

W. P. WIEMANN.
TROLLEY.

APPLICATION FILED SEPT. 7, 1904.

FIG. 1.

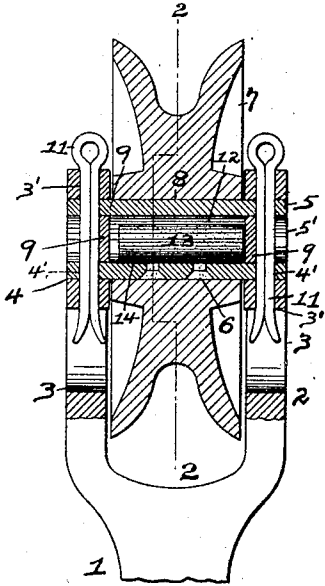


FIG. 2.

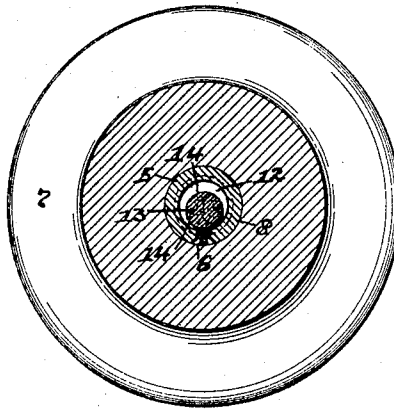


FIG. 3.

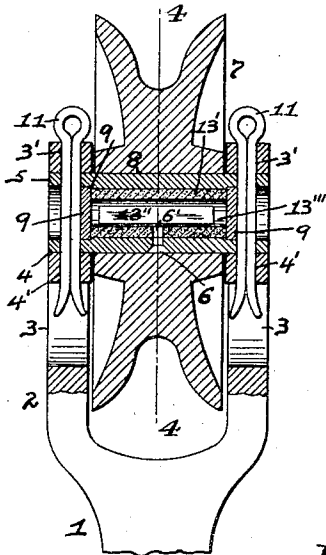


FIG. 4.

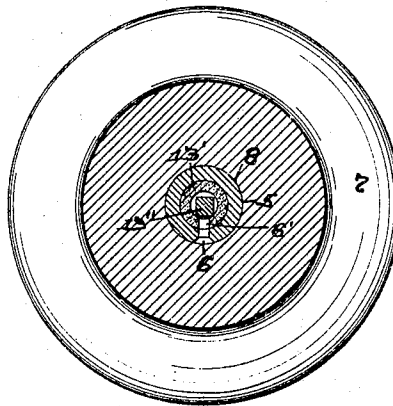


FIG. 5.

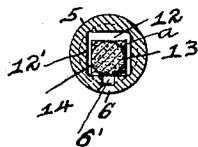
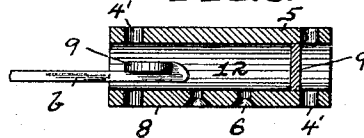


FIG. 6.



WITNESSES

Wm. S. ...
Robert ...

INVENTOR

William P. Wiemann,
By J. A. ...
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM P. WIEMANN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
EMPIRE MACHINE COMPANY, OF PITTSBURG, PENNSYLVANIA, A COR-
PORATION OF PENNSYLVANIA.

TROLLEY.

No. 796,482.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed September 7, 1904. Serial No. 223,646.

To all whom it may concern:

Be it known that I, WILLIAM P. WIEMANN, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Trolleys; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to trolleys, and has special reference to the lubrication of the trolley-wheels thereof.

The object of my invention is to provide a cheap, simple, and efficient construction of a trolley-wheel support whereby the wear between the wheel and its spindle or axle will be diminished by suitable provisions for lubrication, as well as one which will insure good electrical contact between such parts through a large contact-surface and by an electric-conducting lubricant.

A further object is to provide means for retaining such lubricant in a dry form or state and not in contact with the bearing parts, as well as means for feeding to the wearing-surfaces such dry electric-conducting lubricant, which lubricant will be uniformly fed to such surfaces through all changes of temperatures.

My invention consists, generally stated, in the novel arrangement, construction, and combination of parts, as hereinafter more specifically set forth and described, and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved trolley, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a vertical section of a trolley-wheel and its supports, showing my invention applied thereto. Fig. 2 is a like section taken at right angles to that shown in Fig. 1 and on the line 2 2 on said figure. Fig. 3 is a vertical section of a trolley-wheel and supports, showing another form of my invention. Fig. 4 is a like view at right angles to that shown in Fig. 3 and on the line 4 4 in said figure. Fig. 5 is a detail sectional view showing another form of the axle-receptacle. Fig. 6 is a like view showing the manner of removing the plugs.

Like symbols of reference herein indicate like parts in each of the figures of the drawings.

