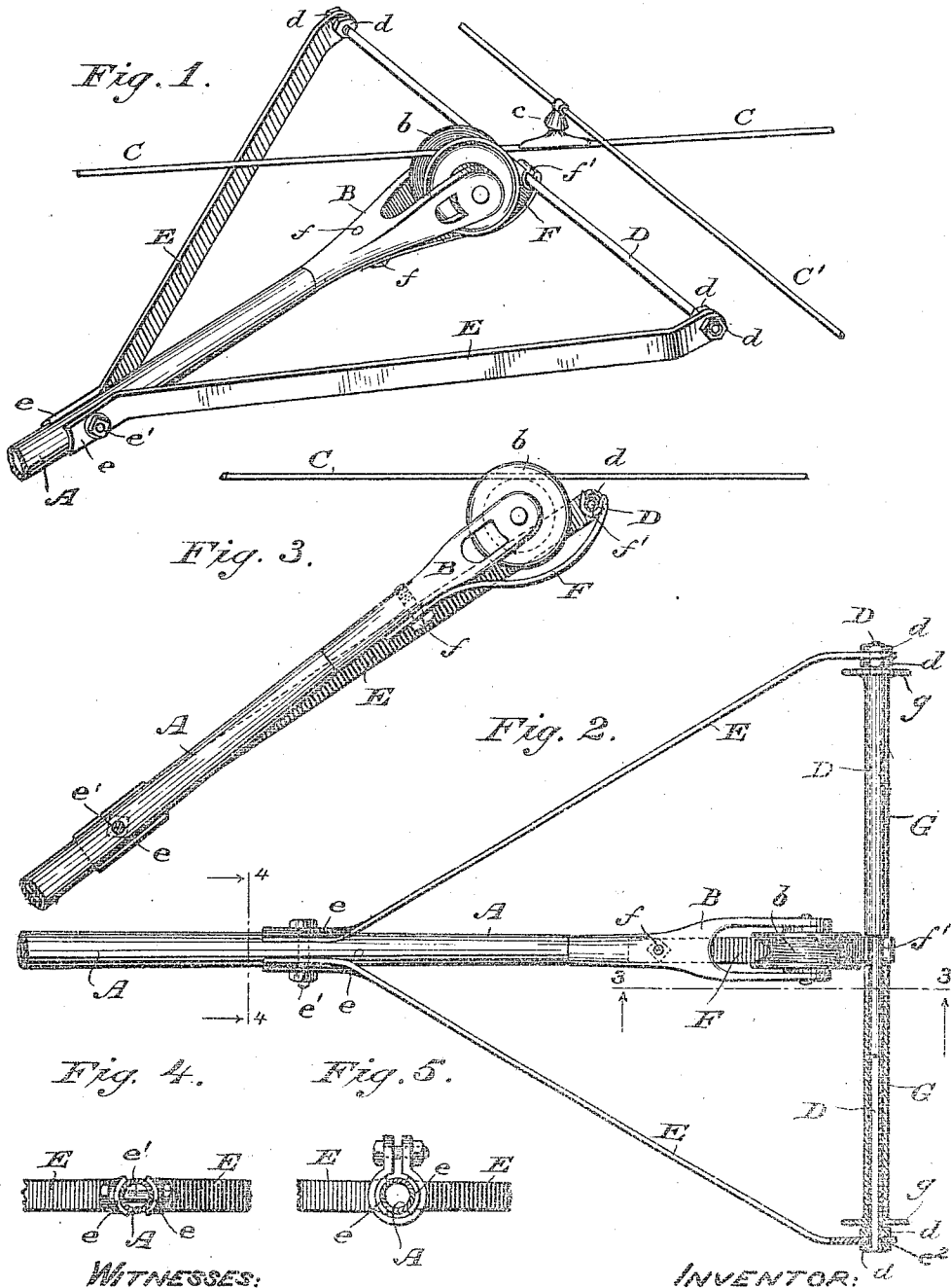


957,585.

Patented May 10, 1910.



WITNESSES:
Arthur C. Schinkel.
C. C. Weber

INVENTOR: Frank B. Wagner
by his attorney
Wm. A. Schinkel

UNITED STATES PATENT OFFICE.

FRANK B. WAGNER, OF CLEVELAND, OHIO.

TROLLEY-GUARD.

957,585.

Specification of Letters Patent. Patented May 10, 1910.

Application filed October 16, 1905. Serial No. 282,888.

To all whom it may concern:

Be it known that I, FRANK BECKER WAGNER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Trolley-Guards, of which the following is a specification, that will enable those skilled in the art to which my invention pertains to make and use the same, reference being had to the accompanying drawing, which forms a part thereof.

My invention relates particularly to electric railway trolleys in which an insulated overhead conducting wire is suspended above the track and supported by lateral cross wires or brackets, and current is taken therefrom by means of a contact wheel carried on the free end of an arm or trolley pole, which is pivotally connected to a car and spring pressed to maintain contact with the overhead conductor. Its object is to provide a guard which, in the event of the contact wheel being thrown off the conducting wire, will immediately come into contact with said wire, preventing the trolley from being lifted high enough to engage the cross supporting wires and will at once reestablish the circuit from the conducting wire to the car through the guard device. This device therefore provides in the event of such derailment of the trolley wheel against the car being left without power and against the damage likely to result from a flying trolley pole coming at high speed into contact with the supporting cross wires or brackets.

