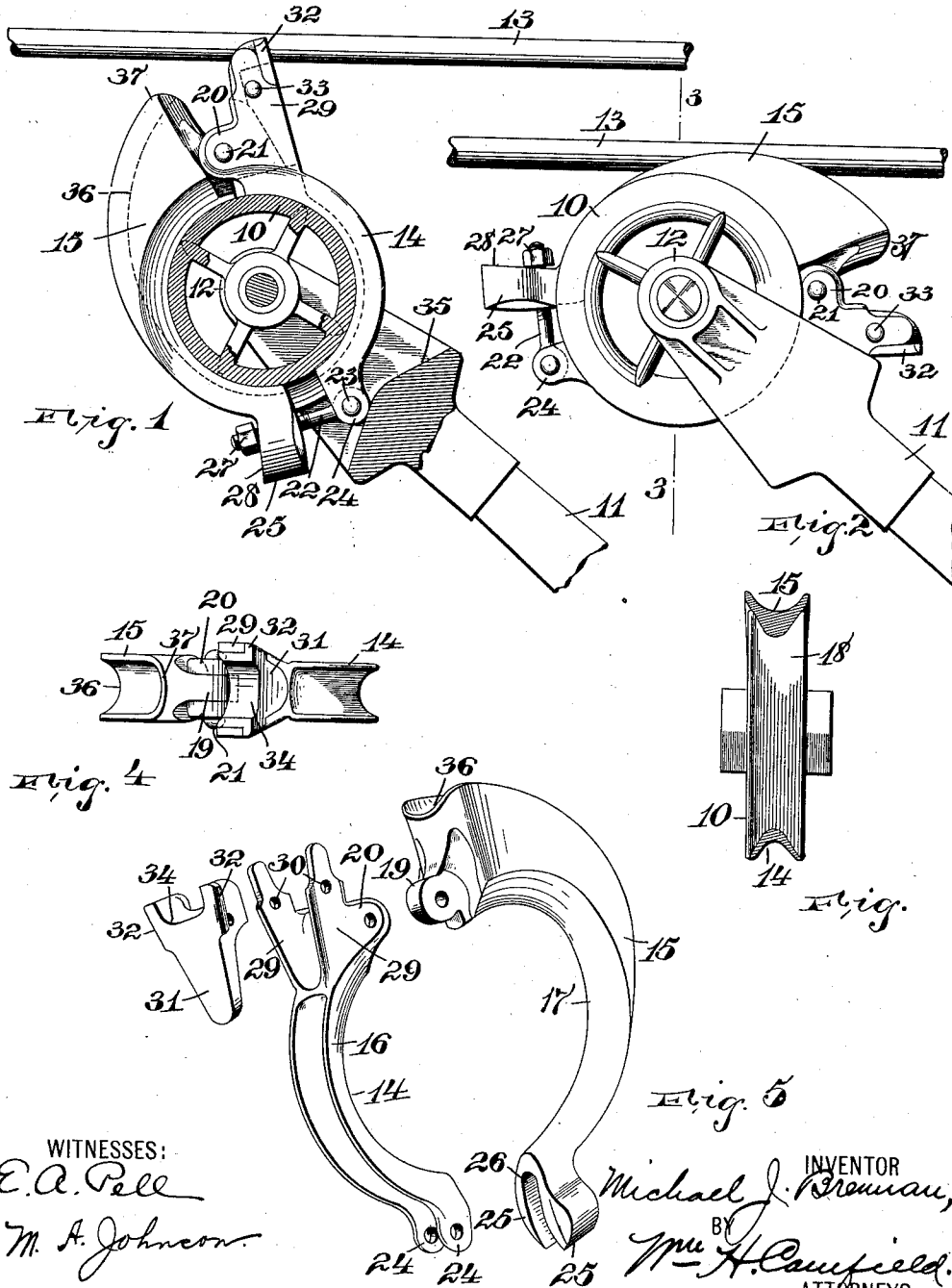


M. J. BRENNAN.
SLEET SCRAPER FOR TROLLEYS.
APPLICATION FILED JULY 27, 1911.

1,063,501.

