

(No Model.)

H. W. LIBBEY.
ELECTRIC RAILWAY.

No. 436,425.

Patented Sept. 16, 1890.

Fig. 1.

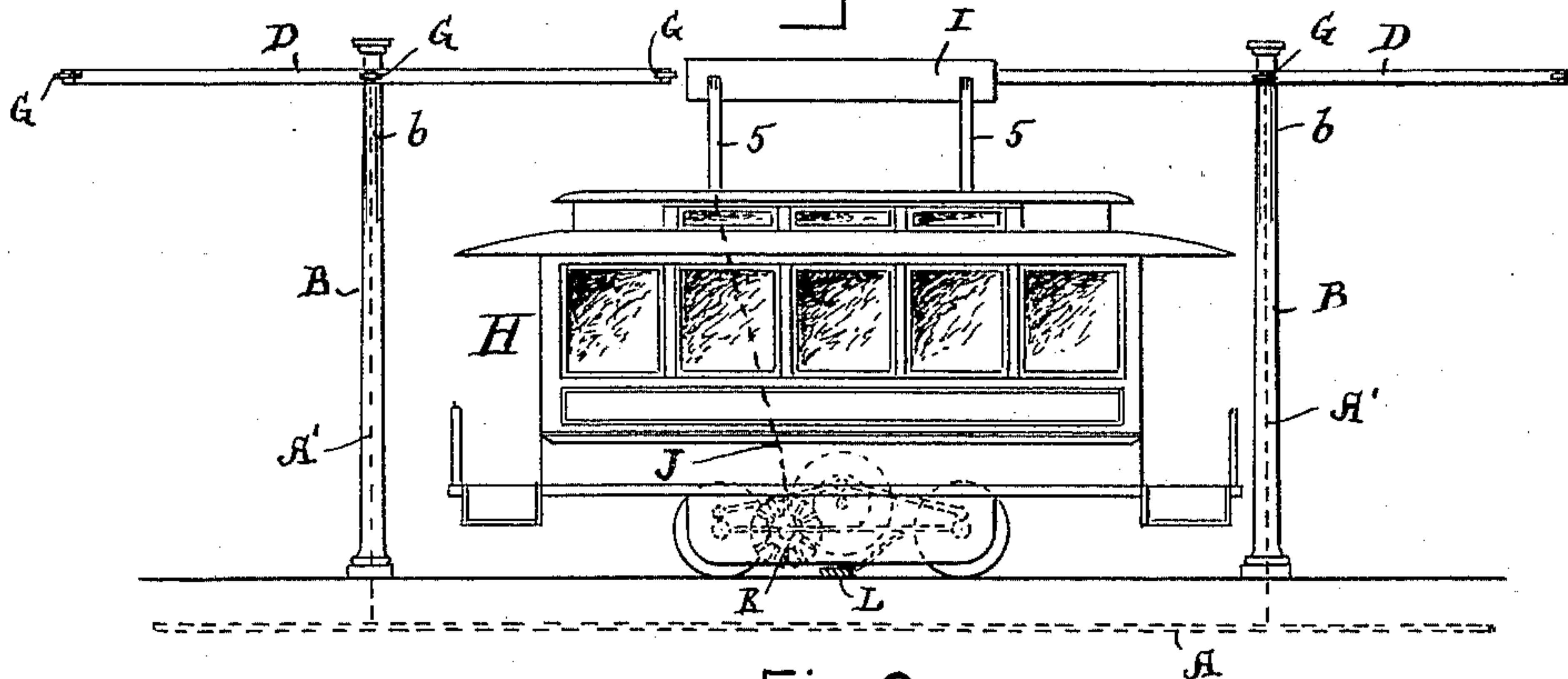


Fig. 2.

