W. C. CARR.

TRANSPORTATION SYSTEM.

APPLICATION FILED JUNE 12, 1908.

915,071.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.

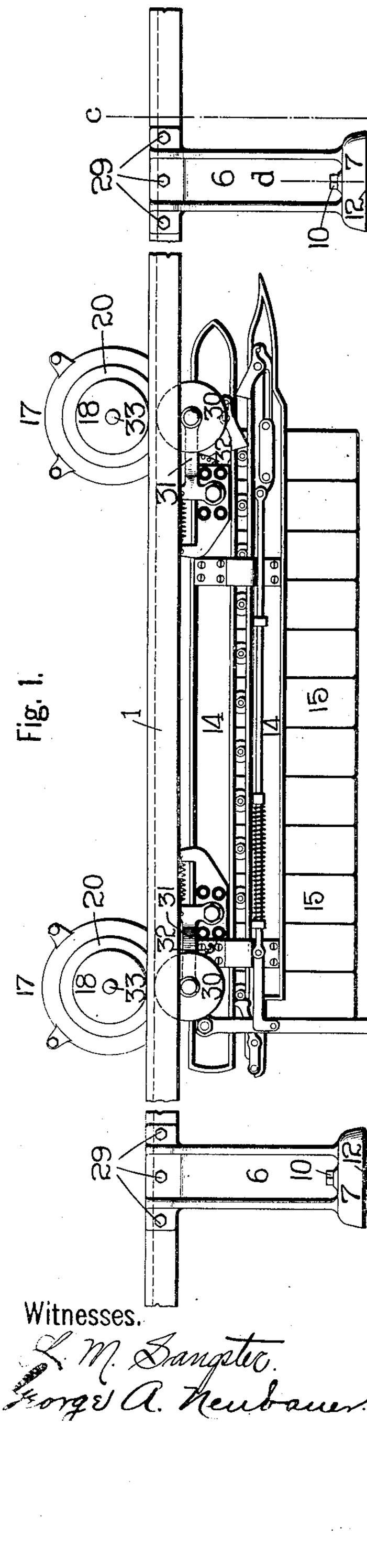

Fig. 1.

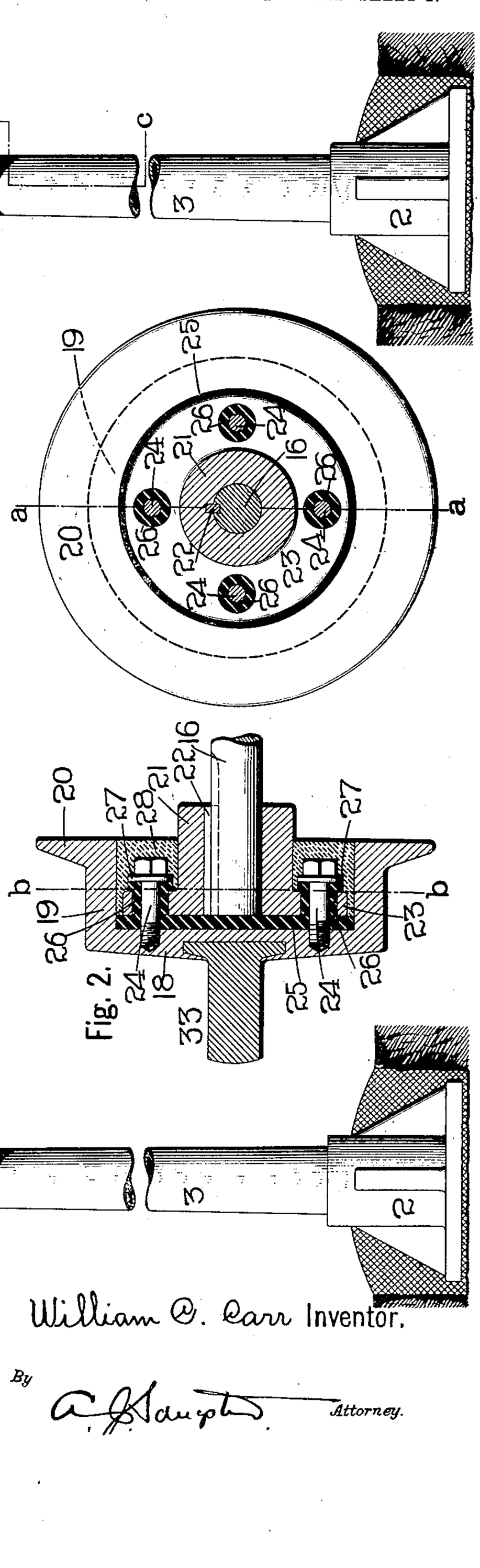

Fig. 3.

