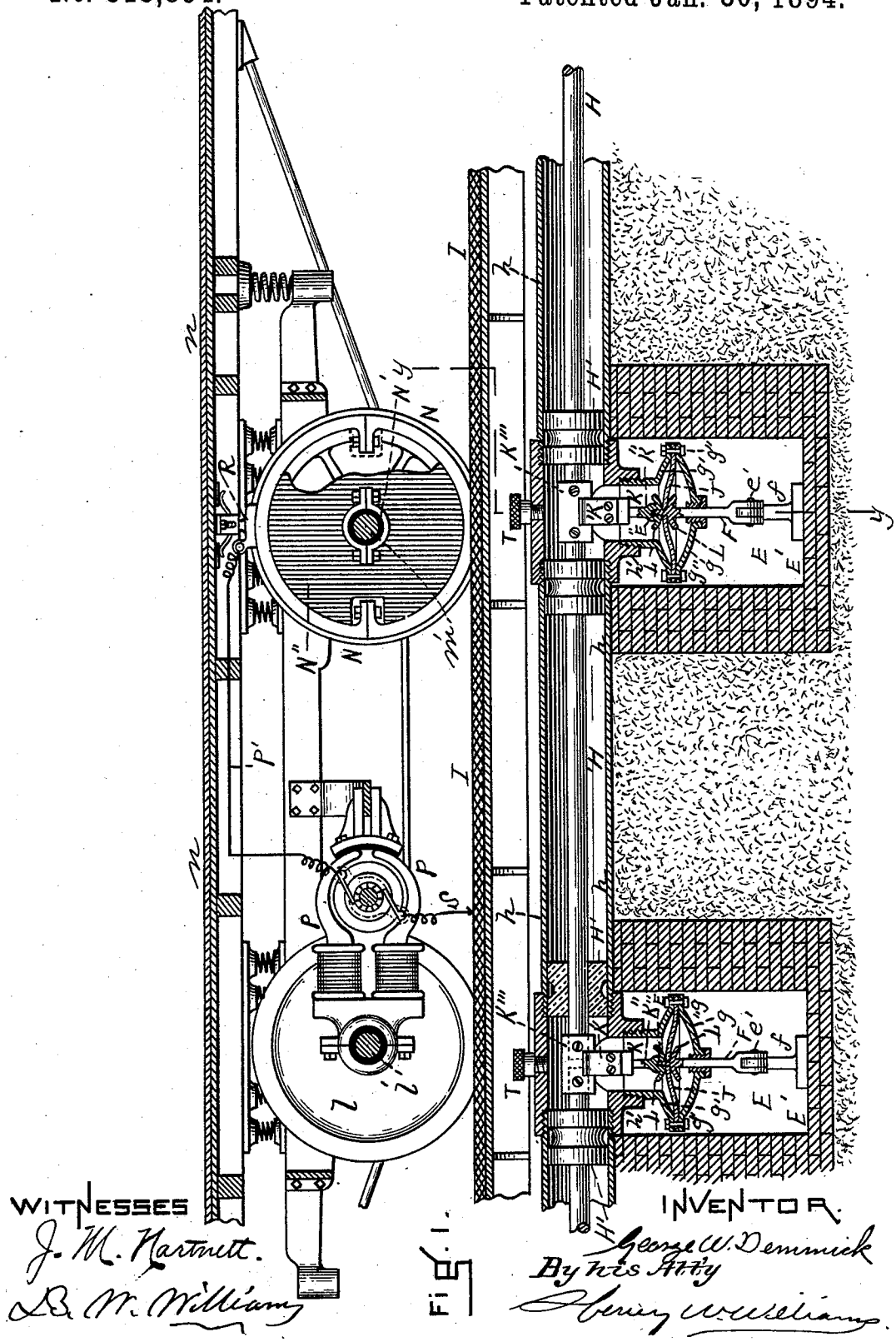
(No Model.) 3 Sheets—Sheet 1.

G. W. DEMMICK.

SECTIONAL ELECTRIC RAILWAY.

No. 513,894. Patented Jan. 30, 1894.



WITNESSES

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Fig. 1.