As illustrated in said drawings, 1 represents

the upper portion of the trolley-pole, on which is secured or formed the harp 2, having the sides 3 thereon, and these sides 3 are provided with the openings 4 through the same to receive the spindle or axle 5, which axle is preferably formed of a piece of tubing or pipe and is provided with apertures 6, extending through the bottom of the same. The trolley-wheel 7 fits around the axle 5 by its central opening 8 therein, and within the axle 5 are the plugs 9, which are adapted to be forced or pressed into position in said axle 5 by any suitable instrument or means. The axle 5, with the plugs 9, is held in place by means of the keys or cotters 11 or other suitable means, such cotters 11 passing through openings 3', formed in the harp sides 3, and through openings 4' in the axle 5. Between the plugs 9 and within the axle 5 is formed the cavity or receptacle 12 for containing a block of graphite 13, and such graphite block is preferably formed cylindrical in cross-section, although any other form or shape can be used, if desired, for the purpose hereinafter described.

In the assembling of the parts the wheel 7 is placed between the sides 3 of the harp 2, and the axle 5 is inserted through the openings 4 in said axle and through the opening 8 in said wheel, after which the graphite block 13 can be placed or inserted within the receptacle 12 in the axle 5. The plugs 9 can now be pressed into position in the axle 5 and the cotters 11 passed through the openings 3' and 4' in the harp sides 3 and the axle 5, respectively, so as to hold these parts together and the plugs in position. The trolley is now ready for use, and when the device is in operation the movement of the trolley-wheel 7 over the trolley-wire (not shown) and the vibration of such wheel along said wire will cause the graphite block 13 to be moved around or back and forth within the receptacle 12 of the axle, so as to allow the said block to disintegrate on account of the cylindrical or round side 14 on said graphite block coming in contact with the surface of said receptacle. As the said block 13 is thus disintegrated the particles so disintegrated will pass down through the openings or apertures 6 in the bottom of the axle 5 and along the exterior of said axle, around which the trolley-wheel 7 passes or revolves, so as to lubricate the bearing-surfaces

between said axle and the wheel. When the device is not in use, the graphite block 13 remains inert, so that there is no loss or waste of the lubricant either when the device is in use or at rest. When the said block has become entirely disintegrated or it is desired to remove the same, one of the cotters 11 can be taken out, so that one of the plugs 9 can be removed by hitting one side of the same by any suitable means, so as to place said plug in a position at right angles to that shown in Fig. 1, such as is shown in Fig. 6, so that a hooked instrument *b* can be inserted within the axle to catch said plug and remove the same. After this is done a new block of graphite can be inserted within the axle 5 and the plug and cotter put back into place.

In Figs. 3 and 4 there is shown another form of my invention, which consists in placing a tubular section of graphite, as shown at 13', within the axle, so as to fill the space between the plugs, and an opening 6' is formed within the bottom of said tubular graphite section in order to register with the opening or aperture 6 in the bottom axle. A flat-sided block 13'' is placed within the opening 13''' through the tubular graphite section, and such block 13'' is smaller in cross-section than said opening 13''', so that in the movement of the trolley-wheel along the wire or in the vibration of said wheel the terminating corners of the flat-sided block 13'' will come in contact with the interior surface of the tubular graphite section 13' to disintegrate the same, and the particles of graphite caused by such disintegration of said section will pass down through the openings 6' and 6 in the graphite section and axle, respectively, and thence between the bearing-surfaces of wheel and axle to lubricate the same.

In Fig. 5 is shown another form of my invention, in which the receptacle 12 shown in Figs. 1 and 2 for the graphite block is provided with the flat faces 12', so that a greater disintegration of the said graphite block can be obtained, if desired. It will also be evident that the graphite block 13 can be of flat form or square in cross-section when first placed within the receptacle 12, as shown at *a* in Fig. 5, and in the use of the flat-sided block the same will eventually become round or circular in form as the particles are disintegrated therefrom.

It will of course be understood that various other changes and modifications in the shape,

design, and construction of the various parts of my improved device may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a trolley-wheel, of a stationary tubular spindle or axle for loosely carrying said wheel, and means within said axle for supplying disintegrated particles of lubricating material to the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel.

2. The combination with a trolley-wheel, of a tubular axle for carrying said wheel, and a graphite block within said axle for supplying disintegrated particles thereof to the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel to lubricate the same.

3. The combination with a trolley-wheel, of an axle for carrying said wheel, a graphite block, and means for disintegrating particles from said graphite block for the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel to lubricate the same.

4. The combination with a trolley-wheel, of a tubular axle for carrying said wheel, a graphite block within said axle, and means for disintegrating particles from said graphite block for the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel to lubricate the same.

5. The combination with a trolley-wheel, of an axle for carrying said wheel, a graphite block, and means within said block for disintegrating particles from the same for the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel to lubricate the same.

6. The combination with a trolley-wheel, of a tubular axle for carrying said wheel, a graphite block within said axle, and means within said block for disintegrating particles from the same for the bearing-surfaces between said wheel and axle through the vibrating movement of said wheel to lubricate the same.

In testimony whereof I, the said WILLIAM P. WIEMANN, have hereunto set my hand.

WILLIAM P. WIEMANN.

Witnesses:

J. N. COOKE,

W. A. LEONARD.