

(No Model.)

R. R. BRIDGERS, Jr., & W. H. GOOD.

FISH PLATE FOR RAILROAD RAILS.

No. 326,393.

Patented Sept. 15, 1885.

Fig. 1.

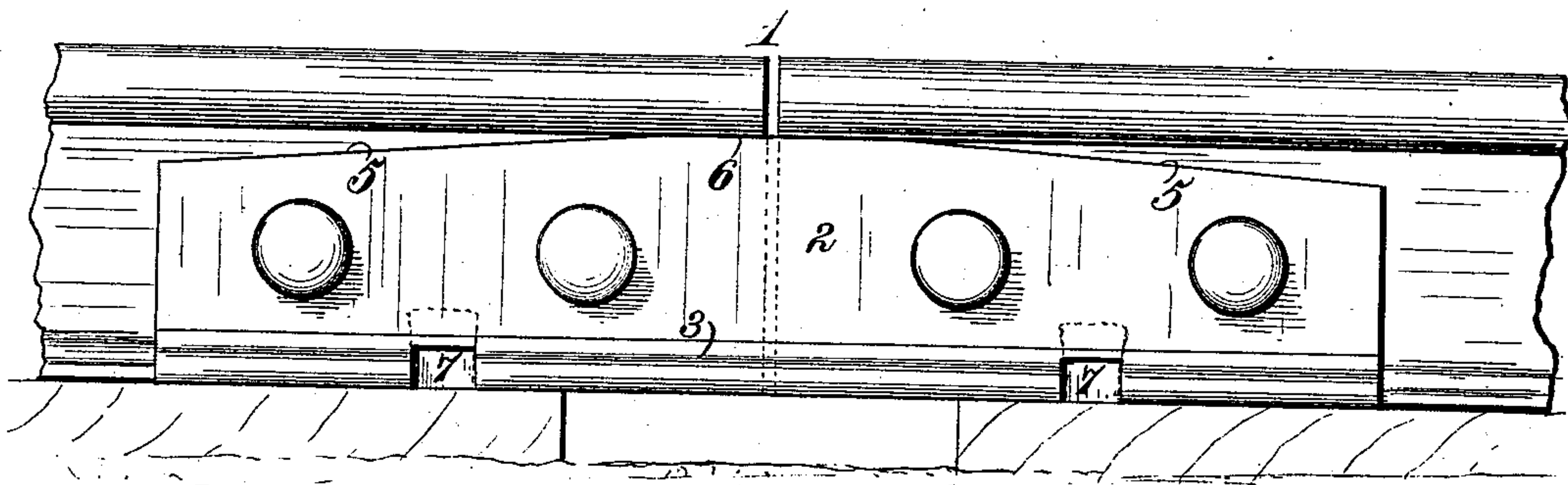
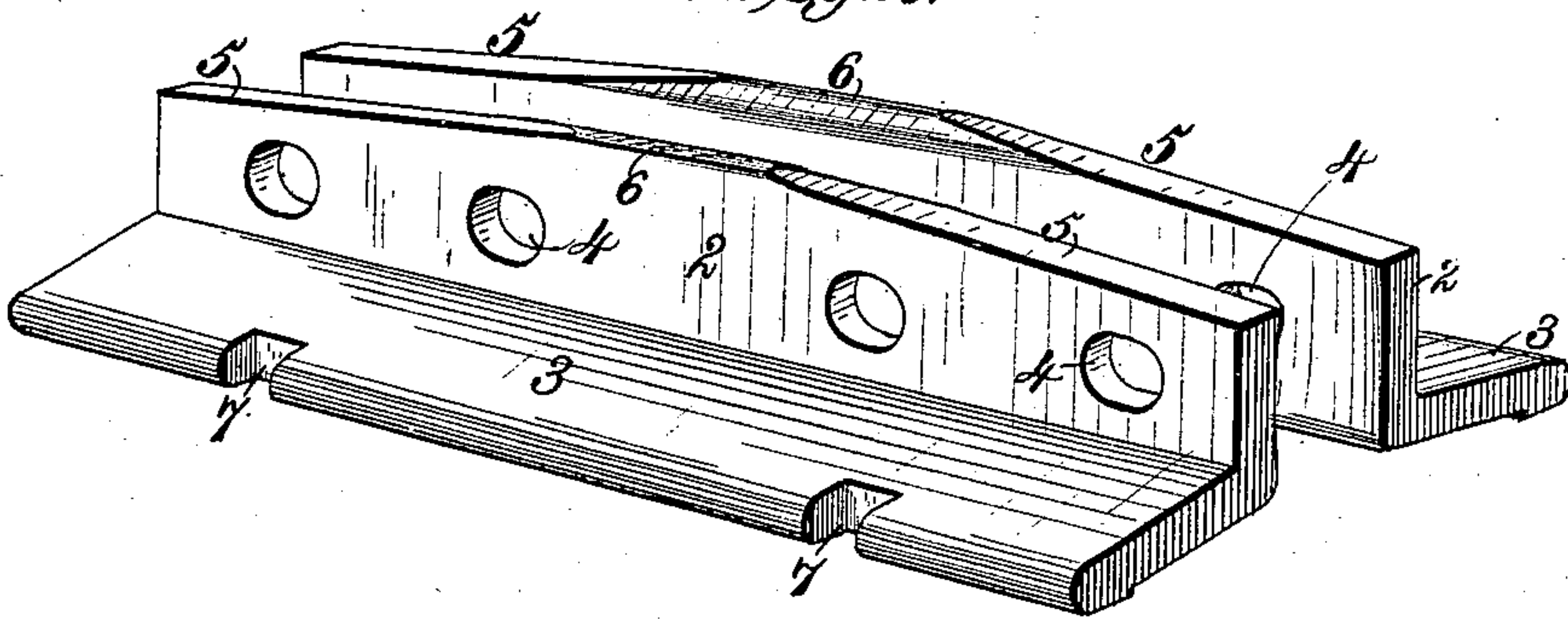


