

(No Model.)

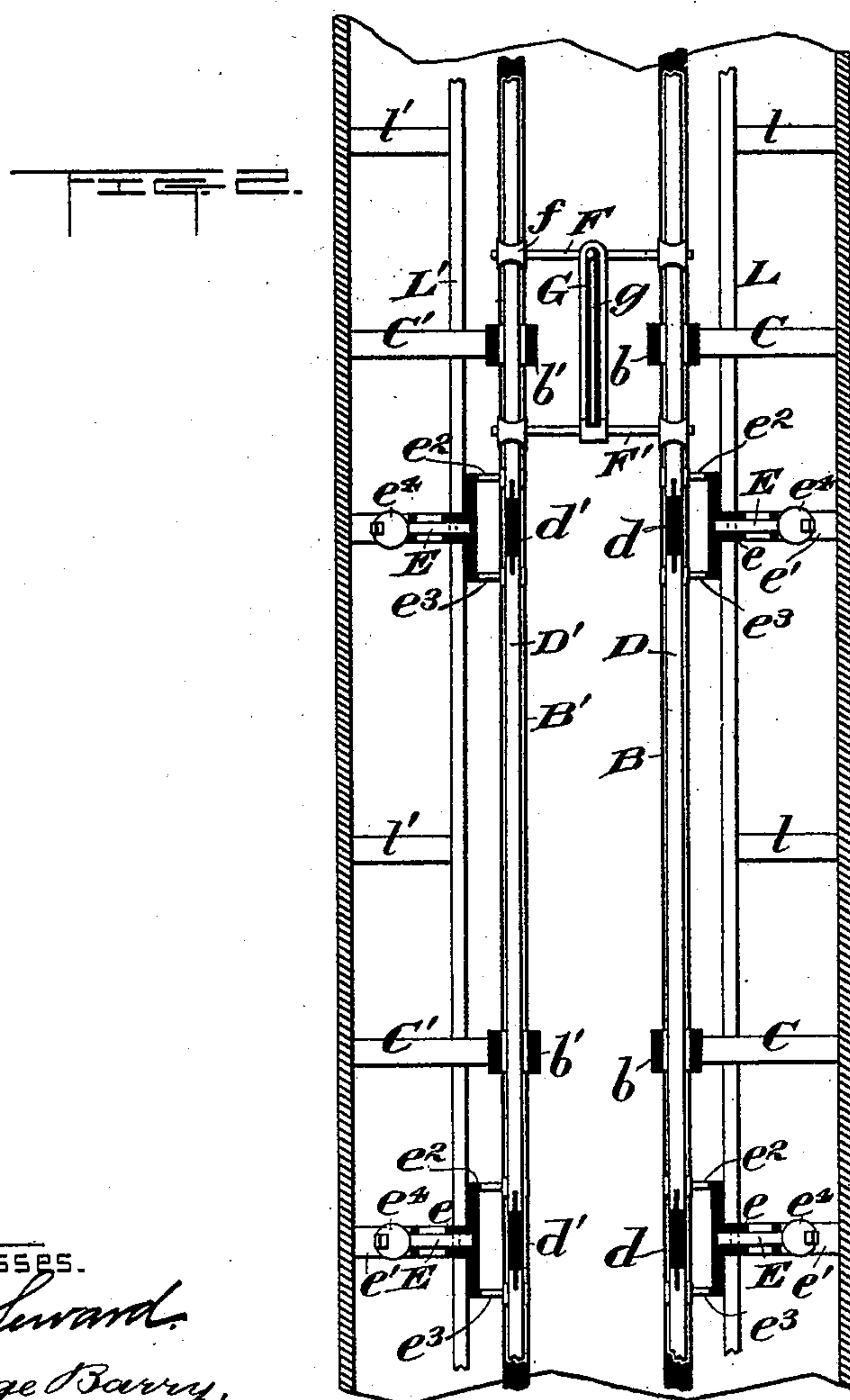
