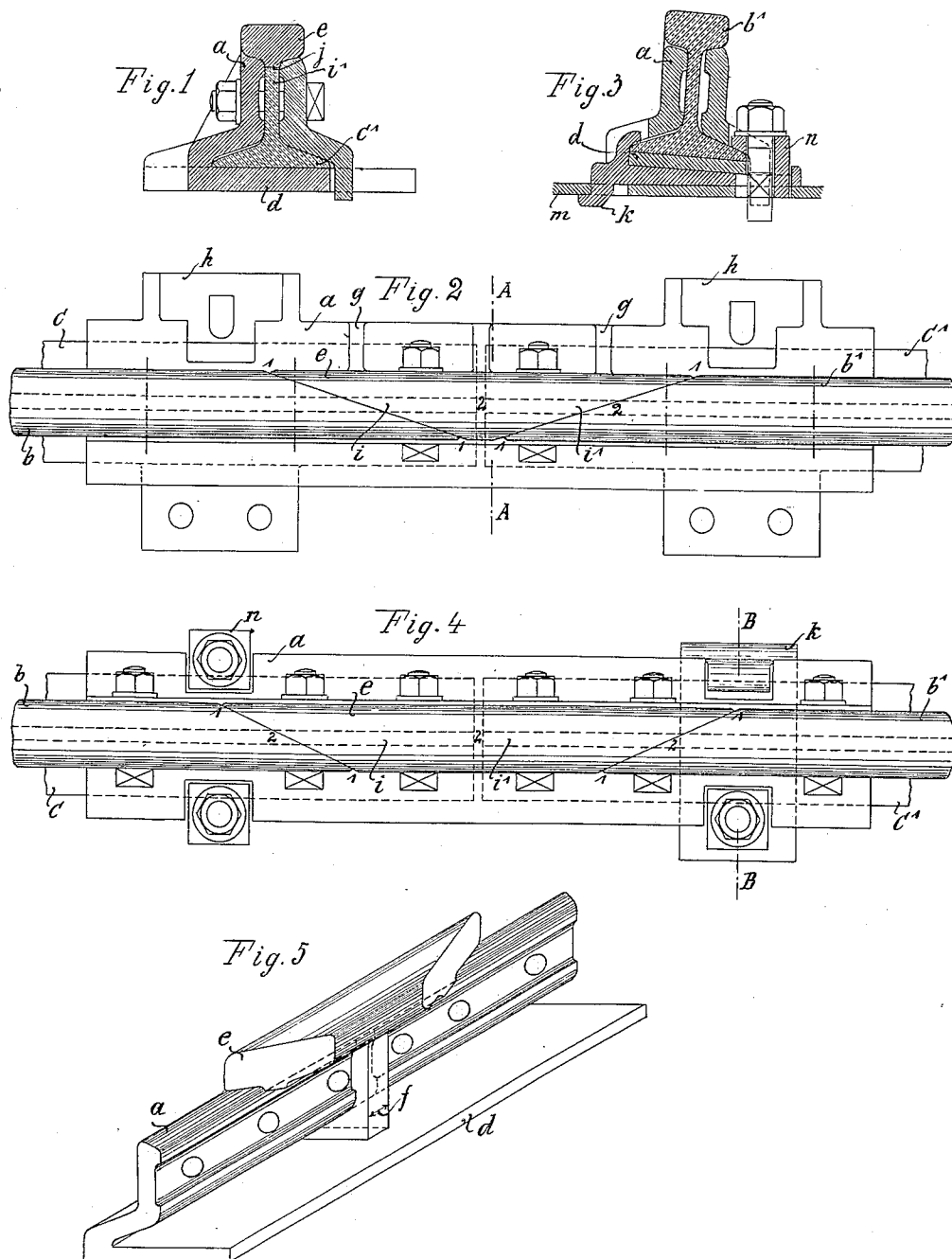


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RAIL JOINT.
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Patented Aug. 24, 1909.



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RAIL-JOINT.

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To all whom it may concern:

Be it known that I, JOHANNES EBERDING, of Hanover, in the Province of Hanover, Kingdom of Prussia, German Empire, having
5 invented certain new and useful Improvements in Rail-Joints, do hereby declare that the following is a full, clear, and exact description of the same.

This invention refers to a rail joint, the
10 distinguishing feature of novelty of which consists in the combination of a splice bar, having a head which extends over the top
of the web of the rail, the head of the rail having been removed in this place, and a
15 bottom plate which rests on the sleeper and supports about centrally, the ends of the two rails, in such manner, that the splice bar and the bottom plate form a body consisting of
one piece. By the combination of these two
20 aforesaid elements into one spliced bar the result is obtained that the rail ends laid in such a splice bar transmit all the vertical movements caused by the wheel pressure directly
to the splice bar, and such movements are
25 vice versa transmitted directly from the splice bar to the rail ends; any material bending of the supporting plate even after the lapse of a long time by reason of its resting
on the adjoining sleepers below the joint is
30 thus avoided. The joint formed according to this invention furthermore offers the advantage of giving a heretofore not attained perfect removal of the load from the rail
ends, while the similar rail joints heretofore
35 known only gave a one sided and therefore imperfect removal of the load.

A constructional example of my invention is illustrated in the annexed drawings, in
which—

40 Figure 1 is a vertical cross section of a rail joint according to my invention on line A—A of Fig. 2. Fig. 2 is a plan, Fig. 3 shows a cross section on line B—B of Fig. 4. Fig. 4 shows in a plan view a modification of
45 a rail joint according to my invention. Fig. 5 is a perspective view of the splice bar according to my invention.

