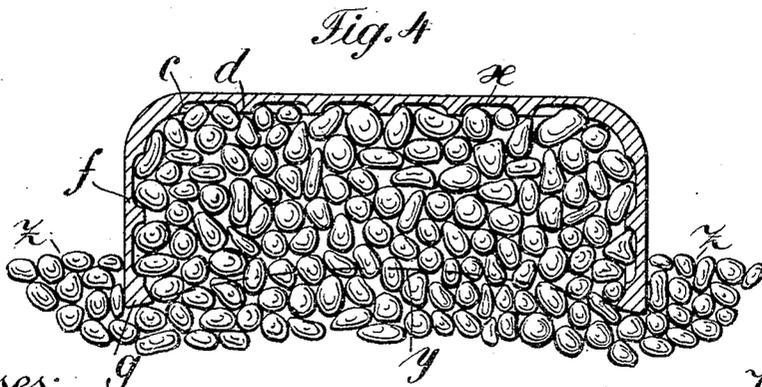
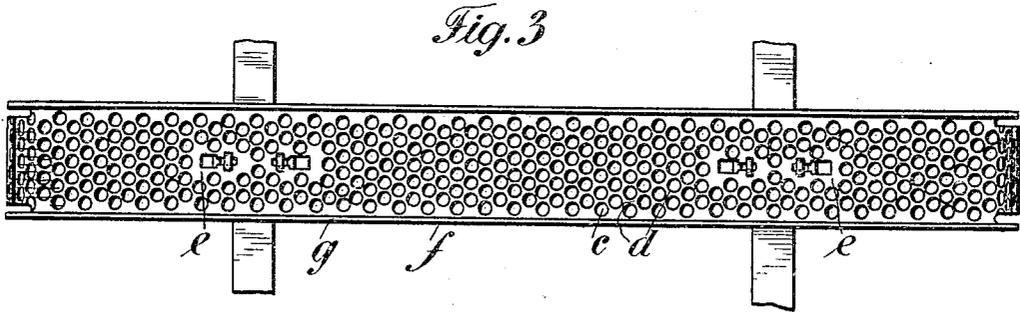
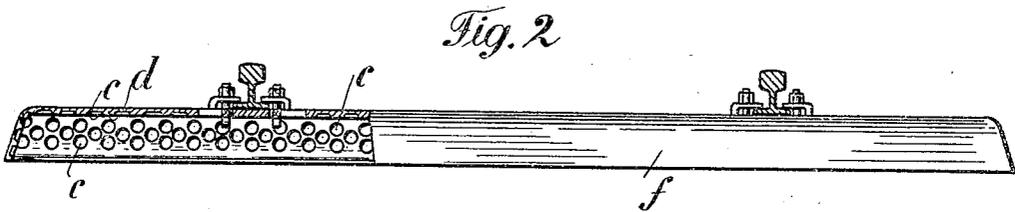
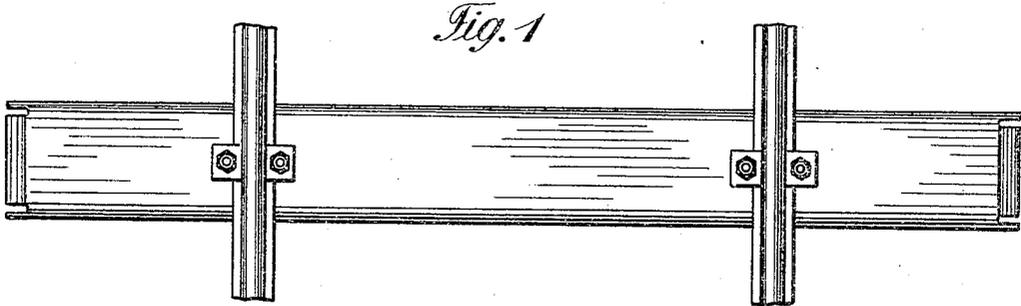


J. WETTSTEIN.
 METAL RAILWAY TIE.
 APPLICATION FILED MAR. 3, 1910.

959,902.

