No. 642,570. Patented Feb. 6, 1900.

W. J. BAUMER & H. EMMEL.

UNDERGROUND ELECTRIC RAILWAY.

(Application filed Oct. 5, 1899.)

(No Model.)

Fig. 1.

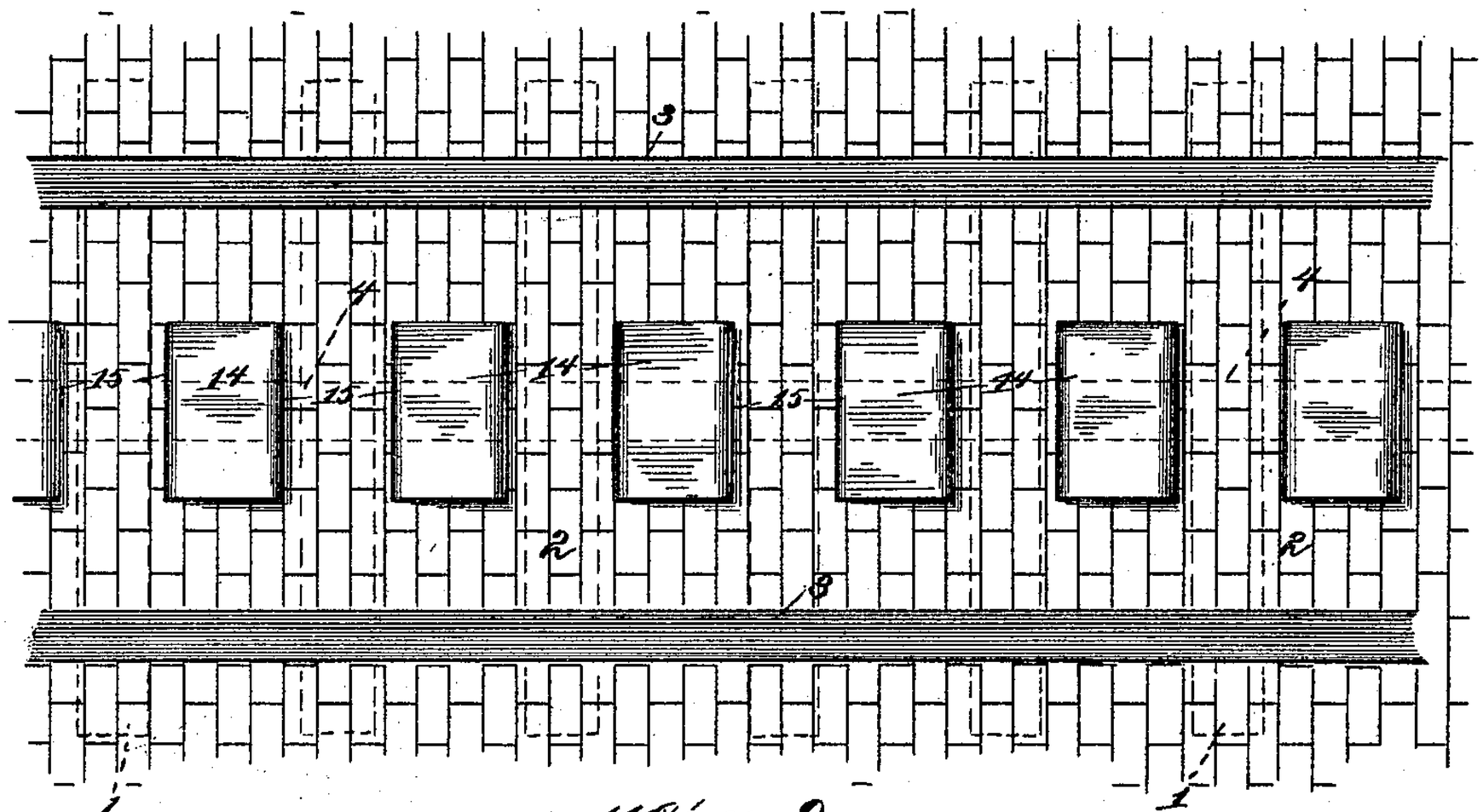


Fig. 2.

