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PATENTED JULY 16, 1907.

C. E. ATKINSON.

MEANS FOR REMOVING ICE FROM TROLLEY WIRES.

APPLICATION FILED JAN. 8, 1906.

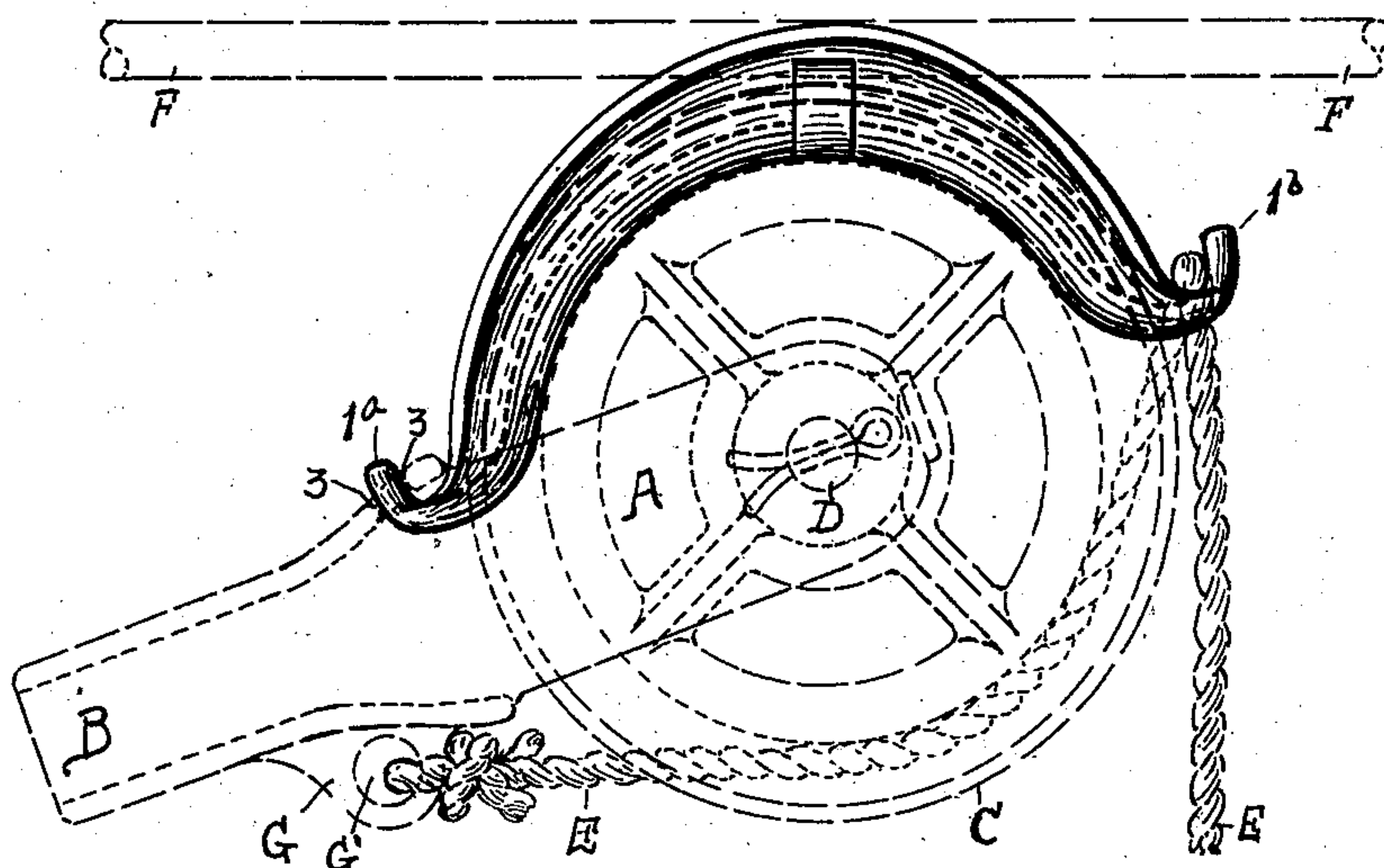


Fig. 1.

