No. 846,311. PATENTED MAR. 5, 1907.

W. A. HUTSON.

CAR REPLACER.

APPLICATION FILED JULY 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1

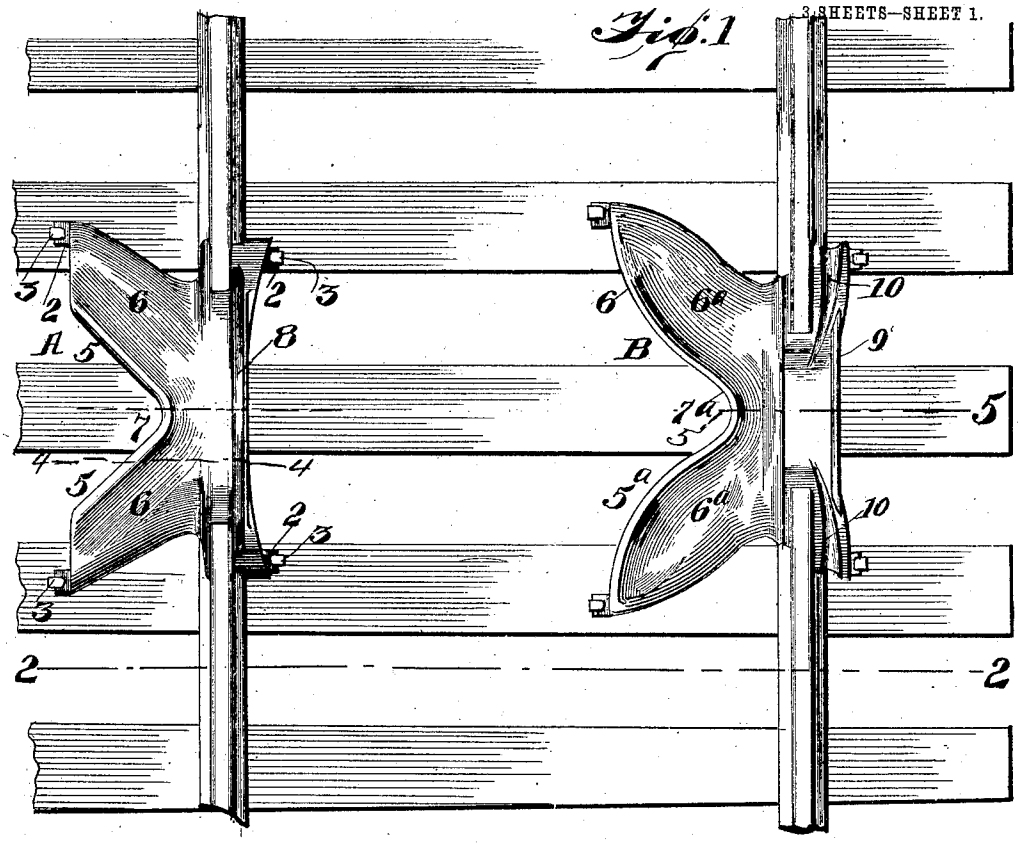


Fig. 2

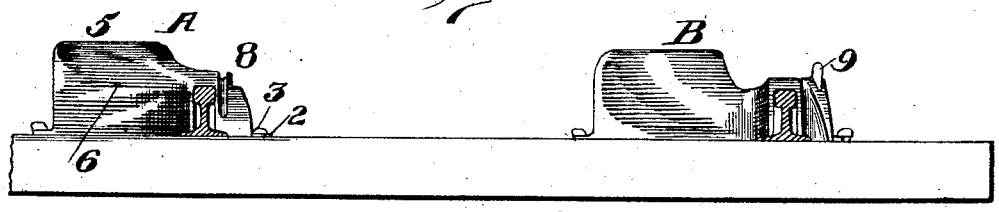
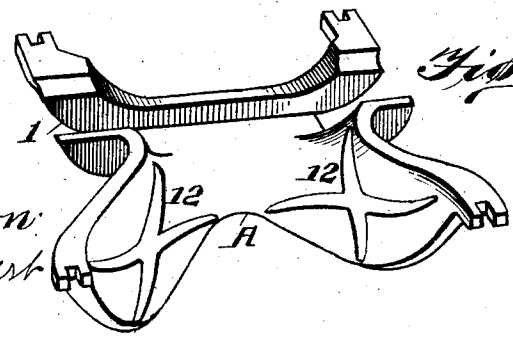


Fig. 3.



