

No. 645,990.

Patented Mar. 27, 1900.

R. S. WINDSOR.  
TROLLEY WHEEL.

(Application filed July 18, 1899.)

(No Model.)

Fig. 1.

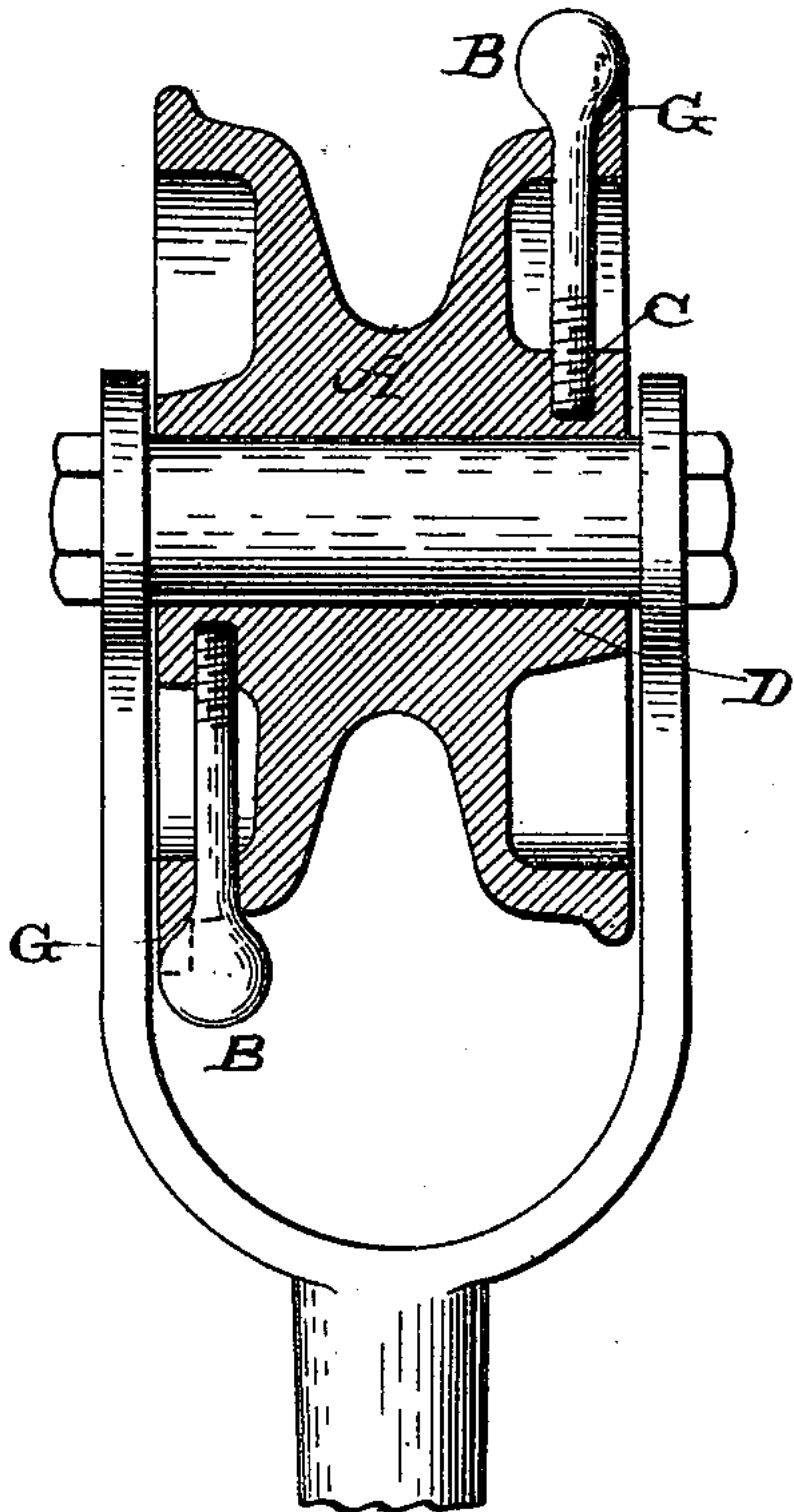


Fig. 2.

