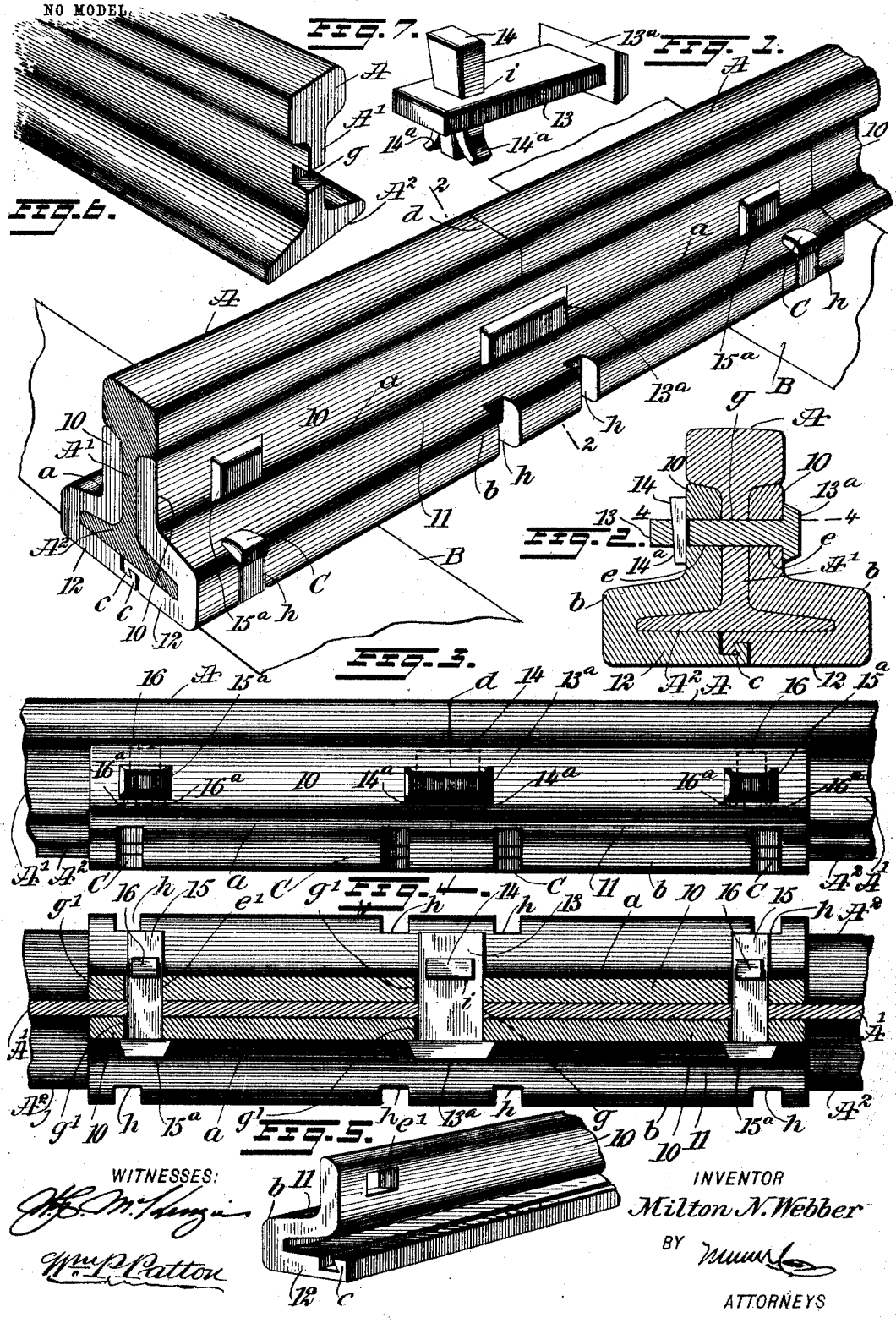
No. 759,051. PATENTED MAY 3, 1904.

M. N. WEBBER.

RAIL JOINT CONNECTION.

APPLICATION FILED SEPT. 16, 1903.

NO MODEL.



WITNESSES:

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No. 759,051. Patented May 3, 1904.

UNITED STATES PATENT OFFICE.

MILTON N. WEBBER, OF FORT WAYNE, INDIANA, ASSIGNOR OF ONE-FOURTH TO AUGUST MORITZ, OF FORT WAYNE, INDIANA.

