

No. 618,429.

Patented Jan. 31, 1899.

J. F. MUNSIE.
ELECTRIC RAILWAY.

(Application filed July 26, 1897.)

(No Model.)

Fig. 2

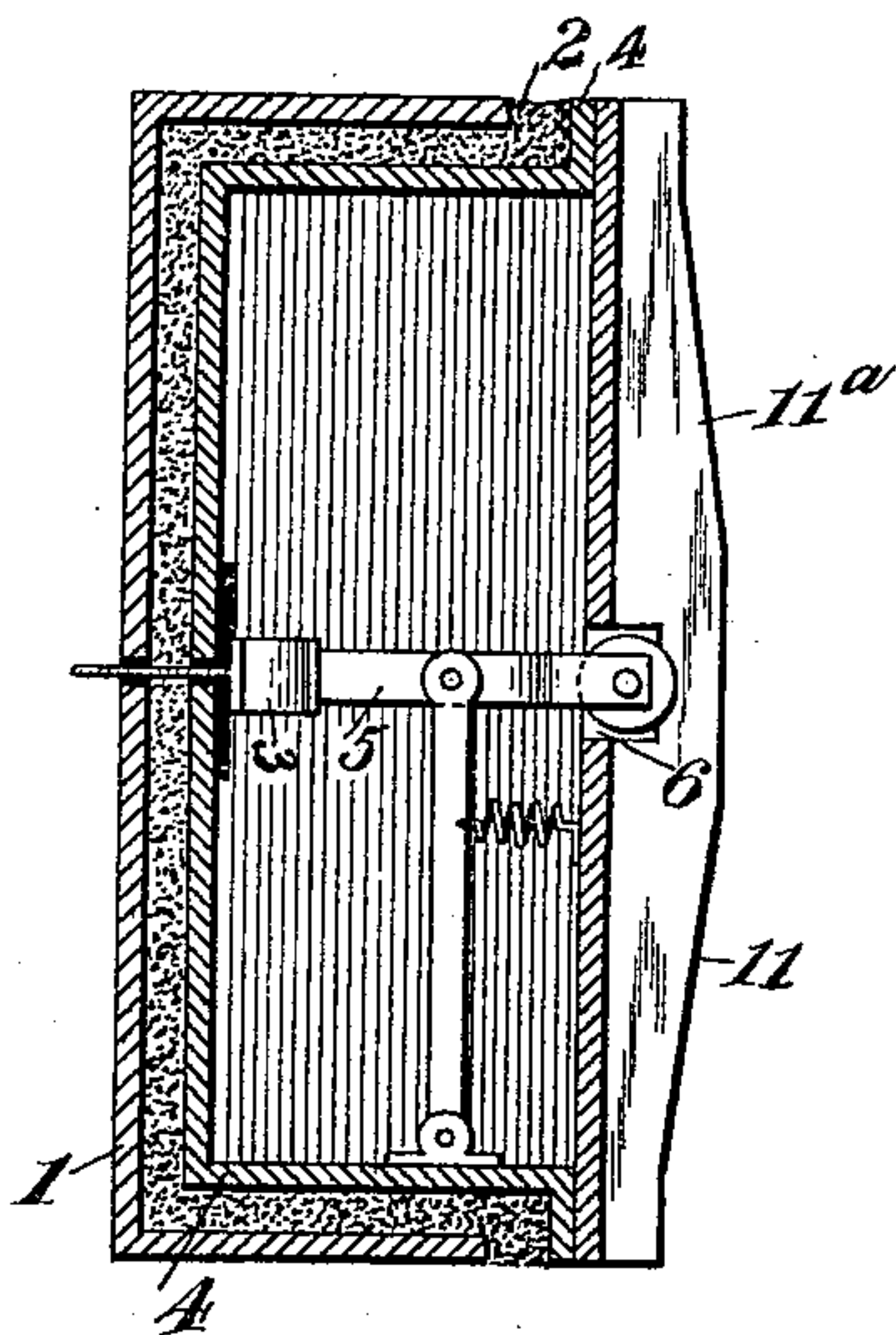


