(No Model.)

F. B. WAGNER & A. W. FOOTE.

RAIL JOINT BRIDGE.

No. 603,352. Patented May 3, 1898.

Fig. 1.

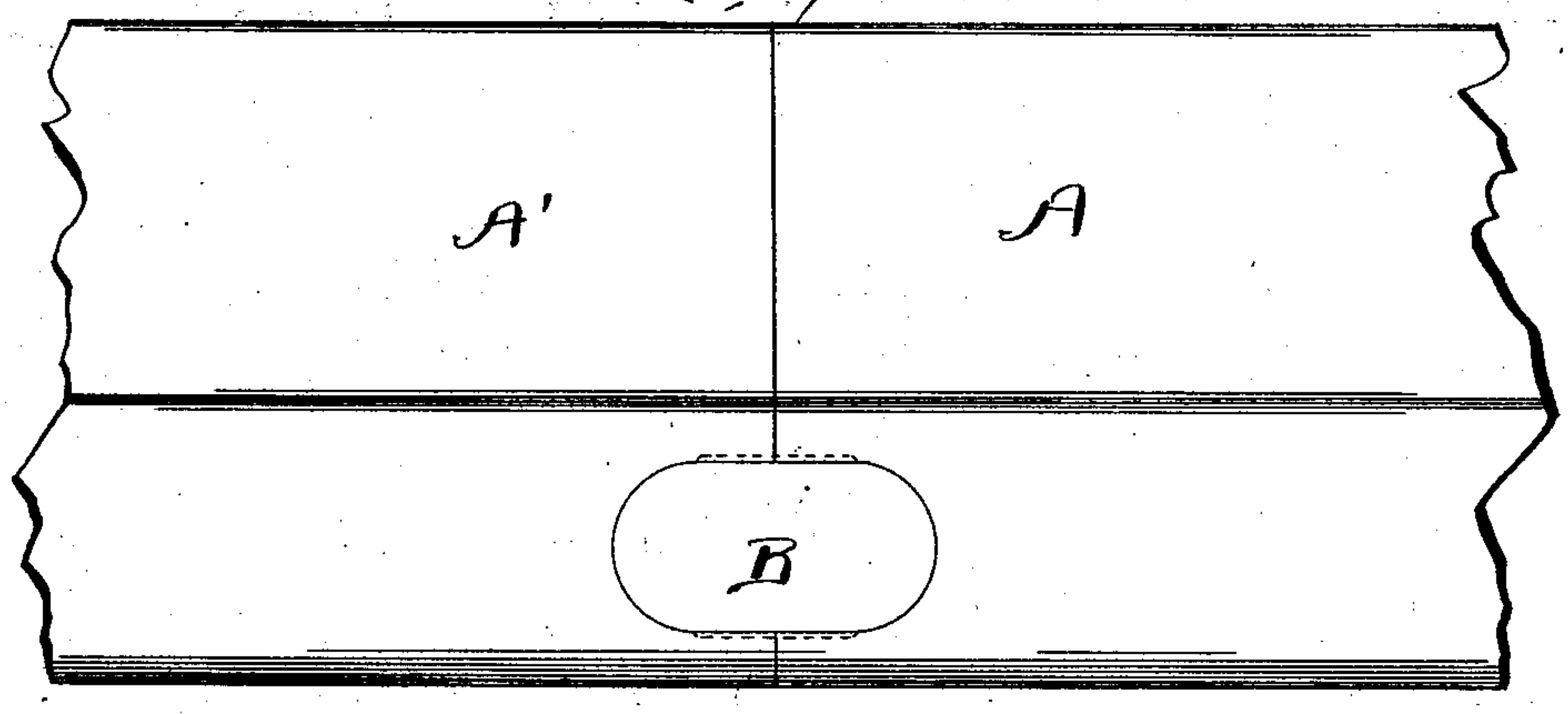


Fig. 2.

