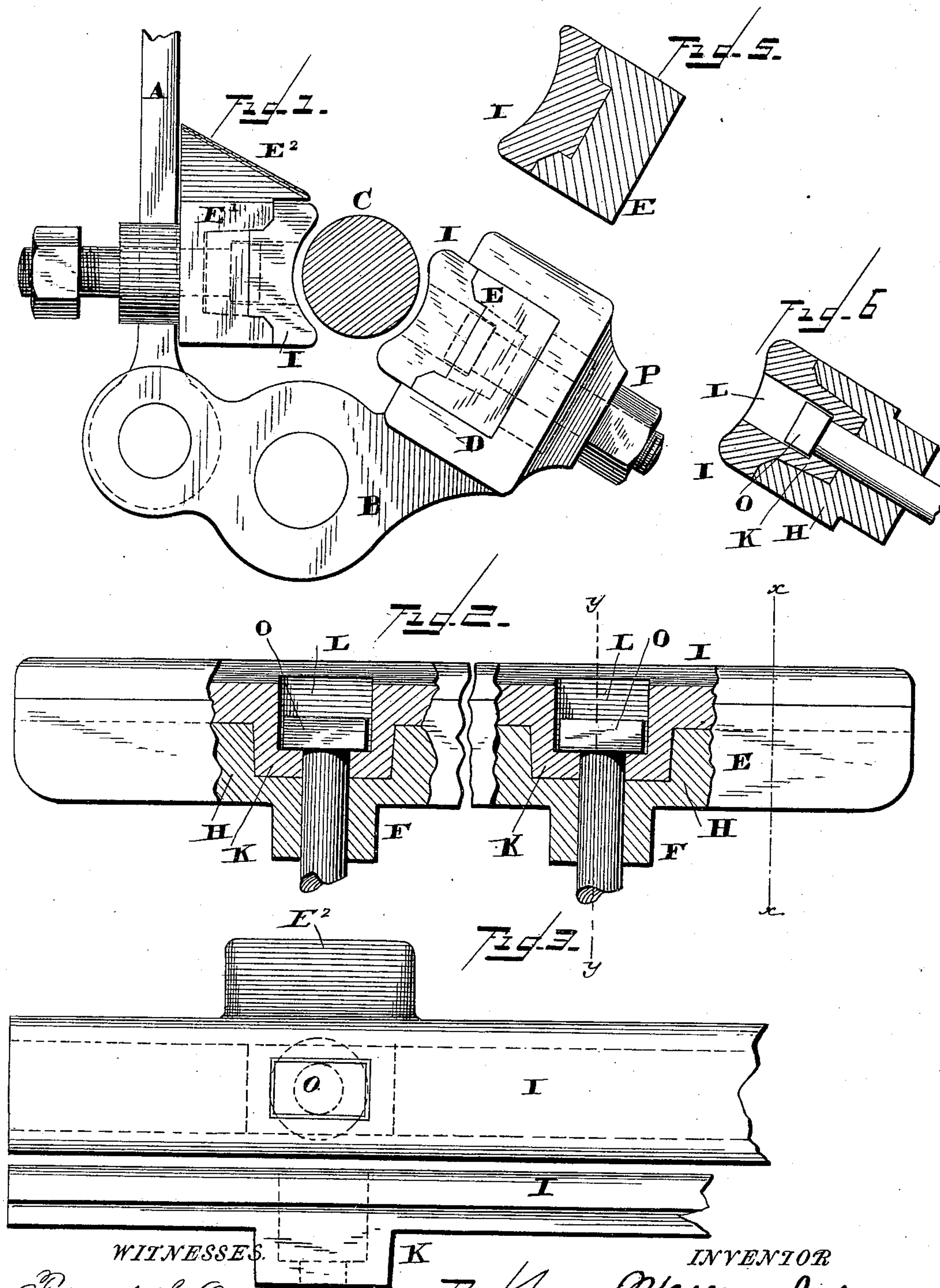


(No Model.)

W. JOHNSON.  
GRIP.

No. 407,441.

Patented July 23, 1889.