Fig. 1

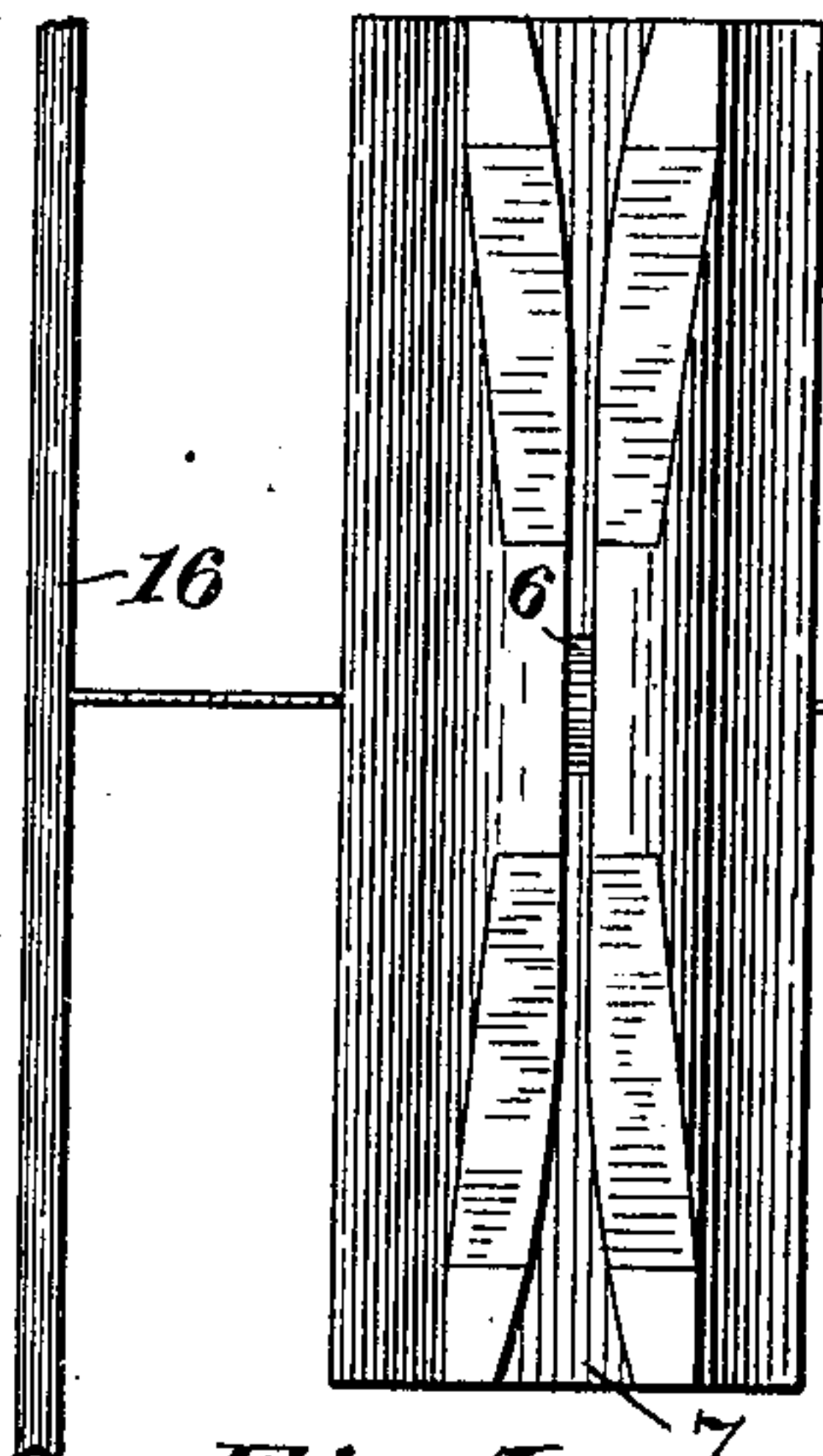


Fig. 1a

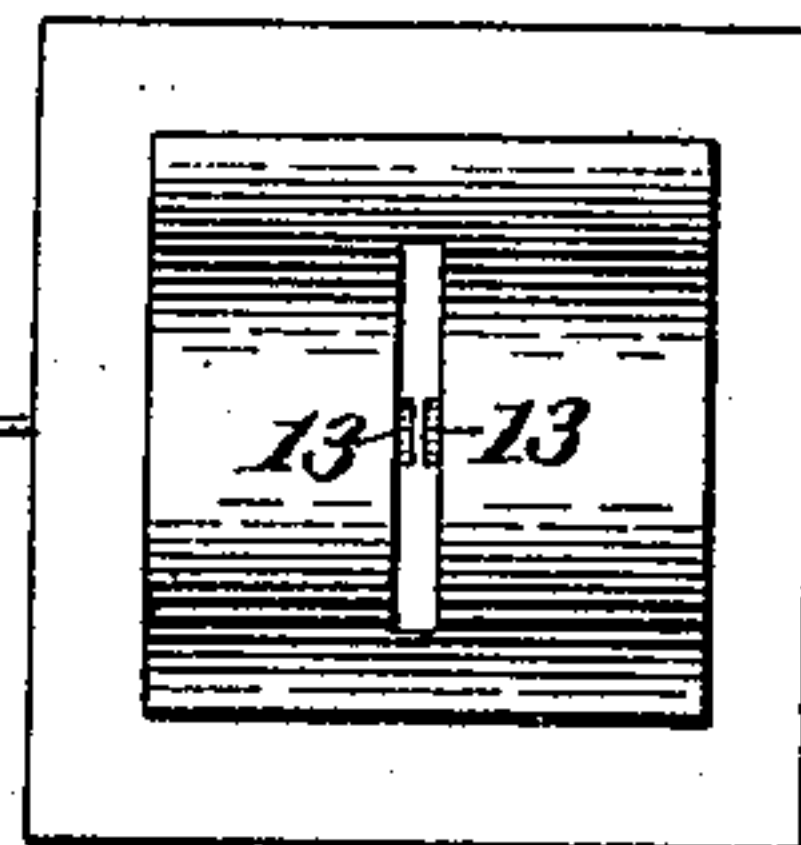