In the drawing which illustrates my invention in general form and detail of construction now deemed most desirable by me; Figure 1 is a perspective view showing the upper end of a trolley pole equipped with my invention and its relation to the overhead conducting and supporting wires. Fig. 2 is a plan view of the upper end of a trolley pole with my guard attached, the construction being modified from that shown in Fig. 1 by the addition of tubular rollers mounted on the cross bar at each side of the central support of said cross bar. Fig. 3 is side elevation of the same partly in section on the line 3, 3 of Fig. 2, with the tubular roller G omitted for the sake of clearer illustration. Fig. 4 is a section on the line 4, 4 of Fig. 2. Fig. 5 shows a modification of the means

for securing the side bars of the guard to the trolley pole by a clamp.

In the drawing A represents the upper end of a tubular metallic trolley pole such as is now in common use on electric cars, and B a cast metal harp or forked head, of ordinary construction, secured to the end of the pole and adapted to carry between its forks a wheel *b*, grooved on its periphery to engage an overhead conducting wire *C* as shown. This wire is supported by hangers *c* depending either from cross wires *C'* or from the usual brackets or beams extending from posts.

In order to prevent the throwing up of the free end of the trolley pole when the wheel accidentally jumps from the conducting wire, I provide a guard composed of a cross bar *D*, which lies transversely to the conducting wire, immediately beneath it and close behind the contact wheel. This cross bar is preferably made of light metal tubing and is supported at its ends by arms *E* composed of flat metal bars which extend forwardly and are provided with convexly-rounded bases *e* which embrace the trolley pole at each side and to which they are secured by a clamping bolt *e'* which passes through the pole and both bases as shown.

The cross bar passes through apertures *e²* in the ends of the side arms and is held in place by nuts *d* clamping against both the inside and outside faces of the arms.

In order to secure the extreme lightness desirable in a structure carried at the end of the trolley pole the cross bar and side arms are made of very light bars too light in fact to be serviceably strong without other support. I therefore meet this condition by a central supporting arm *F* secured by a bolt *f* to the under side of the head or harp and extending thence to a point at the rear of the wheel where it is provided with a seat or socket *f'* for the reception of the cross bar *D*. This central support *F* for the cross bar *D* adds greatly to the strength and rigidity of the guard structure, especially at the center of the cross bar, a point where it is likely to have the hardest service.

Ordinarily the simple cross bar *D*, shown in Fig. 1, would be sufficient to answer the requirements of checking the upward throw of the trolley pole and of making circuit contact with the conducting wire when the trolley wheel is derailed, but I deem it ad-

visible to mount tubular sleeves G, of conductive metal, on the cross bar at each side of the central brace and between it and the side arms as shown in Fig. 2. These sleeves are loosely mounted so as to revolve freely upon the cross rod and at their outer ends they are preferably provided with flanges g which serve to prevent the conducting wire from climbing off the ends of the guard as it tends to do under some circumstances.

In Fig. 5 is shown a modification of the means for securing the bases e of the side bars E to the trolley pole by a split clamping ring provided with side lugs extending outwardly at each side of the split and connected by a clamping bolt and nut as shown. This construction is advantageous in that it does not necessitate an aperture through the trolley pole that might weaken it.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. In a guard for an electric-railway trolley, the combination of a trolley pole, cross rod, side arms to which the ends of said cross rod are connected, said side arms being secured to said trolley pole, a harp on said trolley pole, a brace arm secured to said harp and supporting said rod at its middle.

2. In a guard for an electric-railway trolley, the combination of a trolley pole, a harp at the upper end of the trolley pole, side arms secured to the trolley pole and diverging at their free ends and a brace arm extending from the harp, with a cross rod secured at its ends to the side arms and sup-

ported midway by the brace arm from the harp and sleeve rollers mounted on the cross rod at each side of the brace, substantially as set forth.

3. In a guard for an electric-railway trolley, the combination of a trolley pole, a harp at the upper end of the trolley pole, side arms secured to the trolley pole and a brace extending from the harp, with a cross rod supported by the side arms and by the brace from the harp, and sleeve rollers mounted on said cross rod at each side of the central supporting brace and provided with guard flanges at their outer ends, substantially as set forth.

4. In an electric-railway trolley, the combination of a metallic trolley pole, a harp provided with the usual trolley wheel mounted on the end of the trolley pole, diverging side arms secured to the trolley pole and a brace extending from the harp, with a cross rod secured at its ends to the side arms and supported at mid-length by the brace from the harp and sleeve rollers loosely mounted on the cross rod at each side of the central supporting brace and provided at their outer ends with guard flanges, substantially as set forth.

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

FRANK B. WAGNER.

Witnesses:

P. A. CONNOLLY,
WILLIAM A. SKINKLE.