(No Model.)

J. GRIMME.

FASTENING AND SUPPORT FOR RAILWAY RAILS.

No. 462,080. Patented Oct. 27, 1891.

Fig. 1.

Section on y-y.

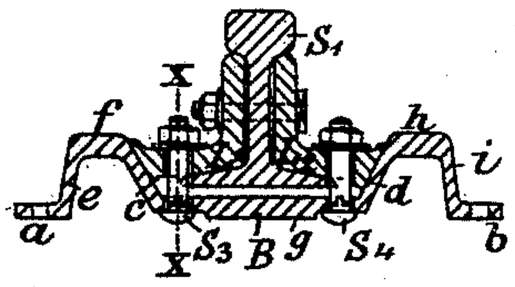


Fig. 2.

Section on z-z.

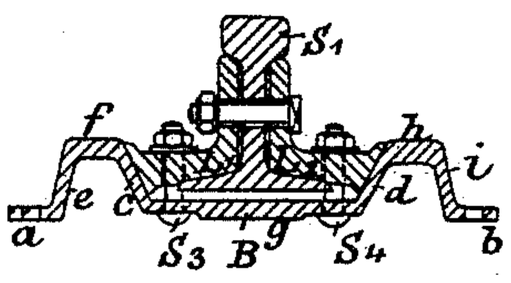


Fig. 3.

Section on x-x.

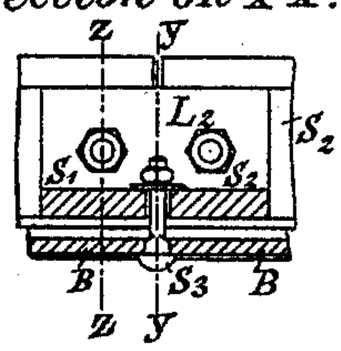


Fig. 4.

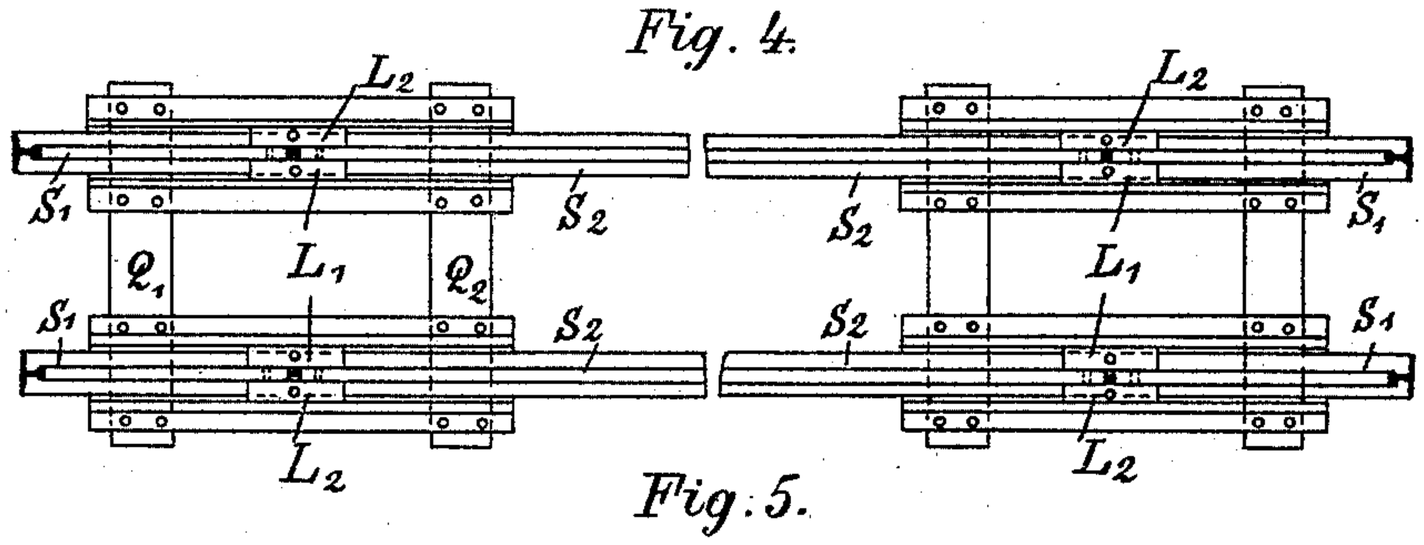


Fig. 5.

