W. B. CHISOLM.

FISH PLATE FOR RAILWAY RAILS.

No. 375,124.

Patented Dec. 20, 1887.
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Witnesses

G. T. Downing

Inventor

W. B. Chisolm.

By his Attorney

K. W. Freeman.

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Fish-plate for railway-rails.

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To all whom it may concern:

Be it known that I, William B. Chisom, a resident of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful improvements in Fish-plates for Railway-Rail Joints; 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 pertains to make and use the same.

My invention relates to an improvement in joint-connections for railroad-rails.

The nature of my invention consists in the provision of a fish-plate or joint-bar of novel construction, that by its use will securely hold the adjacent ends of the railway-rails located together, to prevent vertical or lateral displacement, without the employment of screw-bolts and nuts, the object being to furnish a simple and reliable joint-bar or fish-plate that may be quickly adjusted to its place, and which, when in position, will not be liable to displacement.

A further object is to afford a means of connecting and holding intact the joints of railway-rails which will dispense with the necessity of a lateral perforation of the webs of the rails, as well as the employment of screw-bolts and nuts, thus obviating the necessity of wrenches or similar tools to affix the fish-plates in position, and also avoiding the liability of a loosening of the plates that is ordinarily incidental to the use of bolts and nuts as a means for fastening such devices in place.

With these objects in view my invention consists in certain features of construction and combinations of parts that will hereinafter described, and pointed out in the claims.

In the drawings making a part of this specification, Figure 1 shows my improved fish-plate in position to connect two adjacent rails. Fig. 2 is a cross-section of a railway-rail and two fish plates or bars in place, one on each side of the rail. Fig. 3 represents a detached perspective view of my improved fish-plate or rail-connecting bar. Fig. 4 shows two railway-rails with the fish-plate removed to display the provision for attachment of the rail-plates to the same. Fig. 5 is a perspective view of two connected rails and fish-plates in position, showing a modified form of locking-tongue formed on the edges of the fish-bars to take the place of dowel-pins, shown in other views.

A A are two adjoining railway-rails. These are located upon the cross-ties B B in the usual manner to receive support therefrom. The rails are adjointed with their adjoining ends close to each other, and near to these ends several holes, a a, are drilled at spaced intervals in the top surface of the base-flanges C C. Similar perforations, b b, are made in the under side of the heads A' A' of the rails A A, these holes being preferably made at points opposite the holes a a in the base-flanges C C. The perforations a a b b are made on both sides of the adjacent rail ends, and serve as locking-sockets for the retention in place of the fish-plates D D, which will now be described.

The fish bars or plates D D, that are placed on opposite sides of a rail-joint, as shown in Figs. 1 and 2, are each composed of two portions, and as they are of similar form a description of one fish-plate will answer for the pair. The two pieces e e of the fish-plate D D are made of metal, and may be cast or forged into shape. They consist of two parts of suitable length and thickness to afford necessary rigidity. These are made true and parallel upon their edges, and two of the edges that are intended to form a rolling joint with each other are so constructed that one of the strips or bars will be rounded on the edge and the other be provided with a corresponding longitudinal groove or channel, so that the edges of these bars, when in contact with each other, will have a rocking contact throughout their length. The top edge, e, of the joined strips or bars e d, which together constitute one of the fish-plates D, is cut away or sloped to allow it to fit neatly against the under side of the heads of the two adjoining rails, and the lower edge, d, of the lower portion, d, of said fish-plate is made to fit upon the sloping top surface of the base-flanges C C of rails A A.

It is important that the width of the two jointed bars e d should be such in relation to the space between the under side of the rail-heads and the top surface of the base-flanges of the rails A A that the joined pieces e d will tightly fit this space when forced into position, so that their inner face will be in contact with...
the web-surface of the rails \( \Lambda \Lambda \). The edges of the joined strips or bars \( c d \) are further provided with dowel-pins \( h \), which are of proper diameter and length to neatly fit into the holes \( a b b \), made for their reception in the railheads and base-flanges of the rails \( \Lambda \Lambda \). In order to insure the easy insertion of the pins or dowels \( h \) into their sockets \( a b \), the ends of these pins may be rounded or slightly reduced upon their ends, and the relative location of the pins and socket-holes should be such that the bars \( c d \) will be held in close contact with the web-surface of the rails when they are in locked contact with each other.