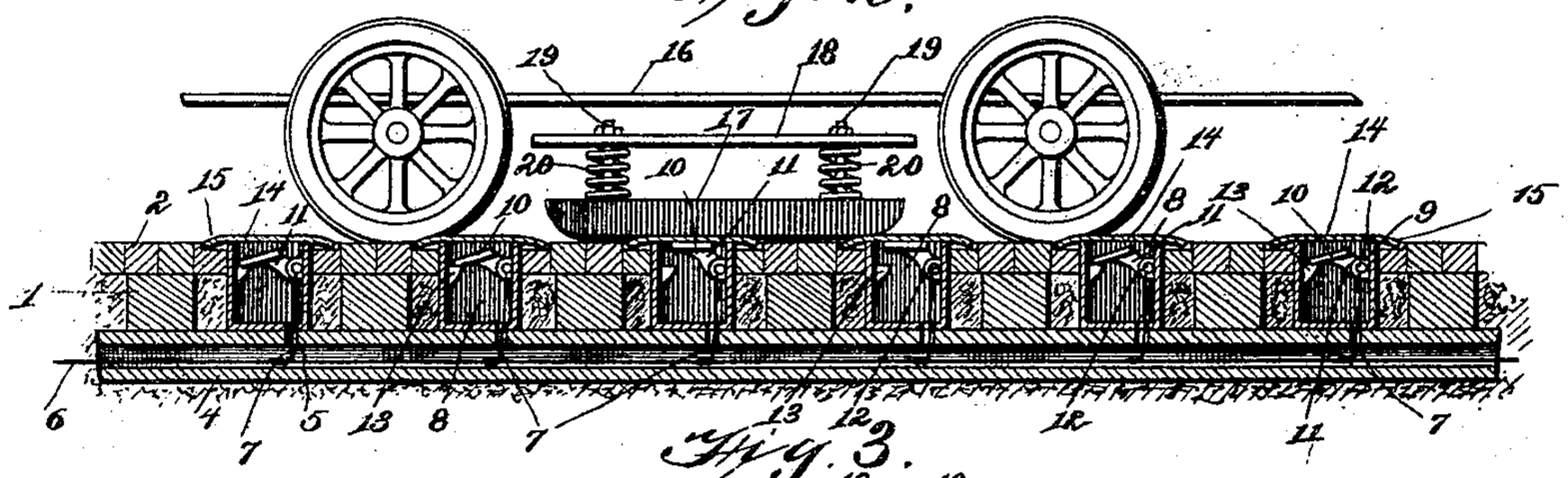


Fig. 3.

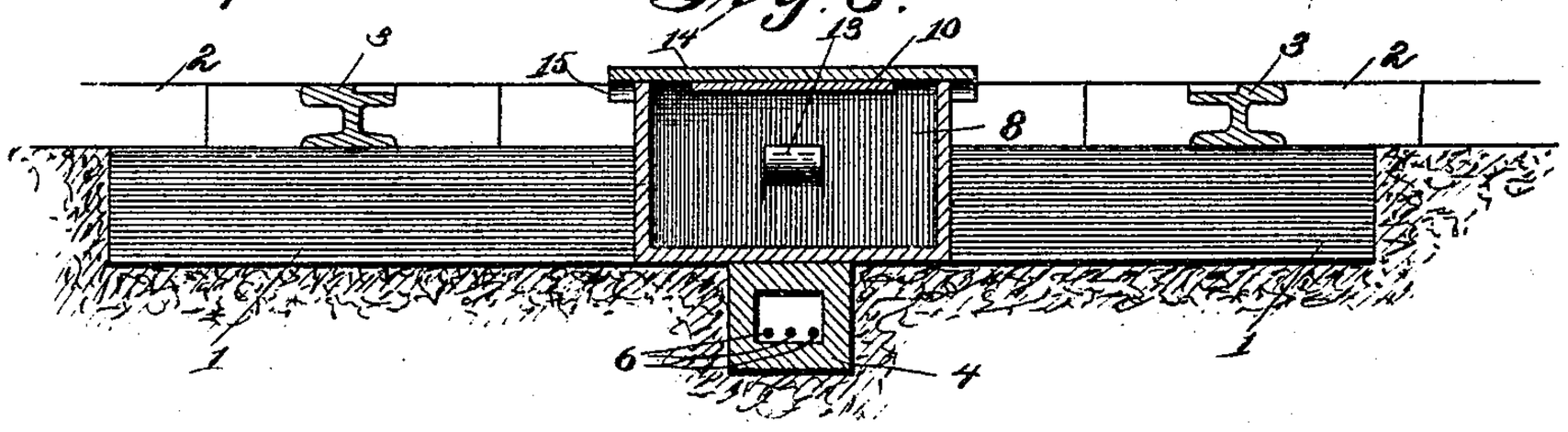
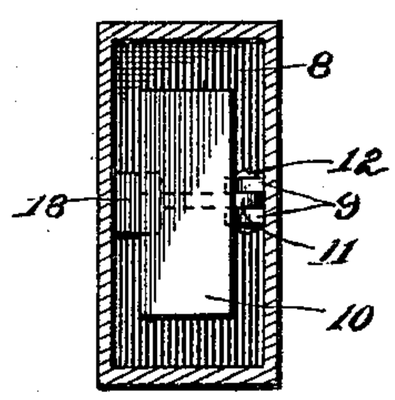


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM J. BAUMER AND HENRY EMMEL, OF JOHNSTOWN, PENNSYLVANIA.