Patented May 31, 1910.

2 SHEETS—SHEET 1.



Witnesses:
P. Rommers
May Ellis

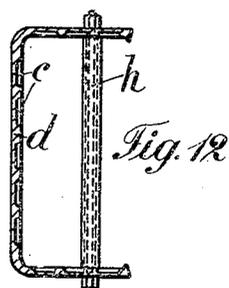
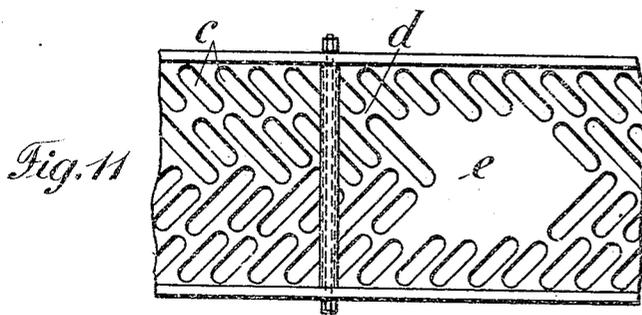
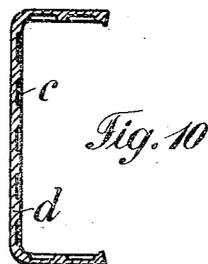
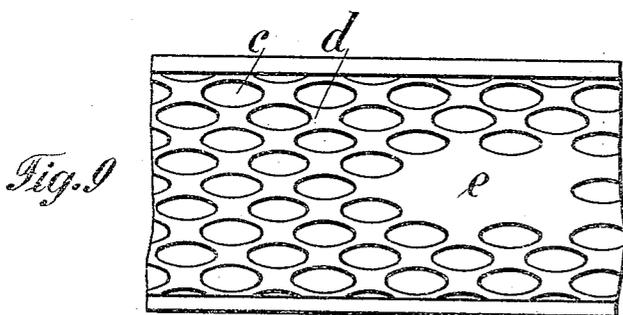
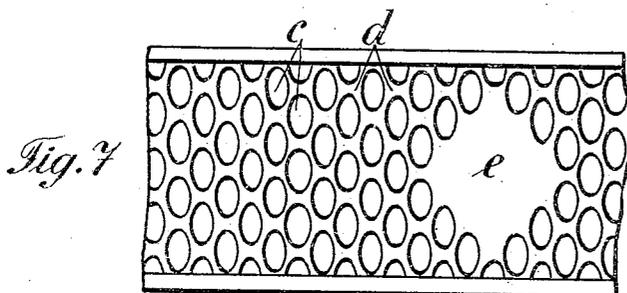
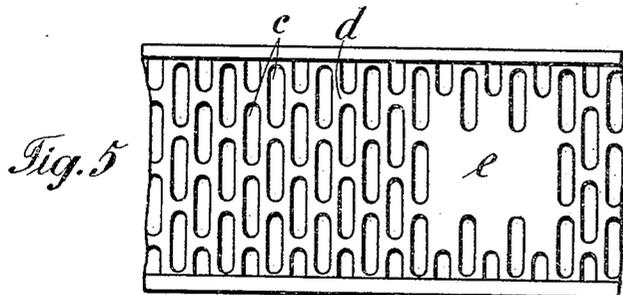
Inventor:
Jacob Wettstein
 By *Henry Orth*
 Atty.

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2 SHEETS—SHEET 2.



Witnesses:

O. Rommers
May Ellis

Inventor:

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UNITED STATES PATENT OFFICE.

JACOB WETTSTEIN, OF GREIFENSEE, SWITZERLAND.

METAL RAILWAY-TIE.

959,902.

Specification of Letters Patent. Patented May 31, 1910.

Application filed March 3, 1910. Serial No. 547,122.

