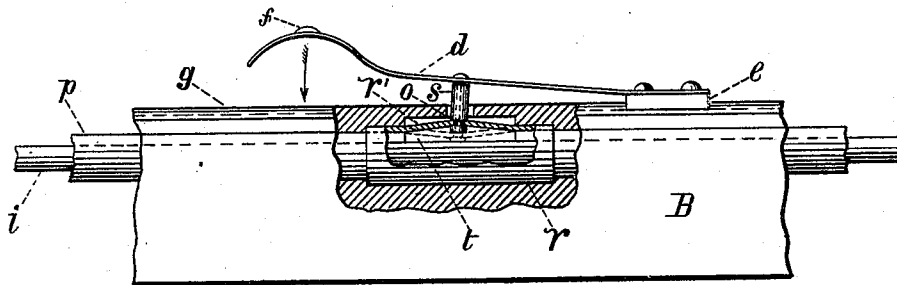
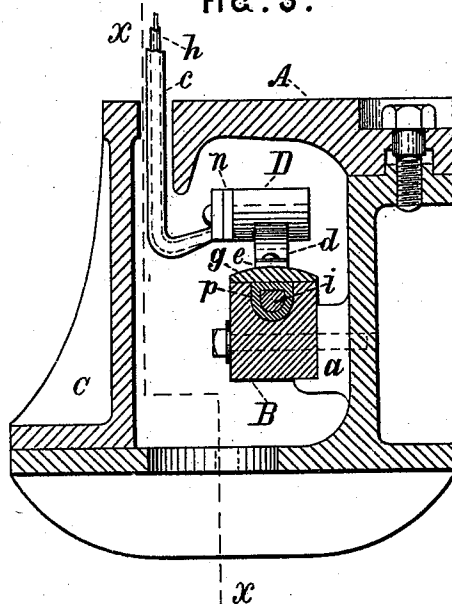


FIG. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK S. DAVENPORT, OF JERSEYVILLE, ILLINOIS.

CONDUIT ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 536,374, dated March 26, 1895.

Application filed January 28, 1895. Serial No. 536,510. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK S. DAVENPORT, a citizen of the United States, residing at Jerseyville, in the county of Jersey and State of Illinois, have invented a new and useful Improvement in Electric Railways, of which the following is a specification.

My invention relates to an improved underground conduit system for electric railways.

My object is to provide improved means for minimizing the escape of electric energy from the feed wire, save when and where acted upon by the passing car; to provide novel and improved means for collecting the electricity from the feed-wire, and for conveyance to the motor; and further, to provide improved and inexpensive means for supporting, preserving the alignment, and protecting against moisture and other detrimental influences, the feed-wire and its insulating covering.

With these ends in view, my invention consists in certain details of construction and combinations of parts hereinafter fully described, and illustrated in the accompanying drawings, in which—

Figure 1, is a side elevation of the device shown in connection with the conduit which is shown in section taken in the line *x, x*, Fig. 3, a portion of the conduit cover being also shown in section. Fig. 2, which is made to a larger scale, is a side elevation of a portion of the feed-wire and its insulating covering inclosed in a casing of wood, a part of which is shown as broken away to exhibit the means by which the connection between the feed-wire and the collecting bar is made. Fig. 3, is an enlarged transverse sectional view of the conduit and its contents taken in the line *y, y*, Fig. 1.

A, in Figs. 1 and 3 represents the conduit; B, a casing of wood inclosing the insulated feed-wire, and secured to lugs *a*, on the side of the conduit; D, a collecting contact bar depending from the car truck, and traveling therewith; *r*, insulating elastic covers or diaphragms for closing openings *t*, in the insulating covering of the feed-wire; *d*, spring arms secured to, but insulated from, the casing B, each provided with a contact stud *s*.

Referring to the drawings, it will be seen that the feed-wire *i*, which is preferably,

though not necessarily, made half-round and is covered with the usual insulating material, is, at intervals along its entire length, provided with small openings *t*, in the said covering so as to leave the wire bare at these places, each of said openings being covered by an insulating elastic band or diaphragm *r*, cemented air-tight over the top and down the sides of the covering *p*, as shown in Fig. 2. In the center of the top of each of these elastic covering bands is a small opening through which is thrust the lower part of a metallic contact stud *s*, provided with a groove *o*, round it for the reception of the elastic cover or diaphragm *r*', which thus forms an air-tight joint round the stud, the upper end of which is secured to the free or vibrating part of a spring arm *d*, which is secured at its fixed end to the cover *g*, of the casing, but insulated therefrom by a block *e*, of non-conducting material. The curved part of the free end of said spring arm is provided with a discharge facet *f*, adapted for contact with the collecting bar D, which is supported by arms *c*, depending from the car-truck, and reaching down through the conduit-slot somewhat below the level of the collecting bar, so as to shed the water that may fall upon it, before it can reach the collecting bar.

It will be observed that the bar D, is insulated from the arms *c, c*, by blocks *n*, of insulating material, and that the electric current is conducted from the collecting bar to the motor by an insulated wire *h*, as shown in Figs. 1 and 3.

The purpose and chief advantage of the insulating elastic covers or diaphragms *r*', through which the contact studs *s*, project, is the avoidance of a frictional joint which has always proved objectionable in an underground conduit, owing to the difficulty of keeping it properly lubricated, and protected against other impediments to its free action.

The several parts of my device being constructed and combined as above described, it follows that as the car travels, the collecting bar D, successively depresses the free ends of the spring arms *d*, and thus forces down the studs *s*, upon the feed-wire, opening through the spring arms, electric communication with the motor, leaving no outlet for the escape of electricity from the feed-wire,

save when and where acted upon by the collecting bar.

In regard to the conduit shown in connection with my present device, it may be here
5 observed that it does not differ essentially from the one for which a United States Patent has just been allowed me, No. 533,869, bearing the date of February 12, 1895. The only difference consists in the substitution of
10 a side C, as shown in Fig. 3, for the rail shown in my original device referred to. The modification shown is designed to adapt this form of conduit to the center or other part of the track, independent of the rail.

15 Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In connection with the underground conduit of an electric railway, the combination
20 of an insulated feed-wire, a casing secured to the wall of the conduit, and adapted to inclose and support said feed-wire, openings *t*, in the insulating covering of the feed-wire, and elas-

tic bands or diaphragms of insulating material adapted to hermetically close said open- 25
ings, metallic contact studs *s*, passing through and made air-tight in said elastic covers or diaphragms, and rigidly secured in metallic
spring arms insulated from the feed-wire, a
collecting contact bar supported by, but in- 30
sulated from, arms depending from the car truck, said collecting bar adapted to come in
contact with, and depress, the free ends of
the spring arms so as to press the contact
studs *s*, upon the feed-wire as it travels over 35
them, and an insulated wire for electrically connecting the collecting bar with the motor,
all constructed and adapted to operate sub-
stantially as and for the purpose set forth.

In testimony that I claim the foregoing I 40
have hereunto set my hand this 23d day of January, 1895.

FREDERICK S. DAVENPORT.

Witnesses:

J. M. PAGE,

M. ALICE CORY.