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 4.

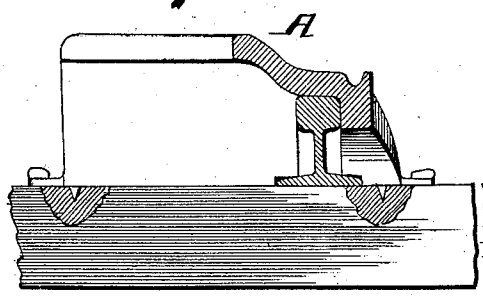
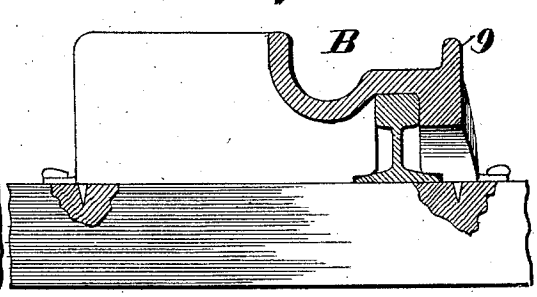


Fig. 5.



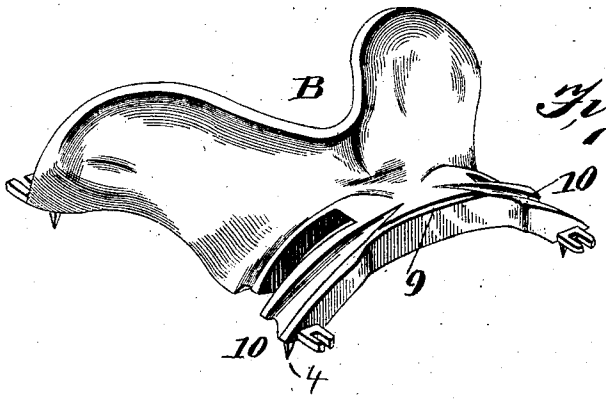
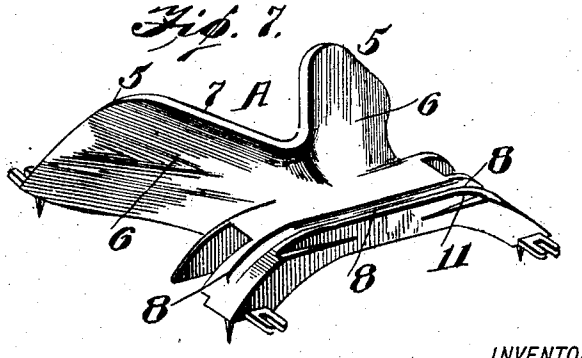


Fig. 6.

Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8.