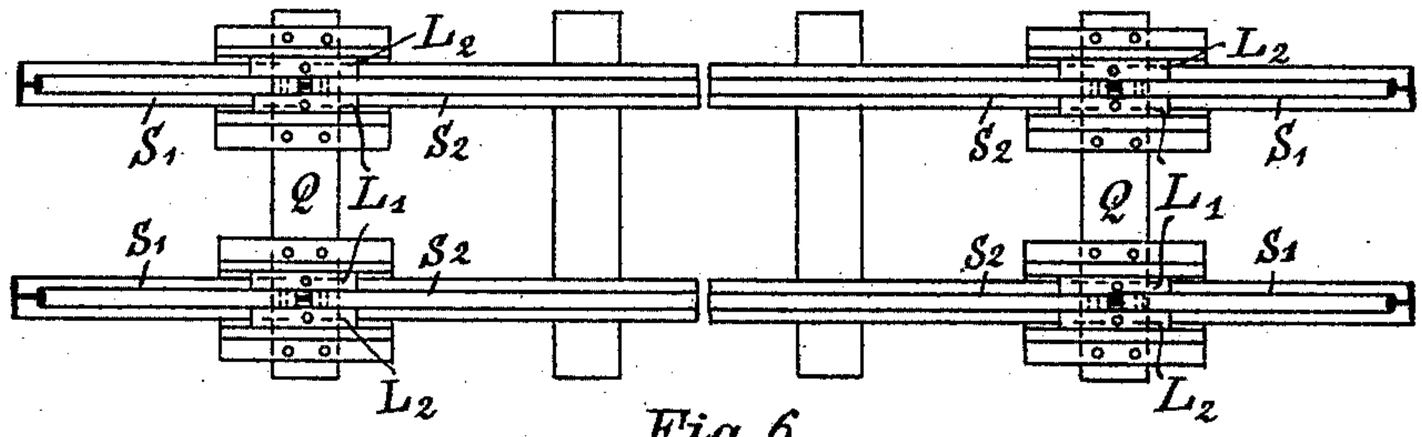
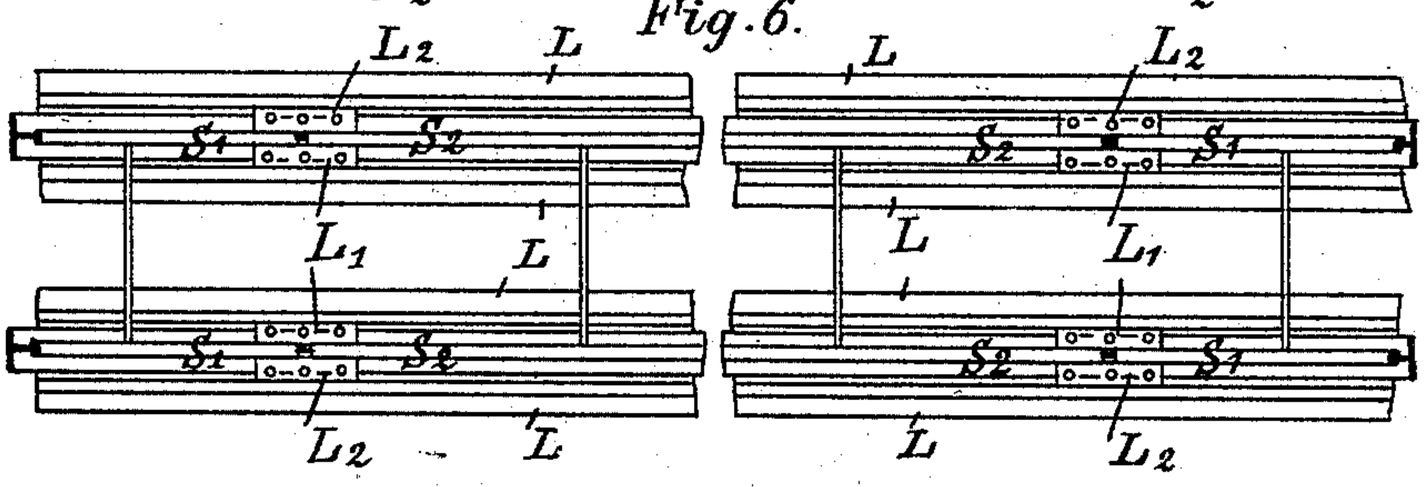


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHANNES GRIMME, OF BOCHUM, GERMANY, ASSIGNOR TO THE BOCHUMER VEREIN FÜR BERGBAU UND GUSSSTAHL-FABRIKATION, OF SAME PLACE.

FASTENING AND SUPPORT FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 462,080, dated October 27, 1891.

Application filed June 5, 1891. Serial No. 395,220. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES GRIMME, engineer, a subject of the King of Prussia and German Emperor, residing at Bochum, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Fastenings and Supports for Railway-Rails; 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.

