R. R. POTTER.

THIRD RAIL CONTACT SHOE.

APPLICATION FILED JAN. 12, 1909.

924,829. Patented June 15, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

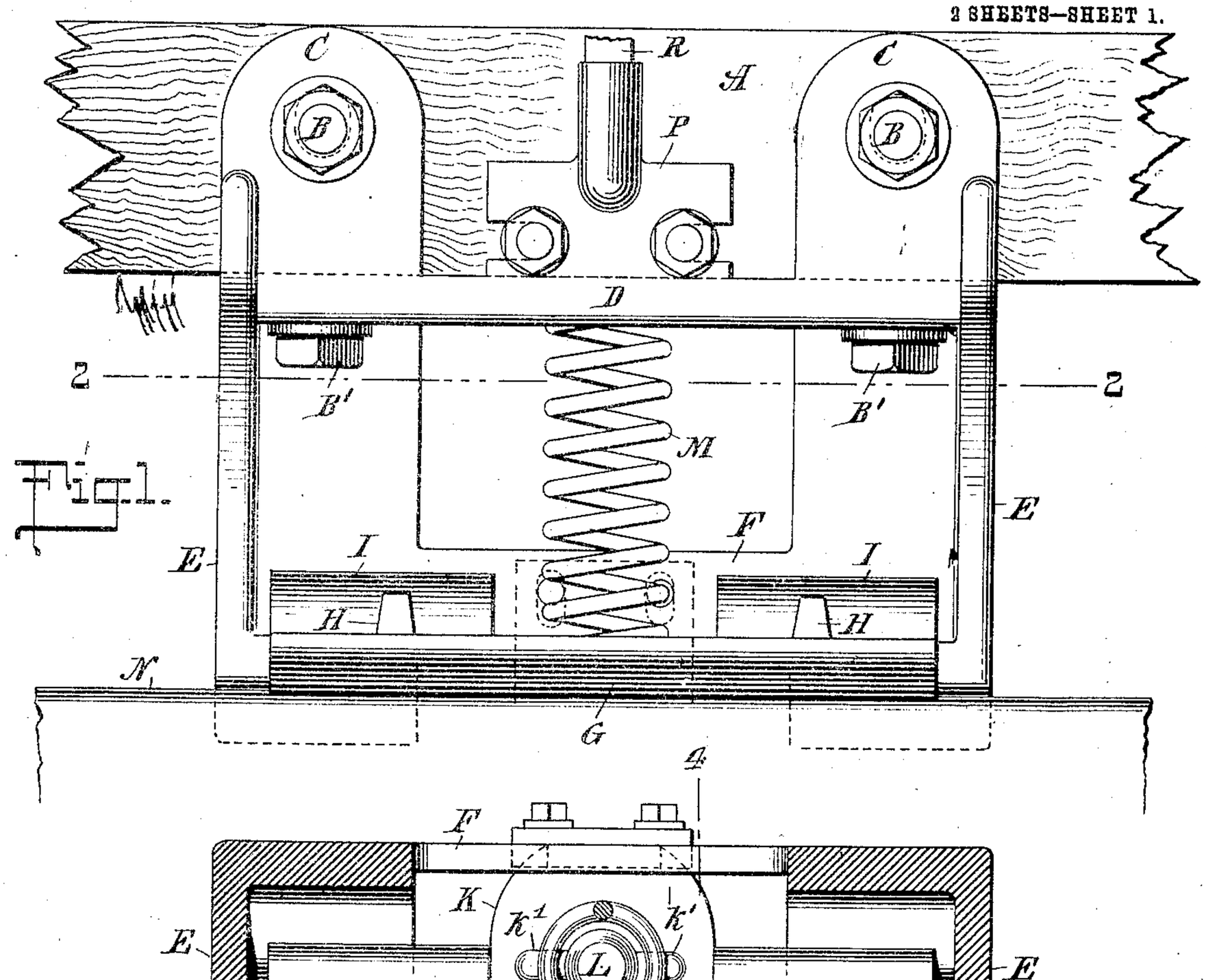
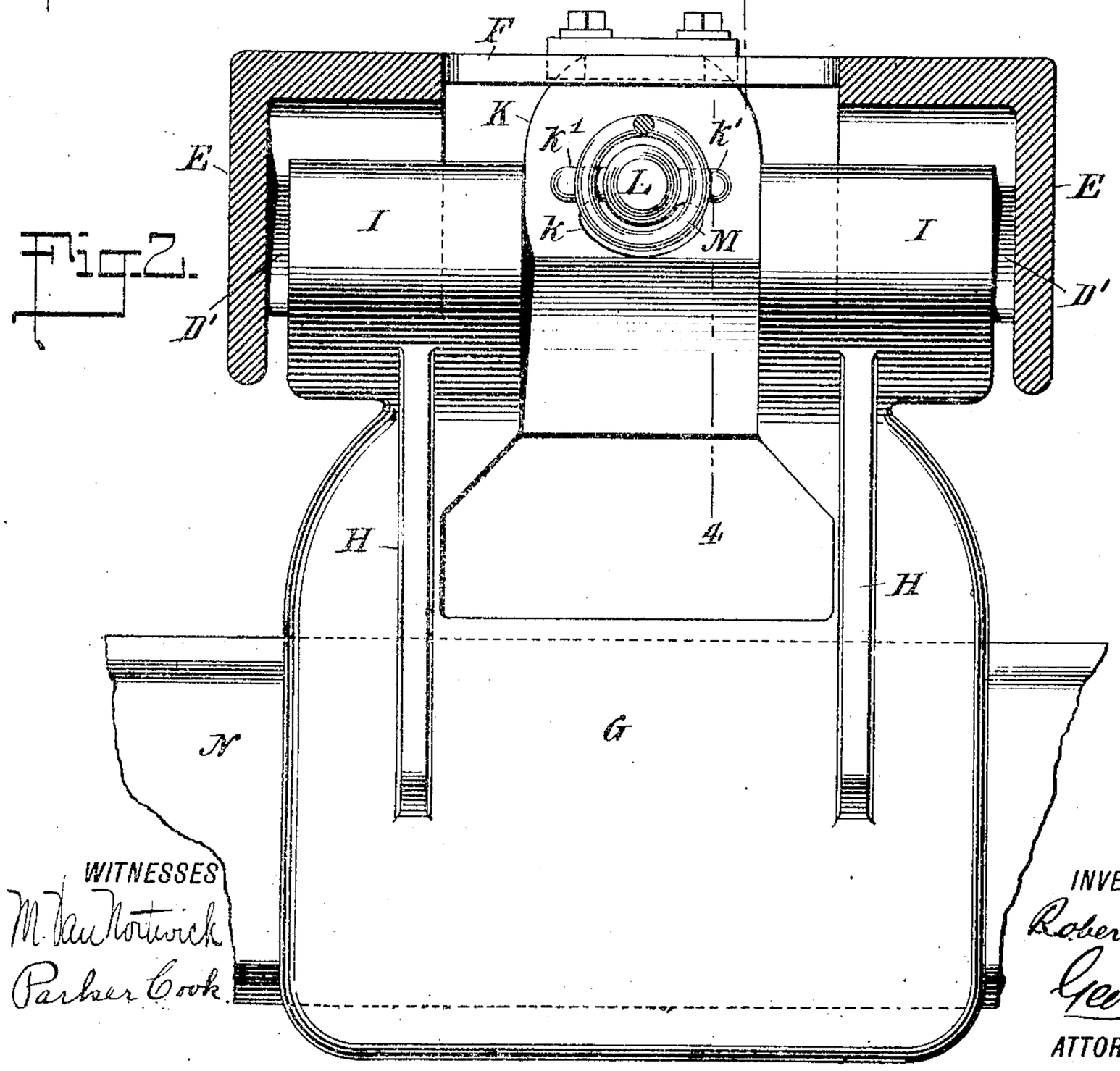