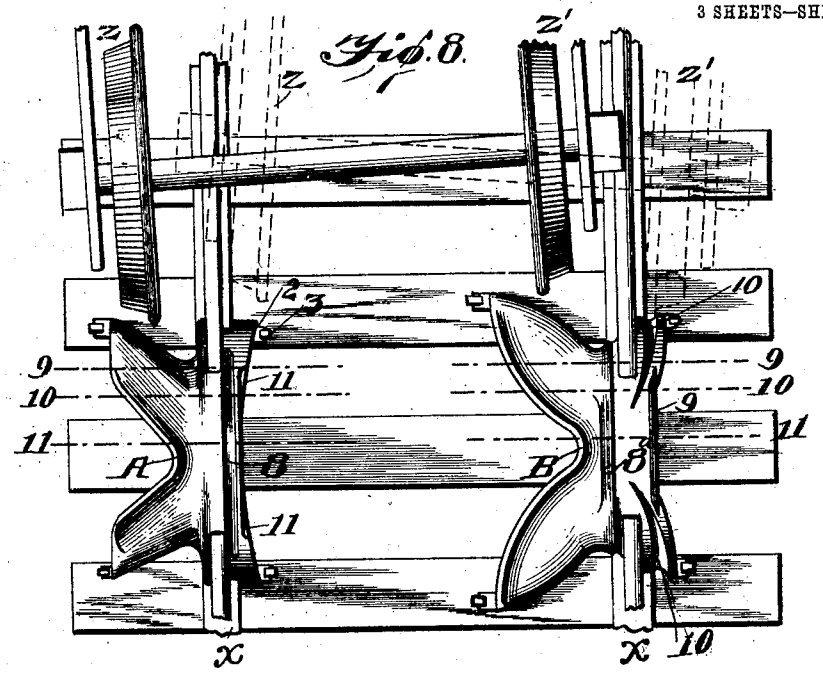


Fig. 9.

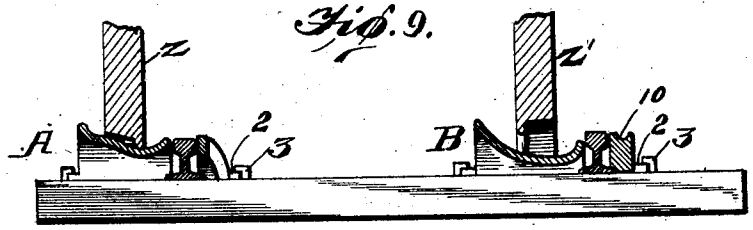


Fig. 10.

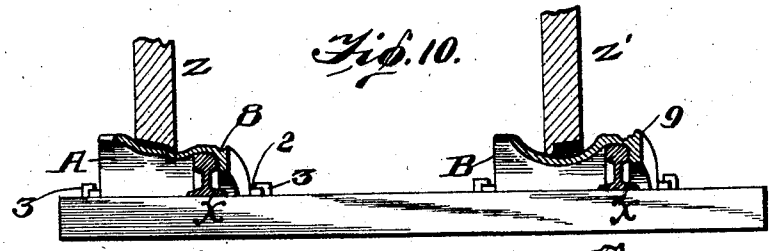
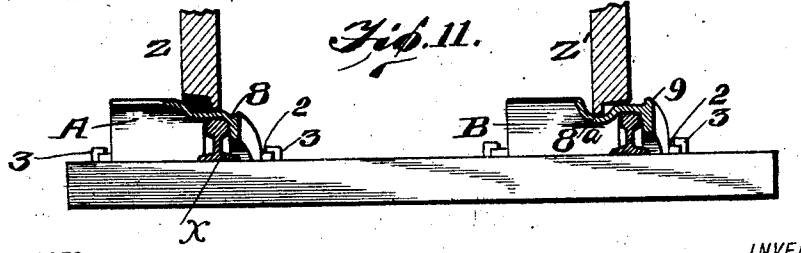


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM A. HUTSON, OF ORLANDO, FLORIDA.

CAR-REPLACER.

No. 846,311. Specification of Letters Patent. Patented March 5, 1907.

Application filed July 5, 1906. Serial No. 324,801.

To all whom it may concern:

Be it known that I, WILLIAM A. HUTSON, a citizen of the United States, and a resident of Orlando, in the county of Orange and State of Florida, have invented an Improved Car-Replacer, of which the following is a specification.

My invention is an improvement in the class of car-replacers consisting of a portable device, commonly called a "frog" or "shoe," which is adapted to be placed over or beside a track-rail and has a grooved and sloping guideway in which a truck-wheel of a railroad-car may run and be at the same time guided into due normal position upon the rail.

My invention includes two frogs or shoes, which are used together, but differ in construction, the same coacting in such way as to replace a car-truck in a novel and expeditious manner.