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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FISH-PLATE FOR RAILROAD-RAILS.

SPECIFICATION forming part of Letters Patent No. 326,393, dated September 15, 1885.

Application filed December 4, 1884. (No model.)

To all whom it may concern:

Be it known that we, ROBERT R. BRIDGERS, Jr., a citizen of the United States, residing at Wall, in the county of Allegheny and State of Pennsylvania, and WILLIAM H. GOOD, a citizen of the United States, residing at Greensburg, in the county of Westmoreland and State of Pennsylvania, have invented new and useful Improvements in Fish-Plates for Railroad-Joints, of which the following is a specification.

Our invention relates to fish-plates for the butt-joints of railway-rails, and the purpose thereof is to remedy the defective wear of steel rails under the constant passage of wheels.

By observation we have ascertained that the wear of rails is governed by the following laws:

First. Where a rail receives more vertical support at one point than at another a depression forms over or near the point of support, the length, depth, and exact location of such depression, as regards the support, being determined by the character of the material of the rail, the manner of ballasting the road-bed, by the tamping, and by the facility for draining the road-bed under the ballast. Illustrating this law, a straight-edge will show that a depression exists over nearly every cross-tie and very seldom between them. When depressions exist between ties, the straight-edge applied to the bottom of the rail will show that it is bent between the ties. Likewise a depression is found over all guard-rail chairs.

Second. That wherever the rail receives more lateral support at one point than at another the wear on the rail opposite this point is greatest and the rail deflects outwardly on either side of the support. As illustrating this law, it is found that wherever a Wharton switch safety-casting is used by the side of the rail the rail soon becomes permanently bent outward at either end of the casting; also, that the rail is out of line at either end of a public road-crossing; also, that the rail has more short "kinks" between guard-rail chairs than the same rail has on curves where no guard-rail chairs are used.