RAIL-JOINT CONNECTION.

SPECIFICATION forming part of Letters Patent No. 759,051, dated May 3, 1904.

Application filed September 16, 1903. Serial No. 173,417. (No model.)

To all whom it may concern:

Be it known that I, MILTON N. WEBBER, a citizen of the United States, and a resident of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and Improved Rail-Joint Connection, of which the following is a full, clear, and exact description.

This invention has for its object to provide novel details of construction for the connection of track-rails at their joints, which will afford a very strong and electrically-continuous rail-joint connection that may be applied to old or new track-rails and that will hold the rails at their meeting ends secured against lateral or vertical displacement.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of two end portions of track-rails at their joint and of the improved rail connection applied thereto. Fig. 2 is a transverse sectional view substantially on the line 2 2 in Fig. 1. Fig. 3 is a side view of the rails at their joint and the improved connection therefor. Fig. 4 is a partly-sectional plan view substantially on the line 4 4 in Fig. 2. Fig. 5 is a perspective view of an end portion of one of the improved fish-plates employed. Fig. 6 is a perspective view of an end portion of a track-rail, showing a notch in the end of the web of the rail, which is a feature of the invention; and Fig. 7 is a detached perspective view of a clamping-bolt and key therefor, which is an important detail of construction employed.

The track-rails shown to illustrate the application of the improvement are of the well-known T shape, each consisting of a tread or head portion A, a web A′, integral with the tread A, and a base A^2, joined at its transverse center by the lower portion of the web, as is shown in Figs. 1 and 4, and the meeting ends of said rails that are true and square with the upper and lower surfaces of the same are held impinged upon each other by means of novel fish-plates and connections that will now be described.

The junction of the rail-bases A^2 with the web A′ produces two similar lateral flanges on each rail that are level on their lower surfaces and slope on their upper sides from the web to their side edges. The substantially similar fish-plates that effect a secured joint between the meeting ends of the track-rails are each formed of a single plate of metal bent or cast into shape as follows: The upper edge of each fish-plate is shaped to fit in the rounded corner under the treads A of the rails and the corresponding surfaces of the rail-webs, thus providing an upright wall-plate 10 on each fish-plate. At *a* a corner-bend is formed in each fish-plate of such an angle as to produce a cap-plate 11, that fits closely upon the upper surfaces of the base-flanges A^2.

The material of each fish-plate is return-bent at *b*, so as to fit it around the alined side edges of the base-flanges it is to have contact with, and the remaining portion 12 of each fish-plate is lapped closely upon the bottom surface of the base-flange.

Upon the straight inner edge of each bottom plate 12 an undercut hook *c* is formed, these hooks being adapted for interlocking engagement with each other throughout their length, and the width of the two bottom plates 12 is so proportioned to that of the rail-bases between their side edges as to require the fish-plates to have an endwise-enforced engagement of the hooks *c* thereon when said fish-plates are placed in position at a joint *d* between two alined track-rails, this hooked engagement being effected by forcing the hooks together endwise of the fish-plates by driving or other suitable means.

At the longitudinal centers of the fish-plates, and preferably at the center of width of the upright wall-plates 10 thereon, a rectangular slot is formed in each wall-plate, these slots *e* when the fish-plates are in position extending an equal distance each side of the joint *d* between the ends of the track-rails.

In the webs A′ of the track-rails at their ends that impinge rectangular notches *g* are formed that aline with each other and regis-

ter with the opposite slots in the wall-plates 10, one of said notches appearing in the end of the track-rail shown in Fig. 6.

In the alined notches *g* and directly opposite the slots *e* a bolt 13 is fitted to drive closely therein, said bolt having a head 13ª on one end that may be rectangular in contour, as shown, and flat on the surface that bears upon the adjacent wall-plate 10 when the bolt is driven home in the transverse openings formed in the rails and the opposite cap-plates, as already described.

In the end portion of the bolt 13, that projects outside of the wall-plate 10 it last passes through, a preferably rectangular perforation *i* of suitable size is formed that is vertical when the bolt is in place and is so relatively positioned that the key 14, which is of a proper form to fit within the perforation in the bolt 13, will bear forcibly upon the nearest wall-plate 10 and bind the opposite wall-plates of the two fish-plates closely in contact with the alined webs of the track-rails.