Fig. 2.

Witnesses.

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2 SHEETS—SHEET 2.

Fig. 4.

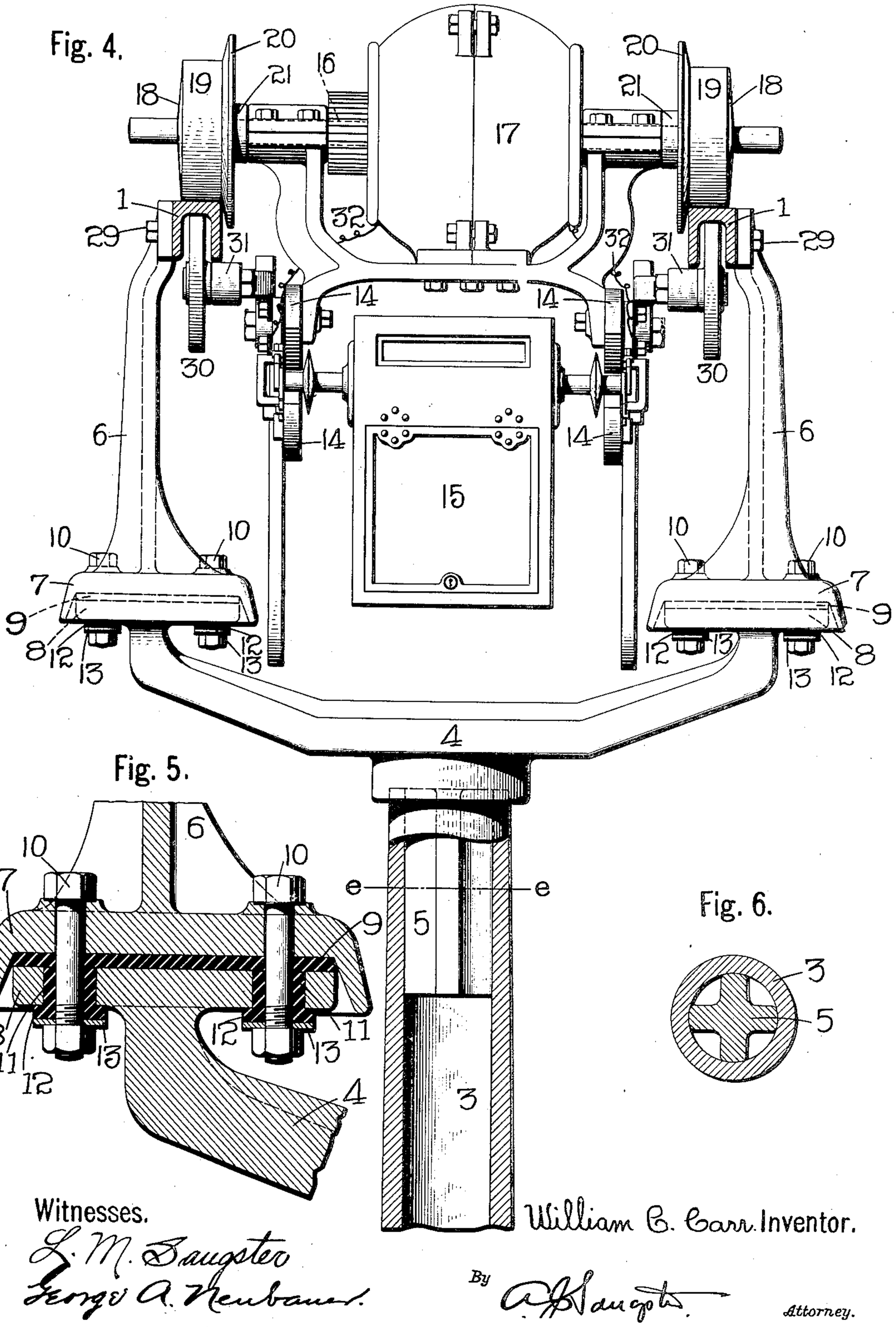

Fig. 5.

Fig. 6.

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TRANSPORTATION SYSTEM.

No. 915,071. Specification of Letters Patent. Patented March 16, 1909.