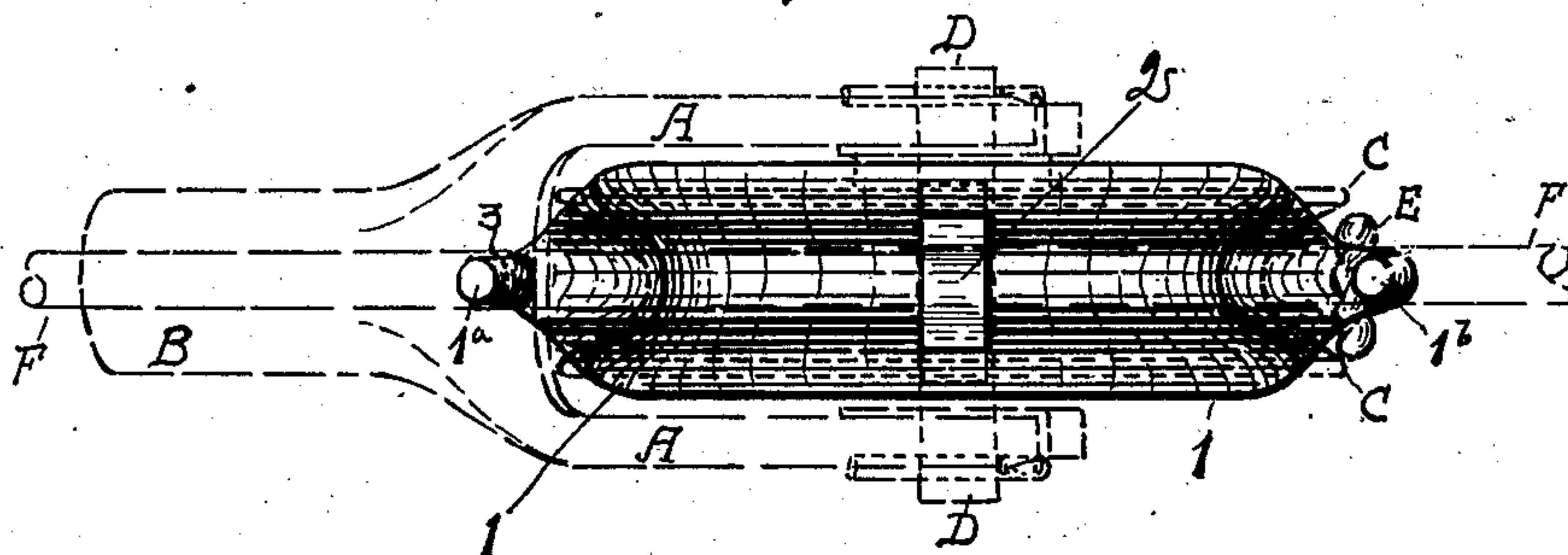


Fig. 2.