Third. The third law is that a low spot on all rails causes the formation of a low spot on the opposite rail just in advance of the original

low spot. Illustrating this law, it is found that where joints are allowed to remain low that a depression forms on the opposite rail over the tie in advance of the joint; also, that a depression always forms on the rails opposite to a point of the frog.

Fourth. The fourth law is that when the wheel encounters a low spot in one rail it tends to move the track in the direction of that spot laterally. Illustrating this law, it is found that a joint allowed to remain low becomes deflected outwardly, and a trial with a track-gage will show that the opposite rail has been brought toward the joint; in other words, the ties move laterally. It will also be found that the rail opposite the joint of a frog is always out of line. This tendency is so great that when the wheel passes over the low spot at the front of a frog it will actually move the ties up an incline when the frog is on the outside of curve. It is well known that on the double tracks, when the ordinary fish-plate or angle-bar splice is used, the head of the rail mashes over the entire length of splice, the depression being slight behind the abutting ends of rails and greater in advance of the point of junction of said rails, the deepest point of depression being over the tie in advance of the joint, the rails being mashed less immediately at their ends than they are over the cross-ties.

The object of our invention is to prevent the formation of the low spot that occurs near the joint, and thus avoid the destruction of the track from these causes.

Our invention consists in the novel construction hereinafter set forth, and fully defined in the claims attached to this specification.

Referring to the drawings, Figure 1 is a side elevation of a section of rail, showing our improved fish-plate in place. Fig. 2 is a perspective view of the plates in position, the rail being removed.

In the said drawings the reference-numeral 1 denotes the rail, of usual form, and the numeral 2 indicates the fish-plate applied to the rails at the point where their ends abut against each other. The fish-plate consists of any suitable form of strap, fish-plate, or angle-bar, double or single, that supports the rail under

its heads, and is rigidly attached thereto by means of bolts passing through the web of the rail, with the upper or supporting surface beveled off from each end toward the central portion, forming the inclined edges 5, between which lies the horizontal supporting edge 6. The latter portion is brought, when the splice is in place, beneath the heads of the abutting rails, and supports each at the extremity thereof only and upon both sides of the rail, the extent of support being about two inches upon each rail. This dimension, however, is susceptible of some variation, according to the condition and ballast of the road, the spacing of the cross-ties, and other circumstances.

Heretofore, and prior to our invention, the butt-joints of railroad-rails have been provided with a lap or fish-piece long enough to rest upon several ties or sleepers, and high enough to receive and support the car-wheel when the same is passing over said joint, the tread of the wheel coming directly upon the edge of the fish-plate as the wheel passes over the joint. Devices of various kinds, also, have been combined with the chairs in which the abutting ends of the rails are supported, and in one instance the sides of the chair have been bent upward to underlie the ends of adjacent rails. We make no claim to any of these forms of construction.

What we claim is—

1. In a fish plate or splice for railway-rails,

a central supporting-edge which underlies and supports the heads of the adjacent rails for a limited distance upon each side of the joint, said fish-plates being bolted to the webs of the rails, and having a plate extending outward from the base thereof and resting upon the sleepers to receive bolts or spikes, whereby the fish-plates are fastened to the sleepers, substantially as described.

2. The combination, with the rails of a railway, of a fish plate or splice having a central supporting portion, 6, which underlies the heads of the adjacent rails, and bolts passing through said plates and the webs of the rails, said fish-plate being provided with a plate extending outward from the base thereof and resting upon the sleepers, bolts, or spikes fastening said plates to the sleepers, substantially as described.

3. The combination, with the rails of a railway, of a fish plate or splice consisting of the part 2, having a central supporting portion, 6, and the base 3, the plate 2, receiving bolts which pass through the webs of the rails, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT R. BRIDGERS, JR.
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Witnesses:

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