In order to lay bare the webs *i i'* of the two
rail ends *b b'* two cuts only are made through
50 the head and web of each rail and according to the construction shown on the drawing, that is to say a vertical cut in the direction
of the line 1—1, and a horizontal cut in the direction of the line 2—2. The cut 1—1 is
55 shown slanting on the drawing, but it may

also without departing from the invention in question be made in any other straight or curved form as for instance at right angles to the longitudinal axis of the rail, in which case the remaining rail ends abut against the
60 head part *e* of the splice bar *a* and a space has to be provided between the rail head end and the head part *e*, in order to give the rail the possibility of an unhindered change in
length contingent on changes of temperature. 65
The parts of the rail laid bare are now filled by the head part *e* of the splice bar *a*, which at the same time is provided with a supporting
bottom plate *d* which at the same time
70 supports the rail ends *c c'* according to the drawing in its full width and rests on the adjoining sleepers below the joint.

The support of the rail ends by the bottom
plate *d* is of course not required to the extent
of the full width of the rail ends, but it suffices when the same are supported especially
75 in its middle part by the supporting bottom plate *d*, in order to prevent a one-sided support or removal of the load on the rail ends.
The supporting plate *d* may be provided 80
with flanges *h* whereby the splice bar *a* can be fixed to the sleepers at the joint without the use of special fixing or hook plates. In
order to enable the splice bar to be made of
rolled steel, the flanges *h* and ribs *g* may also
85 be entirely omitted, as will be seen in the cross section Fig. 3, and plan view Fig. 4, in which case the rail ends and splice bar may
suitably in usual manner be held to the
sleeper *m* and kept from moving by means of
90 hook plates *k* (Fig. 3 and right side of Fig. 4), or else without hook plates by means of lumps *n* (left side of Fig. 4) or fixed directly
on the sleeper by wood screws.

The splice bar *a* may for the purpose of at- 95
taining greater stiffness be provided on the outer side with ribs *g* and if required also on the inner side with a strengthening part as
for instance of a width *f* shown in Fig. 5, at
which place the thickness of the part of the
100 splice bar between the head part *e* and the supporting bottom plate *d* should be about equal to the thickness of the rail webs *i i'*
plus the thickness of the lateral part of the
splice bar *a*. By such a stiffening of the
105 splice bar by means of the ribs *f* and *g* the free head part *e* is at the same time secured still more against a possible bending or yielding
in course of time, and also against a
diminution of the distance between the lower 110

part of the head part *e* and the upper side of the supporting bottom plate *d*, so that a strain at the upper side *j* of the bared webs *i i'* by the load rolling over the head part of the splice bar is also permanently prevented so that thus no wear whatever on the rail webs at this place can take place.

The object of this invention is to prevent in the most perfect manner possible any load coming upon the rail ends, for which purpose the splice bar *a* with the head part *e* and the supporting plate *d* form one single strong body whereby the space, intended for reception of the rail ends, between the head part *e* and the supporting bottom plate *d* is of unchangeable height, so that the rail ends therein, provided they are fitted exactly, are in fact without any load coming on them, as the head part, because of its rigid connection with the supporting bottom plate *d*, transmits the blow coming on it to said plate directly. At the same time by the exact fit of the two rail ends between the head part *e* and the supporting bottom plate *d* of the splice bar the result is obtained that the rolling load must pass over the splice bar without blows.

If in the laying of the rail joint the height of one or other of the webs *i i'* should happen to be greater than the distance between the under side of the head part *e* of the splice bar and the supporting bottom plate *d* it may be easily reduced by a few strokes of a file. But if the height of the web *i* or *i'* should be smaller than the said distance, so that there would be play between the surface *j* and the under side of the head part *e*, then this may at once be remedied by placing there thin steel strips or blades, the durability of which would be lasting in view of the circumstance that this place is not exposed to blows. Or the exact fitting of the webs *i i'* in the splice bar *a* may in the latter case also be attained by making the upper surface of the supporting bottom plate *d* sloping and by adjustably fitting between the same and the under side of the rail ends a wedge shaped plate which is inclined on its under side in the same manner as the supporting bottom plate *d*, in such manner that a perfect fit of the webs *i, i'* in the splice bar and a secure bearing of the rail ends upon the wedge plate are obtained, thus always perfectly fulfilling the object sought by the present invention

namely the removal of load upon the rail ends.

Claims.

1. A rail joint comprising a fish-plate having a head which extends over the top of the web of the rail, the head of the rail having been removed in this place, a bottom plate made integrally with the said fish plate, carrying about centrally the abutting ends of the rails, and resting on the sleepers, the remaining parts of the rail ends engaging with the head and the bottom plate of the said integral fish plate, a second fish plate of the usual shape, fish plate bolts passing through the web and the said fish plates and serving for their connection and means for connecting the rails to the sleepers.

2. A rail joint comprising a fish plate having a head provided with two section-faces inclined toward each other and which extends over the top of the rail web, the head of the rail having accordingly been removed in this place, a bottom plate made integrally with the said fish plate, carrying about centrally the abutting ends of the rails and resting on the sleepers, the remaining parts of the rail ends engaging with the head and the bottom plate of the said integral fish plate, a second fish plate of the usual shape, fish plate bolts passing through the web and the said fish plates and serving for their connection and means for connecting the rails to the sleepers.

3. A rail joint comprising a fish plate having a head which extends over the top of the web of the rail, the head of the rail having been removed in this place and the fish plate having a middle portion *f* projecting between the rail ends, a bottom plate made integrally with the said fish plate, carrying about centrally the abutting ends of the rails and resting on the sleepers, the remaining parts of the rail ends engaging with the head and the bottom plate of the said integral fish plate, a second fish plate of the usual shape, fish plate bolts passing through the web and the said fish plates and serving for their connection and means for connecting the rails to the sleepers.

Hanover, the 27th of June 1907 (Germany)
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Witnesses:

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