No. 735,266. PATENTED AUG. 4, 1903.

O. W. JOHNSON.

CAR REPLACER.

APPLICATION FILED NOV. 10, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

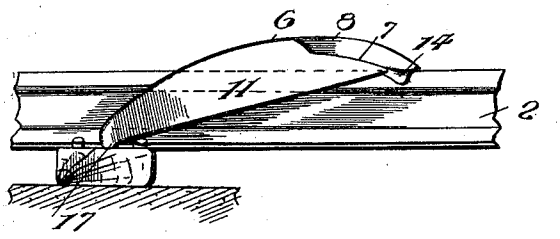


Fig. 2.

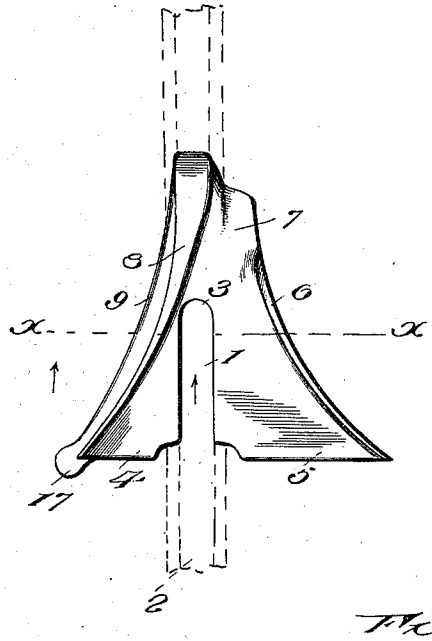


Fig. 3.

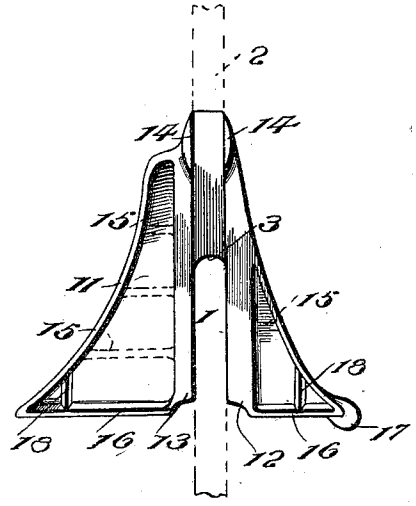
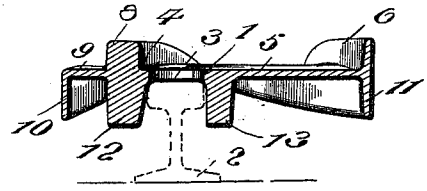


Fig. 4.



Witnesses

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CAR REPLACER.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5.

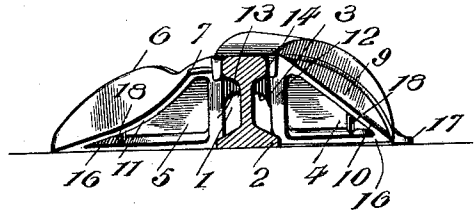


Fig. 6.

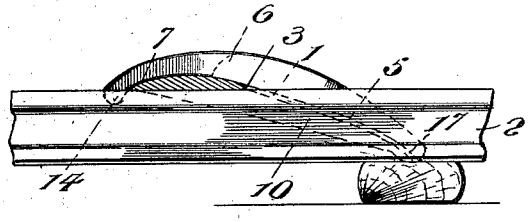


Fig. 7.

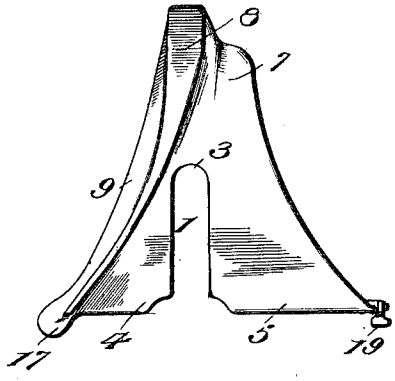
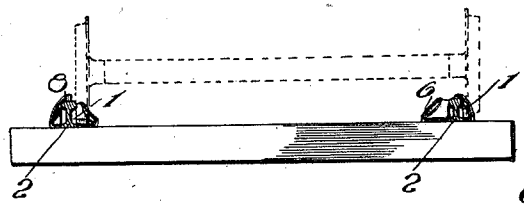


Fig. 8.



