F. THORNTON.

TROLLEY.

APPLICATION FILED JUNE 13, 1914.

1,136,847.

Patented Apr. 20, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

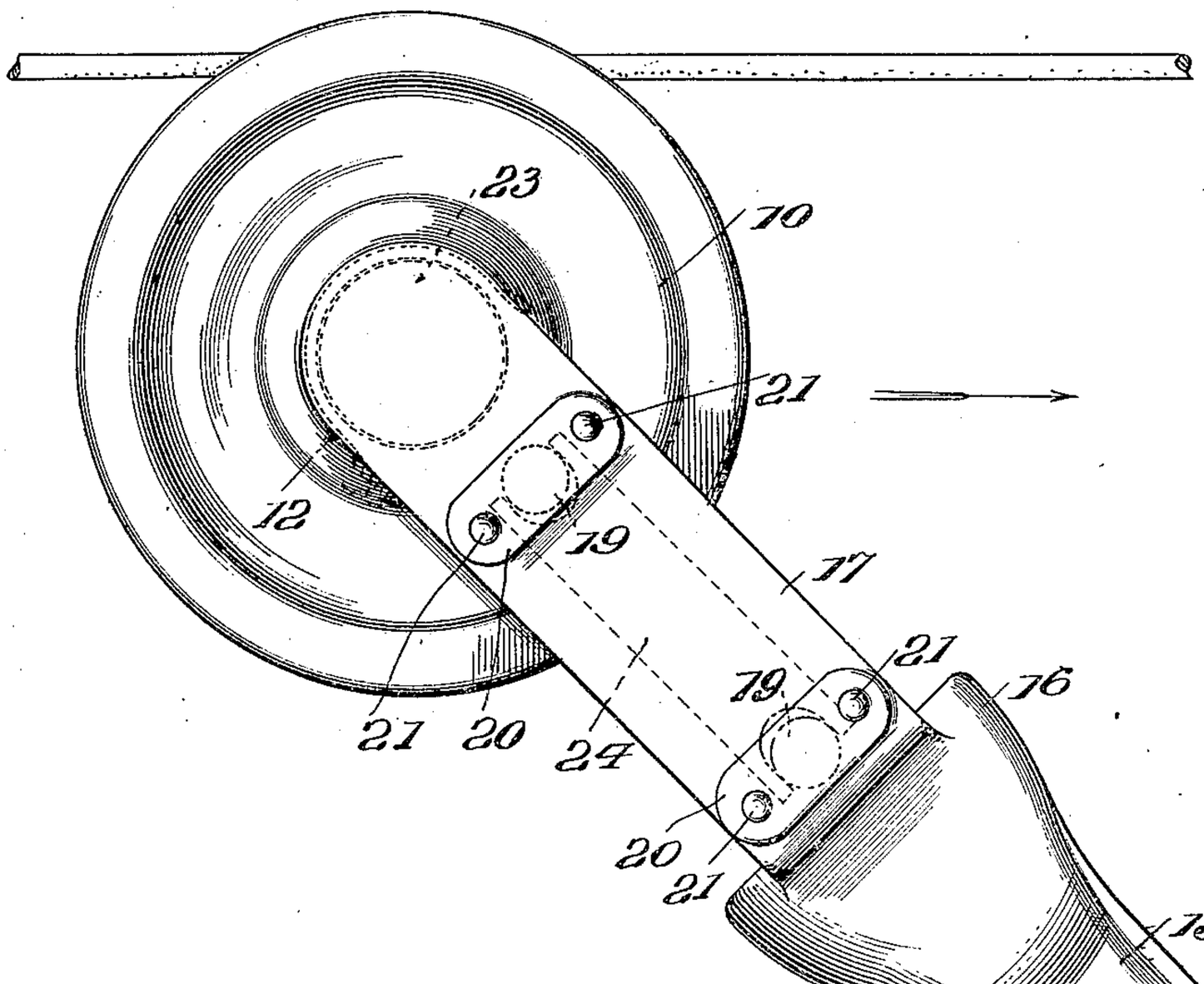
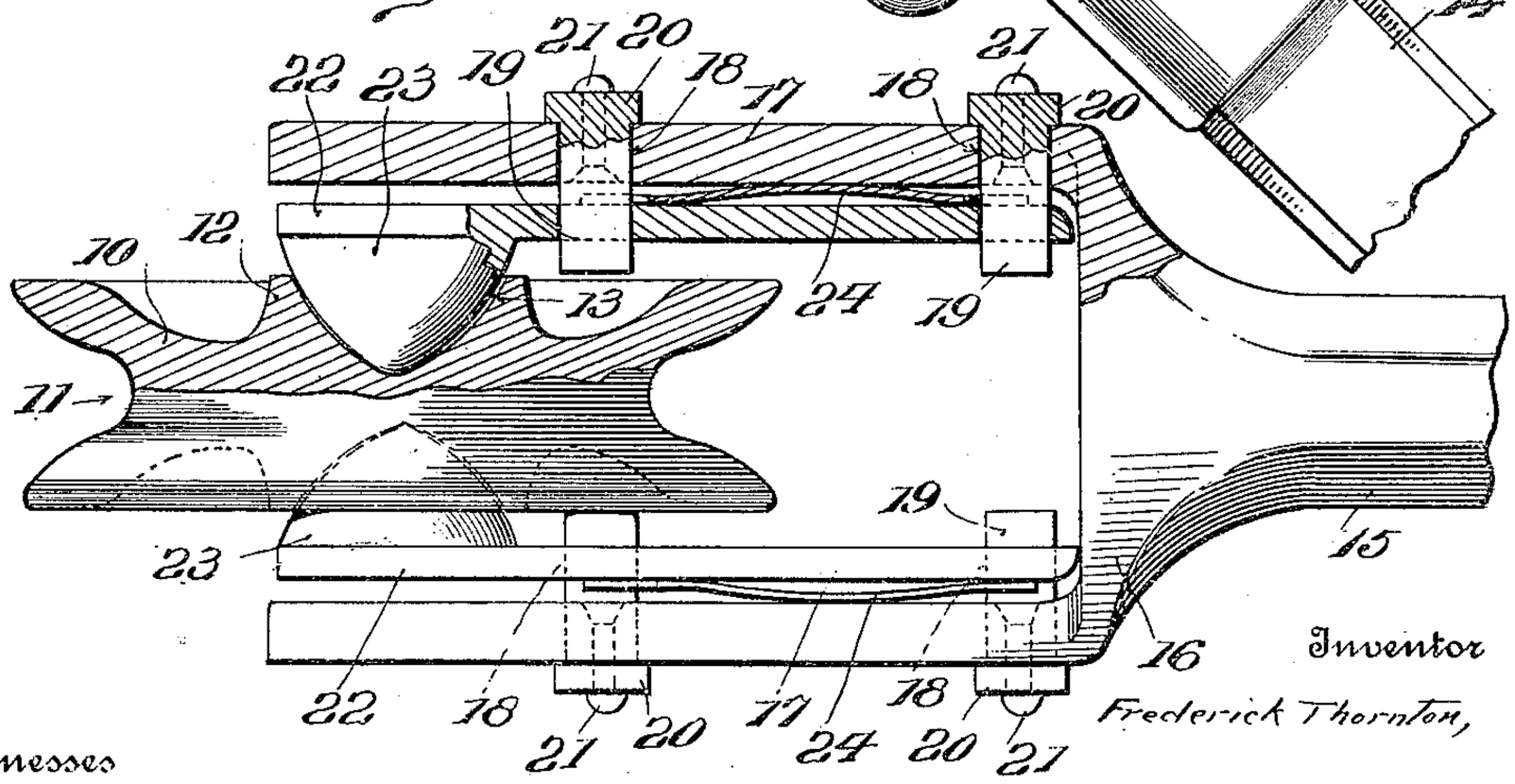


