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RAIL ANTICREEPER

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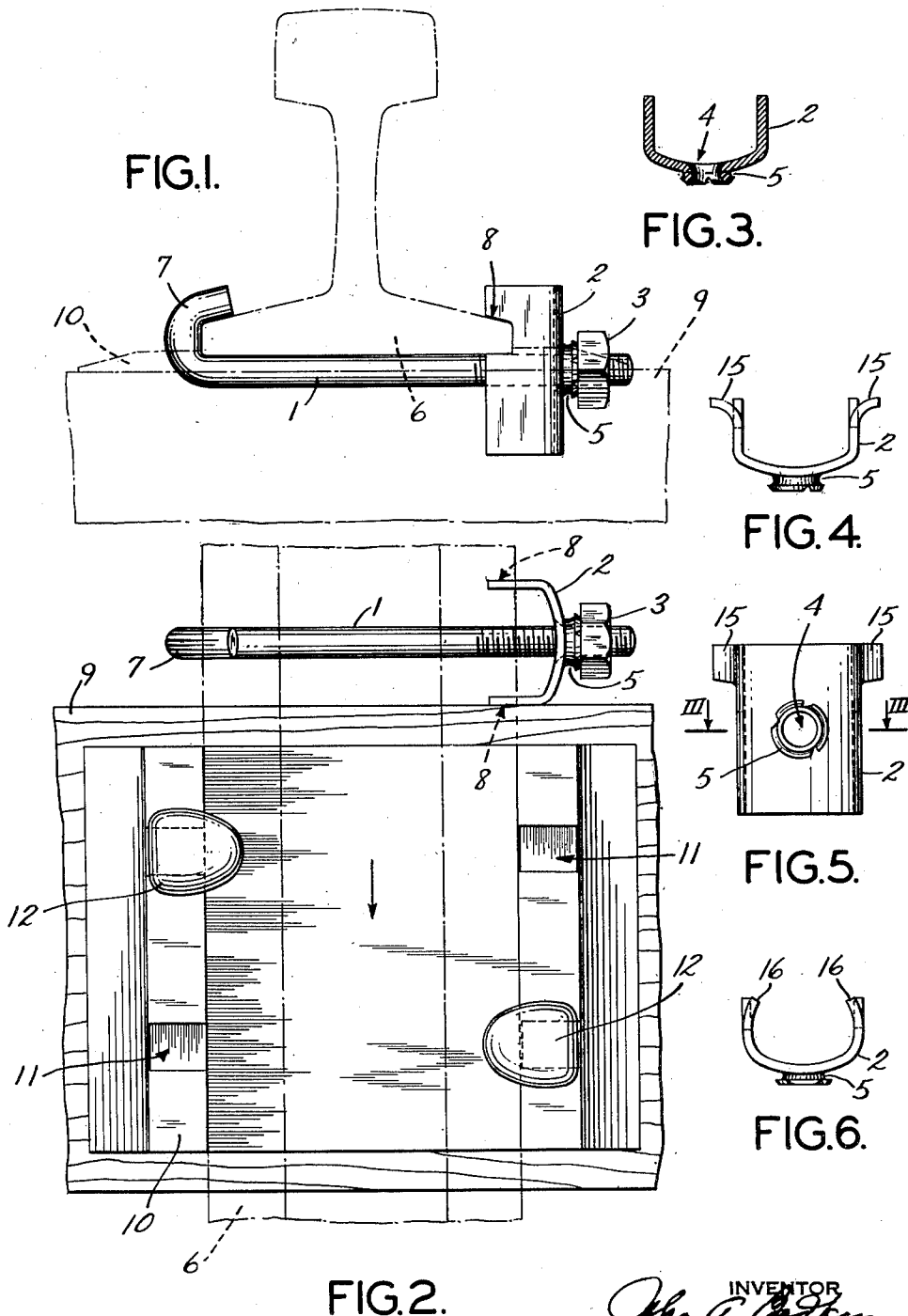


FIG. 2.