Fig. 2.



WITNESSES

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Fig. 3.

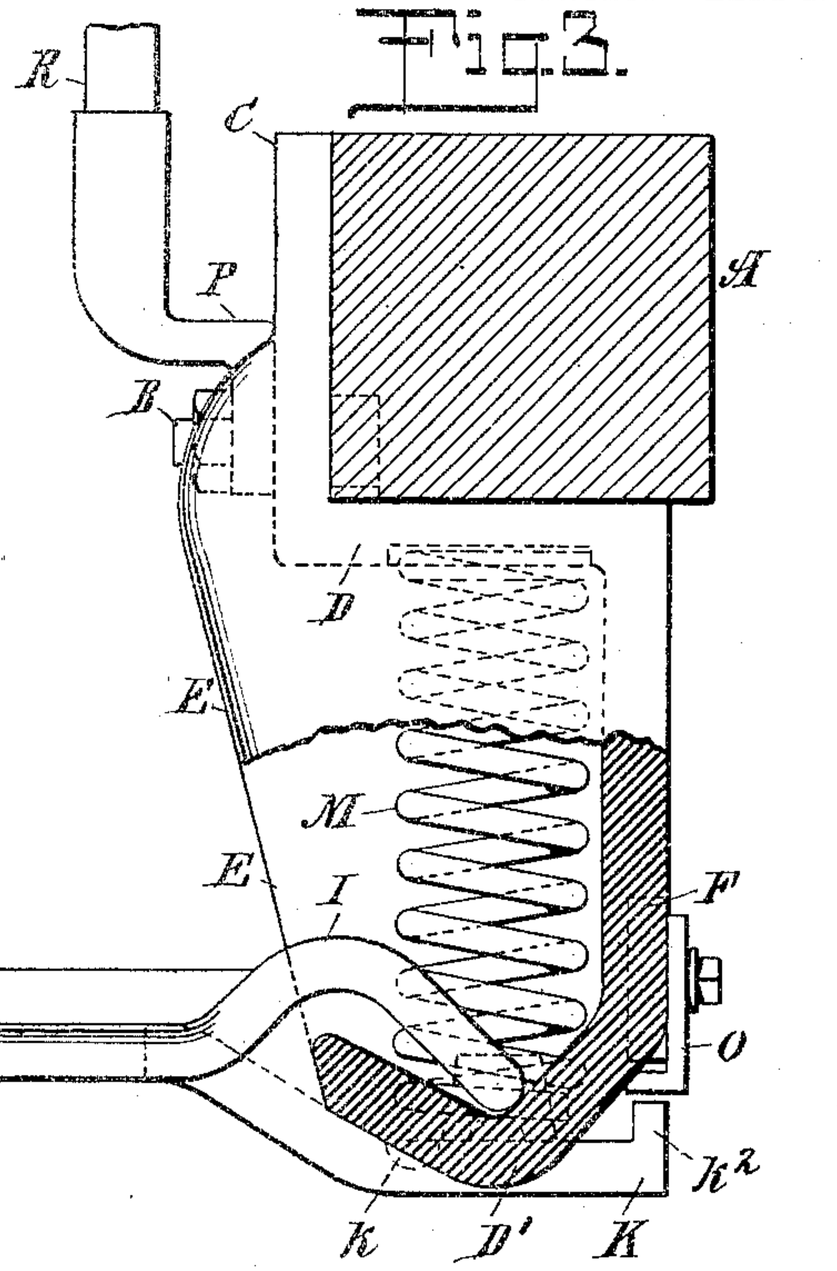


Fig. 4.