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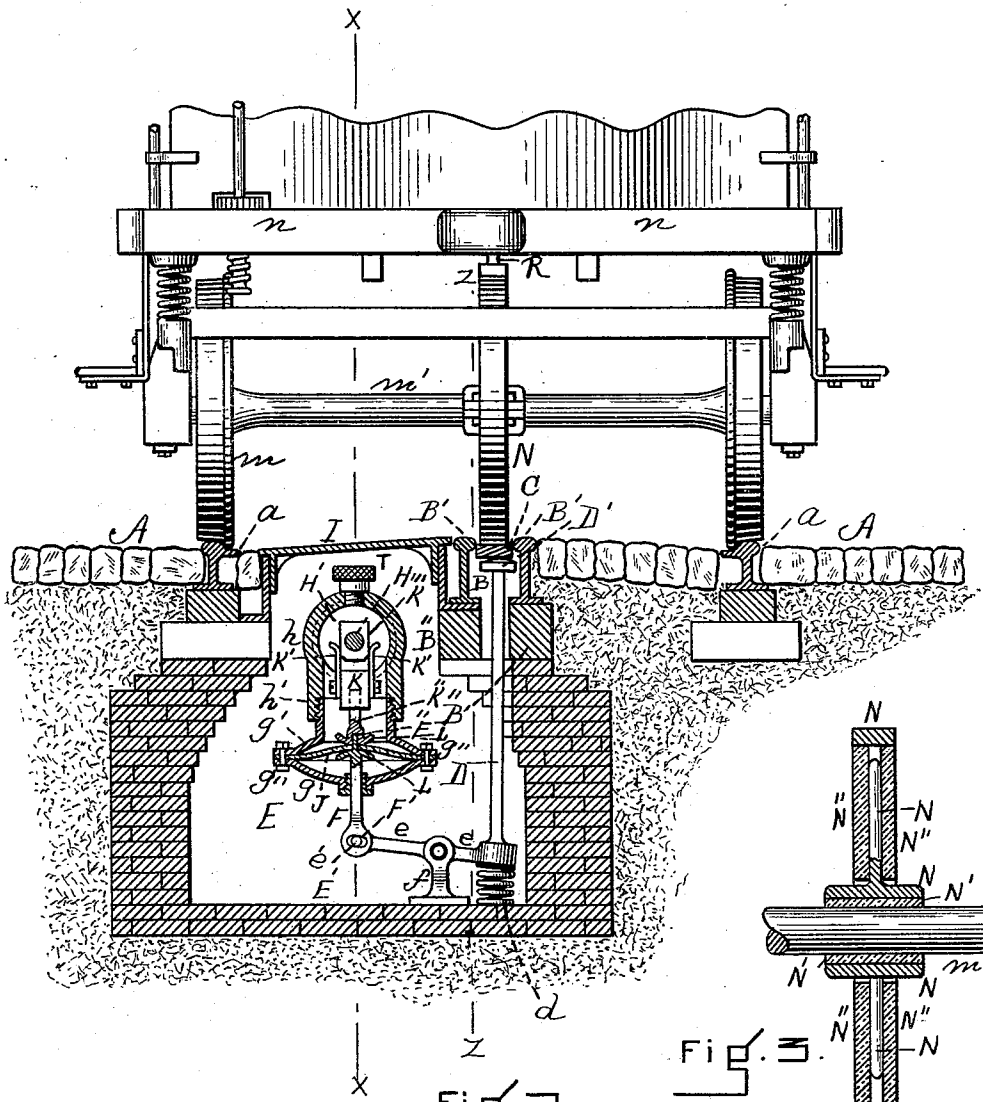

Fig. 2.

Fig. 3.

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(No Model.)