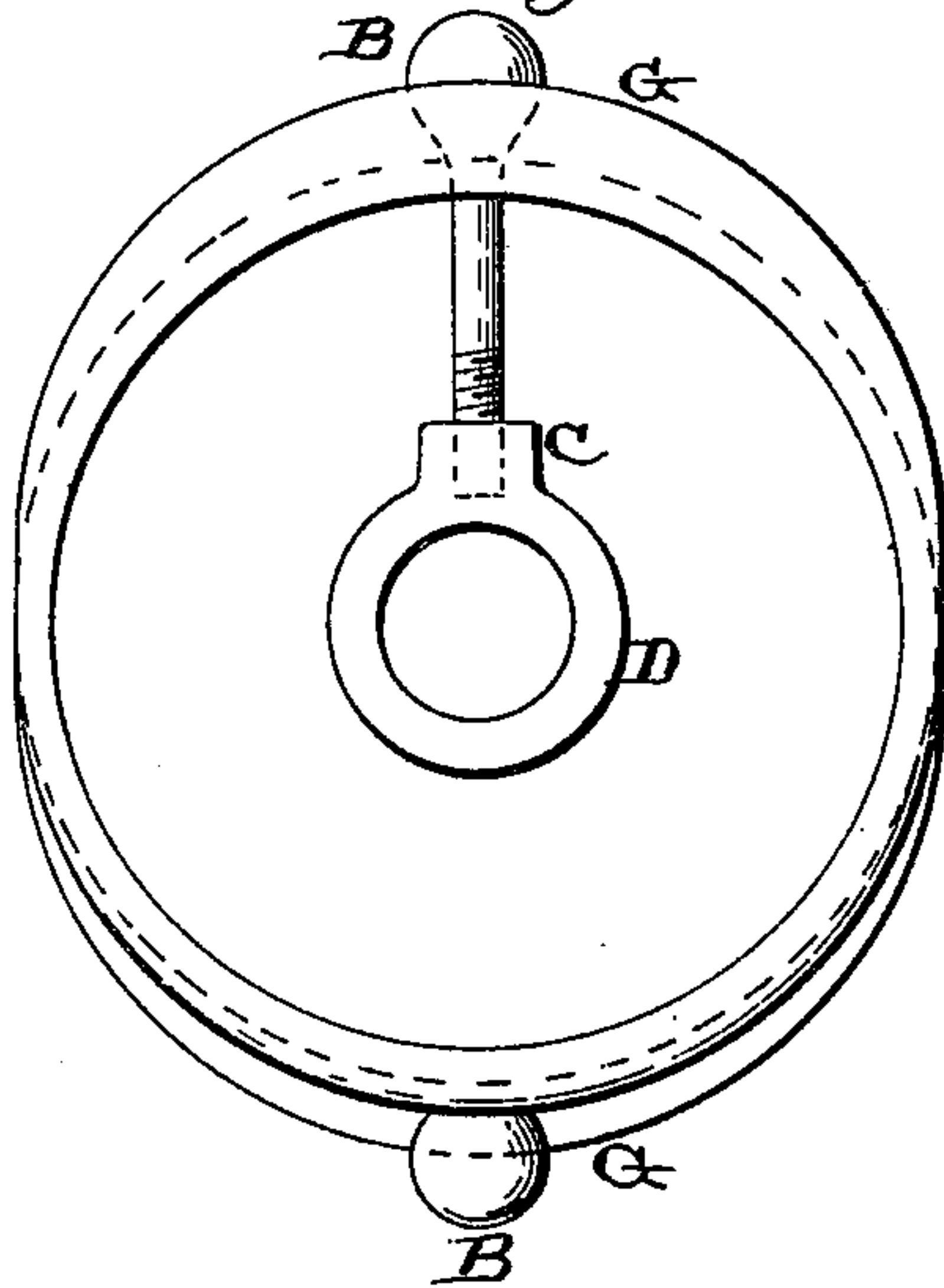


Fig. 4.