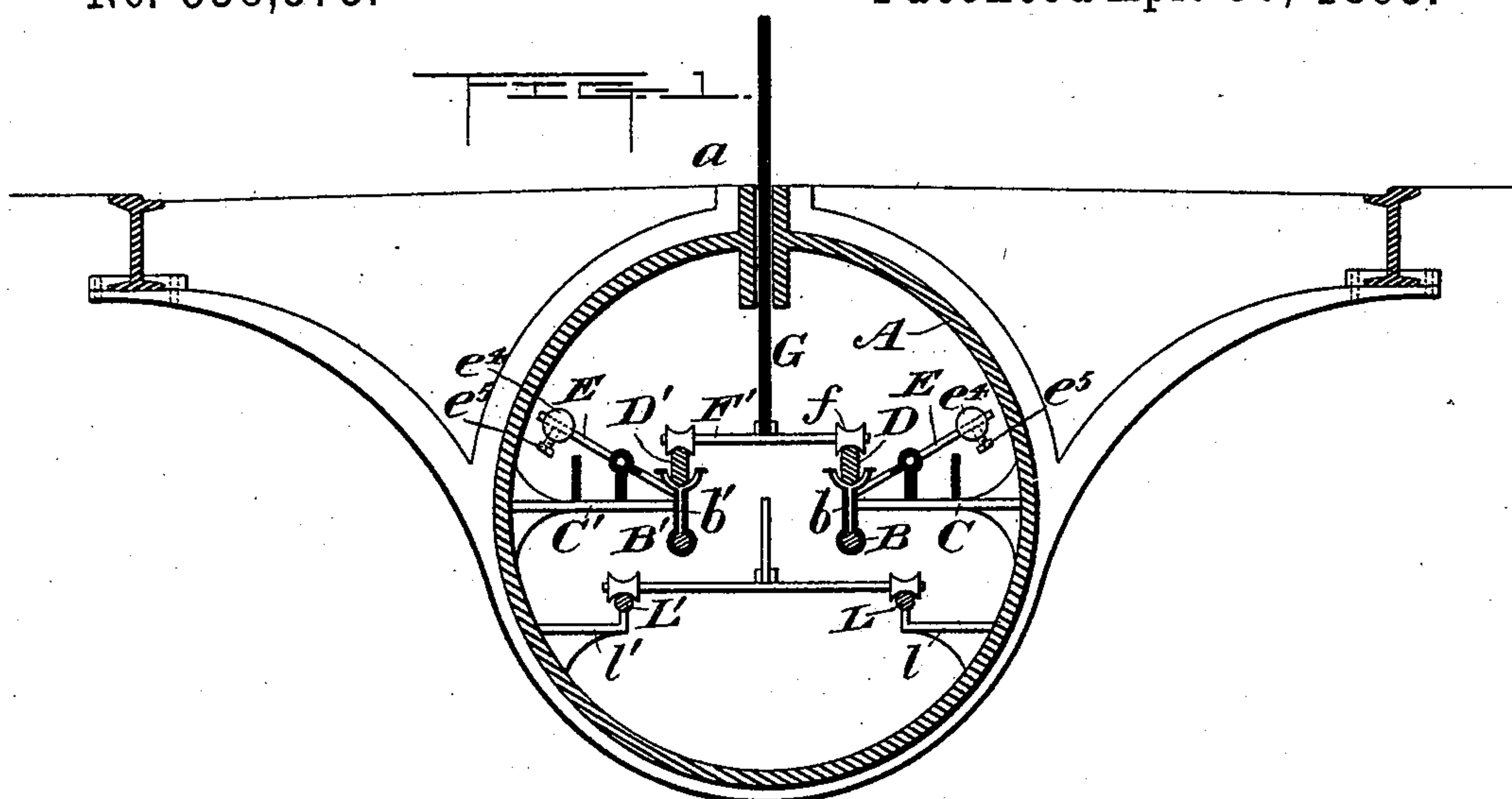
2 Sheets—Sheet 1.

