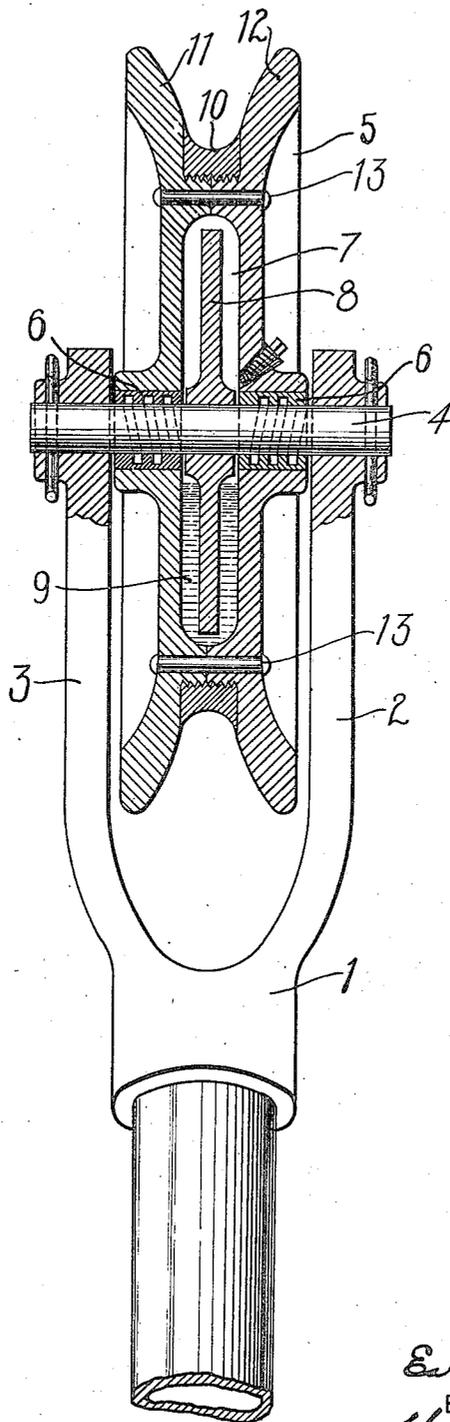


E. E. EBY.  
TROLLEY WHEEL.  
APPLICATION FILED JAN. 7, 1914.

1,155,226.

Patented Sept. 28, 1915.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TROLLEY-WHEEL.

1,155,226.

Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed January 7, 1914. Serial No. 810,768.

*To all whom it may concern:*

Be it known that I, EARL E. EBY, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Trolley-Wheels, of which the following is a specification.

My invention relates to trolley wheels, and it has for its object to provide a device of the character indicated which shall be simple and inexpensive in construction, efficient in operation, and particularly adapted, by reason of the peculiar arrangement of its parts, to withstand wear and satisfactorily conduct current from a trolley conductor to the trolley harp without undue heating and loss of energy.

More specifically, the object of my invention is to provide a trolley wheel, which is mounted rotatably on a shaft that is fixed to the trolley harp, and to provide adequate means for conducting current from the wheel to the shaft through the agency of a conducting fluid.

It is the usual practice to rotatably mount a trolley wheel upon a shaft which is carried by the harp, and to depend upon the moving contact engagement between the parts for carrying part of the current, while the remaining portion thereof is collected by side springs which are fixed to the harp and have frictional and electrical engagement with the ends of the wheel hubs. Many difficulties are experienced in the operation of trolley wheels of this type, inasmuch as there is usually insufficient contact surface and considerable frictional resistance which tends to cause excessive and destructive wear and to prevent the wheel from rotating freely, thus causing it to slip along the trolley conductor to a certain degree.

It is the specific purpose of my invention to overcome these difficulties and to improve the maintenance and operation of this class of devices, and, in a broader sense, I propose to provide means for effectively shunting energy around a joint or bearing between relatively movable members of any nature and any class of apparatus, by means of a conducting fluid. The single figure of the accompanying drawing is a view, partially in section and partially in elevation, of a device constructed in accordance with my invention.