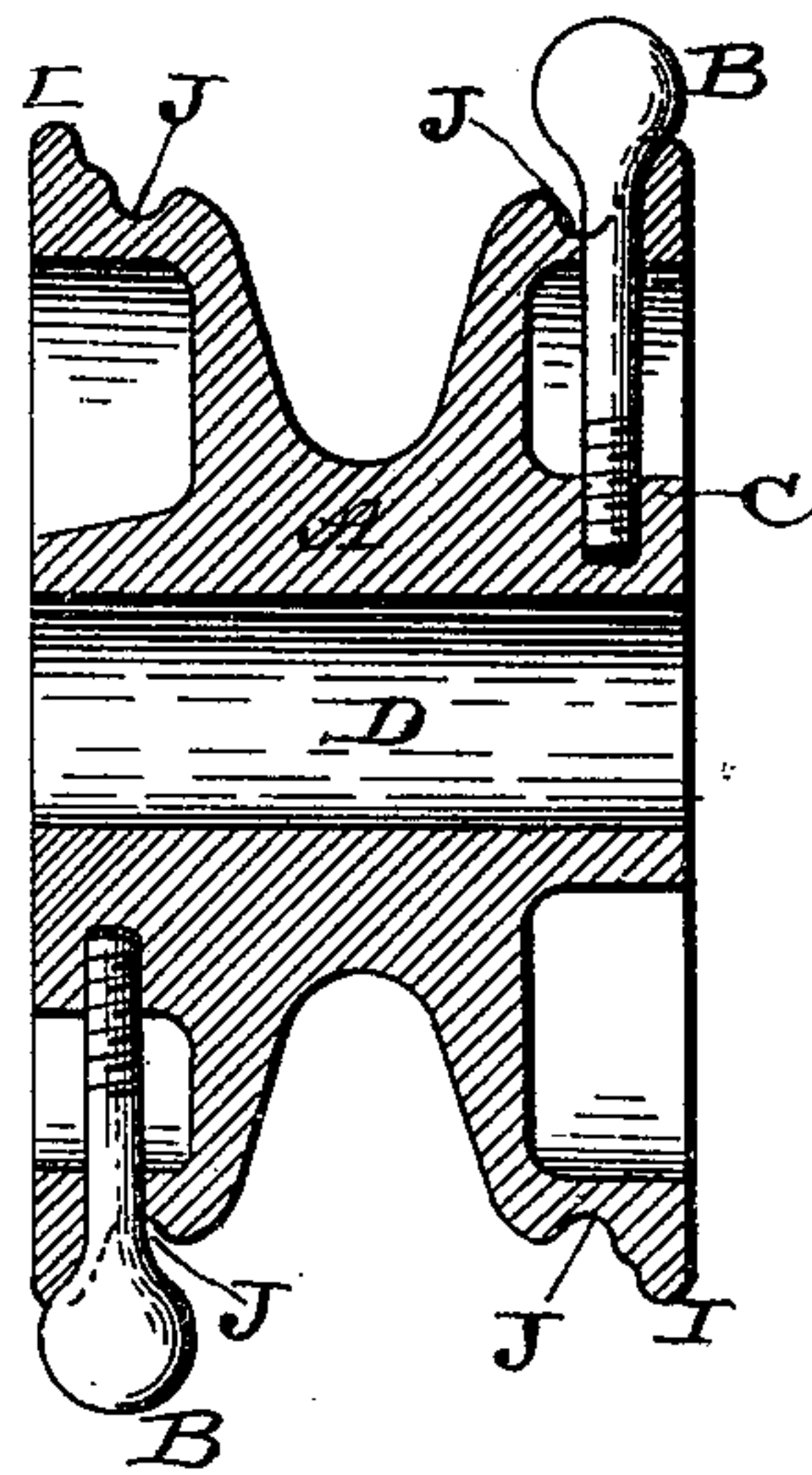


Fig. 3.