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

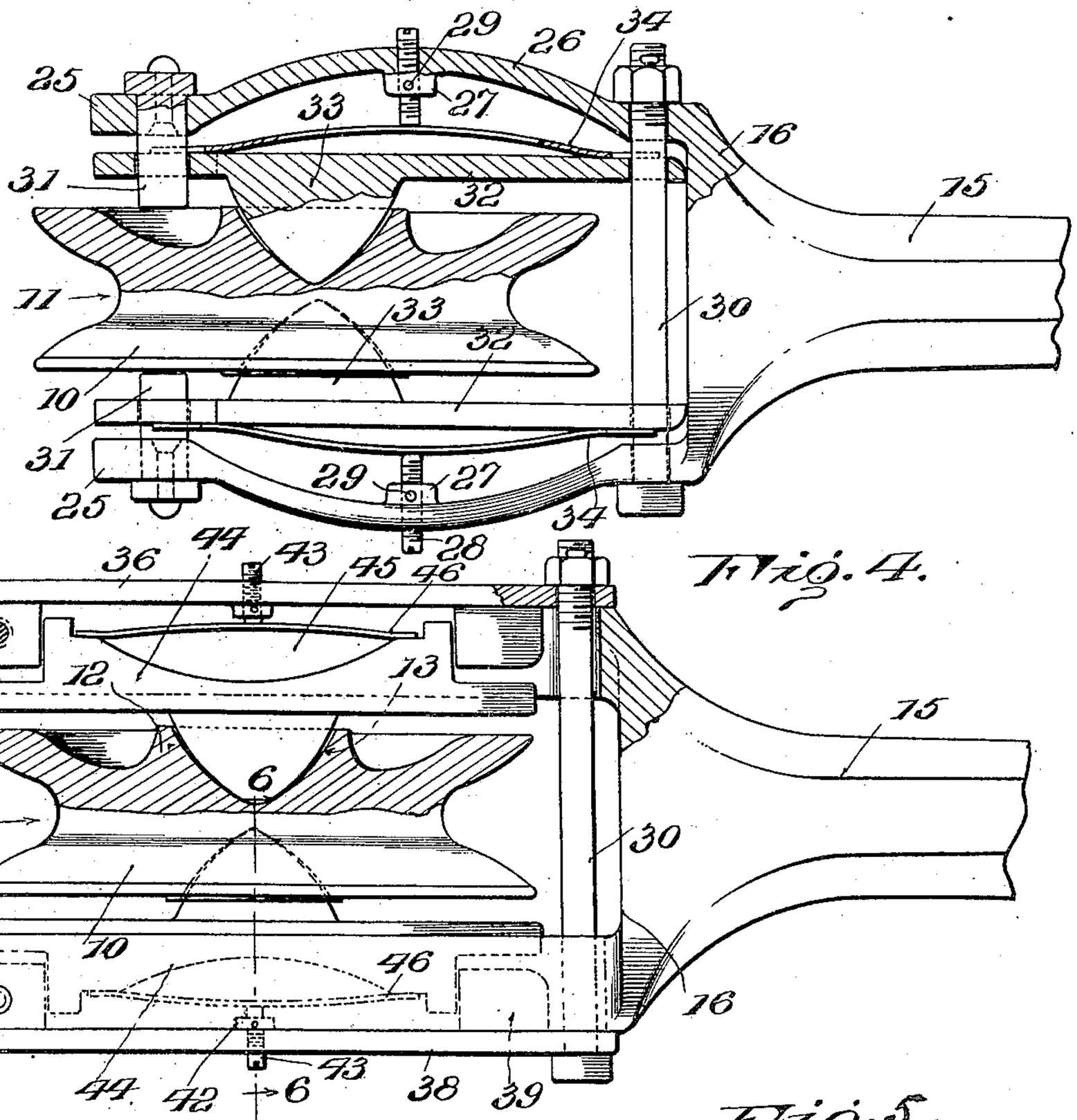


Fig. 4.

Fig. 5.

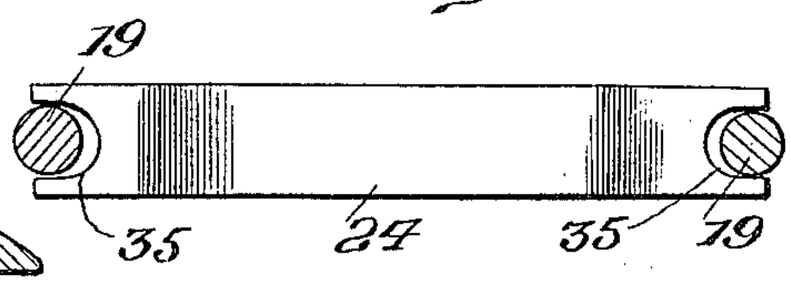
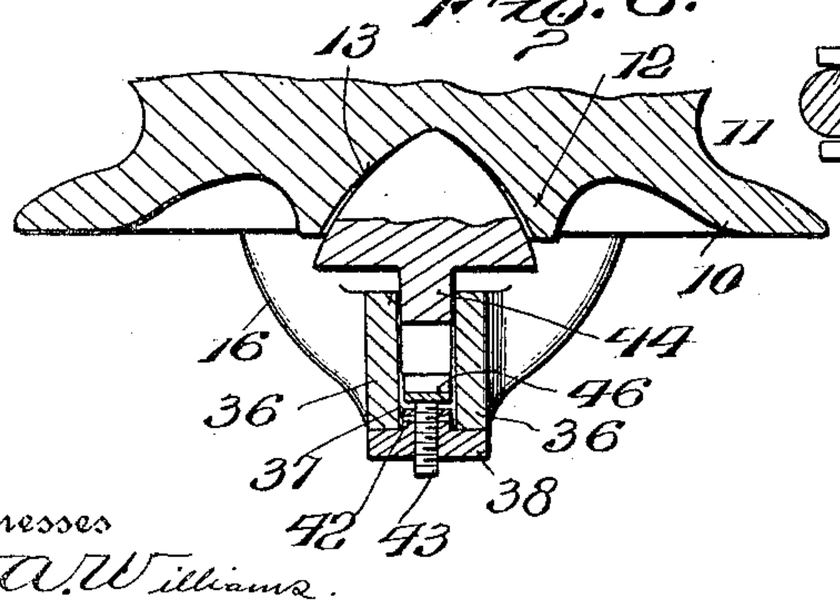


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TROLLEY.