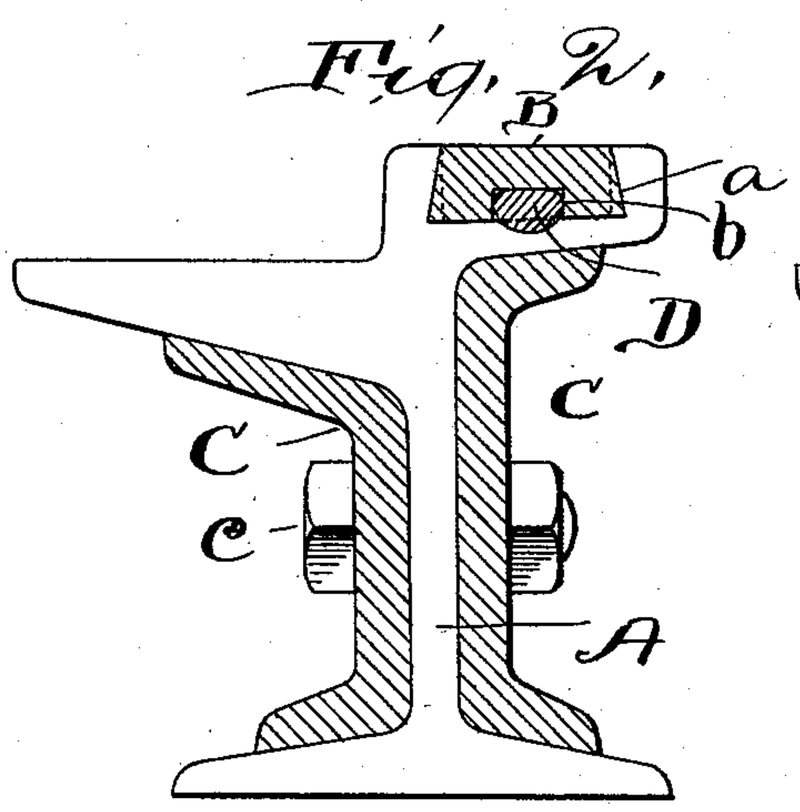


Fig. 3.

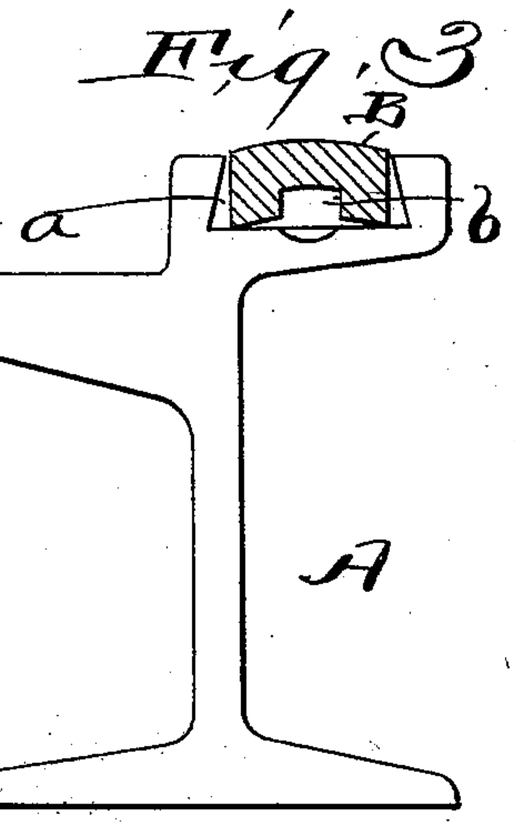
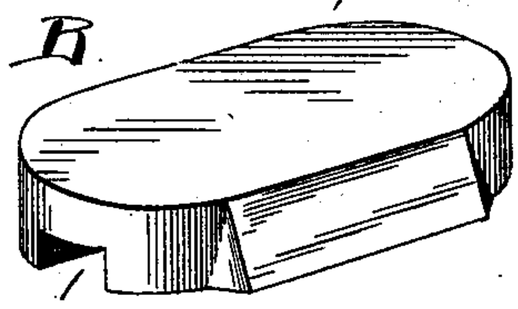


Fig. 4.



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Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK B. WAGNER AND ANDREW WARD FOOTE, OF CLEVELAND, OHIO.

RAIL-JOINT BRIDGE.

SPECIFICATION forming part of Letters Patent No. 603,352, dated May 3, 1898.

Application filed August 14, 1897. Serial No. 648,261. (No model.)

To all whom it may concern:

Be it known that we, FRANK B. WAGNER and ANDREW WARD FOOTE, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Rail-Joint Bridges; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of our invention is to prevent what is known as "pounding" of the rails, which pounding occurs as the wheels pass off the end of one rail onto the end of the next rail, and this object is accomplished by a bridge-piece, substantially as shown, which is dovetailed into the tops of two contiguous rail ends, its top surface being in the same plane with the tops of said rails.

Another object is to facilitate the connection of said bridge-piece to the ends of rails already laid, and this result is effected by forming undercut longitudinal grooves in the top surfaces of said rails, extending from their ends inward, and in inserting therein a bridge-piece shaped to fit said grooves, which bridge-piece when in condition to be inserted from above is longitudinally bent upward in its middle, so that the lower side edges are drawn toward each other until the distance between them is less than the distance between the top edges of the grooves, and then flattening out said bridge-piece after it has been passed down into said grooves.

