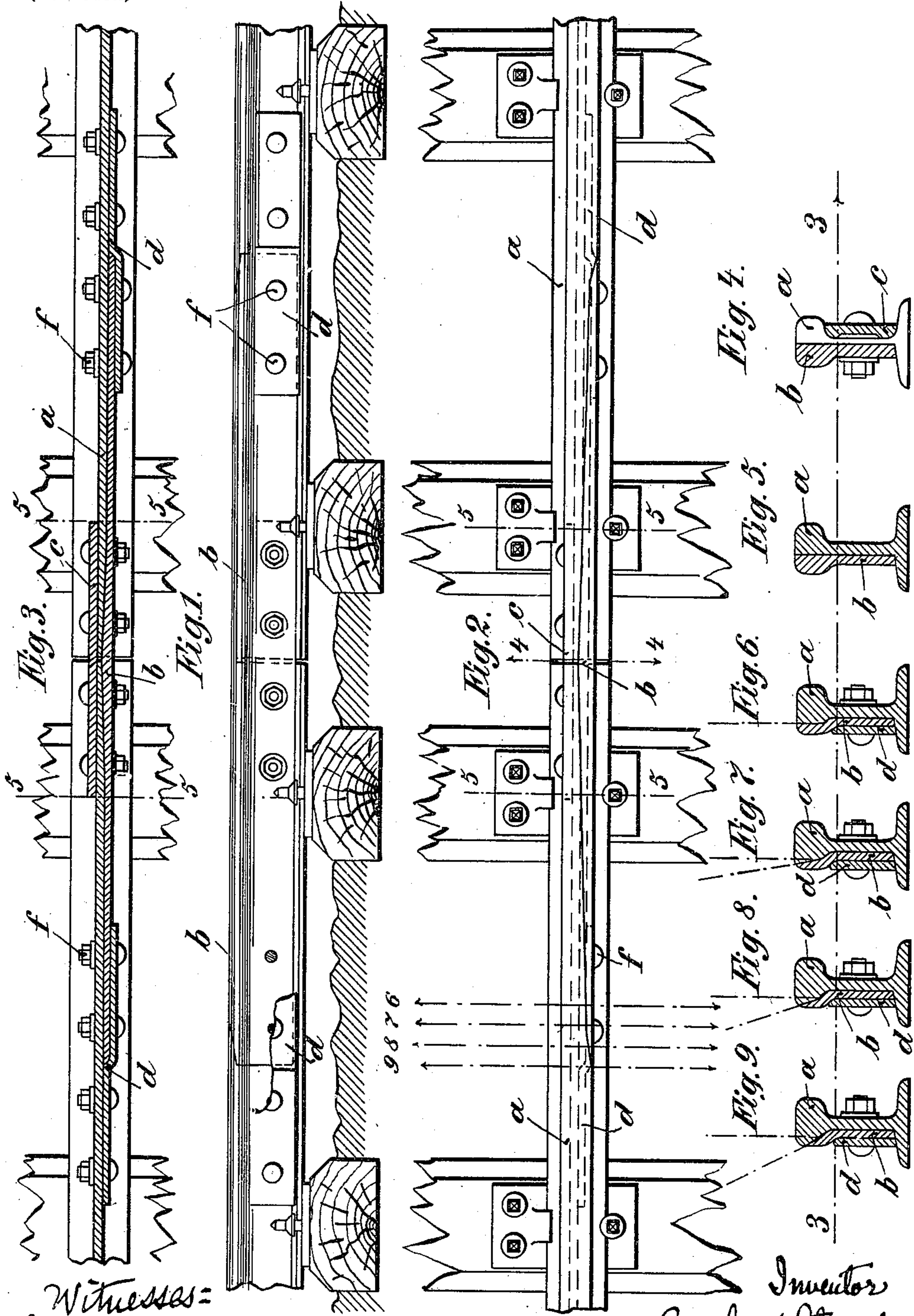


B. STÜRENBERG.

RAIL JOINT.

(Application filed Feb. 8, 1900.)

(No Model.)



Witnesses:
E. Van Landt
Cornelius Cagney.

Inventor
Bernhard Stürenberg
by *[Signature]*
Att'y

UNITED STATES PATENT OFFICE.

BERNHARD STÜRENBERG, OF ALFHAUSEN, GERMANY.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 656,226, dated August 21, 1900.

Application filed February 6, 1900. Serial No. 4,181. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD STÜRENBERG, mining student, a subject of the King of Prussia, Emperor of Germany, residing at Alfhausen, in the Kingdom of Prussia and Empire of Germany, have invented certain new and useful Improvements in Rail-Joints, of which the following is a full, clear, and exact description.

The object of this rail-joint is, on the one hand, to carry the wheels of the railway-carriages more smoothly from the one rail to the other than is possible with the rail-joints hitherto employed and, on the other hand, to weaken the stock-rail to a less degree at the ends with rail-joints in which the ends of the rails overlap the sides of the fish-plates and half of the head. The web and the foot of each rail are correspondingly cut away at the point where the fish-joint is made.