Application filed June 12, 1908. Serial No. 438,068.

To all whom it may concern:

Be it known that I, WILLIAM C. CARR, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improved Transportation System, of which the following is a specification.

This invention relates to improvements in transportation systems and the principal objects of the invention are to obviate the danger of water, snow or the like short circuiting the rail and to prevent the car wheel from conducting the electric current to the car body.

The invention also relates to certain details of construction which will be fully and clearly hereinafter described and claimed reference being had to the accompanying drawings in which,—

Figure 1 is a side elevation of the rails, rail supports and the car of the improved transportation system, a section being shown through the concrete foundation in which the bases of the supporting standards are embedded. Fig. 2 is an enlarged transverse section on line *a a*, Fig. 3 through one of the wheels of the car of the improved transportation system, showing the method of securing it to the axle or shaft of the motor and insulating it therefrom, a fragment of the shaft being shown in elevation. Fig. 3 is a section on line *b b*, Fig. 2 showing the insulation between the car wheel and its axle or shaft. Fig. 4 is an enlarged transverse section on line *c c*, Fig. 1 through the rails and the standard, which carries the rail supports, showing a front elevation of the rail supports and of the car in place upon the rails. Fig. 5 is an enlarged fragmentary vertical section on line *d d*, Fig. 1 through one of the rail supports, showing the method of insulating the vertical members from the transverse members. Fig. 6 is a transverse section on line *e e*, Fig. 4.

In referring to the drawings in detail like numerals designate like parts.

The track consists of two parallel rails 1 and are of channel or ⊓ form in cross section. The supports for the track which are arranged at intervals along the ground each comprise a suitable base 2 which is rigidly set in the ground, an intermediate vertical standard 3, which is tubular in form, a transverse connection 4 having a vertical central depending portion 5 which is driven into the upper end of the tubular standard, and two branch vertical members 6 which are fastened at their lower ends to the opposite extremities of the transverse connection 4 and are attached to the channel rails at their upper ends. The rails are not insulated from the branch members owing to the difficulty of perfectly insulating them at that point but instead the branch members are insulated at their lower ends from the transverse member in such a manner that it is practically impossible to short circuit the rails. In the preferred structure of this portion of the invention as shown in Fig. 5 the lower end of the branch member is provided with an enlarged dished portion 7 which forms an inverted cup and is fastened upon an enlarged horizontal plate 8 at the end of the transverse connection, the transverse connection being bent or curved sufficiently upward at or near its end to locate the plate above the center portion of the connection as shown in Fig. 4.

An insulating sheet 9 of hard fiber or similar material is interposed between the cup portion 7 and the plate 8 and the bolts 10, which fasten the cup portion 7 upon the plate 8, are likewise completely insulated from the plate 8 by sleeves 11 of fiber or similar insulating material fitted around the bolts. The lower ends of the sleeves are flanged outward to form annular insulating washers 12 which fit between the metal washers 13 and the bottom surface of the plate 8.

It will be noted by reference to Fig. 5 that the depending flange of the inverted cup portion projects downward sufficiently to extend below the lower surface of the plate 8 and thus completely protects the joint from short circuiting through the action of rain, snow or sleet.

The car adapted to travel upon the rail is preferably of the form shown and described in my Patents Nos. 831,263 and 851,649 granted September 18th 1906 and April 30th 1907, respectively, to which reference is to be had for a complete and comprehensive description.

The car frame has horizontal members 14 between which mail boxes 15 are carried and car axles 16 are journaled in the upper portion of the frame and extend into operative connection with electric motors 17.

The car wheels are mounted on the ends of the car axles in a peculiar manner so as to be perfectly insulated therefrom. Each wheel

proper consists of a disk 18 having a lateral extending horizontal flange 19, the outer circular surface of which forms the tread of the wheel and an annular outwardly extending flange 20 at the inner end of the lateral flange.

A hub 21 is fitted upon and fastened to the end of the car axle 16 by a feather or key 22 and has a flange 23 at its outer end. This hub is inserted into the car wheel and fastened thereto by bolts 24 which pass through the flange on the hub and screw into the disk portion 18 of the wheel. A disk 25 of hard fiber or other insulating material is interposed between the hub and the car wheel, and sleeves or bushings 26 of similar insulating material surround the bolts 24 where they pass through the flange of the hub so that no part of the bolts 24 comes into contact with the metal of the hub or its flange. The inner ends of the insulating sleeve or bushings 26 are flanged to form insulating washers which are interposed between the metal washers 27 on the bolts 24 and the flange of the hub.