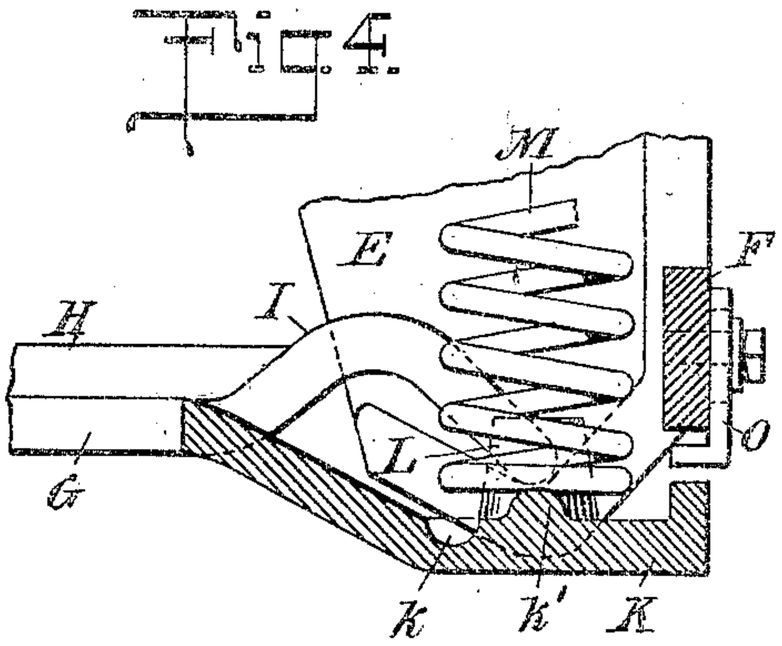
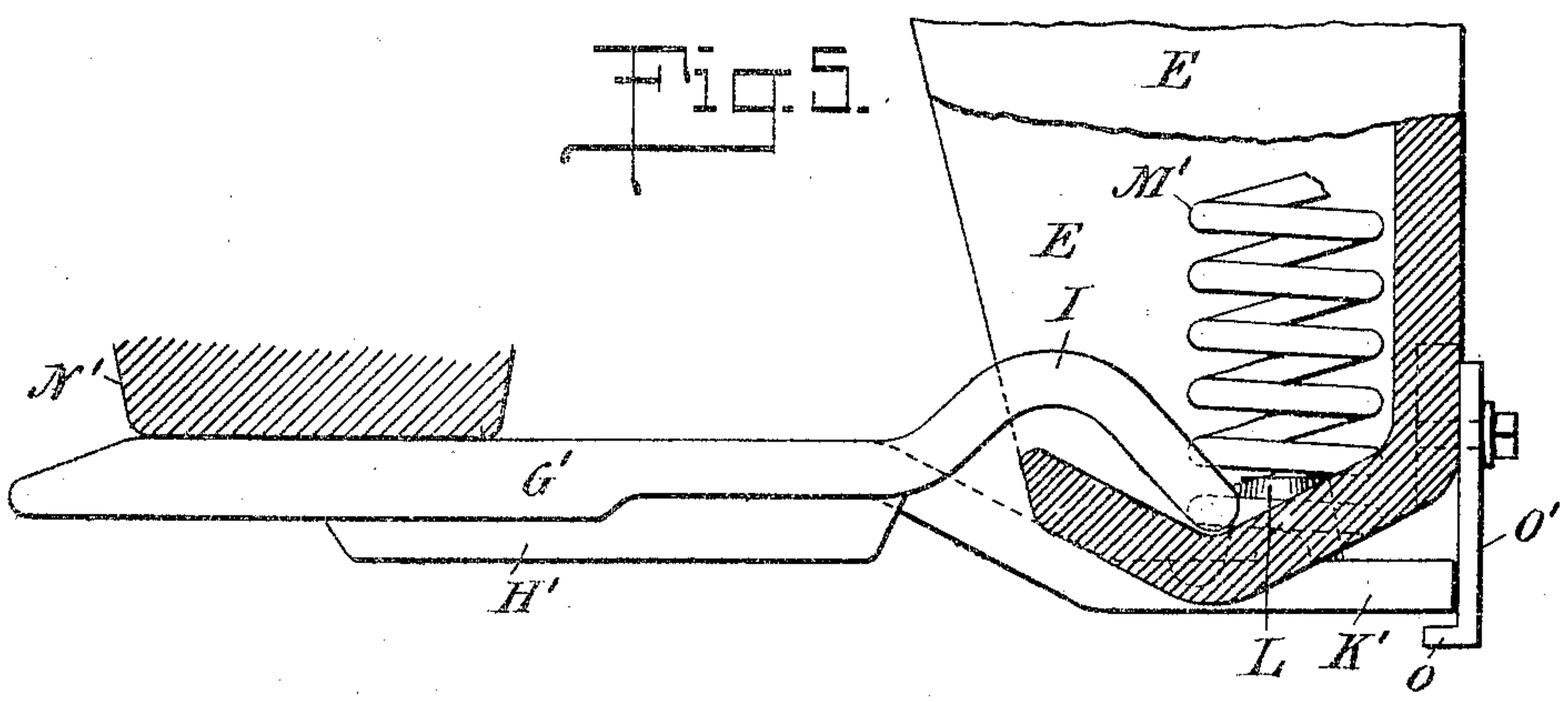


Fig. 5.