UNDERGROUND ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 642,570, dated February 6, 1900.

Application filed October 5, 1899. Serial No. 732,662. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. BAUMER and HENRY EMMEL, citizens of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Underground Electric Railway, of which the following is a specification.

This invention relates to that class of electric railways known as "surface-contact" systems; and it consists of a series of water-tight boxes located midway between the rails a suitable distance apart throughout the length of the road-bed, said boxes being surmounted by a copper-plate covering. Switches are suitably hinged within said boxes. A conduit is run the length of the road beneath the said boxes, in which the supply-wire is placed, from which suitable feed-wires run and are connected to the switches in the said boxes.

The object of the invention is to produce a system of this character that is very simple, cheap, and durable and one that will utilize a minimum of current; and with this object in view the invention consists of the parts and combination of parts, as will be more fully hereinafter set out.

In the drawings which form a part of this application, Figure 1 is a top plan view of a road built according to our invention. Fig. 2 is a sectional view of the same. Fig. 3 is a transverse section of Fig. 1 through one of the boxes. Fig. 4 is a horizontal section of one of the boxes detached, with the switch in position.

Referring to the drawings by numerals, 1 represents the usual ties; 2, the street-surface, and 3 the rails, of approved pattern.

4 is a suitable conduit provided with openings 5 through its top at intervals throughout the length of the road. 6 are suitable electric conductors laid in said conduit, from which lead feed-wires 7, which extend through the openings 5 in the top of the conduit.

8 are the switch-boxes, located in the center of the track at intervals a suitable distance apart, said boxes having openings in their bottoms which register with the openings 5 in the top of the conduit, as clearly shown in Fig. 2.

9 are lugs cast integral with one side of the box.

10 is an elongated switch or contact-plate from which depends an arm 11, which is secured by means of a pivot-pin 12 between the lugs 9. The feed-wire 7 is suitably connected to the arm 11.

13 is a stop formed integral with the side of the box immediately opposite the lugs 9.

14 is a copper plate secured water-tight on the top of the box 8, two edges of which are downwardly bent, as at 15.

16 is a car-truck of approved construction, under which is suspended a magnet 17 by means of the rod 18.

19 are bolts which project from the magnet upwardly and pass through the rod 18, to which they are secured by means of suitable nuts.

20 are coiled springs secured around the bolts 19 between the magnet and the rod 18.

The boxes 8 are constructed of a suitable non-magnetic material, as will readily be understood from the character of this invention.

The operation is as follows: Current being supplied to the conductor 6 and a car run out on the system, the springs 20 holding the magnet 17 in its depressed position, the magnet will come in contact with the copper plate 14 and by drawing up the switch 10 in contact with the copper plate will thus complete the circuit between the magnet and conductor 6 through the feed-wires 7 and switch. The car progressing, as soon as the magnet 17 has passed one of the boxes the switch 10 will drop under its own weight until it strikes the lug or stop 13, by which it is held until again drawn up by the magnet passing over the box in contact with the copper plate. This operation is repeated throughout the system as the car progresses.

From the above it will readily be seen that a system constructed after this invention will be very simple, yet effective, and at the same time be free from the usual objections heretofore found in this class of surface-contact systems. The plates 14 are "dead" except when in contact with the magnet 17 and do not project very high above the road-bed.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an electric railway, the combination with a perforated conduit, of a series of boxes,

one for each perforation, the cover for which is turned down upon two of its edges, one of the walls of the box being provided with lugs and the opposite walls being provided with a stop, a switch provided with an arm pivotally secured between said lugs and being adapted to engage with the cover of the box when in use and to engage with the stop when at rest, and a main conductor in the conduit provided with a series of feed-wires one for each box leading to said switches.

2. In an electric railway, non-magnetic boxes, copper plates with two of their edges turned downwardly, said plates forming covers for said boxes, lugs projecting from one side of the boxes, an elongated switch having a depending arm pivoted between said lugs, a stop projecting from the side of each box immediately opposite the lugs, a conduit having openings at intervals through its top openings in the bottom of each box which register with the openings in the conduit, a main conductor in the conduit and feed-wires leading from same through the openings in the conduit and boxes to the elongated switch, substantially as described.

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