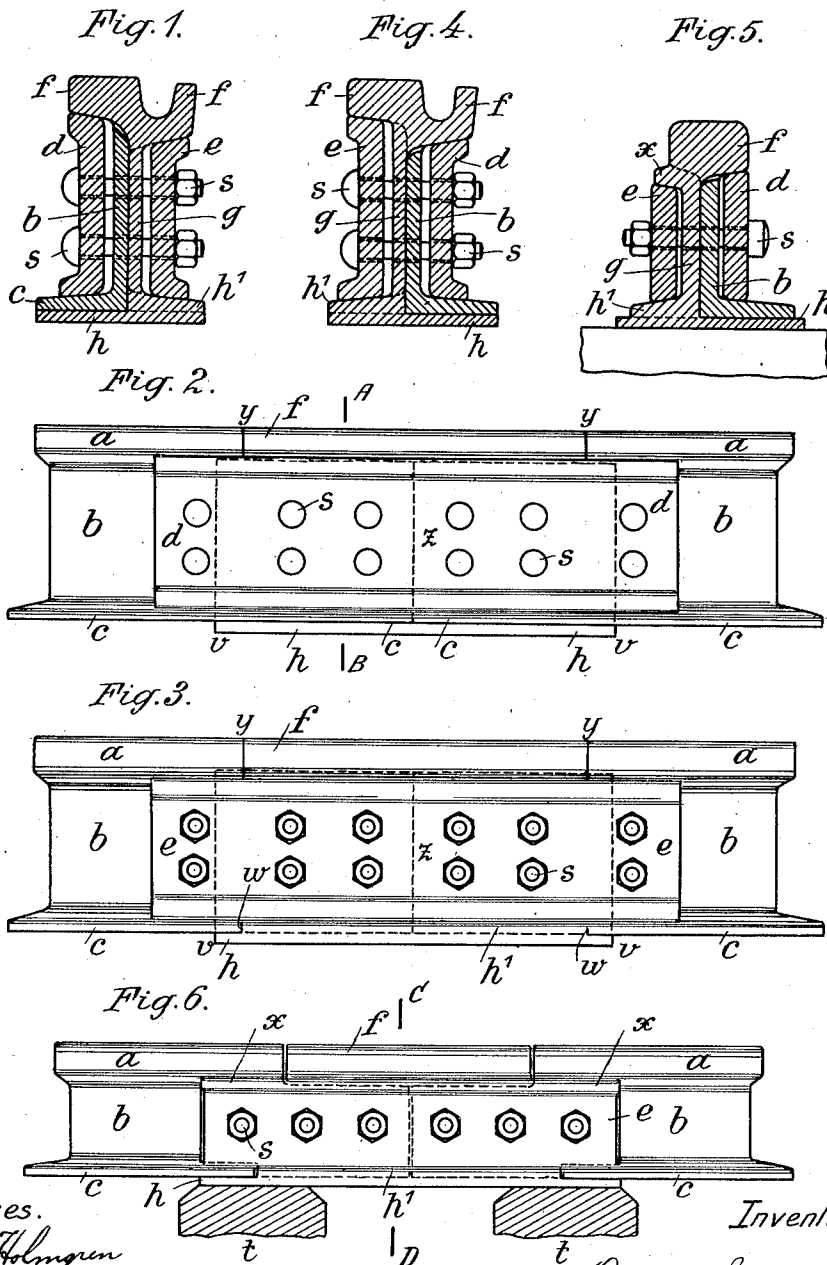


O. MELAUN.
RAIL JOINT.
APPLICATION FILED MAY 26, 1911.

1,002,726.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.



Witnesses.
Daniel Holmgren
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2 SHEETS—SHEET 2.

Fig. 7.

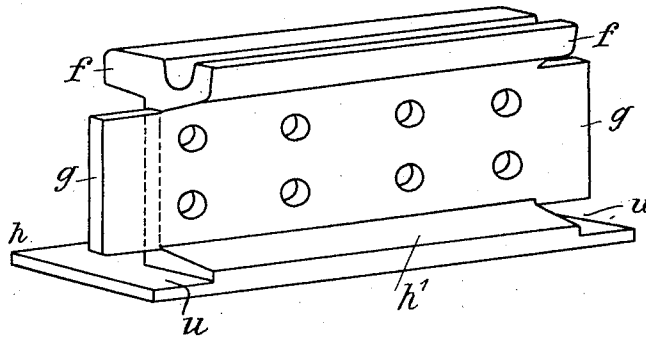
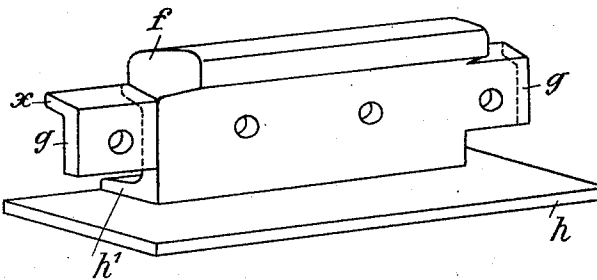


Fig. 8.