Fig. 5

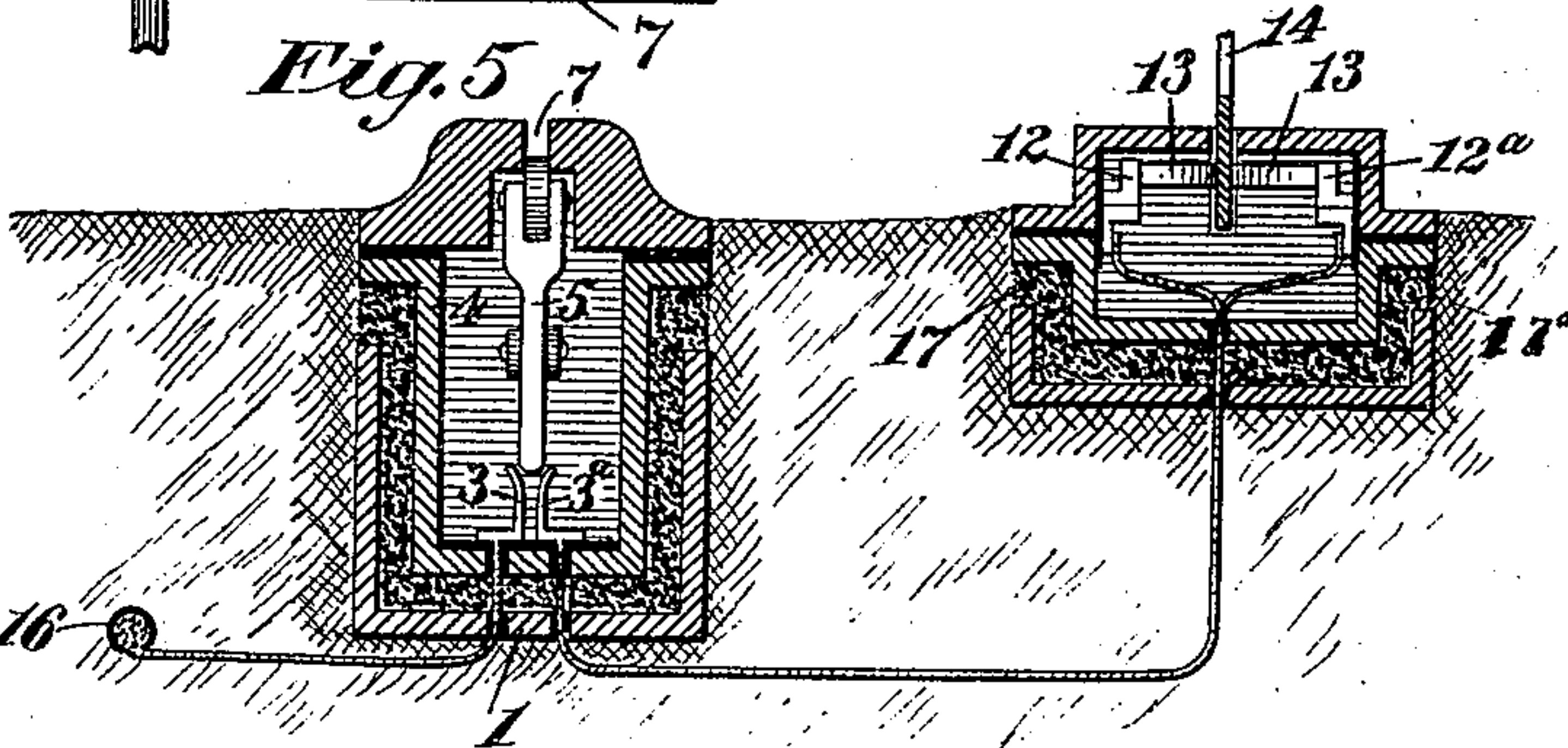


Fig. 5a