Patented June 3, 1913.

2 SHEETS-SHEET 1.



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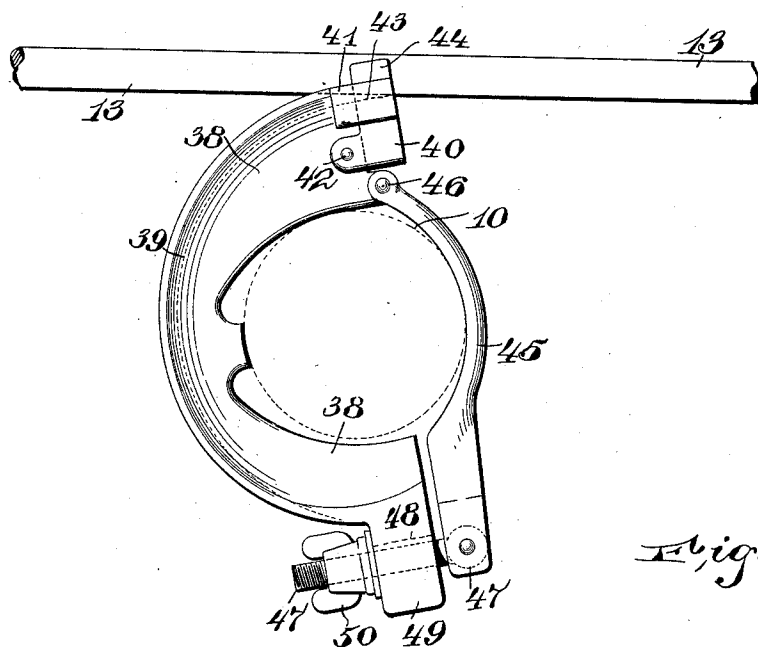


Fig. 6

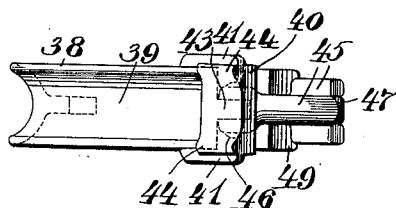


Fig. 7

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SLEET-SCRAPER FOR TROLLEYS.

1,063,501.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed July 27, 1911. Serial No. 640,761.

To all whom it may concern:

Be it known that I, MICHAEL J. BRENNAN, a citizen of the United States, residing at Tompkinsville, New York, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Sleet-Scrapers for 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 figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved device for removing sleet from trolley wires or conductors, and is designed to be attached to the trolley-wheel as now commonly used, and to be so affixed that it can easily be attached and detached so that a trolley-wheel can be supplied with the remover in a very short time. The device is also adapted to rotate or swing with the trolley-wheel, but to be limited in its swinging movement so that it can not make a complete rotation, the remover being in position at one of its limits of movement to present the remover or scraper to the wire, and at its other limit of movement to have a surface presented to the wire which permits the trolley to slide. This permits the remover to be run along a trolley wire in a forward direction, and when moving forward, to scrape the sleet from the wire. As soon as the car moves backward, however, the remover swings so that a grooved portion without any removing means is presented to the conductor, and the car can be run backward without any damage to the wire or its fastenings. Both the forward and rearward positions are assumed by the remover automatically as soon as the car to which the trolley is attached changes its direction from forward to rearward, or vice versa.

The device is adapted to be secured to the trolley in any manner, but I prefer to make the device of two members which fit in the groove of the trolley-wheel and are clamped thereon so as to provide a good connection with the wheel and to swing with the wheel.

