

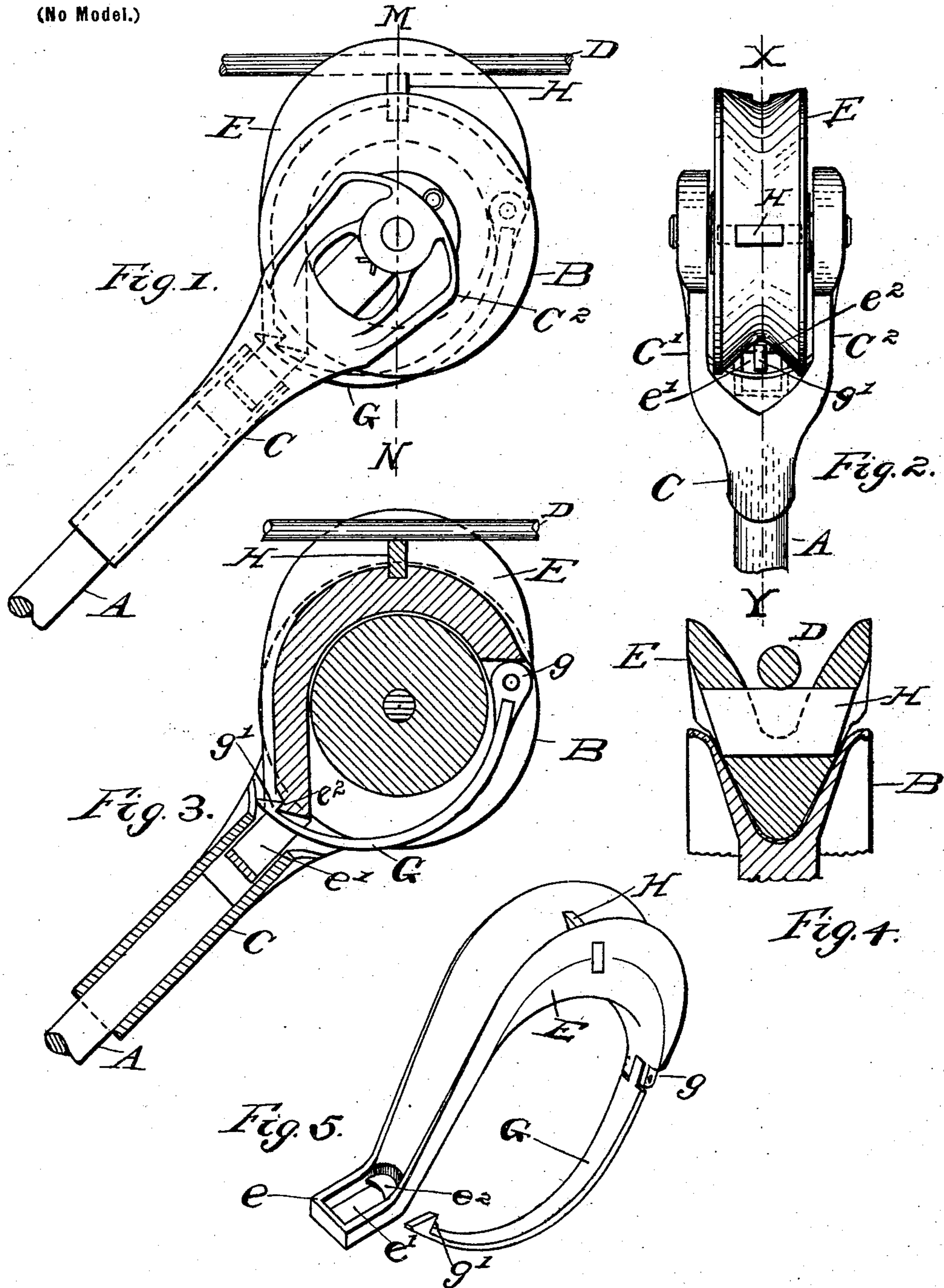
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Patented Jan. 7, 1902.