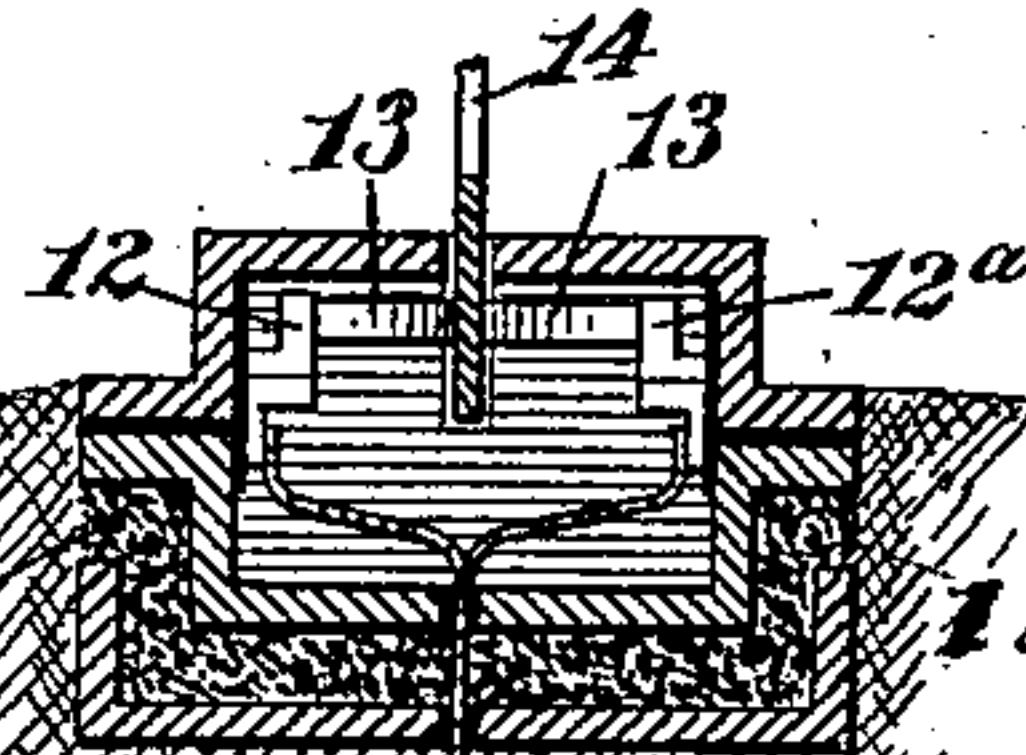


Fig. 3

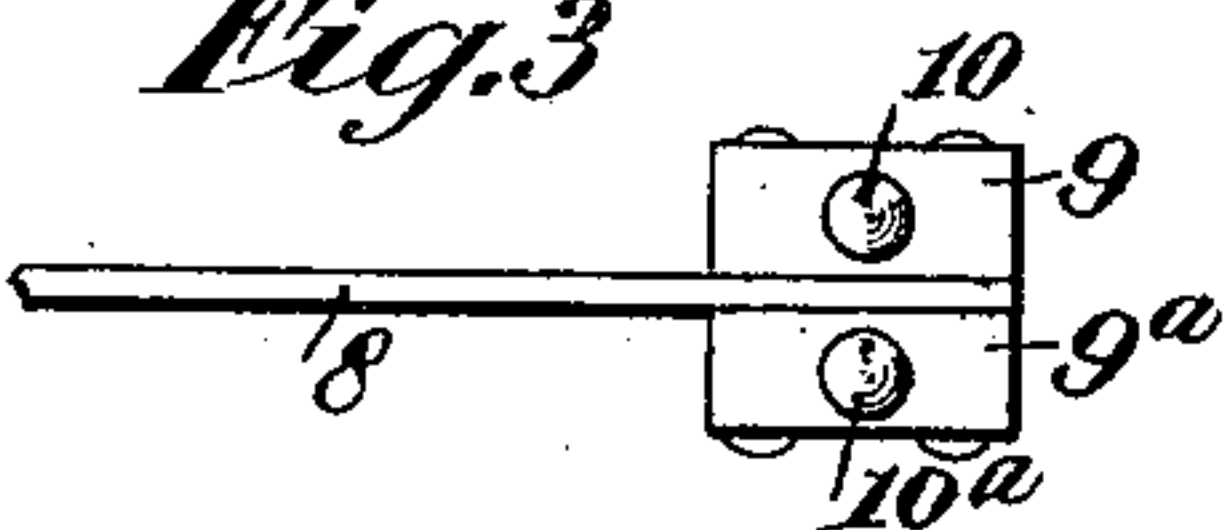


Fig. 4