F. H. HOMAN.

CONDUIT SYSTEM FOR ELECTRIC RAILWAYS.

No. 538,373.

Patented Apr. 30, 1895.



Witnesses.
R. C. Seward.
George Barry.

Inventory.
Frank H. Homan,
by attorneys.
Brown & Edwards

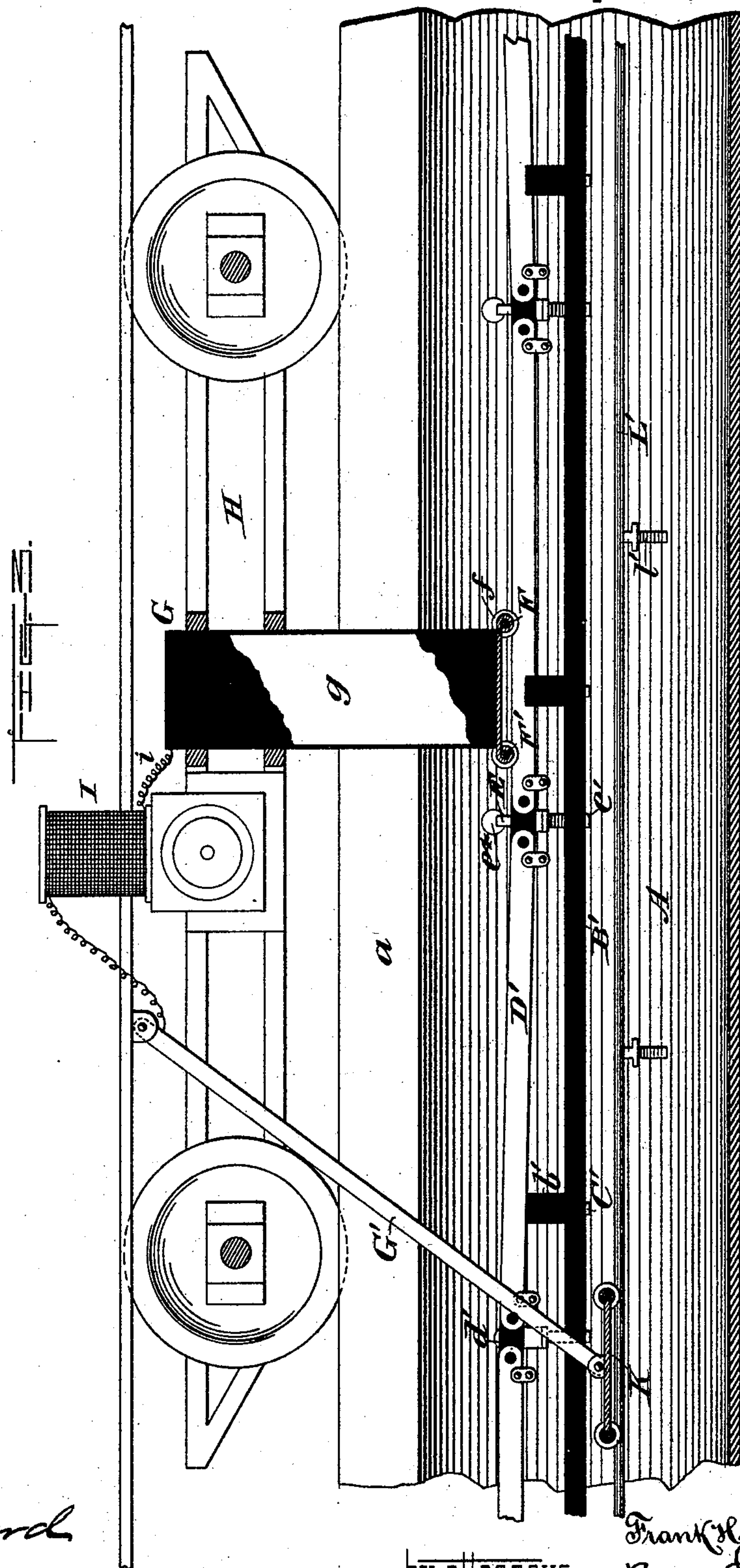
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Inventor.
Frank H. Homan
Brown & Howard

UNITED STATES PATENT OFFICE.

FRANK H. HOMAN, OF BROOKLYN, NEW YORK.

CONDUIT SYSTEM FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 538,373, dated April 30, 1895.

Application filed April 24, 1894. Serial No. 508,772. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. HOMAN, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Electric-Railway Systems, of which the following is a specification.

My invention relates to an improvement in electric railway systems, in which a trolley carried by the car is arranged to depress a flexible conductor composed of insulated sections into contact with branch conductors leading to an insulated prime conductor.

I have chosen to illustrate my invention in connection with an underground conduit, although it is applicable to elevated roads or to structures where the prime conductor is located above ground or overhead, as well as in a conduit.

In the accompanying drawings, Figure 1 is a transverse section through the track and conduit, showing trolleys for both the advance and return current. Fig. 2 is a horizontal section through a portion of the conduit, showing the flexible sectional conductors and their supports in top plan; and Fig. 3 is a partial longitudinal transverse section through the conduit, showing the position of the car relative to the conductors.

The conduit is represented by A and may be of any well known or approved form, such for example as that at present in use in connection with cable railways.

Within the conduit A and off to one side of the slot *a*, I locate one or two (in the present instance two) prime conductors B and B', thoroughly insulated and supported by means of brackets C and C', fixed to the sides of the conduit. From the prime conductors B and B', at suitable intervals, I extend short conducting branches *b*, *b'*, which spread out at their upper ends in cup or Y-form and the surfaces of which are thoroughly insulated, excepting along the inner faces of the cup shaped or Y portions.

