(No Model.)

# A. G. BIERBACH.

## CABLE RAILWAY SYSTEM FOR STREET CARS.

No. 378,918. Patented Mar. 6, 1888.

Fig. 1.

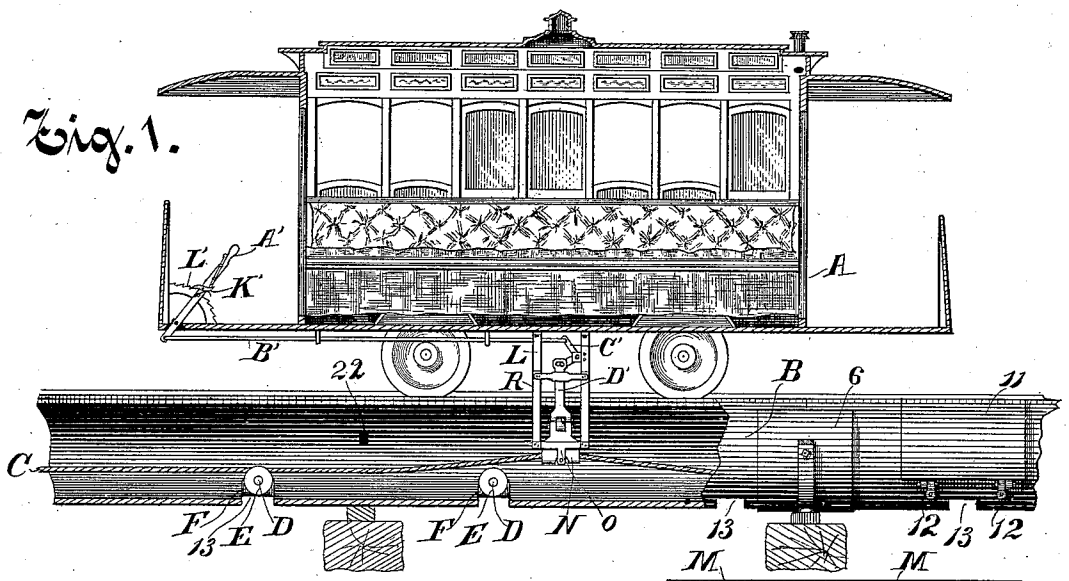



Fig. 2.

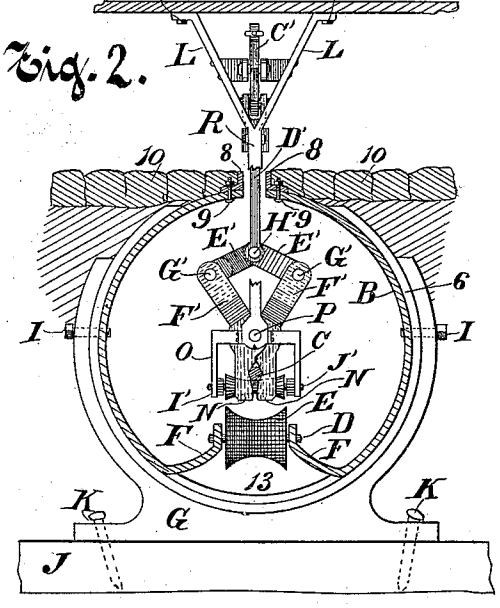
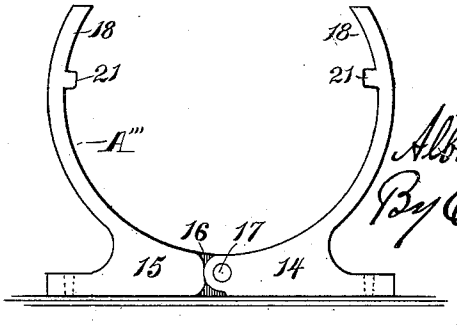



Fig. 3.




Witnesses.
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# UNITED STATES PATENT OFFICE.

ALBERT G. BIERBACH, OF MILWAUKEE, WISCONSIN.

## CABLE-RAILWAY SYSTEM FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 378,918, dated March 6, 1888.

Application filed June 4, 1887. Serial No. 240,214. (No model)

*To all whom it may concern:*

Be it known that I, ALBERT G. BIERBACH, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Cable-Railway Systems for Street-Cars; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in tubular receptacles for supporting a motor-cable for street-cars.

The slotted tube is constructed, substantially as shown in my following previous patents, to wit: No. 278,310, dated May 29, 1883; No. 287,410, dated October 20, 1883; No. 329,256, dated October 27, 1885; No. 339,257, dated April 6, 1886, and No. 359,662, dated March 22, 1887. In the three first mentioned patents the slotted tube is used in connection with a cable for supporting a movable fire-escape, and in said last two mentioned patents the slotted tubular receptacle is shown in connection with devices for moving street-cars, the same, however, being located above instead of beneath the car. I have, however, by my improvement located the slotted tubular receptacle midway between the rails of the street-railway beneath the car.