In the drawings, Figure 1 is a plan view of a section of a railway-track with my improved car-replacer applied thereto. Fig. 2 is a vertical cross-section on the line 2 2 of Fig. 1. Fig. 3 is an inverted plan view of one of the replacers or frogs. Fig. 4 is a vertical cross-section on the line 4 4 of Fig. 1. Fig. 5 is a similar section on the line 5 5 of Fig. 1. Fig. 6 is a perspective view of one of the frogs or shoes, and Fig. 7 is a similar view of the other frog or shoe constituting my car-replacer. Fig. 8 is a plan view illustrating the local relation of the front wheels of a car-truck to the replacing frogs or shoes when the latter are placed in due position for effecting replacement of the truck on the rails. Figs. 9, 10, and 11 are cross-sections on the lines 9 9, 10 10, and 11 11 of Fig. 8.

The two frogs or shoes constituting my car-replacer are indicated, respectively, by the letters A B. Each of them is constructed with two laterally-diverging wings, or, in other words, each is double-winged, and each is provided with a lengthwise recess or groove 1 (see especially Figs. 2, 3, 6, 7) for receiving the head or body of a track-rail *x*. In other words, each of the frogs A B is adapted to be placed upon a rail, and it extends downward on each side of the rail, so as to rest upon the ties. At the corners of the winged portions on both sides of the rail recessed lugs 2 are provided for receiving spikes 3, by which the frogs are secured in place. The frogs are also provided on the under side with spikes or teeth 4, (see Figs. 4, 5, 6, and 7,) which in practice enter the ties, and thus serve also to hold the frogs in place. In many cases these teeth may be alone sufficient for the purpose; but for entire safety spikes may also be used.

In view of their differences of construction and for convenience of description the device A may be termed the "conical" frog and the other, B, the "concave" frog. As shown best in Figs. 1 and 7, the conical frog A has two wings 5, that diverge from each other on one side at an angle of about forty-five degrees, and a rib 6 is formed along the middle of each wing 5, practically in a horizontal direction. The upper edge 7 of the two wings 5 5 is curved abruptly or is nearly vertical, as shown, and thus constitutes a turning flange, which coacts with the tread of the car-wheel, as will be presently explained.

The frog B has laterally-extending wings 5^a and a concavity 6^a at the point where the rib 6 appears in the frog A. The rim or edge 7^a of the frog B corresponds in shape and position to the flange 7 of the frog A. That portion of the conical frog A which is on the opposite side of the rail from the divergent wings 5 is provided with a lengthwise groove 8, which extends parallel to the rail. The ends of this grooved portion, which for convenience may be termed the "bridge" portion or section, slopes down to the base of the rail and to the ties, upon which it rests. The portion of frog B corresponding to the groove 8 is indicated at 8^a in Fig. 11. A vertical flange or rib 9 extends along the side of the bridge portion of the frog B, the same being parallel to the adjacent rail. The grooves 10, formed in the ends of this bridge-section, turn inward at their upper ends, as illustrated in Figs. 1, 2, and 6, for a purpose that will be presently explained.

I will now describe the operation of replacing a car-truck by means of my invention.

Suppose a car to have been derailed so the front wheels of the truck are in the position indicated in Fig. 8, one wheel being between the rails *x* and the other outside one of the rails. In such case the frogs A B are placed and secured as close as practicable to the wheels. Then, traction being applied to the truck, the wheels advance, and the left wheel *z* first comes into contact with the conical frog A. In other words, the edge of the tread of the wheel strikes upon the convex

