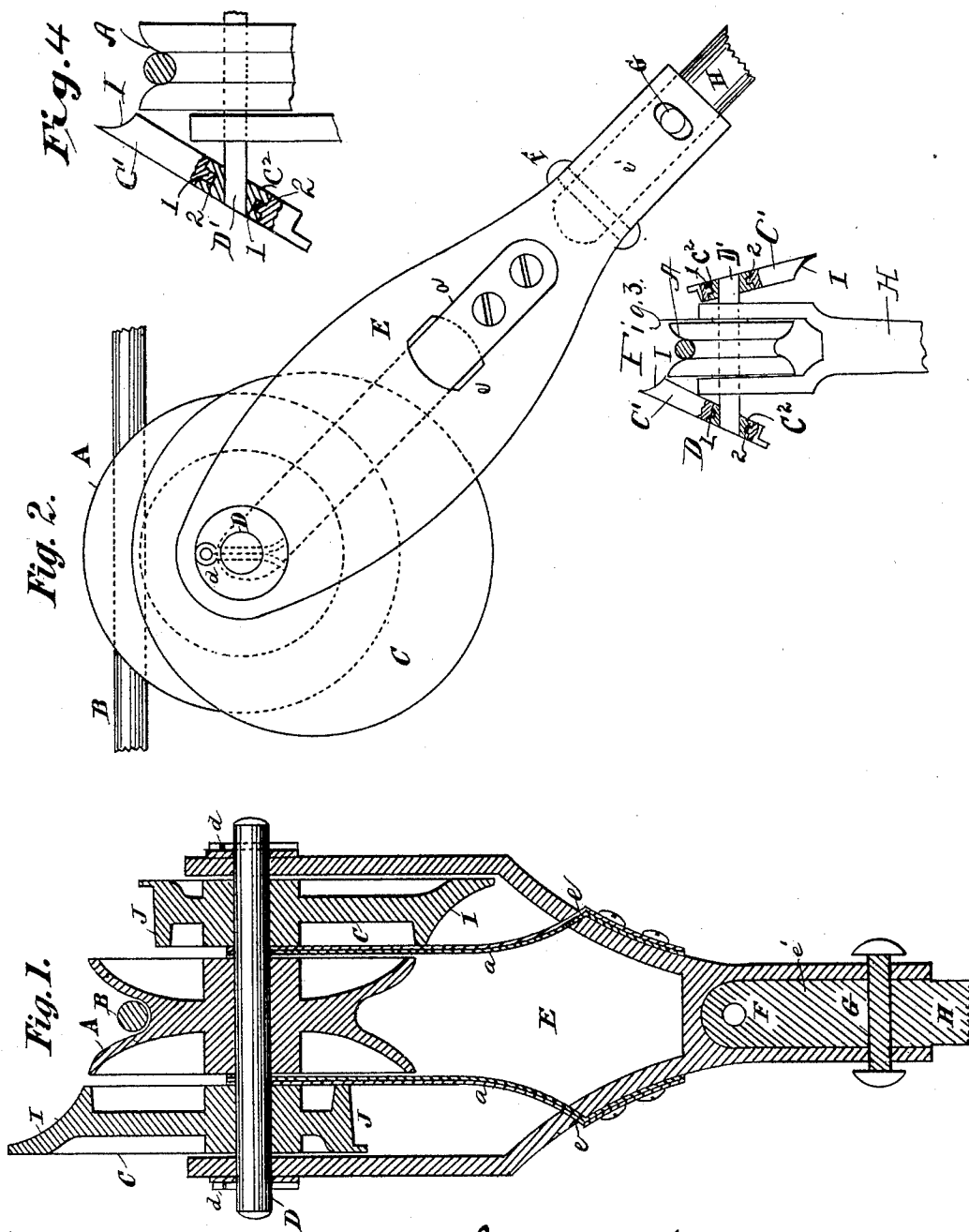


(No Model.)

J. M. KIRKER.
TROLLEY GUARD.

No. 586,556.

Patented July 20, 1897.



James M. Kirker

Inventor

Witnesses

Frank Pardon

Geo B. Lileford

By Attorney

R. M. Kelly

UNITED STATES PATENT OFFICE.

JAMES M. KIRKER, OF LOUISVILLE, KENTUCKY.

TROLLEY-GUARD.

SPECIFICATION forming part of Letters Patent No. 586,556, dated July 20, 1897.

Application filed August 28, 1895. Serial No. 560,769. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. KIRKER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Trolley-Guards; 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.