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ROBERT R. POTTER, OF WEEHAWKEN HEIGHTS, NEW JERSEY.

THIRD-RAIL CONTACT-SHOE.

No. 924,829. Specification of Letters Patent. Patented June 15, 1909.

Application filed January 12, 1909. Serial No. 471,833.

To all whom it may concern:

Be it known that I, ROBERT R. POTTER, a citizen of the United States, and a resident of Weehawken Heights, in the county of Hudson and State of New Jersey, have made and invented certain new and useful Improvements in Third-Rail Contact-Shoes, of which the following is a specification.

My invention relates to an improvement in third rail contact shoes, the object being to so construct a device of this character that the shoe proper, when worn or damaged, may be easily and readily detached from the carrier, and a new one substituted therefor.

A further object of the invention is to provide a shoe for this purpose, the several parts of which are so constructed and assembled that in the event the shoe strikes an obstruction, it will be disengaged from the carrier without injury or damage to the latter, and further, to provide a shoe which shall be simple and economical in construction and durable and efficient in use, and with these and other ends in view, consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in front elevation of a shoe constructed in accordance with my invention. Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is an end view, the side wall of the carrier being partially broken away. Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2. Fig. 5 is a sectional view illustrating the shoe as adapted for use in connection with an under-running rail.

Referring to the drawings, A represents the shoe beam attached to the truck or other part or portion of the car to which the carrier of the shoe is secured, this carrier consisting preferably of a single casting and comprising parallel plates, the upper vertical ends C of which are secured to the beam A by the bolts B, the horizontal portion D of the casting connecting the said plates, and secured to the under side of the beam A by the bolts B′, the lower ends D′ of these parallel plates being V-shaped, as clearly illustrated in Fig. 3 to receive and detachably hold the shoe proper, as hereinafter described. With the vertical plates are preferably cast integral the side plates E, for the purpose of strengthening the same; the lower ends of said vertical plates being connected by the horizontal plate F.

The shoe proper G is also made of a single casting and if desired, provided with the ribs or flanges H on its upper side or surface to strengthen the same. The rear end of this plate is curved into somewhat the form of a hook I, the extreme edge of which rests within the V-shaped lower end D′ of the carrier and between the side plates E of the latter.

From the rear portion of the shoe G extends the plate K provided with the recess *k* for the clearance of the lower end of the retaining spring, as hereinafter described, and also provided with the lugs or projections *k′* on either side of the larger central lug or projection L. Around the latter fits the lower end of the coiled retaining spring M, the upper end resting within a recess formed in the horizontal cross plate D, the tendency of this spring being to hold the shoe in engagement with the carrier, that is, the extreme edge of the hook I in position in the lower V-shaped end D′, the shoe being retained in approximately a horizontal position and in contact with the third rail N. It will be understood, however, that by reason of the construction and arrangement of parts, the shoe is allowed to rock or tilt, in order to accommodate itself to the inequalities of the third rail, the V-shaped lower end of the carrier acting as a bearing for the rounded extreme edge of the hook I, this tilting of the shoe being facilitated by supporting the lower end of the spring above the surface of the plate K on the rounded lugs or projections *k′*, as illustrated in Fig. 4, the recess *k* being formed in the plate K to clear the lower coil of the spring when the forward end of the shoe is raised. The downward rocking or tilting of the forward end of the shoe is limited by the upwardly extending flange *k²* formed on the

rear end of the plate K, this flange when the forward end is lowered and the rear end of the shoe raised, striking the stop plate O, bolted or otherwise secured to the vertical cross plate F of the carrier, the lower edge of this stop plate extending inwardly as clearly illustrated in Figs. 3 and 4. It will be understood, of course, that this stop plate may be vertically adjustable, in order to vary the limit of rocking or tilting of the shoe, or if desired, stop plates of various heights may be substituted one for the other to accomplish the same end, as it is the practice that the stop once having been properly placed, is allowed to remain in the same position until the shoe is removed on account of wear or damage and another substituted therefor.