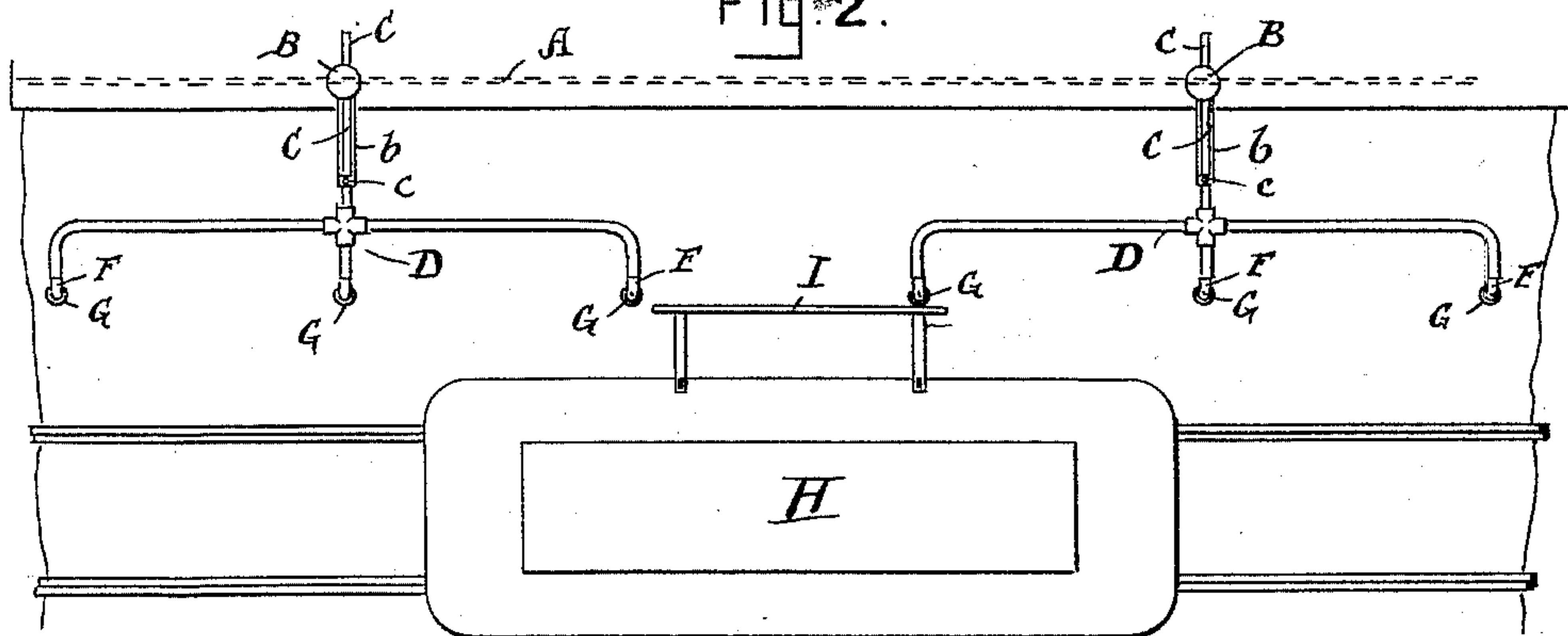


Fig. 3.