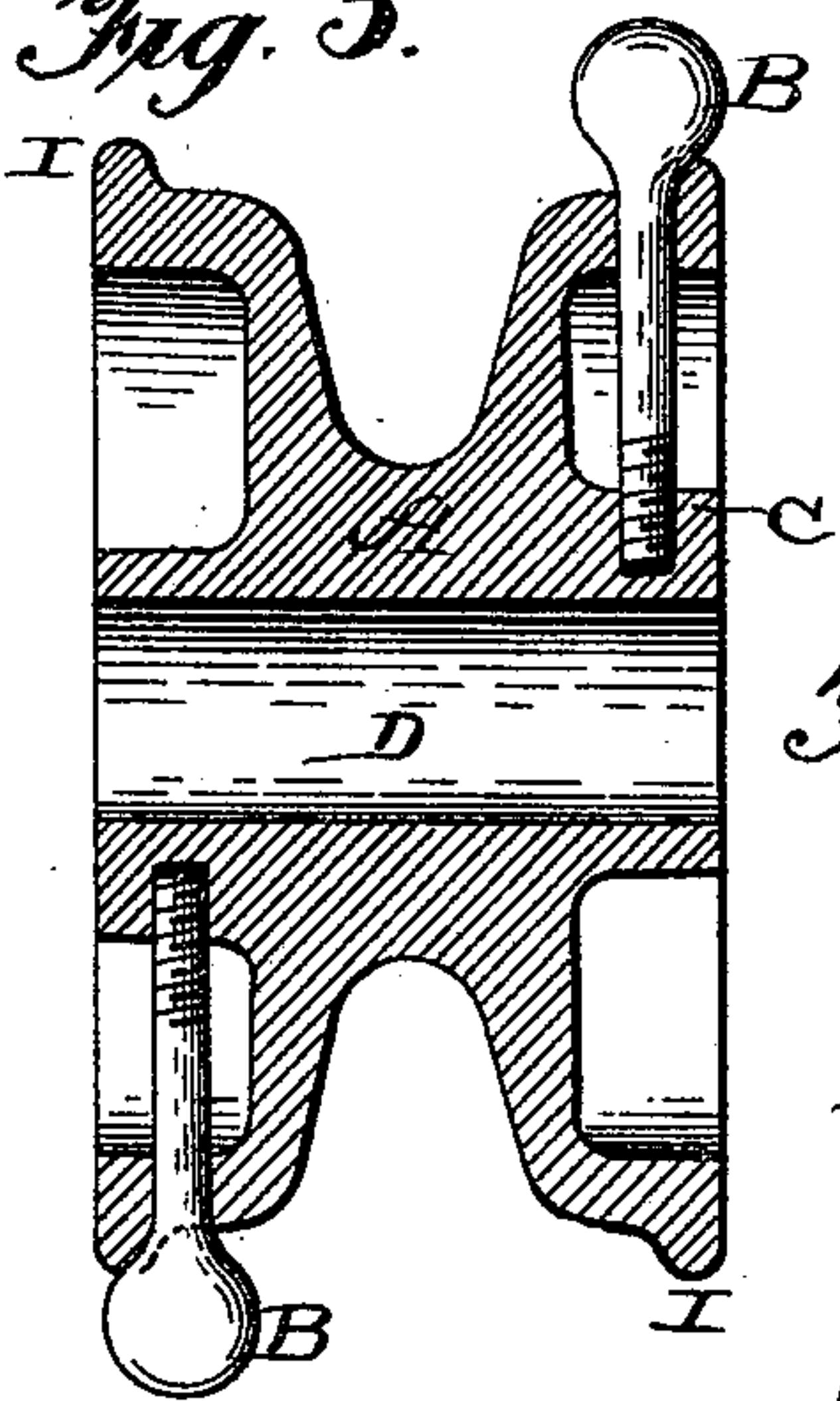
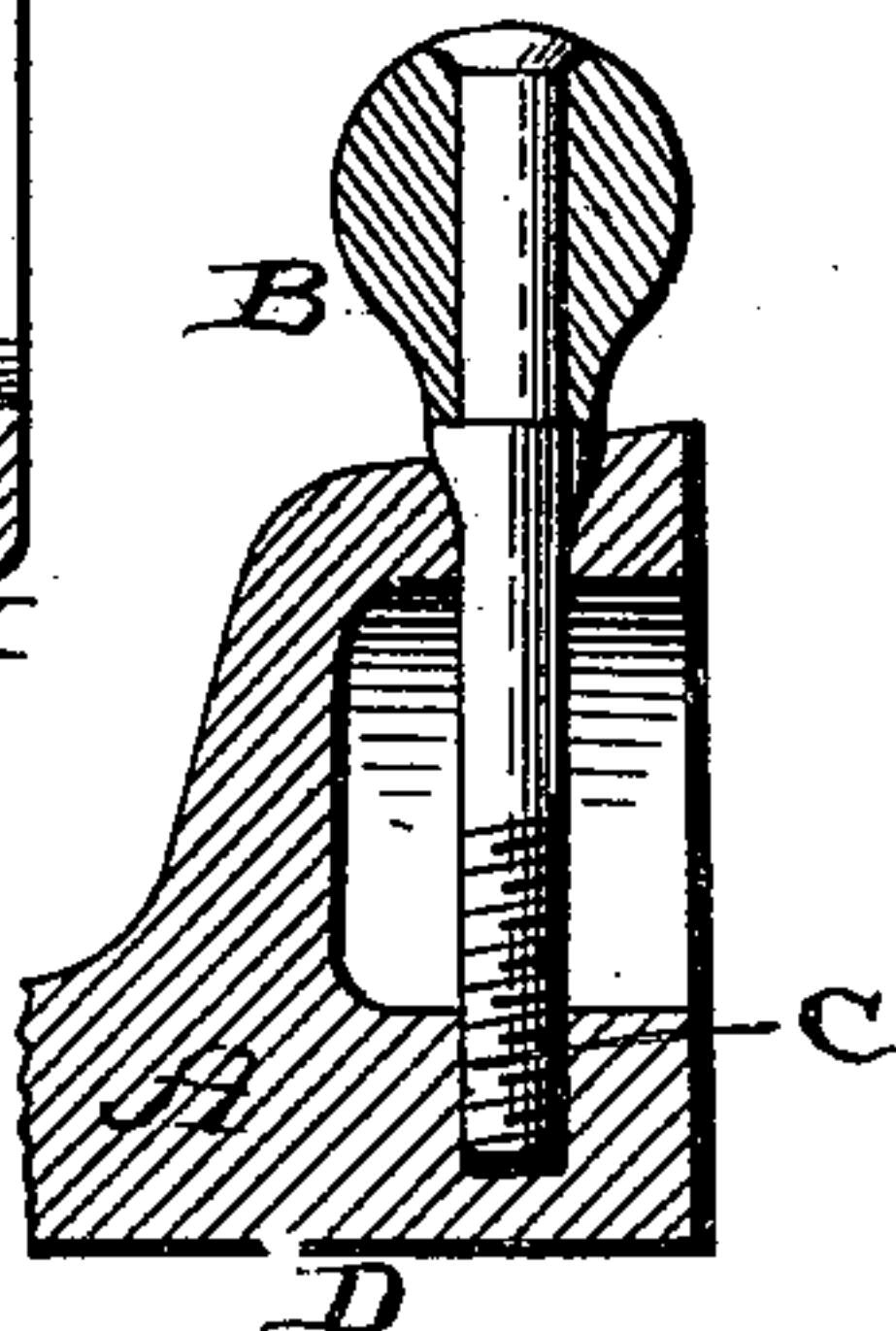