Franck L. Ourand.  
Alex. Scott

INVENTOR  
William Johnson



# UNITED STATES PATENT OFFICE.

WILLIAM JOHNSON, OF PENN YAN, NEW YORK.

## GRIP.

SPECIFICATION forming part of Letters Patent No. 407,441, dated July 23, 1889.

Application filed May 25, 1889. Serial No. 312,087. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JOHNSON, a citizen of the United States, residing at Penn Yan, in the county of Yates and State of New York, have invented certain new and useful Improvements in Grip Dies or Shoes for Cable-Railway Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to grips for cable railways.

The object of the invention is to produce a die or shoe in which the wearing-piece or face-plate may be quickly removed and replaced, and the cable shall not abrade or wear the holding devices of this plate.

Figure 1 is an end view of so much of the grip as is necessary to illustrate my invention. Fig. 2 is a side view, partly in section, of one of the dies or shoes with wear-plate in position. Fig. 3 is a face view of the die or shoe and wear-plate, and Fig. 4 a side view of the wear-plate partly broken away. Fig. 5 is a section on line *x x* of Fig. 2; and Fig. 6, a section on line *y y*, Fig. 2.

A indicates the bar of a well-known form of grip, which extends up through the slot of the conduit; and B, the swinging jaw.

C denotes the cable.

The jaw B has a trough-like recess D, which receives a die or shoe E. The back of shoe E has bosses F, which extend into depressions in the jaw B. (See dotted lines, Fig. 1.) The other shoe E' is similar to the shoe E, save that it has an inclined piece E<sup>2</sup>, which serves to guide the cable into the grip. The shoe E' is carried by the jaw opposite the jaw B. There is nothing new in the construction of these parts, save as will be now described.

Instead of making the shoes E E' solid, as has been generally done, I make a removable face-piece or wear-plate for each one. The shoes E E' are of forged or cast metal of considerable strength. Pockets H H, preferably rectangular, are made in the metal opposite the bosses F, and the face of the shoes or dies E E' are grooved from end to end, preferably in the form shown in Fig. 5, the pock-

ets being below the level of the groove. Wear-plates I I are made with projections K K on their rear surfaces to fit pockets H H. The faces of these wear-plates are grooved to embrace the cable. The face of the wear-plate has sunken pockets L L, corresponding with the projections K K. These pockets are preferably rectangular to receive the T heads of bolts O, said bolts passing through the plates, dies, or shoes, and grip-jaws, and being held by nuts P. The sunken pockets L permit the bolt-heads to fall below the wearing-face of plates I, and should be deep enough to carry the bolt-heads below that part of the wear-plate which will be worn away by the cable, although a slight wear will do no harm.

The wear of grip-shoes is very rapid. Usually grip-shoes have to be replaced two or three times a day, and no matter how heavy the wearing-plate may be it must be thrown away after the cable has worn into its face a certain distance. It has been customary in this form of grip to make the pieces E and I integral and throw away the entire shoe when a little worn. By my improvement only the wear-piece I need be thrown away, as the shoe E will last indefinitely, and with my construction the fastenings are also protected.

The incline E<sup>2</sup> is allowed to overhang the wear-plate I, so as to provide an easy guiding-surface for the cable into its seat in the grip, otherwise the upper part of one of the wear-plates would need to be inclined or carry a part of incline E<sup>2</sup>, and it is preferable to have the wear-plates alike.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a cable-grip, of a grip-shoe and a removable wear-plate, said shoe and removable wear-plate being held together and attached to the grip by the same means, substantially as described.

2. The combination of the grip-shoe having recesses therein, a wear-plate having projections which enter said recesses, and a pocket in its wearing-face and securing-bolts passing through the plate and shoe, and hav-

ing their heads sunk in said pockets practically below the depth of wear, substantially as described.

3. The combination, with a grip-shoe E',  
5 made with an overhanging incline E<sup>2</sup>, solidly attached thereto, of a removable wear-plate I, having its edge under the overhang of the incline, substantially as described.

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

WILLIAM JOHNSON.

Witnesses:

PHILIP MAURO,  
ALEX. SCOTT.