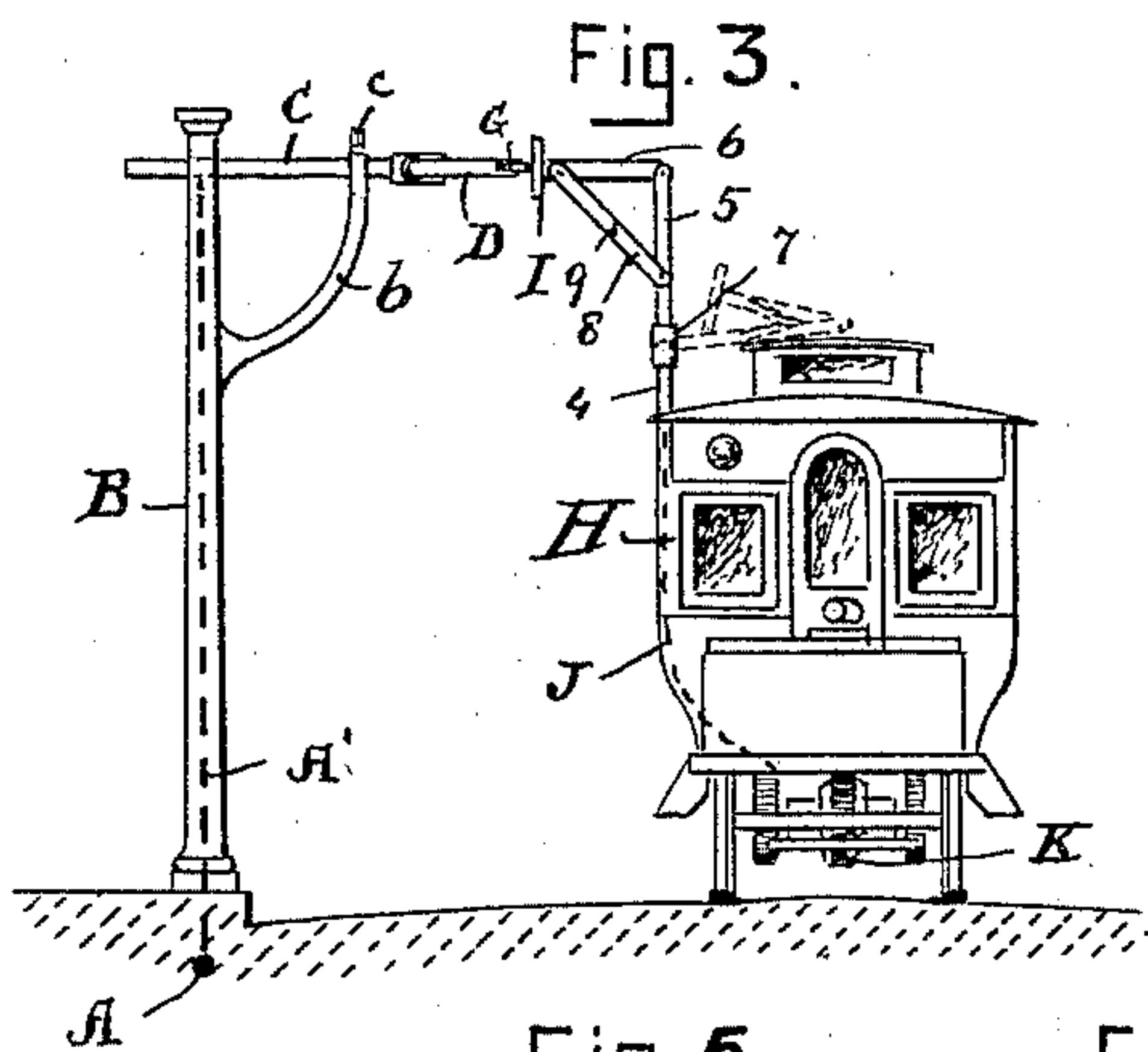


Fig. 4.