Fig. 6

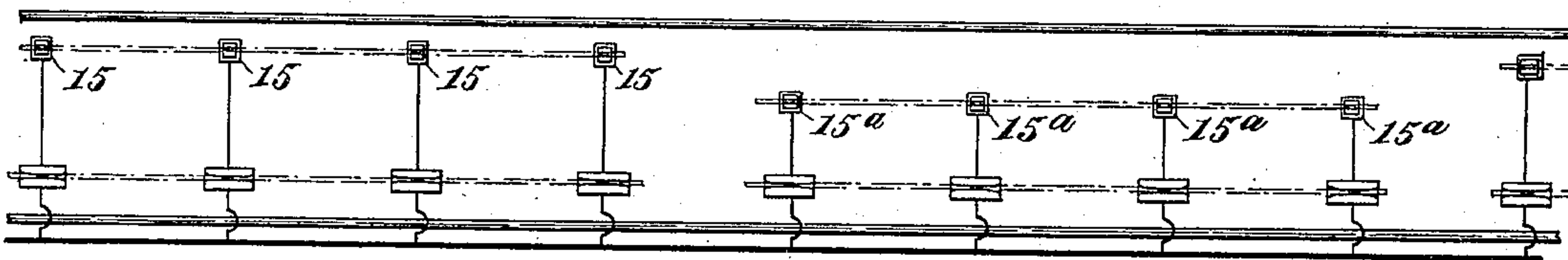
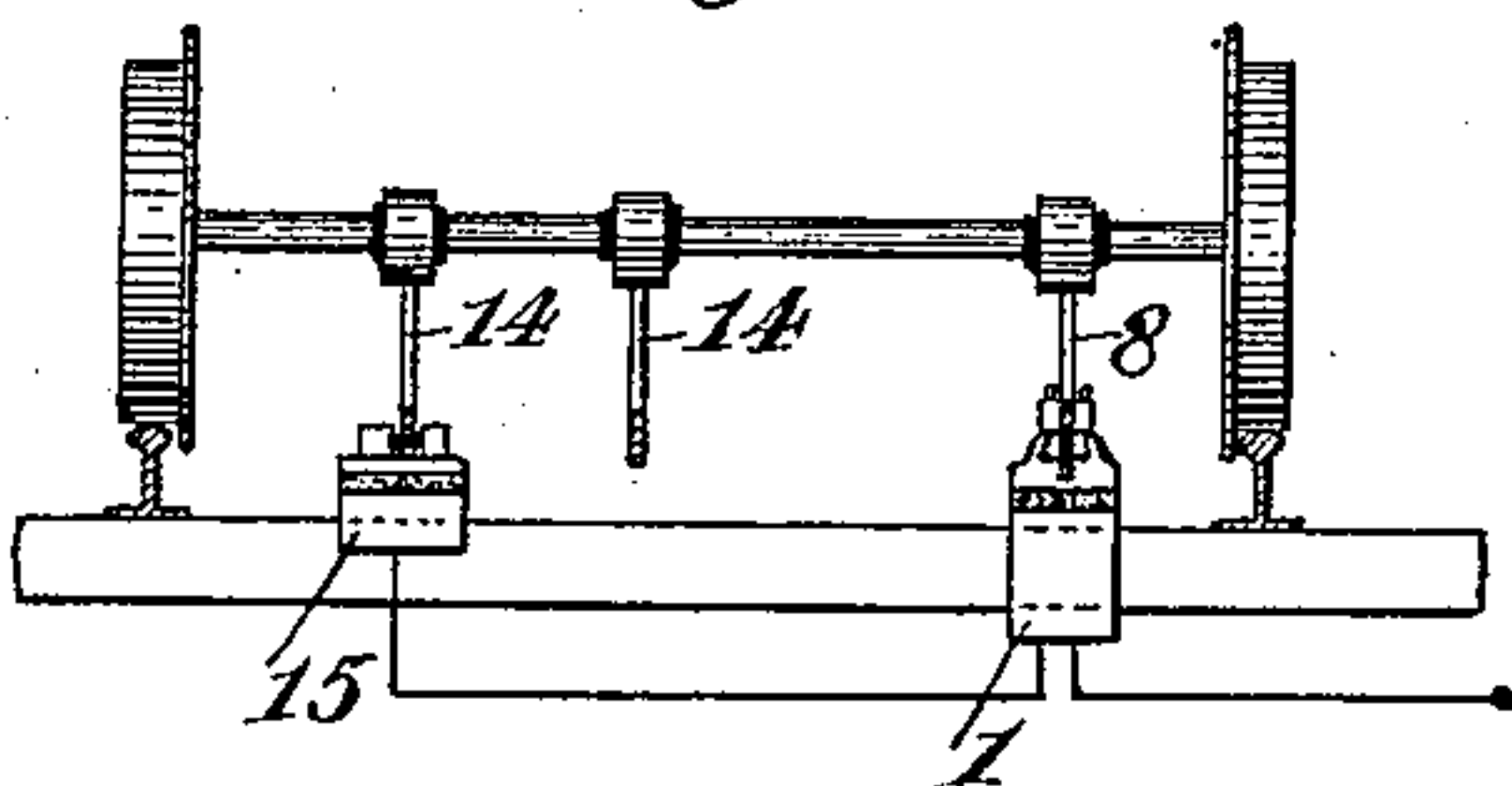