Fig. 5.



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# UNITED STATES PATENT OFFICE.

RICHARD S. WINDSOR, OF ALEXANDRIA, VIRGINIA.

## TROLLEY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 645,930, dated March 27, 1900.

Application filed July 18, 1899. Serial No. 724,237. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD S. WINDSOR, a citizen of the United States, residing at Alexandria, in the county of Alexandria, Virginia, have invented certain new and useful Improvements in Trolley-Wheels; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in trolley-wheels; and it has for its object the production of a trolley-wheel provided with means for returning the wire to the groove in the wheel in case the wire attempts to leave the trough of the wheel while the cars are in motion.

My invention consists in a trolley-wheel having applied to opposite edges upon opposite sides of the wheel suitable conical projections which extend a suitable distance outwardly beyond the flange of the wheel, and which projections having inwardly-extending surfaces catch the wire as it is leaving the wheel and return it to its groove, as will be more fully described hereinafter.

Heretofore trolley-wheels have been made with outwardly-diverging arms or fingers which serve to help catch the wire when the wheel is raised against it; but my invention differs therefrom in having projections with enlarged outer ends and which serve to return the wire to the groove when the wire is about to leave the wheel.

In the accompanying drawings, which represent my invention, Figure 1 is an edge view of my trolley-wheel. Fig. 2 is a side elevation thereof. Fig. 3 is a detail view showing certain modifications.