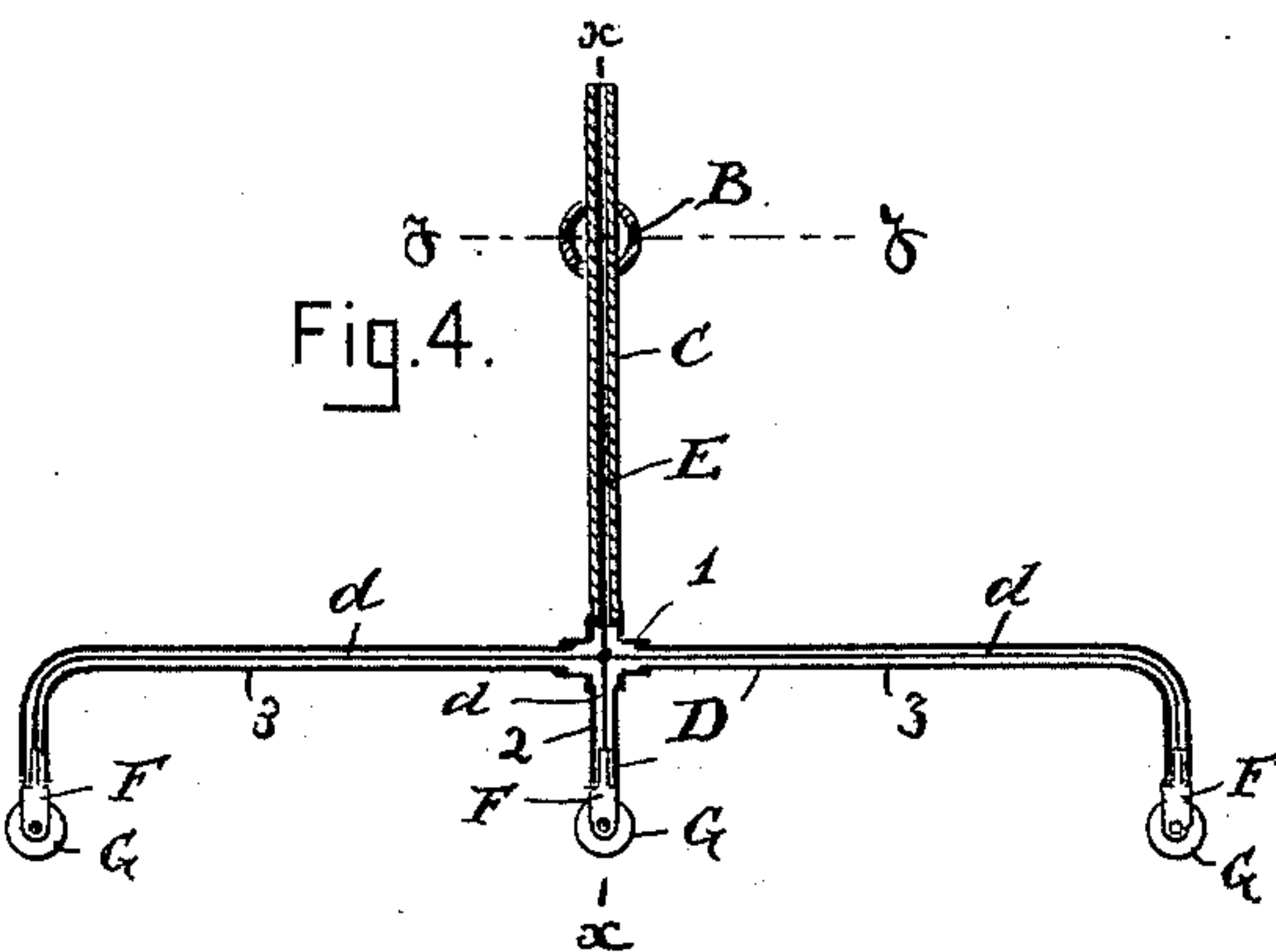


Fig. 5.

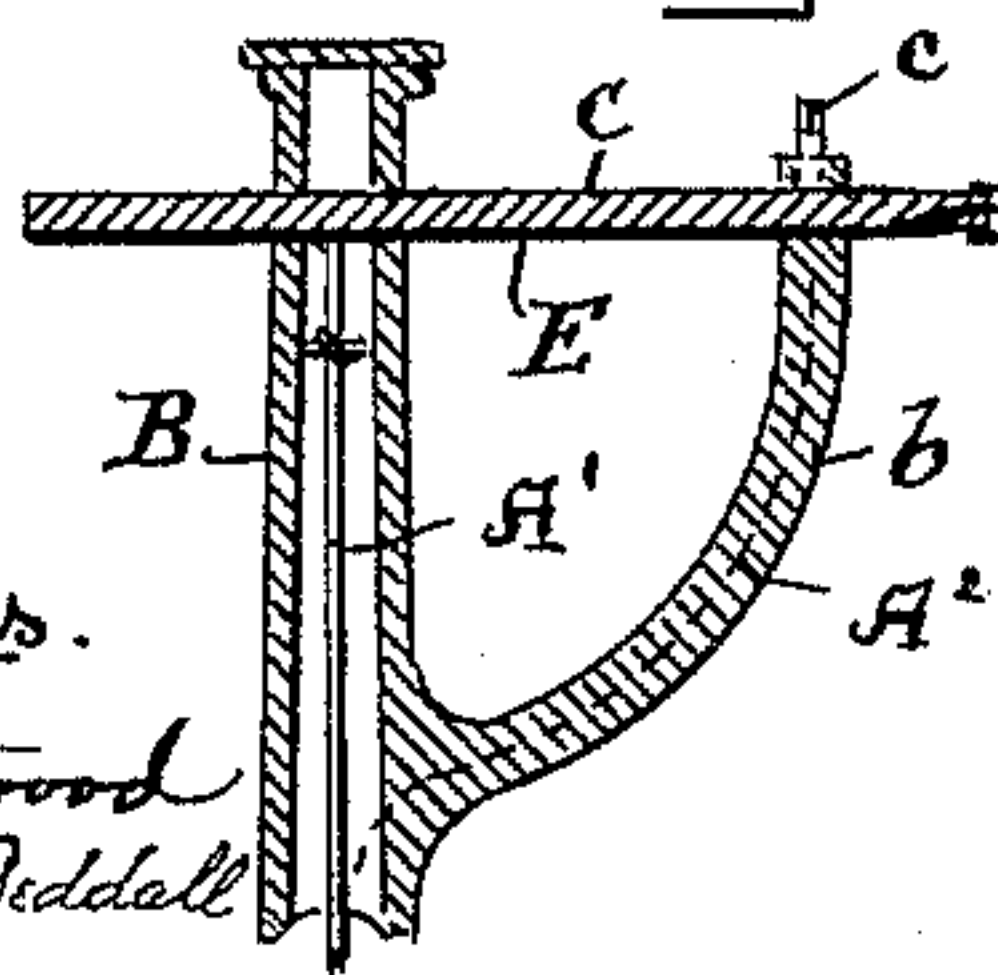


Fig. 6.