Referring to the drawing, the device

shown comprises a trolley harp 1 embodying a plurality of projecting arms 2 and 3, a shaft 4 fixedly secured in position between said arms, a trolley wheel 5 provided with suitable bearing members 6 rotatably mounted upon the shaft 4 and having a central chamber 7 therein, in which a disk or member 8 of conducting material is disposed. The disk 8 is rigidly associated with the shaft 4 and is stationary, so far as rotatable movement is concerned. A body of conducting fluid 9, such as mercury or the like, is disposed within the chamber 7 in intimate contact with the inner walls of the wheel 5 and with the conducting member 8.

The harp 1 may be of any suitable construction, and the bearing members 6, although preferably of the type known as "graphite bearing," may vary in construction or may be omitted entirely, in which case the wheel 5 may constitute its own bearing members.

In the preferred form of my invention, I employ a removable annular tire or tread member 10 of good wearing and conducting material which may have a screw threaded engagement with complementary parts 11 and 12 which constitute the flange members of the wheel 5. The flange members 11 and 12 may also be secured together by pins 13, if desired. Other arrangements of parts which will permit of the positioning of the disk 8 within the recess 7 may be employed.

When the wheel 5 is stationary, the conducting fluid 9 occupies the position shown in the drawing and makes electrical contact with the sides of the wheel and the centrally disposed stationary disk member 8, whereby current which is taken from a trolley conductor (not shown) is conducted from the wheel 5 to the shaft 4 and harp 1.

In case the wheel is rotating under service conditions, the conducting fluid 9 is thrown out centrifugally into the peripheral portion of the chamber 7 where it serves to make an effective electrical connection between the moving wheel 5 and disk member 8.

Many modifications in structural details and in the arrangement and location of parts may be made without departing from the spirit and scope of my invention.

I claim as my invention:

1. The combination with a trolley harp, a shaft fixedly mounted therein, and a trolley wheel rotatably mounted upon said shaft

and having a central chamber therein, of a conducting disk disposed in said chamber and fixed to said shaft, and a body of conducting fluid contained in the chamber of said rotatable wheel.

2. The combination with a trolley harp and a shaft fixedly mounted therein, of a trolley wheel rotatably mounted upon said shaft and having a central chamber therein, and a body of conducting fluid contained in the chamber of said rotatable wheel.

3. The combination with a trolley harp, a shaft fixedly mounted upon said harp, and a rotatable trolley wheel having a chamber therein adjacent to said shaft, of a body of conducting fluid disposed in the chamber of said rotatable wheel.

4. The combination with a trolley harp, a shaft rigidly associated therewith, and a trolley wheel rotatably mounted on said shaft and having a central chamber therein, of a conducting member rigidly secured to said shaft and disposed in said chamber, and a body of conducting fluid disposed in said chamber of said rotatable wheel in intimate engagement with the wheel and said conducting member.

5. The combination with a fixed shaft, a member rigidly secured thereto and another member rotatably mounted thereon and having a pocket in which said first member is

disposed, of a body of conducting fluid disposed within said pocket for carrying current around the surfaces of frictional engagement and adapted to be thrown outwardly by centrifugal force to make electrical connection between said members throughout the entire periphery of said first member and of the inner wall of said pocket.

6. The combination with a supporting member, a shaft rigidly associated therewith and a member rotatably mounted on said shaft and having a central chamber therein, of a conducting member secured to said shaft and disposed in said chamber, and a body of conducting fluid contained in said chamber in intimate engagement with said rotatable member and said conducting member and adapted to be thrown outwardly by centrifugal force to make electrical connection between said rotatable member and said conducting member throughout the entire adjacent concentric surfaces of said members.

In testimony whereof, I have hereunto subscribed my name this 31st day of Dec. 1913.

EARL E. EBY.

Witnesses:

S. W. FARNSWORTH,  
B. B. HINES.