A further object of the invention is to provide the removing portion of the device with a scraper that is adapted to be detached from the remover and replaced, when it is worn out, by another.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is an elevation of the device attached to a trolley-wheel, the wheel and a part of the trolley-pole being shown in section, the device being in position that it assumes when the car is moving forward. Fig. 2 is a side view of the device attached to a trolley-wheel and illustrated in the position it assumes when the trolley moves backward. Fig. 3 is a section on line 3, 3, in Fig. 2. Fig. 4 is a top view of the remover detached from the trolley-wheel. Fig. 5 is a perspective view of the parts of the device with the exception of the securing bolt which is omitted to better illustrate the other portions of the device. Figs. 6 and 7 are a side and a top view, respectively, of a modified form of scraper.

The device is adapted to be secured to the usual form of trolley-wheel 10 and it can be attached in any well known manner or in any way best suited for the construction of the trolley-wheel and the supports. The trolley-wheel is mounted to rotate in the end of a trolley-pole 11, the end of the trolley-pole being formed with suitable bearings 12 which support the trolley-wheel 10. When it is normally used without the remover, the trolley runs on the under side of the trolley wire or conductor 13. The remover comprises two members, the scraping member 14 and the sliding member 15, these two members being constructed on their inner surfaces 16 and 17, respectively, to fit in the groove 18 of the trolley-wheel 10, and are hinged together near one end by means of a boss 19 on the sliding member, and cheek-pieces 20 on the scraping member; the boss and the cheek-pieces being perforated to receive a bolt or rivet 21. The ends of the members opposite the hinged connection are constructed to provide means for clamping the two members tightly against the trolley-wheel 10, this being accomplished by a bolt 22 which swings on a pivot 23 between the eyes 24 which are constructed on the end of the scraping member 14. The end of the sliding member 15 is provided with parallel ears 25 which form a slot 26 between them, this slot being open at the outer end of the ears 25 so that the bolt 22, when the nut 27 is unscrewed, can be swung out of the slot 26 and the two members then moved on their pivot 21 so that they clear the periphery of the groove 18 and can be

removed from the trolley-wheel. The outer surface of the ears 25 is inclined as at 28 so that when the nut 27 is screwed up on the bolt 22, the tendency is to force the nut and the bolt inward toward the trolley-wheel and to prevent its accidental displacement, if it becomes slightly unscrewed, so that it can not swing out of the slot 26. Projecting up from the member 14 are the side walls 29 which are perforated at 30. The scraper 31 fits between the walls 29 and has the projecting flanges 32 to limit its inward movement and is secured in place by means of a rivet 33 which passes through the side walls and through the scraper, the scraper having its top edge recessed as at 34, the recess having its front end engage the trolley wire as shown in Fig. 1, so as to exert a scraping action on the under side of the wire 13 to clear the sleet therefrom.

When the scraper is worn it can be easily removed by taking out the rivet 33 and inserting a new one, and then after the rivet is replaced, the device is again in shape to be used. When moving forward the scraper on the remover engages the wire and assumes the position shown in Fig. 1, being held there by reason of the limiting of the movement of the remover on or with the trolley-wheel by reason of the ears 24 engaging the portion 35 of a trolley-pole. The sliding member 15 is provided with a groove 36 on its outer face, the groove extending, for a major portion of its length, on the outer edge of the sliding member, which outer edge is eccentric to the trolley-wheel, the point farthest removed from the center of the trolley-wheel being that end of the groove of the sliding member which is adjacent to the scraper on the scraping member. As soon as the trolley is run backward the scraper engages the trolley wire and is swung forward, by its frictional engagement with the trolley wire and the trolley-wheel moving backward, so that it swings to permit the end 37 of the slot 36 to engage the wire which carries the remover and also the trolley-wheel around until the front of the side walls 29 engage the trolley-pole, and thus limits the movement of the remover and holds the groove 36 in position so that as the trolley continues its rearward movement the remover will slide along the trolley, not cause any undue wear on the trolley, and also prevent the engagement of any of the supports or fastenings of the trolley wire or conductor with the remover when the trolley is run backward so that said fastenings will not become damaged or misplaced. It will be evident that as soon as the trolley moves forward, the device, along with the trolley-wheel, will be swung until the end 37 of the sliding member engages the trolley-wheel, at which time the scraper will also engage the trolley-wheel and be

forced to the position shown in Fig. 1 and again resume the scraping function.