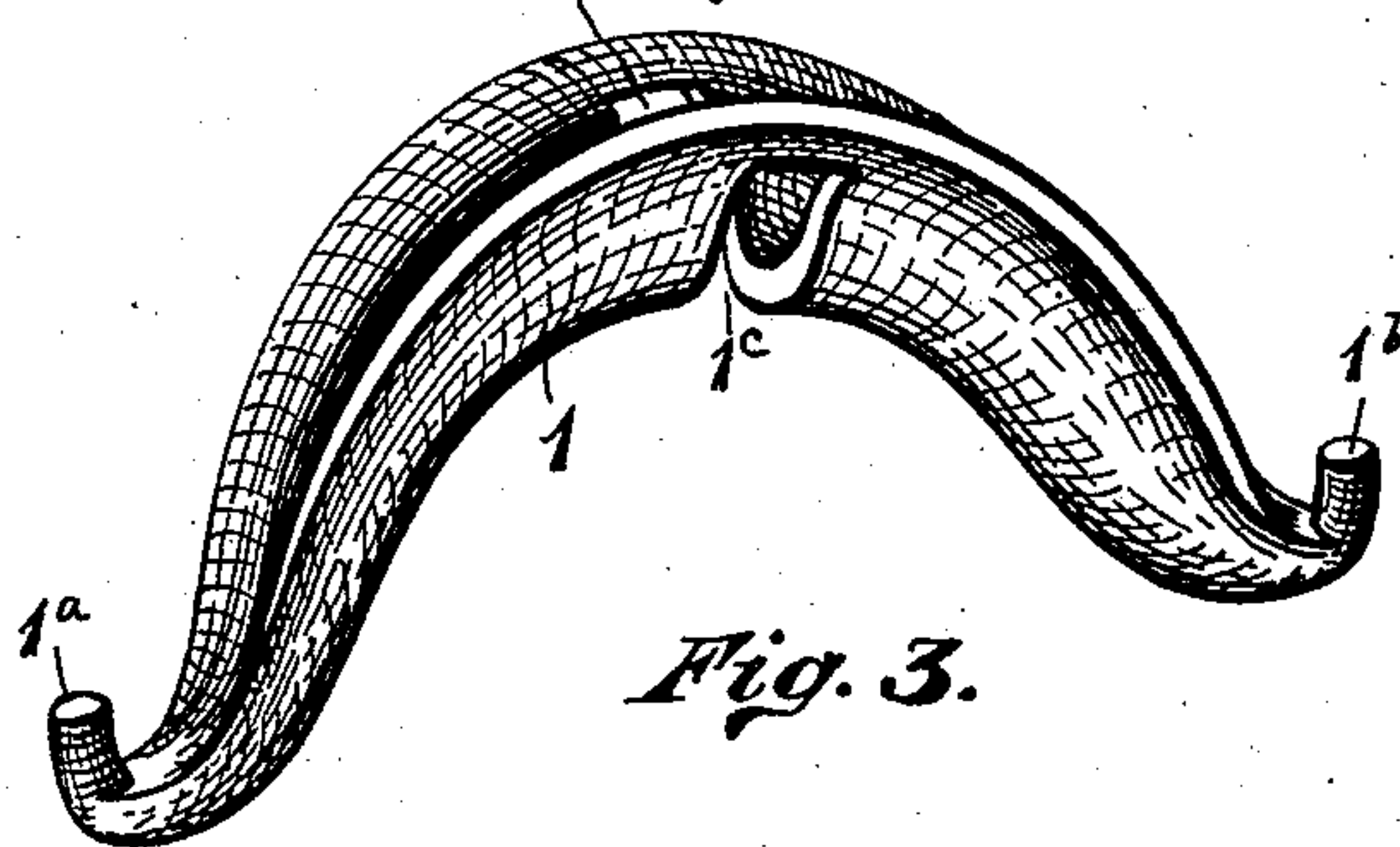


Fig. 3.

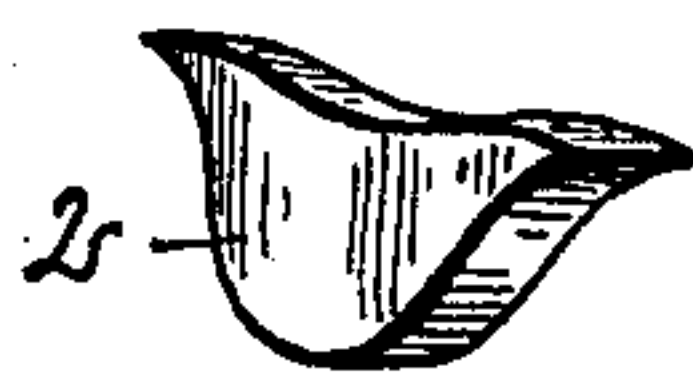


Fig. 4.

WITNESSES:  
S. C. Duvall  
H. R. Marlatt.

C. E. ATKINSON,  
INVENTOR.  
BY Robert W. Randall  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

CHARLES E. ATKINSON, OF RICHMOND, INDIANA, ASSIGNOR OF ONE-THIRD TO JOHN M. LONTZ AND ONE-THIRD TO ALEXANDER GORDON, OF RICHMOND, INDIANA.

## MEANS FOR REMOVING ICE FROM TROLLEY-WIRES.

No. 860,072.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed January 8, 1906. Serial No. 295,037.

To all whom it may concern:

Be it known that I, CHARLES E. ATKINSON, a citizen of the United States, and a resident of the city of Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in Means for Removing Ice or the Like from Trolley-Wires, of which the following is a full, complete, and accurate specification, which when taken in connection with the accompanying drawings, forming a part thereof, will be found to be sufficiently clear and concise as to enable others skilled in the art to which the invention appertains to make and use the same with absolute exactitude.

In this present invention my object, broadly speaking, is the provision of a mechanical construction for expeditiously removing electrical impediments from line-wires employed in carrying electrical currents in the propulsion of electrical vehicles, where a direct contact is necessary at all points along the line.

More specifically, my object is to provide means for removing ice or the like from trolley line-wires, and in so simplifying said means that the cost for installation and maintenance thereof will be small. And, finally, other objects are to provide a very simple and positive construction particularly adapted for removing solidified moisture or other impediments from trolley line-wires, which will be extremely simple in construction and operation; easily operated and controlled, easily and quickly placed in and out of operative position, and which may be manufactured at a comparatively low price.

Other objects and advantages will suggest themselves in the course of the ensuing specification.

In the operation of trolley-cars one great impediment, during the winter season, has been that of ice forming on the line-wire, which greatly interfered with the proper operation of the trolley-wheel and with the passage of the electrical current from the wire to the car,—this invention is particularly adapted to remove such impediments, simply, and expeditiously.

One manner of carrying out the objects above enumerated, and that which in practice has been found to be the most desirable, is illustrated in the accompanying, one sheet, of drawings, in which—

Figure 1 shows a side elevation of my invention as applied in operative position in connection with a trolley-harp and wheel, and the line wire therefor; and Fig. 2 is a top plan view of same. Fig. 3 is a perspective view of the yoke; and Fig. 4 is an isometrical view of the blade;—the parts shown in Figs. 3 and 4 being the parts which are new and which form the subject matter of this invention.

Similar indices refer to and denote like parts throughout the several views of the drawings.