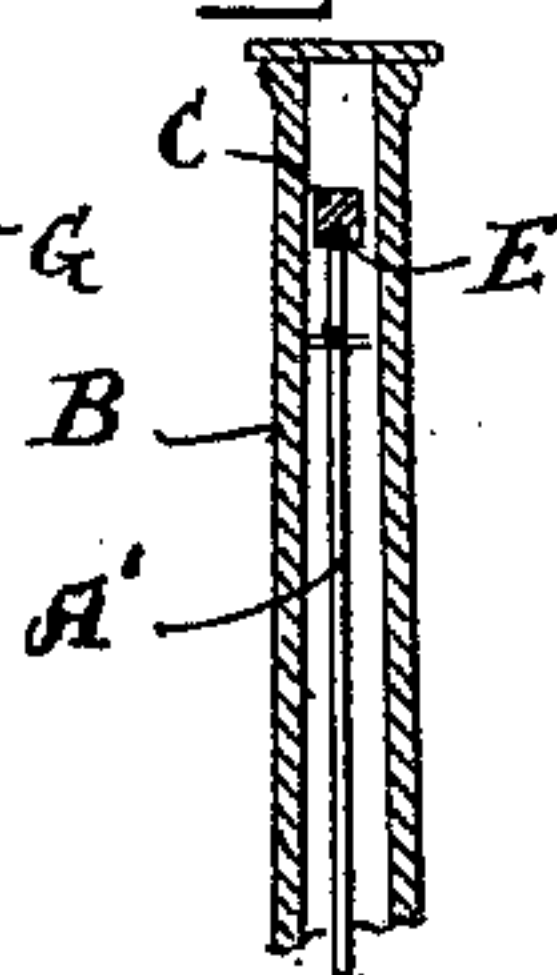


Fig. 7.