In Figs. 6 and 7 I illustrate a modified form of scraper in which the sliding member and the scraping member are combined in one member which is detachably secured to a trolley-wheel. The trolley-wheel 10 is shown in dotted outline, and the member 38 is provided with a groove 39, this groove permitting the sliding of the scraper on the wire when the trolley is run backward, the member 38 having its periphery with the groove 39 arranged eccentric to its inner surface. The member 38 is provided with a scraper 40 which has cheek-pieces 41 embracing the sides of the member 38 and is fastened to the member 38 by a rivet 42. This scraping member is also provided with a groove 43 between the side walls 44 so as to guide the scraper along the wire 13. The second member 45 is fastened on one end as at 46 to the member 38 and is provided with a bolt 47 which fits in the slot 48 in the end 49 of the member 38 and is provided with a nut 50 by means of which the two members 38 and 45 can be drawn together to tightly clamp the members in the groove of the trolley-wheel. This construction is also adapted to co-act with the trolley-wheel support to limit the swing of the scraper and of the trolley-wheel, and in the construction shown in Figs. 6 and 7 the swinging movement of the scraper is limited by the engagement of the end 49 of the member 38 engaging the trolley-wheel support.

It has been found that on trolley wires covered with sleet, after the scrapers are run for some distance, the accumulation of sleet and moisture prevents a good cleaning of the under surface of the wire and the car is run back for a short distance, and then with a new impetus and a comparatively clean scraper, better results are obtained in cleaning the wire. The objection to scrapers that project in a manner or engage the wire in a way to make the act of running them backward a dangerous one, is overcome in this construction, since the scraper swings to present its scraping member or its sliding member automatically to the wire, according to which direction the trolley is being run.

Having thus described my invention, what I claim is:—

1. A sleet remover for trolleys comprising a device having means thereon for engaging a trolley wire to scrape it, the device having a portion of its surface formed to slide on the trolley wire, the scraping and sliding being accomplished by governing the direction of movement of the device on the wire, means for securing the device to a trolley-wheel, and means on the device for engaging the support of the

trolley-wheel for limiting the swing of the device.

2. The combination of a trolley-wheel and its wire, with a sleet remover arranged to swing on the trolley-wheel, a scraper on the sleet remover, the sleet remover having a grooved portion to engage the wire and slide thereon, the remover being adapted to swing to bring the scraper and the groove alternately in engagement with the trolley wire by a forward or backward movement of the remover, respectively, and means for limiting the swinging of the remover.

3. The combination of a trolley-wheel, and a trolley wire, with a sleet remover consisting of two members, means for clamping the members on the trolley-wheel, a scraper on one member, the second member having a groove in its periphery, the periphery being eccentric to the trolley-wheel, and means for limiting the swinging movement of the remover with the trolley-wheel.

4. The combination of a trolley-wheel, and a trolley wire, with a sleet remover consisting of two members, means for clamping the members on the trolley-wheel, a scraper on one member, the second mem-

ber having a groove in its periphery, the periphery being eccentric to the trolley-wheel, the portion of the grooved periphery farthest removed from the trolley-wheel being adjacent to the scraper, and means for limiting the swinging of the remover with the trolley-wheel.

5. The combination with a trolley-wheel, its support and a trolley wire, with a sleet remover, consisting of a scraping member and a sliding member, means for detachably securing the members on the trolley-wheel, and a scraper on the scraping member, the sliding member having its outer edge eccentric to the trolley-wheel, the periphery being grooved, the trolley support and the remover having co-acting means for limiting the swing of the remover so as to hold either the scraper or groove in contact with the trolley wire.

In testimony, that I claim the foregoing, I have hereunto set my hand this 24th day of July, 1911.

MICHAEL J. BRENNAN.

Witnesses:

E. C. VEHS�AGE,

E. D. JUNIOR.

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