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OSCAR MELAUN, OF BERLIN, GERMANY.

RAIL-JOINT.

1,002,726.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed May 26, 1911. Serial No. 629,696.

To all whom it may concern:

Be it known that I, OSCAR MELAUN, a citizen of the Empire of Germany, residing at Berlin, in the Empire of Germany, have invented a new and useful Rail-Joint, of which the following is a specification.

My invention relates to an improved rail-joint so designed as to avoid all the displacements under the action of the rolling loads and to reduce the wear of the rail-ends to a minimum, whereby the life of the rails is lengthened.

The two rail-ends are according to my invention made to butt against one another and are deprived of their heads, so as to form a single recess, and they are further deprived on one side of one base flange so as to form a single recess. An overlapping rail-section made from a special rail is employed, which has a head adapted to fill up the recess between the two rail heads, further a web adapted to come in contact with the webs of the two rail-ends and to engage in the recess between the base flanges of the two rail-ends, and at last base flanges adapted to support those of the two rail-ends. The said rail-section has at the ends recesses, in which the ends of the base flanges at the two rail-ends engage. Ordinary fish-plates are employed on both sides and bolts are used for connecting the various parts together. The overlapping rail-section is consequently adapted to take up the action of the rolling loads and to transfer it directly to the bedding, while the two rail-ends embedded in it are protected from wear.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a vertical cross section through a tramway rail-joint on the line A—B in Fig. 2, Fig. 2 is an elevation of this rail-joint, when looked at from left to right in Fig. 1, Fig. 3 is a similar elevation, when looked at from right to left in Fig. 1, Fig. 4 shows the cross section of a modified tramway rail-joint, Fig. 5 is a vertical cross section through a railway rail-joint on the line

C—D in Fig. 6, Fig. 6 is an elevation of the same, when looked at from left to right in Fig. 5, Fig. 7 is a perspective view of the overlapping rail-section employed in Figs. 1 to 3, and Fig. 8 is a perspective view of the overlapping rail-section employed in Figs. 5 and 6.

Similar letters of reference refer to similar parts throughout the several views.

Figs. 1 to 3 represent a tramway rail-joint, which is constructed as follows: The ends of the two rails proper are made to butt against one another in the middle of the joint, so that their webs *b b* quite extend to the central line *z* in Figs. 2 and 3. The heads of the two rail-ends, however, are cut away over a suitable length to a point *y*, so that a single recess is formed. One base flange *c* of each rail-end on the right in Fig. 1 is cut away over a suitable length to a point *w* in Fig. 3, so that a single recess is formed below at the two rail-ends. The point *w* is in Fig. 3 shown to be in the same vertical cross plane as the point *y*, but this is not absolutely necessary. An overlapping rail-section shown at Fig. 7 is employed for filling up the recesses described and for overlapping the rail-ends in a manner to be presently described. The overlapping rail-section is made from a special rail of the following description. The cross section of the head *f* of the special rail coincides with that of the heads *a a* of the rails proper. The web *g* of the special rail is on either side of the web *b* of the rail proper. In Figs. 1 to 3 the web *g* of the special rail is on the right of the web *b* in Fig. 1, while in Fig. 4 for a modified tramway rail-joint the web *g* is on the left of *b*. In all cases the two webs *b* and *g* are to come in contact with one another, provided that this is rendered possible. The special rail has one thin base flange *h* (Fig. 1), which is adapted to grip under the corresponding base flange *c* of the rail proper. The opposite base flange *h*¹ of the special rail coincides in section with the corresponding opposite base flange *c* of the rail proper and is made thicker, so that its