To all whom it may concern:

Be it known that I, JACOB WETTSTEIN, a citizen of the Republic of Switzerland, residing at Greifensee "zur Säge," Switzerland, have invented certain new and useful Improvements in Metal Railway-Ties; and I 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

A disadvantage attaching to rolled ingot-iron or steel railway-ties of inverted channel or trough shape with closed ends, is that after being a short time in use, an air-space forms between the top of the tie and the ballast inside, since the place of work of the tie upon the ballasting-material is located at this part. This air-space cannot fill with ballast. Furthermore the under-surface of the tie suffers through friction.

According to the present invention the interior walls of the tie, both at the top and sides, have pressed in them cavities or pockets adapted to accommodate the stones of the ballast. In this manner a cushion of stones firmly wedges itself inside the tie, lateral shifting being impossible. The result of this is that the place of work between the tie and the ballasting is transferred to a lower part, that is to say to the layer of stones below the feet of the tie.

Five different embodiments of my invention are illustrated in the accompanying drawings.

Figure 1 is a plan of the new tie, together with a portion of the track. Fig. 2 is a front elevation and part section. Fig. 3 is an underside view. Fig. 4 is a cross section through the tie filled with ballast, drawn to a larger scale. Fig. 5 is an underside view, drawn to a smaller scale than Fig. 4, of a fragment of a modification, the cavities in the tie being of elongated form. Fig. 6 is a cross section through Fig. 5. Fig. 7-12 are similar views illustrating three further modifications.

As the drawings show, the inner walls of the top and sides of the rolled tie are furnished with cavities *c* pressed in them, their size and shape depending upon the nature of the ballast to be used. In the embodiment illustrated in Figs. 1-4 round cavities

c are provided. In the modification Figs. 5 and 6 the cavities *c* are of elongated shape and run transversely of the tie. Figs. 7 and 8 show a modification in which oval, transversely directed cavities *c* are provided; while in Figs. 9 and 10 oval cavities *c* are disposed longitudinally of the tie. In Figs. 11 and 12 a modification is depicted in which elongated cavities *c* are furnished in such manner that those at the one part lie at an angle to those at the other part of the wall. At the portions *d*, between the depressions *c*, the walls are of the normal thickness.

The unrecessed places *e* are designed to receive the bolts for fastening the rails to the ties.

It will be found advantageous with these ties to employ vertical sides *f* and to thicken their lower edges *g*.

When the ties have to be laid direct on sandy or gravelly ground, permeable to water, the sides of the tie may with advantage be made of greater height but less thickness than otherwise. The tie shown in Figs. 11 and 12 is provided with high, thin walls *f* of this kind. To prevent deformation of the side walls *f*, they may be stiffened by stays *h*.

The recesses *c* prevent the ballasting-material shifting at the inner top wall. They also hold the filling firmly in place, and are assisted in their action by the upright walls *f* with thickened edges *g*. There is thus no movement at *x* (Fig. 4) between the tie and the ballast. The actual supporting-surface is located at *y*, substantially at a level with the edges of the sides *f*. In this manner there is a better chance of a tie which lies loosely, getting further filling-material of itself from the ballast at *z*, lying at a higher level. The so-called "pumping" of the air will thus be less pronounced, whence the ballast need not be submitted to the same thorough overhauling as ordinarily.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A trough-shaped metal railway-tie, whose inner walls have a large number of cavities pressed in them for the purpose of receiving and retaining stones of the ballasting-material, substantially as described.
2. A trough-shaped metal railway-tie presenting vertical sides whose edges are

thickened on the inside, and having closed ends, and whose inner walls have a large number of cavities pressed in them for the purpose of receiving and retaining stones of the ballasting-material, substantially as described.

3. A trough-shaped metal railway-tie presenting vertical sides whose edges are thickened on the inside, and having closed ends, and whose inner walls have a large number of cavities pressed in them for the

purpose of receiving and retaining stones of the ballasting-material, and transverse stays connecting the sides, substantially as described.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

JACOB WETTSTEIN.

Witnesses:

ERNST FISCHER,
ARTHUR J. BUNDY.