M. M. NASH.
SLEET CLEANING DEVICE FOR TROLLEY ARMS.

(Application filed Nov. 8, 1901.)

(No Model.)



Witnesses.

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MORRIS M. NASH, OF LOWELL, MASSACHUSETTS.

SLEET-CLEANING DEVICE FOR TROLLEY-ARMS.

SPECIFICATION forming part of Letters Patent No. 690,757, dated January 7, 1902.

Application filed November 8, 1901. Serial No. 81,606. (No model.)

To all whom it may concern:

Be it known that I, MORRIS M. NASH, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sleet-Cleaning Devices for Trolley-Arms, of which the following is a specification.

This invention relates to trolley-wire scrapers; and it is applied to the trolley fork or harp and wheel of trolley-arms of electric cars for the purpose of cleaning sleet and ice from the trolley-wires.

The object of my invention is to provide a scraper which can be readily attached and detached from any of the ordinary forms of trolley harps or wheels without modifying the construction of either and without the use of any tools, bolts, wrenches, &c., or any detachable parts, such as nuts or thumb-screws, which are liable to get lost.

Other objects of my invention are to provide a scraper which when in place presents no projections to catch upon the trolley stringer wires or spans when the trolley-arm leaves the wire or when it is being pulled back into place and to provide a cheap easily-adjusted cutter which can be readily replaced.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the scraper in place on the trolley-wheel. Fig. 2 is a top plan view. Fig. 3 is a longitudinal cross-section at the line X Y. Fig. 4 is a fragmentary section on the line M N. Fig. 5 is a side perspective view of the scraper detached from the trolley-wheel.

The same letters refer to corresponding parts in the several views.

A is the trolley pole or arm.

B is the trolley-wheel, which is pivoted between the arms C' C² of the trolley-fork or trolley-harp formed by extending the socket C. Socket C is hollow and fits upon the end of trolley-arm A and is fastened thereon in any usual manner.

C C' C² form the trolley-harp.

D is the trolley wire or conductor.

A, B, C, C', C², and D are old and of the usual form.

The inventive part of my device consists of the detachable scraper hereinafter described.

The concavo-convex metal shoe E of a segmental form is curved on its inner side to fit into the grooved rim of the trolley-wheel B and is grooved on its outer side to present a curved trough, substantially similar to the surface presented by a trolley-wheel to a trolley-wire, Fig. 4. The shoe E is extended at its lower end into a tang e, which is so shaped as to fit into that end of socket C which is not occupied by trolley-arm A. Tang e is formed with an eye e' and a shoulder e². The tang e holds shoe E substantially in place and prevents it from revolving or sliding around trolley-wheel B. Shoe E is also held in position in close contact with trolley-wheel B and is prevented from falling from trolley-wheel B by curved band-spring G, which is pivoted to shoe E at g and is adapted to be swung between arms C' C² of the trolley-harp through eye e' in order that tooth g' on the end of G may engage with shoulder e², and thereby with the natural elasticity of G hold shoe E closely in position and prevent its being shaken or thrown off in case the trolley leaves the wire. Normally little, if any, strain comes on G.

The cutter H consists of an oblong strip of steel or other hard metal and is driven across the groove and through a close-fitting hole in shoe E, as shown in Fig. 4, said hole being located at a point which will bring the cutting edge of H in contact with the trolley-wire when the whole device is in place. (See Figs. 1 and 3.) Cutter H is also located at a point in E somewhat below the flanges of trolley-wheel B when shoe E is in position, which construction, as shown in Fig. 4, makes it impossible for cutter H to be shaken out or to fall out when the device is in use.