It will be seen that the bolts and keys serve to form an electrical conductor between the ends of the rails, as the enforced contact of their bodies with the walls of the notches *g* insures such a result. Consequently a railway-track having the rails held together by the improved means as described will be a continuous conductor for electricity when and where this is desired.

To secure the key 14 in its driven engagement with the bolt 13, the key may be tapered slightly sidewise and the perforation it occupies in the bolt be correspondingly shaped, so that the key cannot be driven too far therein, and the smaller end of the key is slotted longitudinally at two points, near the edges thereof, thus producing two clenching members 14ª at said edges, which may be bent outwardly, and thus widen the end of the key they are formed on, which will secure the key firmly in place.

At a point near each end of the opposite fish-plates of the improved construction a rectangular slot *e'* is formed in each of the wall-plates 10, and in the webs A' of the track-rails substantially similar slots are produced that register with the slots *e'*, and in said slots the bolts 15 are driven tightly, these bolts being similar in formation to the bolts 13, or, to be more specific, the bolts 15 are in a like manner to the bolts 13 furnished with heads 15ª, and in their opposite ends, which project through the wall-plates 10, a vertical perforation is formed, wherein keys 16, similar to the keys 14, are driven and secured by bending their clenching members 16ª outward, as shown by dotted lines in Fig. 3.

The bolts 13 15 fit closely in the notches *g* in the ends of the rail-webs A', as before explained, so as to adapt them to become conductors of electricity; but to compensate for the expansion and contraction of the track-rails it is of advantage to form a narrow space *g'* at the end of each slot *e e'*, which will permit a proper endwise movement of the rails in the fish-plates. At suitable points in the return bent edges *b* of the cap-plates 11 similar notches *h* are formed, (any desired number being provided,) said notches being respectively positioned above a cross-tie, such as B, (shown in Fig. 1,) and in the ties occupying the notches spikes C are driven, which serve to secure the fish-plates immovably upon the cross-ties. By this means an absolute guard is provided against the creeping of the rails and the necessity for the usual complementary devices is avoided.

It will be seen in Fig. 4 that the notches *h* in the return bent portions of the fish-plates are flush at their inner ends with the edges of the rail-bases when the rails and fish-plates are seated upon the cross-ties B, so that the spikes C when driven into the ties have bearing contact upon the edges of the track-rails, but do not prevent the rails from expanding longitudinally. The joint between the meeting ends of track-rails may also be located between cross-ties, and the improvement, if applied, will reliably connect the rail ends and afford a conductor for electricity.

It will be apparent from the description hereinbefore given that the fish-plates form a complete casing for the lower portion of the meeting ends of two track-rails, and as the fish-plates are driven together endwise at their hook connections *c* said hooks, together with the bolts 13 15 and keys 14 16, serve to hold the rails secured together in electrical continuity, but permit the rails to expand and contract in accord with changes in temperature to which the rails are subjected in service.

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

1. A rail-joint connection comprising two fish-plates, each having a top plate bearing on the rail-bases and extending up in contact with opposite sides of the rail-webs, a bottom plate integral with each top plate and having hooked engagement at the meeting edges, the top plates having opposed rectangular slots therein, that register with rectangular openings in the rail-webs, a rectangular-bodied and headed bolt, having enforced engagement within the slots and web-openings, said bolt having a vertical perforation therein, and a wedge-shaped key that is driven down into the perforation and having clenching members at the lower end, that by divergence secure the key in place.

2. The combination with two track-rails at their meeting ends, of two fish-plates, formed to incase the webs and rail-bases, the bottom portions of the fish-plates having enforced hooked engagement with each other throughout their longitudinal edges, a transverse rectangular-bodied bolt having a head and fitted closely in alined rectangular notches formed

in the rail-webs at their ends, said bolts also engaging within rectangular slots formed in the fish-plates and registering with the notches, the projecting end of the bolt-body having a vertical rectangular perforation therein, a closely-fitted key that has driven engagement within said perforation, the key having two spaced slots in its lower portion that produce clenching members thereon, which when spread apart secure the key in place, there being similar rectangular slots in the cap-plates and webs of the fish-plates and rails near each end of the fish-plates, rectangular bolts driven in said slots, split-ended keys engaging in vertical perforations in said bolts, and clenched by spreading the split portions of the keys, each fish-plate having notches in its return bent edge to receive spikes that are driven into a cross-tie for holding the fish-plate thereon.

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

MILTON N. WEBBER.

itnesses:
WILLIAM EGGEMANN,
HENRY W. BECKER.