underside is flush with the underside of the base flange h , as is clearly shown at Figs. 1 and 4. From this special rail the overlapping rail-section shown at Fig. 7 is so cut, that its head f fits in the single recess between the points $y-y$ in the heads $a a$ of the rails proper. The two ends of the web g and of the base flanges h and h^1 are made to project beyond the ends of the head f , so that they extend to a point v , see Figs. 2 and 3. The upper part of the thicker base flange h^1 is at the two ends cut away so as to form two recesses $u u$ (Fig. 7), which extend to a point corresponding to w in Fig. 3, while their bottom is flush with the upper surface of the thin base flange h , as is clearly shown at Fig. 7. It will be then obvious, that the ends of the base flanges $c c$, from which pieces up to w have been cut away, will fit in the recesses $u u$, as is also shown at Fig. 3. Of course the upper edge of the web b of each rail-end will require to be rounded off so as to fit the angle between the head f and the web g of the overlapping rail-section, as is shown at Figs. 1 and 4. Two ordinary fish-plates d and e of a suitable length are then introduced between the heads $a f a$ and the base flanges $c c$ on one side (Fig. 2) and $c h^1 c$ on the other side (Fig. 3), whereupon bolts $s s$ are passed through suitable holes in the fish-plates $d e$ and the webs $b g$ for connecting together the parts and thus holding the rails in place.

Figs. 5 and 6 illustrate a railway rail-joint, which is similar to the tramway rail-joint above described. The essential difference between them is caused by the different widths of their heads. As the railway rail has a narrow head, the special rail, from which the overlapping rail-section is made, requires to have a rib x (see Figs. 5 and 8) beneath the head f , which rib affords the necessary upper abutment for the fish-plate e . It is only for this reason, that the overlapping rail-section shown at Fig. 8 and made in a similar manner to that described above looks different from that shown at Fig. 7 for the tramway rail-joint.

The technical effect of the new rail-joint is as follows: By tightening the bolts s the fish-plate d is forced between the heads $a a$ and the base flanges $c c$ of the rails proper and at the same time also between the head f of the overlapping rail-section and the base flanges $c c$ of the rails proper. Thereby the base flanges $c c$ of the rails proper are pressed against the base flange h of the overlapping rail-section. Thus the effect of a wedge is produced not only between the fish-plate d and the two rail-ends, but also between the fish-plate d , the rail-ends and the overlapping rail-section. By tightening the bolts s , moreover, the other fish-plate e is forced between the heads and the base-

flanges of the two rail ends and between the head f and the base flange h^1 of the overlapping rail-section. By the combined effects of the two fish-plates d and e a rigid and safe connection between the several parts of the rail-joint is obtained. The load is taken up by the overlapping rail-section alone and is directly transferred to the bedding (the sleepers $t t$ in the case of Fig. 6), so that the rail-ends embedded in this rail-section remain mostly unloaded and are secured in their position by the fish-plate d . The fish-plate e serves the special purpose of thoroughly connecting the rail-ends with the overlapping rail-section on the other side of the webs $b b$. Then the rail-joint is rendered safe against vertical, lateral and rotary forces.

The new rail-joint is suitable for rails of any kind and can be employed both for connecting together new rails and for repairing worn rail-ends.

The rail-joint can be varied without departing from the spirit of my invention. The special rail, from which the overlapping rail-section is made, may be modified in that its base flange h^1 is made as thin as the other base flange h and is opposite to the latter, so that the respective fish-plate e floats above the thinner side flange and bears only at the ends against the base flanges $c c$ of the rails proper. The special rail may be rolled in one or may be composed of two or more parts, which are connected together by riveting, welding or the like.

I claim:

1. A rail-joint with an intermediate piece engaging between the rail heads and supporting the base flanges, the rail ends being deprived of their heads and of one base flange and embedded within the intermediate rail and protected from the direct action of the rolling loads.

2. In a rail-joint, the combination with two rail-ends butting against one another and deprived of portions of their heads, so as to form a single recess, and further deprived of one base flange, so as to form a single recess, of an overlapping rail-section having a head adapted to fill the recess between the rail heads, a web adapted to come in contact with the webs of the two rail-ends and to engage in the recess between their base flanges, and base flanges adapted to support those of the two rail-ends, two fish plates and bolts for connecting together the parts.

3. In a rail-joint, the combination with two rail-ends butting against one another and deprived of portions of their heads, so as to form a single recess, and further deprived of one base flange, so as to form a single recess, of an overlapping rail-section having a head adapted to fill up the recess between

the rail heads, a web adapted to come in contact with the webs of the two rail-ends and to engage in the recess between their base flanges, and base flanges adapted to support those of the two rail-ends, said rail-section having at the ends recesses in which the ends of the base flanges at the two rail-ends engage, two fish-plates, and bolts for connecting together the parts.

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Witnesses:

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WOLDEMAR HAUPT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