Figure 1 shows the rail-joint from the inside of the track. Fig. 2 is a plan view of the rail-joint, and Fig. 3 a horizontal section of the same along the line 3 3, Figs. 4 to 9, Figs. 4 to 9 being transverse sections of the rail-joint along the lines 4 4 to 9 9, Fig. 2.

The essential feature of the rail-joint consists in the heads of the ends of the rails which are to be fish-jointed in the manner shown in Fig. 2 being cut away obliquely to a considerable length and these cut-away parts replaced by a double-wedge-shaped fish-plate. The two points of these fish-plates, however, are so formed, or, in other words, the two stock-rails are of such a shape at that part which comes into contact with the thin parts of the double-wedge-shaped fish-plates that these points of the fish-plates run under the head of the rail, and thereby are withdrawn from the direct shock of the wheels of the carriage, so that they cannot be injured or be more worn away than to the extent to which the rail-heads themselves are liable from the wheels and their flanges.

In the drawings, *a* represents the two rail ends to be joined together, and *b* is the double-wedge-shaped fish-plate already mentioned. In the drawings it is assumed that the fish-plate is about a meter long. It may, however, without being essentially altered be of the usual length, and there is nothing to prevent its being of such a length that it will

extend over four or more sleepers instead of over two, as shown in the drawings.

The greatest thickness of the fish-plate measured sidewise is at the spot where the actual recess is formed for receiving it. The rail ends to be joined together can, as shown in Figs. 2 and 3, be cut away to the extent of half the thickness of the web. As, however, the fish-plate *b*, as shown in Figs. 1 and 4 to 9, itself supports the wheels while these are running over the rail-joint, the rail ends to be joined together can be cut away until the web of the rail is quite pointed, provided that the fish-plate *b* is of sufficient length. In all cases, however, only the web and head of the rail are tapered off in this way, while, as shown in Figs. 4 to 9, the feet of the rails retain their original form. From section 4 4 to 6 6 the head of the fish-plate is cut vertically on the side adjacent to the rail, but at an acute angle to the longitudinal direction of the rail. This is clearly shown in Fig. 2.

From the section 6 the upper edge of the head of the fish-plate *b* is turned outward, while the lower edge runs on farther parallel to the direction of the rail. Thereby the two actual points or free ends of the fish-plate *b* assume the form of a screw-surface in the upper part adjacent to the head of the stock-rail, and Figs. 6 to 9 show the manner in which, in consequence of this screw-shape formation, the points or ends of the fish-plates run under the head of the rail.

In Fig. 9 the declination of the surface of the fish-plate *b* lying against the head of the rail amounts to about thirty per cent. This angle, as a matter of course, can be enlarged for the purpose of still further withdrawing the points of the fish-plate heads from the influence of the wheel-flanges. The web of the fish-plate *b* which thus lies adjoining the webs of the rails is at the same time strengthened from the ends of the fish-plates to the planes 5 5, Figs. 2 and 3. As the tapering off of the rail ends in their webs begins from the planes 5 5, the web of the fish-plate *b* must also be of double wedge shape from 5 5 to the recess in the rail, as seen in Fig. 3, in order that it may be able to lie closely against the web of the rail. The fish-plate *b*, owing to this construction, acquires very considerable solidity, especially at the recess, as a comparison of Figs. 4 and 5

will show, and which enables it to withstand very great strain.

As the fish-plate *b* rests on the unimpaired feet of the rails, as shown in Figs. 4 to 9, the ends of the two rails to be joined together each take up a part of the vertical pressure near the recess, even should the wheels only come into contact with the head of the fish-plate, but not with the rail-heads near the recess. In this novel construction there is a considerable advantage as compared with the rail-joints folding over sidewise, in which half of the foot of the rail is cut away. For the purpose of firmly fixing the fish-plate *b* to stock-rails the old simple fish-plate *c* can be inserted in the web between the head and the foot of the stock-rail. The free ends of the fish-plates *b* can be pressed against the web of the rail by means of bent or curved plates *d* in the manner shown in Figs. 3 and 6 to 9. As the points of the heads of the fish-plate *b* run under the head of the rail end to be joined together the end plates *d* are not indispensa-

bly necessary. Of course if the end plates *d* be dispensed with care must be taken that the ends of the fish-plate *b* are pressed firmly against the stock-rail by means of a sufficient number of screws *f*.

What I claim, and desire to secure by Letters Patent, is—

The improved rail-joint, the distinguishing feature of which is a double-wedge-shaped fish-plate *b* lying against the suitably-tapered-off heads and webs of the rail ends to be joined together the head of the fish-plate being cut away at both ends in the form of a screw, or in a similar manner so that it runs under the heads of the stock-rails, substantially as shown and described.

In witness whereof I subscribe my signature in presence of two witnesses.

BERNHARD STÜRENBERG.

Witnesses:

ANDREW C. SORG,

SEBASTIAN BAUER MALER.