The device can be instantly put in place by inserting the tang e in socket C and then swinging spring G around until tooth g' catches on shoulder e², thereby binding the device firmly in place. It can be as readily removed by uncatching g' from e², swinging out G, and removing the whole device by pulling e out of C. When in position, the device presents no projections, bolts, &c., on its upper or lower faces and cannot catch on the span-wires. It presents a grooved surface to the conductor similar to that presented by a trolley-wheel, except that the edge of cutter H is in actual contact with the wire,

and as the car moves H scrapes from the wire all ice or sleet, which freely falls through the forward part of the groove in E and thence to the ground. Cutter H when worn smooth can readily be driven out and a new cutter inserted.

The whole device is simple in construction and cheap to make.

I claim as my invention—

10 1. An ice-scraper for trolley-arms consisting of a curved shoe adapted on one side to fit into the groove of the trolley-wheel rim and provided with a groove on its other side to receive the trolley-wire, a cutter attached
15 to said shoe transversely across said last-named groove and a tang at one end of said shoe adapted to fit into the socket of the trolley-harp, combined with a curved band-spring pivoted at the other end of said shoe and provided with a tooth adapted to engage with a
20 transverse shoulder in said tang thereby to hold said shoe in place.

2. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved
25 rim of the trolley-wheel and presenting a similar grooved surface to the trolley-wire, a tang formed at one end of said shoe and adapted to fit into the hollow socket of the trolley-fork, combined with an oblong cutter driven
30 across the groove and through a suitable transverse hole in said shoe at a point which is below the flanges of the trolley-wheel when the scraper is in place.

3. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved
35 rim of the trolley-wheel and so formed as to present a similar grooved surface to the trolley-wire, a transverse cutter across said last-named groove and a tang at one end of said shoe adapted to prevent said shoe from revolving about the trolley-wheel, combined
40 with a curved band-spring pivoted at one end to the end of said shoe opposite to the tang and carrying a tooth at the other end adapted
45 to engage with a shoulder of said tang.

4. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved rim of the trolley-wheel and so formed as to present a similar grooved surface with a transverse cutter to the trolley-wire, a tang formed
50 at one end of said shoe adapted to fit between the arms of the trolley-wheel fork into the hollow socket thereof and also formed with a hole or eye and a shoulder, combined with a

curved band-spring pivoted at one end to one end of said shoe and provided at its other end with a tooth adapted to be passed through said eye to engage the shoulder in said tang.

5. An ice-scraper for trolley-arms, consisting of a curved shoe E adapted on its lower side to fit into the grooved rim of the trolley-wheel B and so formed on the upper side as to present a substantially similar grooved surface to the trolley-wire D, a tang *e* formed at one end of shoe E, and adapted to be passed
65 between the arms *C'* *C*² and into the hollow socket C of the trolley-wheel fork, and a band-spring G pivoted at one end to one end of shoe E and carrying a tooth *g'* at its other end adapted to swing between arms *C'*, *C*², and
70 through eye *e'* in tang *e* to engage with shoulder *e*², combined with an oblong cutter H, driven through a suitable transverse hole in shoe E at a point which is below the flanges of the trolley-wheel B when the scraper is in
75 place.

6. An ice-scraper for trolley-arms, consisting of a curved shoe adapted on one side to fit into the grooved rim of the trolley-wheel, and on the other side curved and grooved in
80 such a manner as to present to the trolley-wire a surface similar to that presented by a trolley-wheel, a cutter extending across the outer grooved surface of said shoe and a tang extending from one end of said shoe in such
85 manner as to come in contact with the trolley-arm and so prevent the shoe from revolving, combined with means of detachably connecting the tang end of said shoe with the other end along the groove of the trolley-
90 wheel.

7. An ice-scraper for trolley-arms consisting of a curved shoe adapted on its lower side to fit into the grooved rim of the trolley-wheel and on the other side so grooved as to present
95 a suitable surface to the trolley-wire, a cutter consisting of an oblong piece of metal driven across the groove in the shoe and through a tight-fitting hole therein at a point somewhat below the flanges of the trolley-wheel when
100 the shoe is in position, and means for detachably attaching said shoe to the trolley-harp.

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

MORRIS M. NASH.

Witnesses:

JOHN KEARNEY,
JOHN A. GATELY.