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No. 735,266. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

OLIVER W. JOHNSON, OF CLEVELAND, OHIO.

CAR-REPLACER.

SPECIFICATION forming part of Letters Patent No. 735,266, dated August 4, 1903.

Application filed November 10, 1902. Serial No. 130,744. (No model.)

To all whom it may concern:

Be it known that I, OLIVER W. JOHNSON, 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 Car-Replacers, of which the following is a specification.

In the provision of appliances for rerailing cars it is desirable to minimize the weight to facilitate handling, to brace the same at every point to successfully resist the perpendicular weight and the lateral strain, to provide against lateral and longitudinal slipping, and to supply a device that will be lasting, free from projecting parts intermediate of its edges, easily manipulated, and effective for the purpose designed.

The invention consists of the novel features, details of construction, and combination of the parts which hereinafter will be more fully disclosed and finally claimed; and for this purpose and also to acquire a knowledge of the merits of the invention and the structural details of the means whereby the results are attained reference is to be had to the appended description and the drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the car-replacer in operative position. Fig. 2 is a top plan view. Fig. 3 is a view of the device inverted. Fig. 4 is a transverse section on the line X X of Fig. 2 looking in the direction of the arrow. Fig. 5 is a front view, the rail being in section. Fig. 6 is a central longitudinal section. Fig. 7 is a view similar to Fig. 2 of a modification. Fig. 8 is a detail view showing the operation of a pair of replacers and the relation of corresponding wheels of a truck.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The car-replacer or frog is approximately of V form and longitudinally convexed on its top side and is of such construction as to be solely supported at its front end upon the rail to which the device may be fitted and to have its rear end resting upon either a tie or the road-bed. A longitudinal slot 1 is provided in the rear portion of the device and receives the head of the rail 2 when the frog is in operative position, the inner end of the longitudinal slot 1 being rounded, as shown at 3, to conform to the transverse convexity of the tread or head of the rail, so as to provide a snug fit or joint. The portions 4 and 5 upon opposite sides of the slot 1 and separated thereby constitute wings which are of different widths, this being of advantage when a pair of frogs are used for rerailing a car. By having the wings 4 and 5 of unequal width a minimum amount of metal enters into the formation of the replacer and the necessity of eye-flanges for coöperation with the flanges of the car-wheels is obviated. The edges of the device curve inward, and as a result the load is at all times within straight lines passed through the corners of the device at corresponding sides, thereby obviating the tendency of the replacer to tilt when in active operation. A guard 6 is provided along the outer edge of the wing 5 and terminates a short distance from the front end, leaving a space 7 for the passage of the flange of the car-wheel after the tread portion has been positioned to come upon the rail. The part 7 curves downward to admit of a gradual descent of the car-wheel when passing from the replacer onto the rail, thereby obviating jolt such as would be occasioned by a sudden drop. The guard 6 may be dispensed with in some instances, as shown in Fig. 7; but it is preferred to provide the same for the dual purpose of strengthening the device as well as providing a point of contact for the flange of the car-wheel to obviate possible lateral displacement thereof.

A guard 8 is provided at the opposite longitudinal edge of the car-replacer and gradually widens and decreases in depth from rear to front. A flange 9 is located exterior to the guard 8 and in the plane of the wings 4 and 5 and braces said guard against lateral stress. A flange 10 is pendent from the outer edge of the flange 9 and stiffens and braces the device longitudinally and materially assists in supporting the load. A corresponding flange 11 is pendent from the outer edge

of the wing 5 and alines vertically with the guard 6 and also serves to stiffen and brace the device longitudinally, so as to sustain perpendicular pressure.