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RAIL ANTICREEPER

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1

This invention relates to rail anti-creeper, or rail anchors as they are sometimes called. These are devices which are gripped to railroad rails, usually the flanges, and abutted against ties for the purpose of preventing creeping or longitudinal movement of the rails.

Heretofore various forms of rail anti-creeper have been devised. For example, one earlier form comprises two parts: A wedge having an abutment at one end and a yoke having hooks at both ends. The wedge is placed alongside one edge of the flange of the rail with the abutment set against a tie, and the yoke is placed under the rail with one hook clasping the wedge and the other hook clasping the opposite edge of the flange, and then the yoke is driven toward the abutment. The split in the wedge is then spread open to prevent the device from disengaging. Still another earlier form comprises a strip of heavy sheet metal that is shaped and bent to form both a hooked yoke and an abutment for engagement with a tie. This form is driven onto the flange tightly so that the friction between it and the flange tends to hold the rail to it.

Speaking generally the present invention provides a rail anti-creeper that not only grips the rail tightly, but also grips it resiliently and is peculiarly adapted to prevent loosening with use, and also provides one that can be simple and economically manufactured.

Briefly this is accomplished by, primarily, a two-piece device: A hook bolt and a spring steel shoe that acts as the abutment. The bolt is provided with a hook at one end to clasp one edge of the rail flange, while its opposite end, which may be straight, passes through a hole in the shoe and is arranged to receive a compression type of attachment member for fastening it to the shoe. For example, and preferably, the straight end of the bolt is threaded to receive a nut. The spring steel shoe, which may be of sheet metal, is so shaped, e. g., bent or folded, as to bear, preferably, at two points on the side of the rail, and usually on or near the edge of the rail flange opposite that engaged by the bolt hook, and its hole for the bolt is between the two points of bearing at the base of the shoe which is disposed at a point removed from the rail, so that as the attachment member is forced tightly to the base of the shoe, the shoe yields and thereby bears on the rail resiliently. Preferably, to the end indicated, the shoe is made U-shape in horizontal cross-section, the two legs of the U being disposed to engage the rail flange, one of them serving as the abutment to bear on

2

a tie, and the base of said U-shape shoe being disposed at a point removed from the rail flange. The shoe is provided also with at least one notch or groove to clasp around the edge of the flange against which it bears, at least usually. To prevent or restrain the member which attaches the bolt to the shoe from moving on the bolt and thereby loosening its engagement with the shoe, preferably roughened or torn metal is projected from face of the shoe around the bolt hole in it. This may be done by opening the hole in the shoe by a piercing die rather than a punching die. That is to say, a die that not only opens the hole for the bolt but also spreads some torn metal at the side of shoe, around the hole. This hole may be located in a position where the uppermost point of its circumference is in line with the lower edge of the above mentioned groove or grooves, so that the body of the bolt will lie substantially against the lower face of the rail flange. The hook end of the bolt clasping the flange edge rather tightly, this end of the bolt will tend to follow the direction of the creep and thus create what is usually called a shackle grip on the flange of the rail. As the intensity of the creep increases, the bolt grips tighter to the rail because of this shackle hold.

The accompanying drawings illustrate preferred forms of my invention. In the drawings, Fig. 1 is an elevation of the anti-creeper or rail anchor, a rail and a tie or sleeper being indicated in broken lines in the positions they occupy when the device is in use. Fig. 2 is a plan view of the device in operation. Fig. 3 is a horizontal section of the shoe of Figs. 1 and 2. Figs. 4 and 6 are variations of the shoe of Fig. 3. Fig. 5 is an elevation of the shoe of Fig. 4.

In the drawings, the bolt 1 is a bar, for example a round metal bar, which for the most part is straight. The straight portion passes below the flange of the rail 6, between two ties or sleepers, and extends through a hole in the base of the sheet metal shoe 2. This end of the bolt is threaded to receive a nut 3 which thus can be forced tightly against the outer surface of the shoe. The bolt hole 4 in the shoe 2 is a pierced hole, i. e., is formed by thrusting a piercing die through the sheet metal, toward the outer surface of the shoe, thereby raising on the outer surface of the shoe a projecting rim or ridge 5 of more or less rough or torn metal around the hole 4. The opposite end of the bolt is provided with a hook 7, for example formed by bending the bar, to clasp around the opposite edge of the rail flange tightly rather than loosely, but still

3

loosely enough to permit the hook to be placed over the flange without difficulty.