In order that my invention may be fully understood and its many advantages fully appreciated I will now take up the detail description thereof and will refer to the various parts and the operation thereof as briefly and as compactly as I may.

In the drawings the letter A denotes a trolley-harp; the letter B denotes the harp-stem into which the trolley-pole (not shown) is secured. The letter C refers to the trolley-wheel; and the letter D designates the shaft for said wheel. The letter E denotes the adjusting-cord; and the letter F denotes a line-wire carrying the electric current. The letter G denotes an ear, integral with the underside of the stem B and the base of the harp, and an eye G' is formed through said ear into which the upper end of the cord E is secured.

The above enumerated parts may be of any usual construction, their operation being familiar, the wheel C having a channel around in its periphery in which the line-wire F travels, the frictional contact causing the wheel to revolve as the car carrying the wheel travels over its tracks.

The essential features of this invention consists of the yoke 1, and the blade 2, which are shown in Figs. 3 and 4, respectively.

The yoke 1 is formed in a segment, corresponding to the curvature of the periphery of the wheel C, and being substantially U-shaped in cross section, except at its end portions where its termini are each formed into an upturned lug which are denoted by the characters 1<sup>a</sup> and 1<sup>b</sup>.

A little to one side of the center of the yoke is formed a slot 1<sup>c</sup> therethrough, which is formed at right angles to the length of the yoke, substantially as shown in Fig. 3. The object of said slot being to one side of the center of the length of the yoke is to bring the face of the blade 2 on a level with the line-wire, when the device is in position as in Fig. 1, or if the yoke be reversed, to bring the blade at an acute angle to the line-wire, whereby only one of the edges of the blade will touch the line-wire, which latter position is employed only where the ice to be removed from the line-wire is very heavy and hard.

The blade 2 is substantially U-shaped, being adapted to fill the slot 1<sup>c</sup> of the yoke and extend across the channel of the yoke, with its lower rounded portion of same contour as the channel of the wheel, its upper or face edge being slightly concave and, when in position, extending across the channel of the yoke and practically filling the channel of the yoke at that point, at the same time resting in the channel of the trolley-wheel, all substantially as indicated.

An eye 3 is formed through the upper inner central portion of the base of the harp, central and in front of



the trolley-wheel C constituting a constant point of attachment to receive loosely the lug 1<sup>a</sup> as shown most clearly in Fig. 1, or the lug 1<sup>b</sup> if the yoke be reversed.

It is apparent that the trolley may be used in the usual manner: The wheel C revolving against the line-wire F, being held in contact therewith in the usual manner; the cord E extending down, from the eye G', whereby the adjustment of the trolley may be controlled.

10 In case it is desired to use my invention, I have only to pull down on the cord E until the trolley-harp is in reach, thus disconnecting the wheel C from the line-wire and breaking the electrical current from the line-wire to the car;—I then place the blade 2 loosely in the 15 slot 1<sup>c</sup> of the yoke 1, positioning it from the underside of the yoke, and I then tip forward the rear end of the yoke 1,—entering the lug 1<sup>a</sup> in the channel of the wheel C, and then into the eye 3 of the harp, and then allowing the rear end of the yoke to come down to its normal 20 position, as shown in Fig. 1, the inner curvature of the yoke being rested in the channel of the wheel, which of necessity will hold the blade 2 in place as shown. I then give the cord E a hitch over the lug 1<sup>b</sup>, as shown, and allow the cord to again be suspended, to be in reach 25 of the operator whereby the trolley may be controlled as before. After the above the trolley is allowed to return to form a contact with the line-wire, as shown in Fig. 1,—the line-wire now being located in the channel of the yoke 1, in place of in the channel of the 30 wheel as before. In this latter position it is apparent that the line-wire will rest on and extend across the

blade 2, the sharp edges of the blade being in contact with the line-wire. Should the car to which the parts shown is attached be now moved forward (or backward) it will be seen that the edges of the blade 2 will 35 scrape the underside of the line-wire, forming a good electrical connection, and as the car advances removing from the line-wire any ice or other electrical impediment.

While I have shown and described the best means to 40 me known at this time for carrying out my invention in a practical manner, I desire to have it fully understood that I do not restrict myself to the exact details of construction shown and described, but hold that any 45 changes or variations therein as would suggest themselves to the ordinary mechanic would clearly fall within the limits and scope of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is—

In an ice-clearer, the combination with a trolley wheel 50 and a trolley harp, of a segmental yoke, a slot formed therethrough and thereacross, to one side of the middle of the arc, a blade adapted to rest in said slot and extend across a longitudinal channel of the yoke, an eye upon the harp forward of the wheel, and identical terminal for the 55 yoke, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses, this the second day of January, 1906.

CHARLES E. ATKINSON.

Witnesses:

R. E. RANDLE,  
ROBERT W. RANDLE.