This invention relates to an improved construction of the chairs or sleepers and fish-plates of the permanent way of railways, whereby the fish-plates also constitute the support for the rail, while at the same time they operate in conjunction with separate chairs, base-plates, or sleepers in such manner as to automatically apply an increased grip to the rail when this is loaded, so that the fish-bolts are relieved of strain when the load is passing over the joint. The new arrangement is illustrated in the accompanying drawings, in which—

Figure 1 shows the arrangement of the fastening and of the support in a vertical section after the line *y y* in Fig. 3. Fig 2 is a vertical section after the line *z z* in Fig. 3. Fig. 3 is a side view with a vertical section through the line *x x* of Fig. 1. Fig. 4 shows in a horizontal plan the new arrangement for the whole railway-track by using the new base-plates as a chair extending over two cross-sleepers, between which the joint of the rails is placed. Fig. 5 shows, also in a horizontal plan, the same arrangement by using the base-plate as a chair, sitting only on one cross-sleeper, over which the joint of the rail is placed. Fig. 6 shows the same arrangement in case the base-plate is used as a longitudinal sleeper.

For reaching the purpose aforesaid in all these cases the fish-plates L′ L^2 are formed angular with vertical portions which fit against the webs of the rails S′ S^2 between the head and the base, and a horizontal portion terminating in an inclined end face, so that the inclined end faces of the two fish-plates L′ L^2 form together a wedge, which fits against the correspondingly-inclined side faces *c d* of a trough-shaped base-plate, chair, or sleeper B, shaped in the form *a e f c g d h i b*, so that on exerting a downward pressure upon the horizontal limbs of the fish-plates L′ L^2, by means of screw-bolts S^3 S^4, screwing them to the bottom *g* of the base or sleeper, a wedging action is produced, whereby their vertical limbs are pressed against the web of the rail independently of the pressure exerted by the ordinary fish-bolts S′ S^2, passing the fish-plates and rail. Furthermore, when the rail is loaded by a passing train the downward pressure exerted thereby still further increases such wedging action, and consequently also the inward pressure or grip of the vertical limbs of the fish-plates, so that the fish-plates will then be relieved of strain instead of having increased strain put upon them, as in the case of ordinary fish-plates, where the load of a passing train causes the head of the rail to exercise a downward wedging action on the fish-plates, tending to force these outward away from each other.

The force applied to the fish-plates for producing the gripping action in the above-described construction is not limited to the comparatively small surfaces represented by the heads and nuts of the fish-bolts, as in the case of ordinary fish-plates, but extends along the entire surface of the inclined faces of the fish-plates, so that the strain at any one point is considerably less than in the first-named case, and consequently the wear and tear are also decreased. The trough of the base-plate, chair, or sleeper B must of course be of such a depth that the base of the rail will always be out of contact with the bottom of the trough when loaded. The base-plate, chair, or sleeper B may otherwise be constructed in various ways for the purposes of the invention; but by preference the two sides of the trough are made of a hollow bridge form of sufficient strength to withstand the lateral wedging strain put upon them by the fish-plates.

When used as a chair, as shown in Figs. 4 and 5, the base-plate can be either made of such a length as to extend over two cross-sleepers, to which it is fixed by screw-bolts or spikes passing through lugs or flanges on the chair, (see Fig. 4,) or it may be only of such a length as to be carried by a single cross-

sleeper. (See Fig. 5.) When used as a longitudinal sleeper, as it is shown in Fig. 6, it is made in convenient lengths, bolted or otherwise secured together. In this case intermediate pairs of the angular fish-plates may be provided for supporting the rails between the joints, but without fish-bolts passing through them, the requisite grip being afforded by the fixing-bolts passing through the bottom of the trough.

It will be seen that in the above-described fastening the screw-bolts securing the fish-plates, respectively, to the rails and to the chair, base-plate, or sleeper need only be screwed up to such an extent as to hold the several parts together, the required grip being effected entirely by the pressure of the passing train.

Having now particularly described and ascertained the nature of my said invention and also the manner in which the same is to be performed, what I claim is—

The combination, with a rail, of a trough-shaped base-plate having outwardly-inclined sides extended laterally to form hollow bridges and fastening-flanges on each side of the central trough, angle-shaped fish-plates bearing against the sides of the trough, and bolts clamping the said fish-plates and base-plates together, a clear space being left between the bottom of the rail and the base-plate, substantially as and for the purpose set forth.

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

JOHANNES GRIMME.

Witnesses:
FRITZ BAARE,
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