The shoe 2 is formed of sheet spring steel and is more or less arched, i. e., is U-shaped in horizontal section. The two legs may be wholly parallel with each other, Figs. 2 and 3. Also the section of the shoe between the two legs, i. e. the base, may be bowed outwardly somewhat, Figs. 2 and 3. The arching due to the U-shape, the removed position of the base upon which the nut 3 acts, and the bowing give the shoe some resiliency as the shoe is thrust against the rail by the nut 3 as will be understood. Each leg is provided with a horizontal groove 8 to clasp the edge of the rail flange opposite that engaged by the hook 7 of the bolt 1, again somewhat tightly rather than loosely. The bolt hole 4 is located between the two legs of the U, i. e. through the base, Figs. 2 and 3, and its upper edge is just about at level of the bottoms of the grooves 8 and hence the bottom of the flange of the rail 6, Fig. 1, so that the bolt 1 will lie substantially in contact with the bottom surface of the rail.

In service, the bolt 1 is passed underneath the rail between two ties, and the hook 7 hooked over the adjacent flange. A shoe 2 is then slipped along the straight end of the bolt until its grooves 8 receive the opposite edge of the rail flange. The whole is then slipped along the rail, in the direction of the creep, until a leg of the U-shape of the shoe strikes the adjacent tie. With the bolt at about right angles to the axis of the rail, the nut 3 is then turned up against the shoe tightly, or rather against the rim or ridge 5 of the shoe. This somewhat deforms and compresses the shoe by somewhat flattening its arch, so that the shoe reacts against the nut resiliently thereafter. Both this resiliency and the rough rim or ridge 5 tend to prevent the nut loosening. The device therefore not only tends to prevent the rail creeping, but also tends to be held tightly to the rail despite repeated jarring due to the passing of trains over the rail and which tends to loosen the nut 3 of course. Also as the rail may tend to creep somewhat within the device, the hook end 7 of the bolt tends to follow along with the rail while the shoe 2 is retained by the tie against which it bears; this in turn tends to place the bolt 1 somewhat diagonally below the rail, thereby increasing the grip which the device has on the rail and increasing its resistance to further creep.

In Figs. 1 and 2, a tie against which the shoe 2 bears will be recognized at 9. A conventional

4

tie plate is shown at 10, this having conventional spike holes, e. g., at 11. Two spikes for holding the rail to the tie plate and tie are shown at 12.

Instead of the lugs left in the shoe walls above the grooves 8 being left in the same planes as the lower parts of these walls, these lugs may be turned outwardly somewhat, as indicated at 15 in Figs. 4 and 5, or somewhat turned inwardly as indicated at 16, Fig. 6. Usually however I make the portions of the walls below the grooves 8 parallel and substantially at right angles to the axis of the rail so that they can make as nearly as possible a face to face engagement with a tie, and with a tie at either side. In general it will be understood that my invention is not limited to the details of construction and operation described above and shown in the accompanying drawing, except as appears hereafter in the claims, and that the claims are intended to include not only the specific elements mentioned in them but the equivalent of those elements also.

I claim:

1. In a rail anti-creeper, a bolt having a hook at one end to engage one edge of a rail flange and threaded at its opposite end, a sheet metal shoe substantially U-shaped in horizontal sections, the legs of the U being substantially parallel to each other and being grooved to clasp the edge of the rail flange opposite the edge which is engaged by said hook and the base of the U being bowed outwardly in a direction away from the rail and substantially midway between said legs being provided with a hole through it for said bolt, and a nut for the threaded end of the bolt to act on the outer face of said bowed base to compress the shoe to the rail.

2. The subject matter of claim 1, characterized by the fact that a ridge of roughened metal projects outwardly from said base, around said hole, to engage said nut to restrain rotation of the nut on the bolt.

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