Fig. 7



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JAMES F. MUNSIE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO THOMAS L. COLES, OF SAME PLACE.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 618,429, dated January 31, 1899.

Application filed July 26, 1897. Serial No. 645,996. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. MUNSIE, a citizen of the United States, and a resident of New York, (Brooklyn,) county of Kings, and State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

This invention relates to electric railways, and particularly to that type of railway systems in which the driving electric motors are supplied with a current from a series of contact-spots distributed along the track, normally inert or dead, but cut into the circuit automatically during transit of a train thereover.

In carrying out my invention I provide two sets of strong metallic boxes buried in the road-bed at short intervals apart along the track. One set of these boxes contains a circuit-closer adapted to be depressed by a presser-bar secured to the motor-vehicle and which during transit of the vehicle connects a supply-conductor to a companion box containing the contact-spot through which current is supplied to a collector-shoe carried by the car. The companion boxes are preferably arranged side by side. In order to prevent the sudden blow on the circuit-closer which would be made by the bar carried by the car, I provide the cover of the box containing the circuit-closer with a flaring groove, so as to provide a safe guide for the presser-bar and lead the same smoothly to a roller mounted on the top of the circuit-closer, which roller projects through the bottom wall of a slot in said groove. The foot of the presser-bar is provided with shoes or cams at its ends, a little above its lower edge, which shoes engage the top walls of the groove, which slope to and from the roller just referred to. Thus when a car passes over the circuit-controlling box the presser-bar rides upon the sloping walls of the groove and the force of the impact is taken by the box, permitting the top of the presser-bar to quietly engage the roller by being dropped vertically and softly upon the same, thus forcing it into action. The companion box containing the spot from which current is led to the motor is provided with a slot, and secured to its side walls, but

insulated therefrom, is a pair of flexible metallic contact devices or brushes, preferably formed of laminæ of sheet-copper, phosphor-bronze, or other suitable metal. The box is provided with double walls, the two being separated by insulating material applied in a plastic state, thereby insulating from the earth all parts which lie in the circuit. In order to prevent heating of the collector-bar, I arrange the contact-boxes in groups, each group covering a definite distance, and the successive groups being staggered or laterally displaced, and I employ two or more collector-bars, both in the motor-circuit. Thus the collector-bars will be successively brought into action. As it is desirable not to lubricate them, undue heating is avoided, each being in action only part of the time and having time to cool between intervals of action.

The several features of novelty of the invention will be more particularly hereinafter described, and will be definitely indicated in the claims appended to the specification.

In the accompanying drawings, which illustrate my invention, Figure 1 shows in plan a pair of companion circuit-boxes arranged according to my invention. Fig. 2 shows a median vertical section of a circuit-controlling box. Figs. 3 and 4 show a portion of the presser-bar mounted on the car. Figs. 5 and 5^a are cross-sectional views of a pair of companion boxes. Fig. 6 shows in plan the distribution of the contact-boxes along the track, and Fig. 7 shows the relation of the presser-bar and collector mounted on the car and the contact-boxes.