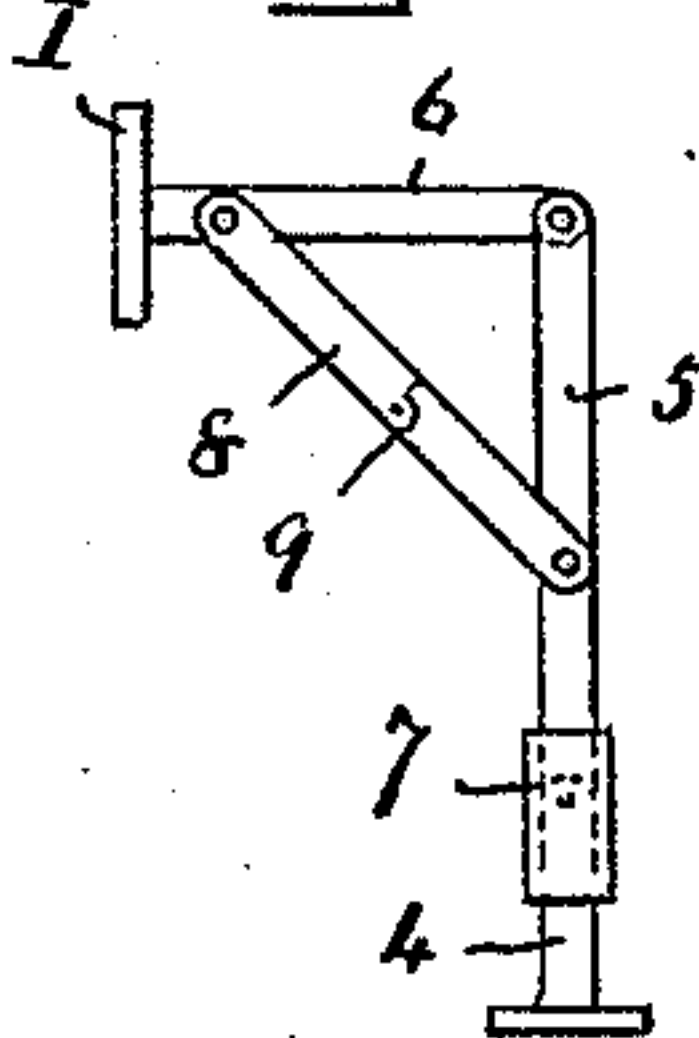
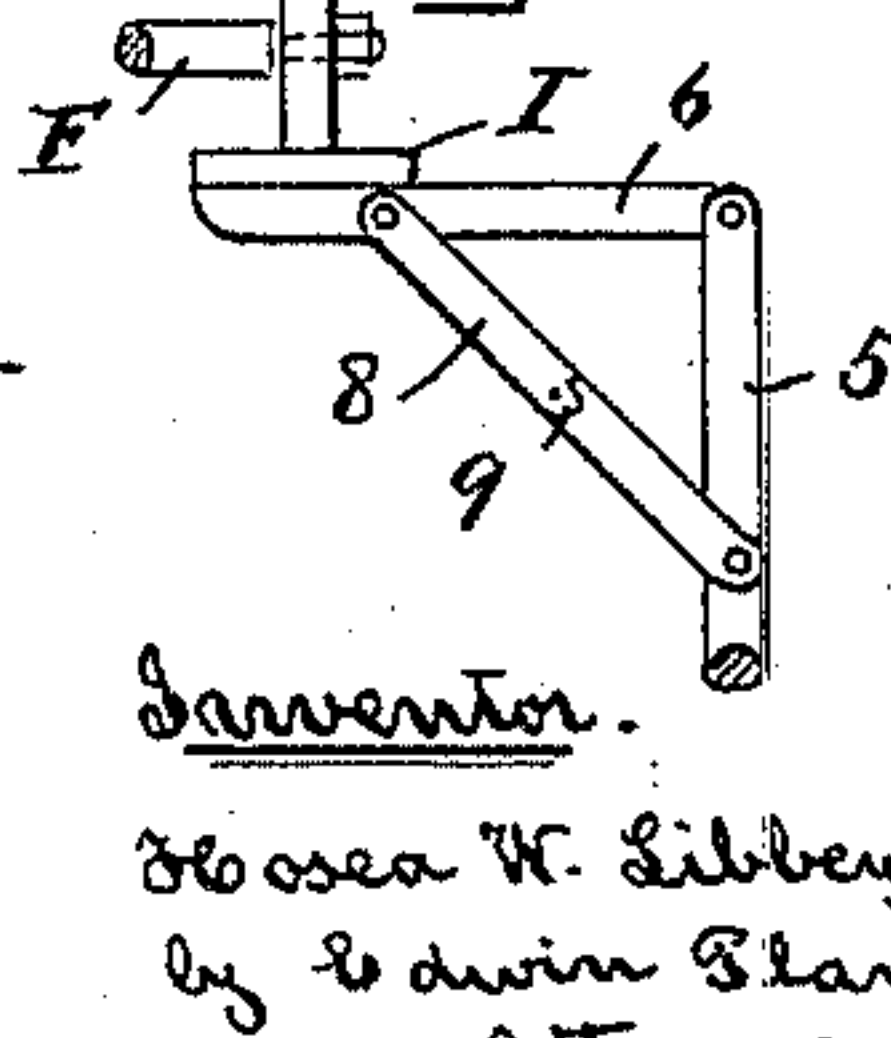


Fig. 8.



Witnesses.

A. H. Howard
Albert R. Beddell

Inventor.

Hosea W. Libbey
by Edwin Blanta
Attorney.

UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 436,425, dated September 16, 1890.

Application filed November 14, 1889. Serial No. 330,337. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Railways, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to electric railways; and it consists in certain details of construction whereby I produce a road with overhead electrical conductors, but without the use of a continuous wire overhead, as hereinafter fully set forth, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a side elevation of a car and overhead electric conductors embodying my invention. Fig. 2 is a plan or top view, and Fig. 3 is an end view of the same. Figs. 4 to 8 are detail views.

In constructing an electric road embodying my invention a positive electric conductor A, that connects with the source of electric supply, is laid under ground, preferably along the curb of the sidewalk, near the edge of which is erected a row of hollow posts B, the upper end of each being provided with a bracket b, in which a square hole is formed near its upper end and a corresponding hole is formed in the upper end of the next post B.