By referring to Figs. 2 and 3, it will be noticed that the flange 23 of the hub 21 is smaller than the opening in the wheel in which it fits, so that no part of the metal of the hub or its flange comes into contact with the car wheel.

After the wheel and hub are assembled, the remaining space is filled in with an insulating filler 28 so as to insure absolute and perfect insulation between the car wheel and its axle. This filler may be any one of the well known compounds prepared for such use.

The rails 1 are formed as shown in Figs. 1 and 4, a cross section thereof showing a transverse portion from which two flanges depend, thus forming a protected channel or groove in which the trolley wheels travel. These rails are fastened to the branch vertical members 6 by bolts 29. The trolley wheels 30 are supported from the car frame by pivoted trolley arms 31 so that they travel in the channels or grooves of the rails 1, with their peripheries in contact with the under surfaces of the transverse portions of the rails as shown in Figs. 1 and 4. The trolley arms 31 are insulated from the car frame in any well known way, and wires 32, conduct the electric current from the trolley arms to the motors 17. The great merit of this construction of rail is that the contact between it and the trolley wheel is absolutely protected from the elements, it being practically impossible for any rain, snow, sleet, dirt or any foreign matter to accumulate so as to interfere with the contact. The trolley wheels are maintained in contact with the rails with a spring tension in the usual manner.

Each of the car wheels is provided with a central extension 33, which runs on a supplementary rail when it is desired to reduce the speed of the car. This extension consists of a steel pin having its inner end flanged and embedded in the disk portion 18 of the wheel, the insertion being made during the process of casting the car wheel, so that the steel extension is practically integral therewith, see Fig. 2.

The rails 1 are electrically energized from any suitable source of electric energy.

I claim—

1. In a transportation system, a track, a series of supports each having two branch members from which the rails of the track are supported, a transverse connection attached to the lower ends of the branch members and insulating means interposed between the branch members and the transverse connection.

2. In a transportation system, a track, a series of supports each having two branch members from which the rails of the track are supported, a transverse connection attached to the lower ends of the branch members, insulating means interposed between the branch members and the transverse connection and means for covering and protecting the insulating means from the weather.

3. In a transportation system, a track, a series of supports each having two branch members from which the rails of the track are supported, a transverse connection attached to the lower ends of the branch members and insulating means interposed between the branch members and the transverse connection covered and protected from the weather.

4. In a transportation system, a track, a series of supports each having two branch members from which the rails of the track are supported; said branch members being provided at their lower ends with enlarged inverted cup like portions, a transverse connection having plates at its ends adapted to fit within and be fastened to the cup like portions of the branch members and insulating material interposed between the cup like portions and the plates.

5. In a transportation system, a track composed of rails of channel form in cross section with the groove beneath and a car on said track having wheels on the top of the rails and a trolley wheel projecting into the groove and against the under surface of one of the rails.

6. In a transportation system, a track composed of rails of channel form in cross section with the groove beneath and a car on said track having wheels on the top of the rails; said wheels being insulated from the remainder of the car and a trolley wheel projecting into the groove and against the under surface of one of the rails.

7. In an elevated transportation system, a series of supports each composed of a base, a

vertical central standard, a connection having a central depending portion fitted in the upper end of the central standard and enlarged plates at its ends, branch members having inverted cup like portions at their lower ends attached to the enlarged plates of the transverse connection, insulating material between the cup like portions and the enlarged plates and rails secured to the branch members.

8. In a transportation system, a series of supports each including a vertical standard, a transverse connection secured to the vertical standard, branch members fastened to but insulated from the transverse connection and rails supported from the branch members.

9. In a transportation system, the combination with inverted channel rails, of a car having axles, wheels secured to but insulated from the axles and supported on the rails, an electric motor operatively connected to the axle and a trolley wheel attached to the car and engaging in the groove of one of the channel rails.

10. In a transportation system, the combination with inverted channel rails, of a car having axles, wheels secured to but insulated from the axles and supported on the rails, and an electric motor mounted on a car axle and driven by electric power carried by one of the rails.

11. In a transportation system, the combination with inverted channel rails, of a car having wheels insulated from the remainder of the car and adapted to travel upon the top of the rails, an electric motor attached to the car and a trolley wheel extending from the car and engaging in the channel in the rail.

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