1,136,847. Specification of Letters Patent. Patented Apr. 20, 1915.

Application filed June 13, 1914. Serial No. 844,888.

To all whom it may concern:

Be it known that I, FREDERICK THORNTON, citizen of the United States, residing at Huntington, in the county of Cabell and State of West Virginia, have invented certain new and useful Improvements in Trolleys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The invention relates to electric railways and has special reference to a trolley harp and wheel for use in connection with such railways.

The principal object of the invention is to provide an improved device of this character wherein novel provision will be made to automatically compensate for the wear of the bearings which support the wheel in the harp.

A second object of the invention is to provide an improved device of this character which will at all times automatically maintain a fixed axis of rotation and thereby prevent oscillation of the wheel relative to the bearings.

A third object of the invention is to provide an improved device of this character which will insure electric connection between the wheel and harp under all conditions of service and wear.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts hereinafter described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and Figure 1 is a side view of one form of the device. Fig. 2 is a front elevation partly in section thereof. Fig. 3 is a similar view of a second form. Fig. 4 is a similar view of a third form. Fig. 5 is a detail showing the end of a spring used in Figs. 1 and 2 and the manner in which it fits the guide pin or bolt. Fig. 6 is a section on the line 6—6 of Fig. 4.

In each of the forms herein illustrated there is employed a trolley wheel comprising the body 10 having the usual peripheral groove 11 and provided on opposite sides with bosses 12 wherein are formed conoidal recesses 13. It will be obvious that, with the different harps shown, different sizes of wheels may be used. Furthermore, each form has a harp which is like the others in the provision of a pole fit 14, a stem 15, and a base 16.

In the form shown in Figs. 1 and 2 arms 17 extend upward in parallelism from the base 16 and through these arms are provided alined openings 18 where through pass guide pins 19 provided with flat elongated heads 20 which lie against the outsides of the arms and are secured thereto by rivets 21. Slidably mounted on these pins are plates 22, each having on its inner side adjacent its upper end a conoidal bearing boss 23 which fits into a respective recess 13 in the trolley wheel. Between the plates 22 and arms 17 are disposed leaf springs 24 which serve to force the plates constantly inward and thus automatically take up any wear on the bearing and at the same time keep the parts in close contact so as to constantly afford good electrical connection between the wheel and harp.

In the form shown in Fig. 3, arms 25 extend from the base and are outwardly curved intermediate their ends as at 26, the outwardly curved portions being provided on their inner sides with bosses 27 wherethrough pass adjusting screws 28. These screws may be held in adjusted position by any suitable means, as by the pins 29 passing through the bosses and screws, connecting the lower ends of these arms is a bolt 30 and projecting through the upper ends are guide pins 31 similar to the pins 19 and similarly secured to said arms. It is here to be noted that a bolt may also be used in place of the lower pins in Figs. 1 and 2. Mounted on these pins 31 and the bolt 30 are plates 32 provided intermediate their ends with conoidal bearing bosses 33 fitting in the recesses 13. Springs 34, similar to the springs 24 are employed between the plates and arms and are properly tensioned by the adjustment of the screws 28. Both the springs 24 and 34 are provided with arcuate ends 35 engaging either the pins or bolt to prevent lateral displacement of said springs.

In the form of the device shown in Fig. 4 pairs of arms 36 extend upward from the base in parallelism so that a slot 37 is formed between the arms of each pair. Closing the outer sides of these slots are plates 38 which

are provided with guide and securing lugs 39 adjacent their ends, said lugs entering said slots and being secured therein by screws 40. Each of these plates is provided with an inwardly extending lug 42 through which passes an adjusting screw 43, similar to the screws 28 and similarly locked. Slidable in each of the slots 37 and guided by the lugs 39 is a plate 44 centrally recessed as at 45 so that a tension spring 46 may lie between each of the plates 44 and a respective plate 38, the tension of the springs being regulated by the screws 43. On each of the plates 44 is a conoidal bearing boss which fits a respective recess 13 in the wheel.

It will be seen that the last two forms are similar to the first and similarly possess the properties of taking up wear, keeping the wheel revolving without oscillation and maintaining close electrical contact between the wheel and harp. There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

Having thus described the invention, what is claimed is:—

1. The combination with a trolley harp including spaced arms, and a trolley wheel provided with oppositely disposed bearing recesses; of plates between said arms on opposite sides of said wheel, bearing bosses on said plates engaging said recesses, springs urging said plates inward, and means to adjust the tension of said springs.

2. The combination with a trolley harp including spaced pairs of arms, and a trolley wheel provided with oppositely disposed bearing recesses; outer plates closing the spaces between respective pairs of arms, inner plates slidable in said spaces, leaf springs between the inner and outer plates, adjusting screws extending through the outer plates and engaging said springs, and bosses on the inner plates engaging the recesses in the wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."