C is a square bar of metal, which just fits and passes through the holes in the post and bracket. The outer end of the bar C is formed with a screw-threaded nipple, onto which is screwed a hollow forked arm D. I prefer to form this arm as shown in Fig. 4—that is, of a cross-piece of pipe 1, one short straight arm 2, and two bent arms 3 3, which may be of ordinary gas-pipe. The under side of the bar C is hollowed out and coated with insulating material, in which hollow is secured a wire E, (see Figs. 4, 5, and 6,) Fig. 4 being a horizontal section through the post, bar, and forked arm; Fig. 5, a section through the upper end of the post and bar, taken on line *x x* of Fig. 4; and Fig. 6 is a similar section taken on line *y y* of Fig. 4. The wire E is in contact with a wire A', that passes up the post B from the conductor A, and is held at its upper end by any suitable device. If desired, a branch wire A² (see Fig. 5) may be secured to the wire A' and be carried through the bracket

b (which will then be formed hollow) and secured so that its upper end will be in contact with the wire D. One end of the wire D passes through the nipple, and is connected to three wires *d*, (see Fig. 4,) that are coated with insulating material and pass through the arms 2 3 3, the outer ends of the wires being each attached to a block or saddle F, in or to which rollers G are attached. The bar C is free to be pushed in or out, as required, and when in the required position is held by a set-screw *c*.

From the above it will seen that the electric current passes along the main conductor A, up the wires A', then by the wire D to the wires *d*, and thence by the blocks F to the rollers G.

H represents a car, to the roof of which, by means of a bracket, is secured a contact-plate I. The bracket for carrying this contact-plate I prefer to make of hinged sections, so that when not in use it can be folded upon the top of the car.

In the drawings, Figs. 3 and 7, I have shown it consisting of an upright piece 4, secured to the roof of the car, to which is hinged a bar 5, to the upper end of which is hinged an arm 6, that carries the contact-plate I. The bar 5 may be held in an upright position on the piece 4 by means of a sleeve 7, which can be slipped over the hinged joint, as shown, thereby making, as it were, one bar, and the arm 6 may be supported by a bar 8, hinged to the upright bar 5 and arm 6, and provided with a knuckle-joint 9. By this arrangement the contact-plate I will be held by the car so as to come in contact with the rollers G, (when the latter have been set and held in a proper position by the set-screw *c*;) but when not required for use the arms and contact-plate can be folded so as to rest upon the top of the car, as shown in dotted lines in Fig. 3, by simply breaking the knuckle-joint in the bar 8 and slipping the sleeve 7 up free at the hinge-joint. The electric current passing from the roller G to the plate I is conducted by a wire J to a motor K on the car, and from thence by a brush L (see Fig. 1) to the rail in the ordinary manner. It will be seen that by this construction all overhead wires are dispensed with, thereby leaving the center of the roads clear, and in places where the streets

cross no interference of travel by reason of overhead wires will exist, and at the same time the contacts from the positive wire to the car are overhead, and little, if any, danger exists, as contact with the main electric conductor can be made only at certain points—viz., at the rollers G.

Instead of having the plate I stand vertically and the rollers horizontally, their positions may be reversed—viz., the plate I may be horizontal and the rollers G vertical, as shown in Fig. 8.

What I claim as my invention is—

1. In an electric railway, a series of columns, each having a bracket and a furcated arm, the outer end of each prong forming a contact-point, all of which points are connected to a positive electric conductor laid underground, substantially as set forth.

2. In an electric railway, a series of columns, each having a bracket and a furcated arm, the outer end of each prong forming a contact-point that is connected to a positive electric conductor laid underground, in combination with a contact-piece secured to the car, said piece being of such a length that before it breaks connection with one point it will be in

connection with the point in advance, whereby the motor on the car is constantly in connection with the positive conductor, but at successive points along the line, substantially as set forth.

3. The post B, having a bracket *b*, in combination with the square bar C, forked arm D, blocks F, rollers G, and the wires *d d*, E, and A' for making contact with the underground positive conductor A, substantially as set forth.

4. The adjustable square bar C, having a recess in its under side and a wire E, secured in said recess, in combination with the post B, bracket *b*, and wire A', whereby the wire E will always be in electrical contact with the wire A', substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of September, A. D. 1889.

HOSEA W. LIBBEY.

Witnesses:

CHAS. STEERE,
EDWIN PLANTA.