portion 6 of the frog; but the flange of the other wheel z' strikes the concave portion 6^a of the part B. This relative position of the wheels with the frogs and the contact of one of them with the frog A are illustrated in Fig. 9. The angle or inclination of the wing and the convexity 6 with which the tread of the wheel z is in contact has the effect as the truck advances of forcing said wheel laterally, so that in the position illustrated in Fig. 10 the flanges of both wheels z z' are in contact with the respective frogs and both have been forced and moved laterally toward the rails. The next step in the progress of replacement of the truck is illustrated in Fig. 11, where the flange of the left wheel z is directly over the tread of the adjacent rail x and the flange of the other wheel z' is in the groove or depression alongside the head of the adjacent rail x. In the final step (not illustrated) the flange of the left-hand wheel z runs obliquely across and enters the groove 8, before described, which extends along the top of the bridge or inner portion of the frog A and by which it is guided so that the tread of the wheel as it leaves the frog A strikes upon the rail in normal position. While the left wheel z makes this movement the other wheel z' slides laterally in like degree, and the groove 8^a guides the flange of the wheel so that the tread thereof passes on the adjacent rail. Thus the front wheels of the truck are replaced, and it is obvious that the rear wheels of the same truck will follow the front ones and be replaced in the same manner. The dotted lines, Fig. 8, indicate another position of the truck-wheels, which may be called a position opposite that illustrated by full lines. In this case the flange of the right-hand wheel z' is in contact with the bridge-section of the frog B, and upon applying traction the wheel-flange will run up in the curved groove 10, while the tread of the other wheel z will run up upon the smooth portion of the bridge-section of the frog A. The inward curve of the groove 10 will carry the flange of the right-hand wheel z' over into the groove 8^a, (see Figs. 8 and 11,) and the flange of the left-hand wheel z will pass over the grooved portion 8 of the frog A, and thus both wheels will be guided in proper position upon the rail. It will be noted that the bridge-section of the frog A is cut away or grooved at 11 (see Figs. 1, 7, 8) to allow the flange of the wheel z to take the course described in replacing the truck.

In Fig. 3 I illustrate a reinforce for the wings of the frogs, the same consisting of ribs 12, cast or otherwise formed on the under side of the wings. This construction strengthens the wings, while adding inappreciably to the weight and cost of the device.

It is of course to be understood that by constructing each frog with two duplicate and divergent wings the frog is adapted for use in car-replacing from either direction, and, further, this construction gives the frog a broader base or bearing on the ties.

It will be noticed that my car-replacers will not interfere with any of the wheels that are on the rail. In other words, they can be placed in front of a train that has no wheels off the track, such train passing over them without any interference. The replacers may be applied to rails of different sizes, and it will be found that a pair of replacers that will work efficiently on a thirty-pound rail may also be used to advantage on a hundred-pound rail; but in practice it will be found advisable to make them any size best adapted to the weight of the rail for which they are especially intended, and in no case should it be necessary for a railroad to have more than two sizes.

I claim—

1. The improved car-replacing apparatus comprising two frogs having each a recess or groove to receive the head of a rail and two wings which extend laterally, and upward, and to the right and left upon divergent lines, the wings of both frogs being sloped or inclined downward in each direction and one provided centrally with a convexity and the other with a concavity, for forcing and guiding the wheels of a derailed truck toward and upon the rails, substantially as described.

2. The improved car-replacer comprising two frogs each having a lengthwise recess to receive the head of a rail and provided with laterally-extended divergent wings having a raised rim or edge and the wings of one frog being convex on the outer side in a longitudinal direction and the wings of the other frog being concave in the same direction, the convex frog having a bridge-section on the opposite side of the rail-groove which is provided with a lengthwise groove to receive the flange of the wheel, and the concave frog having a groove 8^a on the inner side of the recess for the rail as and for the purpose specified.

3. The improved car-replacer comprising two frogs each having a lengthwise recess for receiving the head of a rail and each provided with a laterally-extended wing diverging at an angle, each wing having a raised rim and one of the wings provided with a lengthwise convexity and the other with a lengthwise concavity, as and for the purpose specified.

4. The improved car-replacer comprising two frogs each having a lengthwise recess adapted to receive the head of a rail and one of them constructed with an adjacent bridge-section and with a groove extending thereon parallel to the rail-recess, the other frog having a corresponding bridge-section provided with inwardly-curved grooves and with an intermediate raised flange, substantially as described.

5. A car-replacer comprising two frogs

each having a rail-recess and one constructed with a bridge portion which is provided on the upper side with a longitudinal groove, the other frog having a corresponding bridge-section provided with grooves curved inward, the bridge-section being sloped or curved downward to furnish a trackway for the truck-wheels in the replacing operation, as and for the purpose specified.

WILLIAM A. HUTSON.

Witnesses:
J. C. ORNEO,
S. C. DOLIVE.