Flanges 12 and 13, arranged in parallel relation and at each side of the slot 1 to embrace opposite sides of the rail 2, serve to prevent lateral displacement of the device and to strengthen it longitudinally, so as to support the load coming thereon when in operation. The flanges 12 and 13 extend the entire length of the frog and are preferably of unequal width, the flange 12 being wider than the flange 13 to provide the necessary amount of metal to enable the narrow wing 4 to support the load without rupture or otherwise disabling the frog. The lower face of the front portion of the replacer resting upon the rail 2 is straight, as shown most clearly in Fig. 6, so as to distribute the weight upon the rail, so as to prevent injury to the device. Lugs 14 are pendent from the front ends of the flanges 12 and 13 and are adapted to come upon opposite sides of the head of the rail 2, so as to fix the position of the replacer and prevent lateral movement thereof when subjected to lateral strain incident to the operation of the replacer when in service. These lugs 14 are of vital importance when the frog is to be used upon a part of the rail having its tread about flush with the road-bed, platform, or crossing. The lugs 14 are of tapering form, so as to readily find their way through any matter that may obstruct the sides of the rail. The device is stiffened transversely by pendent flanges 15, which connect the intermediate flanges with the outer flanges, as shown most clearly in Fig. 3.

Transverse ribs 16 are provided at the rear end of the replacer, and their sides slope downwardly to form an edge for readily penetrating a cross-tie or surface of the road-bed, so as to prevent longitudinal movement of the replacer when the wheels of the car are passing thereover. A corner of the replacer is widened, as shown at 17, to prevent the rib 16 from penetrating too far into the tie or road-bed. Other ribs 18, similar in formation to the rib 16, extend parallel with the flanges 12 and 13, and their primary object is to supplement the action of the flanges 12 and 13 in preventing transverse displacement of the frog when in operation, and they also serve to prevent a too far penetration of the rib 16. The ribs 17 and 18 likewise strengthen the frog by stiffening the same in substantially the same manner as the flanges pendent from the lower side thereof. A hook 19 is applied to a corner of the replacer to engage over a tie when desired and prevent longitudinal displacement of the device when in active service. This hook 19 may be of any construction and pivotally connected to the device in any substantial way.

For replacing a derailed car a pair of frogs are provided and are arranged with the wide wing upon the inner side of one rail and the narrow wing upon the outer side of the other rail, as shown most clearly in Fig. 8. Corresponding wheels are adapted to have their flanges ride upon the wide wing of one frog and the narrow wing of the other frog, the guard 8 serving to move the truck laterally as it passes over the frogs, the construction being such as to prevent chipping of the frog 8, which is a vital feature of the invention and of the utmost importance.

Having thus described the invention, what is claimed as new is—

1. A car-replacer provided at its front end with pendent lugs transversely spaced and adapted to embrace opposite sides of the rail and prevent lateral displacement of the device, substantially as set forth.

2. A car-replacer provided at its rear end with transverse ribs having their sides sloping to an edge and also provided with longitudinal ribs, the two sets of ribs coöperating to prevent longitudinal and transverse displacement of the device, substantially as described.

3. A car-replacer provided with pendent ribs to enter the surface of the road-bed and prevent casual displacement and having a portion at the base of the ribs widened to prevent a too far penetration of the ribs, substantially as set forth.

4. A car-replacer of approximately V form having a guard at one side, a flange exterior to the guard, and a flange pendent from the lateral flange, substantially as set forth.

5. A car-replacer of approximately V form comprising wings of unequal width and separated at their rear ends by a longitudinal slot, a guard at the outer edge of the wider wing terminating short of the front end thereof, the portion of the wing forward of said guard being downwardly curved, substantially as and for the purpose specified.

6. A car-replacer of approximately V form comprising side wings separated at their rear ends by a longitudinal slot and having the upper side of the front portion downwardly curved, parallel flanges at the sides of the said longitudinal slot, and lugs pendent from the front end of the replacer in line with the said flanges, substantially as specified.

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

OLIVER W. JOHNSON. [L. S.]

Witnesses:
GEORGE T. FOX,
BIRDIE JONES.