The construction of my invention is further explained by reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section of a street-car, showing also a side view of the grip mechanism and a side view of the slotted tubular receptacle, part in section, provided with a cable. Fig. 2 represents a front view of the grip within the slotted tubular receptacle, which receptacle is shown in cross-section. Fig. 3 represents one of the brackets or supporting-collars of the slotted tube.

Like parts are represented by the same reference-letters throughout the several views.

A represents the car, which is of ordinary construction, and the same is shown in connection with the cable-receptacle, that the object of the invention may be better understood.

B represents a slotted metallic tube, which is formed of a series of sections joined together at their ends, said tube being made for the reception of the cable C, by which the car is drawn. The tube B is provided at short intervals with cable-supporting rollers E, which rollers are supported upon axles D, between the upward-projecting lugs or brackets F F. The lugs F are formed from the body of the tube B by first cutting slits in said tube conforming in shape to the shape of said lugs or brackets when the metal is turned upward in the position shown in Fig. 3, thus forming supports for the axles D upon which the rollers E rotate.

G represents a supporting-bracket, which is located at short intervals along the tube B, at the ends of the sections, and it is rigidly affixed to the tube by the set-screws or bolts I I, and to a supporting-base, J, by spikes K K.

6 is an annular plate, which is bent to conform to the exterior surface of the tube B, and is placed at the joint between the respective sections of said tube and serves to hold the ends of said tube in contact with each other. When the plates 6 are placed around the ends of the sections, as shown in Fig. 1, the brackets G are then placed around said plates 6, when set-screws or bolts I, which have a screw-threaded bearing in the bracket G, are turned in firmly against the slotted tube, whereby all of said parts are held firmly in place. The respective sides of the slots are provided with L-shaped flanges 8 8, which flanges are secured to the slotted tube by bolts 9 9. The flanges 8 serve as bearings for the blocks of pavement 10 10, on the respective sides of the slot, and also prevent refuse substances from dropping through the slot into the tube.

11 is a door which covers a man-hole through which a person may, by opening the door, enter said tube, as may be required, to make repairs, &c. The door 11 is secured to the side of the tube A by hinges 12 12. It is necessary to provide apertures in the bottom of the tube at short intervals for the escape of water therefrom.

When the roller-supporting brackets F F are formed by cutting slots through the tube, as shown, the space 13, from which said brackets F are removed, serves for the escape of water. If, however, the rollers E are supported in separate brackets, which are formed

independently of the tube, it becomes necessary to perforate the tube, especially for the purpose of permitting the water to escape.

To provide for attaching brackets at short intervals between the ends of the several sections of the tube, I have formed the bracket A''' in two parts, 14 and 15, and such parts are hinged together, as shown at 16, by the bolt 17. Thus it is obvious that by spreading the upper arms, 18 18, of said bracket they may be thrown around and made to engage upon the exterior surface of the tube when the bracket is brought beneath the tube upon a level supporting-base, whereby the arms 18 18 are thrown toward each other firmly around the tube in the position shown in Fig. 3, when the lugs 21 21 engage in apertures 22, formed in the tube B, one of which apertures is shown in Fig. 1.

That my invention may be more clearly understood I have shown a street-car provided with a grip mechanism, which is intended to be used in connection therewith. I do not, however, make any claim herein to the car or grip mechanism; but I do hereby reserve my right to procure a separate patent for the grip mechanism herein shown.

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

1. In a cable-railway system for street-cars, the combination of a slotted tubular metallic receptacle, B, roller-retaining struck-up brackets F, and cable-supporting rollers E, substantially as and for the purpose specified.

2. In a cable-railway system for street-cars, the combination of a slotted tubular metallic receptacle, B, the several sections of which are formed in a single piece, supporting-brackets G, secured to a supporting-base, J, by spikes K K, and to the tubular receptacle B by set-screws I I, circular plate 6, interposed between said bracket G and the exterior surface of said tubular receptacle B, cable C, cable-supporting roller E, and supporting-brackets F, substantially as and for the purpose specified.

3. In a cable-railway system for street-cars, the combination, with a series of slotted tubular metallic sections provided with cable-supporting rollers, of the circular bracket G, located at the joints of the several sections, and the jointed brackets A''', provided with lugs 21 21, adapted to engage in apertures formed therefor in said slotted tube, and consisting of the two parts 14 and 15, hinged together by a bolt, 17, and secured to said tubular receptacle B at intervals between said brackets G, substantially as and for the purpose specified.

4. In a cable-railway system for street-cars, the combination of the slotted tubular metallic cable receptacle B, provided with water escapes or apertures 13, cable-supporting roller E, supporting-brackets A''' and G, and the manhole inclosing door 11, secured to said tubular receptacle by hinges 12 12, substantially as and for the purpose specified.

5. The combination of a slotted tubular receptacle, A, with the L-shaped brackets 8 8, rigidly affixed to said receptacle upon the respective sides of the slot by retaining-bolts 9, and supporting-bracket G, encircling said tubular receptacle and secured to the supporting-base J by spikes K K, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT G. BIERBACH.

Witnesses:
JAS. B. ERWIN,
I. H. KEENEY.