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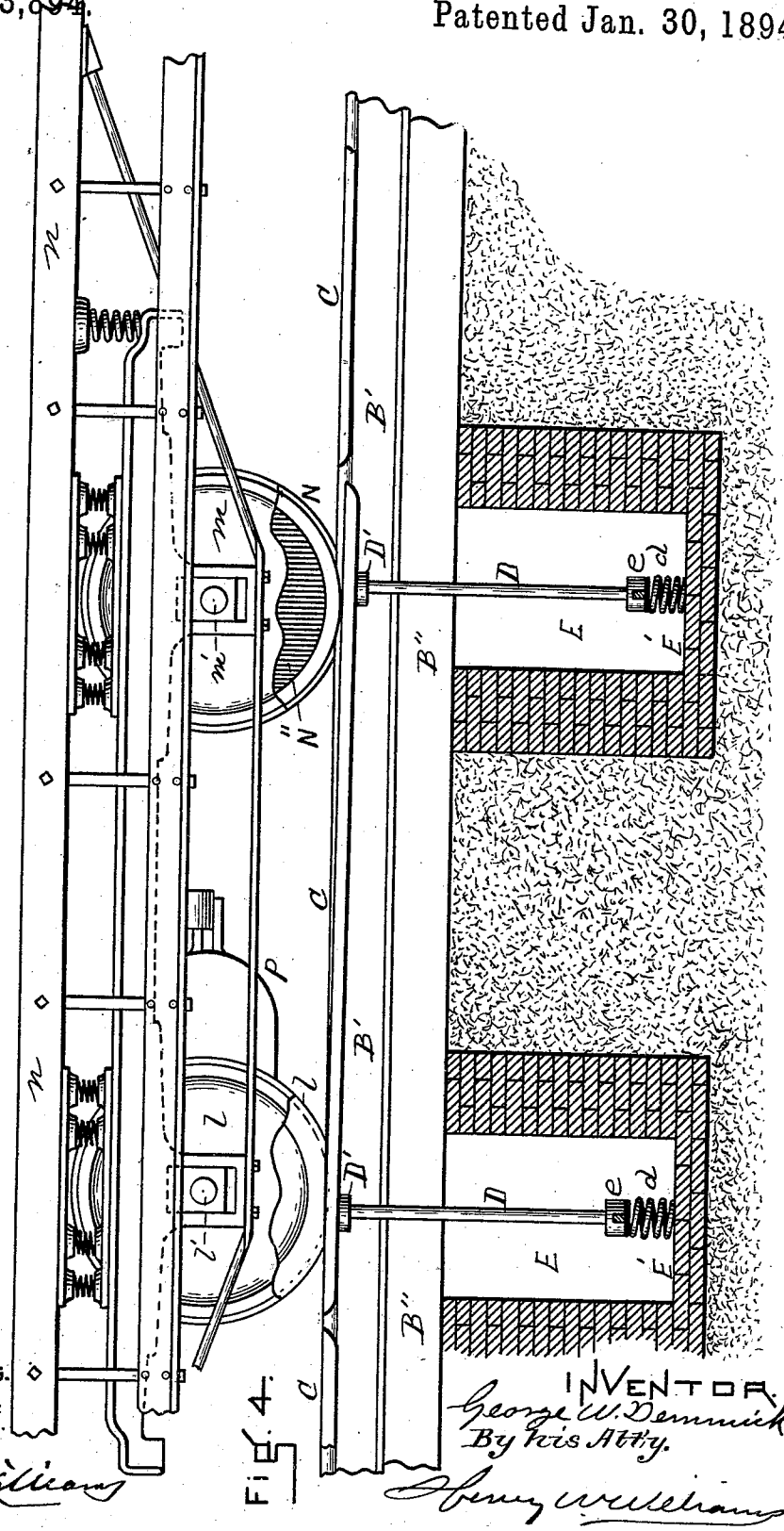

Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE W. DEMMICK, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO HENRY ROBINSON, GEORGE FULLER, JOHN S. EARL, AND KNOTT P. MARTIN, OF SAME PLACE.

SECTIONAL ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 513,894, dated January 30, 1894.

Application filed July 20, 1893. Serial No. 481,005. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DEMMICK, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Electric-Railway Systems, of which the following is a specification.

This is an electric railway system in which the wheel which takes the place of the trolley wheel, and is of course in circuit, is underneath the car, preferably on one of the car axles, and rolls on and is in contact with a series of metallic bars held normally up to, and substantially flush with, the surface of the roadway and in the mouth of a conduit by a device below the surface of the roadbed connecting with the feeding conductor, which is also below the surface.

The nature of the invention is fully described below, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section taken on line *x*, Fig. 2, showing portions of a car and roadbed illustrating my invention. Fig. 2 is a vertical section taken on line *y*, Fig. 1. Fig. 3 is a cross section of the trolley wheel. Fig. 4 is a longitudinal vertical section taken on line *z*, Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents the surface of the roadbed, and *a* the rails.