Along within the conduit A and a short distance above the upper, cup-shaped ends of the branches *b*, *b'*, I suspend conducting rods or bars D, D', composed of sections flexibly connected together at their ends and completely insulated from one another by insulating pieces *d*, *d'* located at the flexible joints. The sections of the bars D and D'

may be of any desired length which may be found most feasible in practice, for my present purposes sections about eight or ten feet in length being employed. The sectional contact rods or bars D, D' are conveniently suspended in a normal position a short distance above the upper ends of the conducting branches *b*, *b'* by means of counterbalanced levers E pivoted in suitable standards *e* on brackets *e'* fixed to the side of the conduit. The brackets *e'* may be made separable from the brackets C, C' which sustain the prime conductors, or the said brackets C, C' might be provided with extensions which would answer at the same time for the support of the counterbalance levers E, if found desirable. In the present instance I have shown each counterbalance lever E as provided with a forked end, the branches *e*² and *e*³ of which engage the ends of two consecutive sections of the flexible sectional conductor, the branches *e*² and *e*³ being insulated from each other so as to make a complete break between two consecutive conducting sections. The counterbalance weight *e*⁴ on the lever E may be adjusted by means of a set screw *e*⁵ to hold the bars D, D' with any required degree of resistance.

A trolley (in the present instance a four wheeled trolley, comprising two axles F and F', each provided with a pair of wheels *f* and connected by a slot plate G) is arranged to travel along within the conduit with its wheels upon the flexible sectional conductors D, D' and its slot plate G extending upwardly through the slot *a* in the conduit to the car H.

The slot plate G is, in the present instance, provided with a thin conducting sheet *g* on its interior and thoroughly insulated for the purpose of conducting the electric current from the flexible sectional conductors D, D' and trolley wheels and axles to a wire *i* leading to a motor on the car, shown conventionally in Fig. 3 at I. The slot plate and trolley are so located that, as they move along on the flexible conducting bars D, D', they will depress the said flexible bars into contact with the upper ends of the branch conductors *b*, *b'* and thereby transmit the electric current from the prime conductors B, B' to the sections of the flexible bars D, D' and thence to the motor carried by the car. The two sets

of trolley wheels serve to bridge the insulated joints between the consecutive sections of the flexible bars D, D' so that the motor on the car will receive electricity from a succeeding set of sections of the flexible bars before the trolley leaves a preceding set of such sections. The return current may be passed from the car to the rails and through the rails or ground, or it may be, as in the present case I have shown it, transmitted from the motor through a trailing slot bar G' to a trolley K and thence to return conductors L, L', supported on suitable brackets l, l' fixed to the interior of the conduit A, below the prime conductors B, B'.

This provision for the return of the current takes away any liability of dangerously charging the rails on which the car is traveling and makes a very effective connection for the passage of the current after it has done its work at the motor.

The very slight exposure of the prime conductor makes the latter a very economical transmitter, while the support of the sectional, flexible conductor is such that it requires but very slight pressure to press its sections, one after another, into contact with the branch conductors and the particular means of support of said sectional conductor are very durable and quite inexpensive.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts herein described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure and arrangement herein set forth, but

What I claim is—

1. In combination, a conduit, sectional conductors extending along within the conduit and having insulating joints between their

ends, the counterbalance lever having forked branches insulated from each other for supporting the ends of two conductors separated by one of the said insulated joints, and insulated prime conductors having branch conductors located intermediate of said insulated joints extending up into position to be engaged by the sectional conductors, the said branch conductors having cup-shaped upper portions for causing an extended electrical connection between the said sectional conductors and the branch conductors when the sectional conductors are depressed, substantially as set forth.

2. In combination, a conduit having a slot therein, an insulated prime conductor supported within the conduit and provided with branch conductors at intervals having exposed portions, a conductor composed of sections having insulated joints connecting their ends, a counterbalance lever for suspending said sectional conductor in yielding adjustment at both sides of the insulated joints and a short distance from the exposed portions of the branch conductors, a return conductor extending along within the conduit, the said prime conductor, sectional conductor and return conductor being below and to one side of the slot in the conduit, a transmitting trolley running on the sectional conductor for supplying the current from the prime conductor to a motor and a trailing trolley running on the return conductor for returning the current from the motor to the return conductor, substantially as set forth.

FRANK H. HOMAN.

Witnesses:

FREDK. HAYNES,
IRENE B. DECKER.