Referring first to the circuit-closing box, 1 represents an outer hollow casting, within which is supported the box proper, a filling of insulating material 2 being applied in a plastic state as a separating medium. The inner box contains insulated contacts 3 3^a, leading, respectively, to an insulated supply-main and the contact-spots of the companion box. Within the circuit-closing box 4 is mounted to yield vertically a metal bar 5, the foot of which is adapted to bridge the contacts 3 3^a when the roller carried in a yoke at the top of the bar is depressed. The roller projects through a slot 6 (see Fig. 1) in the cover, said slot forming part of a tapering

groove 7. The car is provided with a presser-bar 8, shod at its forward ends with cams or shoes 9 9^a, carrying oil-cups 10 10^a. The presser-bar enters the groove 7, being guided 5 thereinto by the flaring walls of the groove. The top of the box slopes away from the middle toward the ends, as seen in Fig. 2 at 11 11^a, and the forward ends of the shoes 9 9^a are beveled. Thus in passing over a circuit-clos- 10 ing box the shoes 9 9^a are raised by the sloping cover, which takes the impact of the blow and lessens the wear and tear on the circuit-closer 5 and its contact-roller. The circuit-closer is not depressed until the cams have 15 passed it and permit the presser-bar to be vertically depressed by the downwardly-sloping walls of the groove. The contact-box and its companion box are also preferably made with double walls having insulating material 20 17 between, as clearly shown in Fig. 5^a, and carry on the inside of the cover insulated rails 12 12^a, from which project brushes 13, formed of thin sheet metal, or other yielding contact devices. A collector-rail 14, carried 25 by the bottom of the car, passes through a slot in the cover and engages the brushes.

I preferably arrange the contact-boxes so that a plurality of presser-bars may be employed, supported side by side on the bottom 30 of the vehicle, said contact-boxes being staggered at intervals along the line of way, as shown in Fig. 3 at 15 15^a, so that each collector will be in service only a part of the time. Thus the heat due to rubbing is greatly re- 35 duced and each bar is given time to cool.

When the roller is depressed, the contacts 3 3^a are electrically connected by the foot of the circuit-closer, thus bringing the rollers 12 12^a into circuit with the supply-main 16, 40 the current being led to the car-motor by the collector 14, which engages the brushes 13.

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

45 1. In a surface-contact electric railway, a circuit-closing box containing a movable device adapted to close or open a circuit leading from an insulated supply-wire, said movable device normally projecting through an

opening in the box-cover, guide-walls on the 50 top of the box above the level of the circuit-closer, said guide-walls being adapted to cooperate with a presser-bar carried by the car to raise the latter away from the circuit-closer during the first part of its transit over the 55 box and thus preserve the circuit-closer from a sudden impact blow.

2. A circuit-controlling box for a surface-contact electric-railway system containing a movable circuit-closer and a guide sloping to 60 and from said circuit-closer, said guide being adapted to cooperate with a presser-bar mounted on a vehicle, to relieve the circuit-closer of the shock of impact.

3. A circuit-closing box for a surface-con- 65 tact electric-railway system containing a movable circuit-closer, a grooved cover into which said circuit-closer projects, and sloping walls above the circuit-closer, for the purpose de- 70 scribed.

4. In a surface-contact electric railway a multiplicity of pairs of boxes along the track one box of each pair containing circuit-con- 75 trolling devices and the other box contact-spots.

5. In a surface-contact railroad system, a series of disconnected contact-boxes distrib- uted along the track, said boxes being ar- 80 ranged in pairs, one of each pair containing a movable circuit-closer projecting into a guide-groove in the top of the box adapted to be operated by a presser-bar carried by a car, the other box containing contact-spots brought into the circuit by the action of the 85 circuit-closer.

6. A surface-contact electric railway com- 90 prising a series of circuit-controlling boxes distributed along the track, and arranged in groups laterally displaced at intervals to engage different circuit-controlling bars carried by the vehicle, to prevent heating of the same.

In testimony whereof I have hereunto sub- 1897.

JAMES F. MUNSIE.

Witnesses:

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