Another object of the invention is to provide means for cheaply "bonding"—that is, electrically connecting—the proximate rail ends. This result is effected by utilizing the bridge-piece to hold said bond in contact with the two rails.

The invention, which is definitely pointed out in the claims, is illustrated in its best form in the accompanying drawings, wherein—

Figure 1 is a plan view of the proximate ends of two street-railway rails connected by our invention. Fig. 2 is a transverse sectional view in a plane passing between the two rail ends. Fig. 3 is a similar view showing the shape of the bridge-piece when adapted to connect the ends of the rails already laid; and Fig. 4 is a perspective view of the bridge-piece, showing its form when in use.

Referring to the parts by letters, A and A' represent the rails, which when properly laid are in alinement with their ends in contact, or nearly so. In laying rails whose feet and webs will be "buried," as one may say, in the pavement it is no longer thought necessary to leave any space between the rail ends to permit expansion and contraction, the present practice under the circumstances named being to place the ends in contact. In the top of each rail, extending longitudinally from its end, a groove *a* is cut. The sides of this groove, which are parallel, are undercut, as shown. The ends of the groove are preferably in the form of a half-circle and need not be undercut. If the bridge-piece were to be placed in position when the rails were being laid, these ends might also be undercut, and perhaps that would be the best construction, provided the bridge-piece were shaped to fit; but a bridge-piece so shaped could not be placed in the grooves of rails already laid.

The bridge-piece B is shaped to fit the grooves *a* in the rail ends—that is to say, it has two parallel sides which are beveled outward from the top of the piece to the bottom and two semicircular ends, wherefore it will fit said grooves. Its thickness is equal to the depth of said grooves, and therefore when it is in place its top will be in the plane of the rail-tops. When this bridge-piece is in place, as described, it effectually prevents the pounding of the rails for two reasons, viz: It provides a surface upon which the wheels may ride when passing over the rail-joint, and it also, because it interlocks with both rails, supplements the action of the usual fish-bars C and bolts *c*, which should also be used, in preventing either of the rail ends from moving out of alinement with the other. In the practical application of these bridge-pieces two different conditions will be met, to wit: First, while laying new rails. In that case after one rail is laid the bridge-piece is placed in its groove, and then the next rail is moved up endwise until the ends of the rails are in the desired relation to each other, and as the rail is so moved the bridge-piece is caused to enter the groove of said rail. In this case the

bridge-piece when inserted may be of the form it should have when in use, substantially as shown in Fig. 4. Second, when the rails are already laid. In this case the grooves are cut by suitable mechanism. The bridge-piece before it is placed in the groove is bent longitudinally, substantially as shown in Fig. 3, whereby its lower side edges are drawn toward each other until the distance between them is less than the distance between the upper side edges of the groove *a*. The bridge-piece is then passed down into said grooves, after which the bridge-piece is flattened out, and in its flat condition it fits and fills said grooves.

The expansion and contraction of the rails does not sensibly impair the efficiency of the interlocking relation between the rails and bridge-piece, because said rails in the expanding and contracting movements move lengthwise—that is to say, in a direction parallel with the interlocking edges of the bridge-piece and groove—a short distance only.

In electric railways it is necessary to electrically bond or connect the rails, and this is commonly effected by a bond of copper.

By substantially the construction shown we utilize the bridge-piece to hold the bond in proper contact with the rails. A longitudinal groove *b* is formed between the bridge-piece and opposing surface of the rails, preferably in the bottom of the bridge-piece, as shown. The bond D is placed in this groove and held in contact with both rails when the bridge-piece interlocks with said rails.

Having thus described our invention, we claim—

1. A rail-joint bridge consisting of a metal block having parallel beveled side edges, which block is longitudinally bent to draw the lower side edges toward each other, substantially as specified.

2. A rail-joint bridge consisting of a metal block having parallel beveled side edges and having in its lower face a longitudinal groove, adapted to contain an electrical bond, substantially as specified.

3. In a rail-joint bridge, the combination of two contiguous rail ends, and a bridge-piece which is dovetailed into the tops of said rails and an electrical bond confined between said bridge-piece and rails, substantially as specified.

4. The combination of two alined rails, each having in its top surface a longitudinal groove with parallel undercut sides, with a bridge-block which lies in and fits said grooves and bridges the space between the rail ends, and an electrical bond confined in a longitudinal groove between the bridge-block and both rails, substantially as specified.

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

FRANK B. WAGNER.
ANDREW WARD FOOTE.

Witnesses:
E. L. THURSTON,
ALBERT H. BATES.