When the fish bars or plates \( D \) are to be adjusted in place, the dowel-pins that project from the lower edge of the lower piece, \( d \), of the compound bar \( D \) are inserted into the socket-holes \( b \), that are made to receive them in the top surface of the base flanges \( C C \) of the rails \( \Lambda \Lambda \), and the joined portions \( c d \) are rocked outwardly at their point of junction \( G \), so that the contact of these pieces at the joint will be retained and the angular outward projection of the strips will allow the ends of the upper dowel-pins, \( h \), to enter their respective sockets \( a a \). After the ends of the upper dowel-pins are inserted into their sockets the two portions \( c d \) of the compound fish-plate \( D \) are forced inwardly. This will cause these pieces \( c d \) to rock at their point of junction \( G \) and their outer surfaces to assume a perpendicular plane, with the dowel-pins fully inserted into their sockets, and the inner faces of the fish-bar in close contact with the webs of the joined rail ends. The fish plate or bar that is to be placed upon the opposite side of the joined rails to mate the one in position is adjusted to its place in the same manner, and it is apparent that these plates when affixed to the joints of railway rails will not be liable to displacement from jar or shock incidental to the movement of rolling stock over the same.

The use of fish-plates constructed as herein described will obviate the necessity for frequent inspection and retightening of the fastenings of the plates, the plates remaining in their locked position until designely removed by driving a wedge at their ends between the web of the rails and the inner face of the fish-plates.

Should additional security be desired to prevent a lateral displacement of the fish-bars, the perforated ears \( I \) may be formed integral with or be secured to the outer surface of the two sections of the compound bar \( D \), in line with each other vertically, so that the keeper-bolts \( J \) may be introduced through the holes in the ears and be riveted or otherwise secured in place therein.

Any desired number of the ears and locking-bolts \( I J \) may be provided, and the same may be said with regard to the dowel-pins \( h \) and the socket-holes made for their reception.

The rolling joint \( G \) is preferably made near the center between the top and lower edges of the compound fish-bars \( D_1 \) but it is not absolutely necessary that it should be so located, as it may be made nearer the top or bottom edge of the fish-plate, if desired.

In Fig. 5 a modified form of the fish-plates is shown. In this view the dowel-pins \( h \) are dispensed with and tongues \( h' \) are formed on the edges of the joined portions \( c d \), that constitute a fish-bar, \( D \). The tongues \( h' \) may extend the whole length of the fish-bar, or they may be made up of a series of tongues that have spaces intervening between them, the tongues being adapted to enter and lock into grooves made in the rail-head and base; or there may be a tongue formed on the upper edge of the top sections, \( c \), of the fish-plates \( D \), to engage slots made in the under side of the rail-head, while the lower portions, \( d \), are furnished with dowel-pins, as before described. The locking action of this modified device is similar to the first-described form of construction.

Slight changes in constructive details might be made in this device without departing from the spirit of the invention; hence I do not wish to limit myself to the exact forms shown; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A fish-plate for railway rail joints, composed of two strips or flat bars having a rocking or rolling joint formed between their edges which have contact with each other, substantially as set forth.

2. A fish-plate for railway rail joints, composed of a strip or bar that has one of its edges rounded, and a strip or bar having a mating grooved edge to afford a rolling or rocking joint between these two portions of the compound fish plate or bar, substantially as set forth.

3. A fish-plate for railway rail joints, composed of two strips or bars having a rocking joint formed between their adjacent edges and provided with dowel-pins on their free edges, substantially as set forth.

4. The combination, with two adjacent rails placed together endwise and having spaced socket-holes made in the under side of the heads and top surfaces of the flanges, of a fish-plate composed of two bars having their abutting edges formed to produce a rolling joint and their outer edges provided with projecting dowel-pins that are adapted to register with the socket-holes in the rails, substantially as set forth.

5. A fish-plate for railway rail joints constructed with two bars or strips that are formed with a rolling joint between them, a series of dowel-pins projecting from the upper and lower edges of the bars, and a series of ears and locking-pins secured to the side of the jointed bars to hold their sides in the same plane, substantially as set forth.

6. The combination, with two railway-rails and perforations or socket-holes made at spaced intervals in the head and base-flange of each rail, of a fish-plate composed of two bars that
are jointed to rock together on their adjacent edges and are furnished with dowel-pins on their free edges that engage the sockets made in the rails, and have projecting perforated ears that are adapted to receive locking-bolts which hold the jointed bars from lateral displacement, substantially as set forth.

7. The combination, with two railway rails that have slots made on the underside of their heads longitudinally and socket-holes made in their base-flanges, of a fish-plate composed of two bars that are jointed to rock together on their adjacent edges and are furnished with tongues and dowel-pins that engage the grooves and socket-holes made in the heads and base-flanges of the rails respectively for their reception, substantially as set forth.

8. The combination, with two railway rails that have grooves made on the under side of their heads and the top surface of the base-flanges, of two bars that are jointed to rock together on their adjacent edges and are furnished with tongues that are made to engage the grooves formed in the rails, and thus adapt the fish-plate to lock the rails together, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM B. CHISOLM.

Witnesses:
H. M. TUCKER,
M. A. CHAMBERLAIN.