B′ B′ represent the metallic sides of a conduit B, said sides resting on bases B″ made preferably of wood and set in the roadbed in any suitable manner. This conduit is preferably centrally located between the rails, and extends continuously parallel therewith. Its mouth or slot is kept normally closed by means of a series of metallic bars C whose upper surfaces are normally substantially flush or on a level with the surface of the roadbed, said bars being laid end to end in the slot of the conduit, and each being say eight feet long, although the length of the bars may be varied as desired. Each bar is supported in its normal position at points near its ends by metallic caps D′ secured to the upper ends of metallic posts or poles D, the lower end of each of which rests upon one end of a metallic lever *e* beneath which end is a spring *d* insulated from the lever and resting upon the bottom E′ of the pit E constructed of masonry or in any suitable manner, two pits being located preferably beneath the bars C near their ends, as shown. The lever *e* is fulcrumed on and insulated from the support *f* resting on the bottom of the pit E, and its opposite end is provided with a pin *e′* which extends into slots F′ in the bifurcated lower end of the vertical metallic rod or piston F. This rod F extends up through the slides in the shell *g* which is bolted at *g″* to the shell *g′*, whose upper portion screws into dropped couplings or extensions *h′* of the longitudinal tube *h* which contains the wire H which is the feeding conductor and supplies electricity. The space inclosed by the shells is usually filled with oil to keep out all moisture. The tube or pipe *h* containing the wire H extends through the upper portions of the pits E and under the roadbed between the conduit B and one rail *a*, the wire being sustained by the porcelain supports H′. The pits are preferably protected with a metallic cover I, which may extend along over the entire length of the wire H if desired. The upper end of the rod F is provided with a contact finger E″, which extends through the elastic diaphragm J and projects into the lower end of a vertical metallic rod K″ extending down from a metallic block K provided with metallic wings or brushes K′ which extend on opposite sides of of the contact block K‴ on the wire H. The rods F and K″ are provided with oppositely placed convex guards L next the diaphragm J, which protect the rubber from injury and prevent sudden bending at that point. The blocks K″ serve not only as contact blocks, but also as connections for abutting ends of the wire H.

l m represent ordinary car wheels on their respective axles *l′ m′*, and *n* is a portion of the car body. Free on the axle *m′* is the trolley wheel N, insulated therefrom by the sleeve N′ and preferably flanked with insulation disks N″. This wheel is in constant contact with and rolls upon the bars C, and the relation of the power of the springs *d* to the

weight of the car is such that as the wheel N reaches a bar, it depresses it slightly, while an ordinary vehicle would be much too light to affect it.

P is an ordinary electrical motor driving the axle or shaft l' and connected by a wire P′ with brush R which are in contact with the periphery of the trolley wheel N. Suitable caps T afford access to the contents of the pits. The electricity passes from the power wire H, through the contact block K‴, brushes K′, block K, rod K″, finger E″, rod F, lever *e*, supporting rod D and cap D′, to the bar C; thence through the wheel N, brush R, and wire P′ to the motor P, and thence the current is grounded in any manner, as by the wire S, preferably through the rails. As the car is propelled, the wheel N presses down slightly each bar C on which it treads, against the power of the spring *d*, pressing up the opposite arm of the lever *e*, and keeping a good contact with the power wire H, which is the feeding conductor.

As will readily be seen, the disadvantages arising from the position of over-head trolleys and over-head wires are done away with. As above mentioned, the conduit is kept absolutely closed by the bars C until an electric car presses them down one at a time, unless some vehicle should appear on the road which is as heavy as an electric car, which would be an improbable occurrence.

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

1. In an electric railway system, in combination, the bars C laid longitudinally in the conduit B, the supporting posts D held normally raised by springs, as *d*, the levers *e* connected with said posts, the power or feeding wire H, and mechanism intermediate with said levers and wire whereby an electrical circuit is established, substantially as described.

2. In an electric railway system, in combination, the lever *e*, shells *g g′*, diaphragm J, wire H, tube *h* supporting said shells by means of suitable extensions *h′*, and connections F K″ K extending through the shells and diaphragms and connected with the wire, substantially as set forth.

3. In combination, the shells *g g′* and diaphragm J, and the rods F K″ provided with the convex flanges or guards E, substantially as described.

GEORGE W. DEMMICK.

Witnesses:
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