My invention relates to trolley-harps; and its object is to provide a trolley-harp so constructed that when the line-wire is thrown off the sheave of the harp it will be automatically replaced. I accomplish this by the peculiar construction of my improved harp hereinafter described, illustrated in the drawings, and specifically set forth in the claims.

In the overhead-trolley system of electric railways the line-wire is connected with the car by a trolley-pole attached at one end to the roof of the car and carrying on the other end a device known as a "trolley-harp," consisting of a frame in which is fixed a spindle around which revolves a sheave having a groove adapted to receive and press against the line-wire. The line-wire is sometimes accidentally thrown out of the groove of the sheave when the car is in motion and swings down by it or away from it, and the pole has to be moved by hand in order to put the sheave under and against the wire again, which causes more or less delay and trouble. My improved harp is designed to obviate this.

In the drawings, Figure 1 is a longitudinal sectional view through the middle of my trolley-harp. Fig. 2 is a side elevation of my harp, showing a part of the trolley-pole and of the line-wire. Fig. 3 is a view, partly in section, of a modified construction; and Fig. 4 illustrates a means by which all liability of the eccentric working off the bushing may be prevented.

Similar letters and figures refer to similar parts throughout the several drawings.

A represents the sheave, which is constructed with a deep groove, so as not readily to leave the wire. *a a* represent pairs of flat brass strips placed face to face in contact with each other, fastened at one end by screws to the outside of the harp-frame near its lower

end, passing through slots *e* into the hollow part of the frame, and passing around the spindle by means of round holes in their upper ends adapted to fit the spindle.

B represents the line-wire; C C, the eccentric-wheels; D, the fixed spindle on which the wheel and eccentrics turn; *d d*, spring-keys holding the spindle in place in the frame; E, the frame of the harp, cast wider and hollow in its upper portion to allow room and play for the sheave and eccentrics and narrower and solid in its lower portion, in which is formed a socket *e'* on the medial longitudinal line of the harp adapted to receive the end of the trolley-pole.

H is the trolley-pole, and F and G are bolts passing through the pole and harp-frame to hold them together. An advantage may be found by elongating the holes through which these bolts pass, as shown, in order to allow a little play to the end of the trolley-pole.

In the harp now used and on which mine is an improvement the paired brass strips *a a* fit over the spindle on each side of the sheave and separate it from the sides of the frame. In my harp I leave the strips *a a* in the same place and widen the frame and lengthen the spindle to make room for the eccentrics C on each side of the sheave, and the strips *a a* serve to keep the sheave and wheels apart, so that the wheels may not be revolved by the motion of the sheave. The eccentrics C C when not actuated by the wire hang with their longest diameter downward, as shown in the element J I on the right of the sheave in Fig. 1. I construct these eccentrics with a wide rim, which at their shortest diameter at J is flat in cross-section, with a vertically-raised outer edge to prevent the wire from slipping off. From the point of shortest diameter J the rim is changed gradually to a slightly-concave inwardly-inclined bevel at the point of longest diameter I, as shown. The dimensions of the eccentrics are so proportioned to that of the sheave that the flat rim J will be below and out of the way of the line-wire switches and that the lower edge of the rim at I will extend slightly beyond the circumference of the sheave.

The operation of my invention is as follows: When the line-wire is thrown out of the groove

of the sheave, it will fall on the flat rim J of one of the eccentrics and cause it to revolve and bring the beveled rim of the long diameter directly over the spindle, as shown in the element I J on the left of the sheave A in Fig. 1, when the wire will slip off the eccentric back into the groove of the sheave again.

In Fig. 3 is shown the application of my invention to the trolley-harps now in use. In such construction the spindle D' is lengthened and extends at each end beyond the sides of the frame, and the eccentrics C' extend inclinately toward the top of the sheave, so as properly to deliver the wire thereto, and are freely revoluble upon the inclined peripheries of bushings C², fixed upon the projecting ends of the spindle, and are held upon said bushings by any suitable means—as, for example, by one or more pins 1, attached to each eccentric and projecting into and traversing annular grooves 2, formed in the peripheries of the bushings.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A trolley-harp having on each side of the sheave, on the same spindle, an eccentric-wheel adapted to hang, when at rest, with its longest diameter downward and to be revolved by the line-wire falling on its rim, having a flat rim with a raised outer edge at its shortest diameter, gradually changing to a beveled edge, at its longest diameter, substantially as described and for the purposes set forth.

2. The combination with a trolley-wheel, of an eccentrically-mounted wire catching and restoring wheel positioned alongside said trolley-wheel.

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

JAMES M. KIRKER.

Witnesses:

JNO. B. TILFORD,
WM. REINECKE, Jr.