A represents a trolley-wheel, preferably of the shape here shown, but which may be given any other shape that may be preferred. Extending outwardly from opposite edges of the wheel and upon opposite sides thereof are the two stops or arms B, which are enlarged at their outer ends, so as to form inclined surfaces toward the inner side of the groove in the wheel and against which arms or projec-

tions the wire strikes when it is riding out of the groove and is about to leave the wheel. These arms or projections being thickest at their outer ends and having inclined sides, no sooner does the wire strike either one of them than the wire is thrown backward into the groove. There are only two of these arms or projections, and they project from opposite sides and opposite edges of the wheel, and when not formed as an integral part of the wheel their shanks are made to extend through the flanges, and these shanks being threaded at their inner ends are screwed into the sockets C, especially prepared to receive them upon the hub D. In case it is desired to strengthen these arms or projections a web G, which extends one-half around the wheel upon the outer edge of the flange and which is highest at its center, from which it tapers to nothing at the ends, is formed upon the wheel, and this flange and the arm or projection may be formed in a single piece with the wheel itself. The webs upon opposite edges and upon opposite sides of the wheel are not absolutely necessary; but they serve to brace and strengthen the arms or projections and serve as an additional means for preventing the wire from leaving the wheel.

A trolley-wheel revolves so rapidly while the car is in motion that if more than one arm or projection is made to extend from the same edge of the wheel they form practically a continuous flange and are not only unnecessary, but a positive detriment to the wheel. One arm or projection placed upon opposite sides of the wheel and extending from opposite edges, as here shown, catches the wire, no matter toward which side of the wheel it may move in leaving the groove, before the wire has time to pass outwardly over the flange, and the wire in striking against the inclined surface of the arms or projections is thrown back into its groove.

The arms or projections may be either stationary or they may be provided with friction-rollers where the wire comes in contact with them, so as to rapidly revolve upon the pins upon which they are placed; but whether the projections or arms are made to revolve or are stationary their inner and outer edges form about a line with the sides of the groove in which the wire runs, and these arms or pro-



jections are set inwardly just sufficiently to cause them to throw the wire back into its groove as soon as the wire begins to leave the wheel and strikes either one of the arms or projections.

As shown, the wheel is provided with a central groove or trough and the flanges form unbroken sides extending therefrom. Where the side flanges G are not used, a small rim or bead I may be formed around each edge of each of the flanges, so that should the wire reach the outer edge of the flange upon either side before encountering the arm or projection upon that side the wire will catch upon the small bead or rim and serve to prevent it from leaving the wheel until the arm or projection has had time to encounter the wire as the wheel revolves. In case it is not desired to form a rim or bead upon the outer edges a semicircular groove J may be formed in each of the flanges of the wheel, and the wire catching in these grooves will be held until the arm or projection upon that side of the wheel shall have encountered the wire, so as to return it to its groove.

The arms or projections are preferably shaped like inverted pears; but I do not limit myself to any particular shape, as this may be varied at will without departing from the spirit of my invention, the object of which is to so shape the arms or projections that as soon as the wire strikes against them it will be thrown back into the groove of the wheel.

My invention is very simple and cheap in construction, is efficient in action, and can be produced as cheaply as any of the wheels now in use. The arms or projections require no additional thickness of the wheel, and hence these wheels can be used upon any of the standard arms now in use.

Having thus described my invention, I claim—

1. A trolley-wheel provided with arms or projections, which extend from opposite sides and from opposite edges of the wheel and which are out of line with each other, and

which arms or projections catch the wire as it is leaving the groove in the wheel and return it to position, substantially as shown.

2. A trolley-wheel provided with a single arm or projection placed upon opposite sides of the wheel, and projecting from opposite edges, and which arms or projections catch the wire as it is leaving the groove in the wheel and return it to position, substantially as described.

3. In a trolley-wheel, two arms or projections extending from opposite edges and from opposite sides of the wheel, and which arms or projections have inwardly-inclined surfaces so as to catch the wire when it is leaving the groove and return it to position, substantially as set forth.

4. A trolley-wheel provided with arms or projections, which extend from opposite sides and from opposite edges of the wheel, combined with flanges formed upon the edge of the wheel, and which serve to brace the arms or projections in position, substantially as shown.

5. In a trolley-wheel, an arm or projection which extends from each edge of the wheel, but from opposite sides thereof and which arms or projections have suitable shanks which pass through the edges of the wheel, and which are fitted into sockets formed upon the hub to receive them, substantially as described.

6. A trolley-wheel having projecting from its opposite sides and from opposite flanges thereof, two arms or projections provided with inwardly-inclined surfaces, and which serve to catch the wire as it is leaving the groove of the wheel and return it to position, substantially as set forth.

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

RICHARD S. WINDSOR.

Witnesses:

F. A. LEHMANN,  
ROSANN SMITH.