The shoe constructed and arranged as above described, is intended to be employed as an "over travel" shoe, but as illustrated in Fig. 5 of the drawings, may, by a slight modification, be adapted for use as an "under travel" shoe. In the first instance, it will be noticed that the lug or projection L, around which the lower end of the retaining spring M is coiled, is located at approximately the center of the plate K, in order that the said spring may so exert its pressure on the shoe as to force the same downwardly and retain it in its proper working and contacting position. In the case of the "under travel" shoe, however, this lug is moved rearwardly to a small extent, so that the retaining spring M′ will exert its pressure on the plate K′ back of the center thereof, thereby depressing the rear end of the shoe and elevating the forward end, the upper side or surface of which contacts with the under side of the rail N′. In this instance it will also be noted that the strengthening ribs or flanges H′ are formed on the under side or surface of the shoe, instead of on the upper side, as in the case of the "over travel" shoe.

In order to limit the upward tilt of the shoe G′, when the same leaves the rail N′, the stop plate O′ is somewhat increased in width, in order that the flange *o* formed on the lower edge thereof, will fit below the edge of the plate K′ and against which the latter will strike when the forward end of the shoe is raised. To the carrier is bolted or otherwise secured the plate P, to which the electrical conductor or wire R is fastened.

From the foregoing it will be understood that my invention is exceedingly simple in construction, and consists principally of but three parts, that is, the carrier, the shoe proper, and the retaining spring, thereby permitting of the manufacture and assembling of the same at a comparatively small cost. Furthermore, after the shoe has been worn out or damaged in service, it may be readily and quickly removed by simply depressing the upper end of the retaining spring M to such extent as will permit of the latter being removed from the carrier, whereupon the shoe may be lifted from its position and another one inserted, this being a feature of much importance, especially when the shoe is damaged while in service and the car stalled until a new shoe has been substituted for the damaged one. Again, it will be noticed that the wear on the shoe caused by the continuous rocking or tilting thereof, falls on the extreme edge of the hook I, rather than upon bolts or pintles, as in the case of shoes as now ordinarily constructed, and wherein the shoe proper is hinged to the carrier. This edge being rounded, as illustrated and described, permits of a rolling or rocking movement, and thereby avoids the friction and wear incident to the use of a bolt or pintle.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a carrier, of a shoe proper formed with a hook engaging said carrier and a retaining spring bearing upon said carrier and upon said shoe for holding the several parts in their proper relative positions, substantially as described.

2. The combination with a shoe, the rear end of which is formed into the shape of a hook, of a carrier the lower end of which is provided with a receptacle for containing said hook, and a coiled spring one end of which impinges against said carrier and the opposite end against said shoe for yieldingly holding said shoe and carrier in their proper relative positions, substantially as described.

3. The combination with a carrier the lower end of which is V-shaped, of a shoe proper, the rear end of which is shaped into the form of a hook and adapted to engage the lower end of said carrier, and a spring, one end of which impinges against said carrier and the opposite end against the rear end of said shoe, whereby to yieldingly hold the several parts in their proper relative positions, substantially as described.

4. The combination with a carrier the lower end of which is formed into a V-shaped receptacle, of a shoe, the rear end of which is of hook shape adapted to be contained within said receptacle, said shoe being also provided at its rear end with a plate, and a spring adapted to impinge at its upper end against said carrier, and at its lower end against the plate formed on the rear end of said shoe, whereby to retain the several parts in their proper relative positions, substantially as described.

5. The combination with a carrier adapted to be secured to the face and under side of the shoe beam, the lower end of said carrier being V-shaped, of a shoe proper provided at its rear end with a hook adapted to fit in the V-shaped end of said carrier and with a plate, a spring adapted to impinge at its upper end

against said carrier and at its lower end against the rear plate on the shoe, and a stop secured to said carrier and against which is adapted to strike the plate on the rear end of said shoe for limiting the rocking movement of the latter, substantially as described.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 8th day of January, A. D. 1909.

ROBERT R. POTTER.

Witnesses:

M. VAN NORTWICK,

PARKER COOK.