

APPLICATION FILED JUNE 1, 1910.

Patented Aug. 20, 1912.

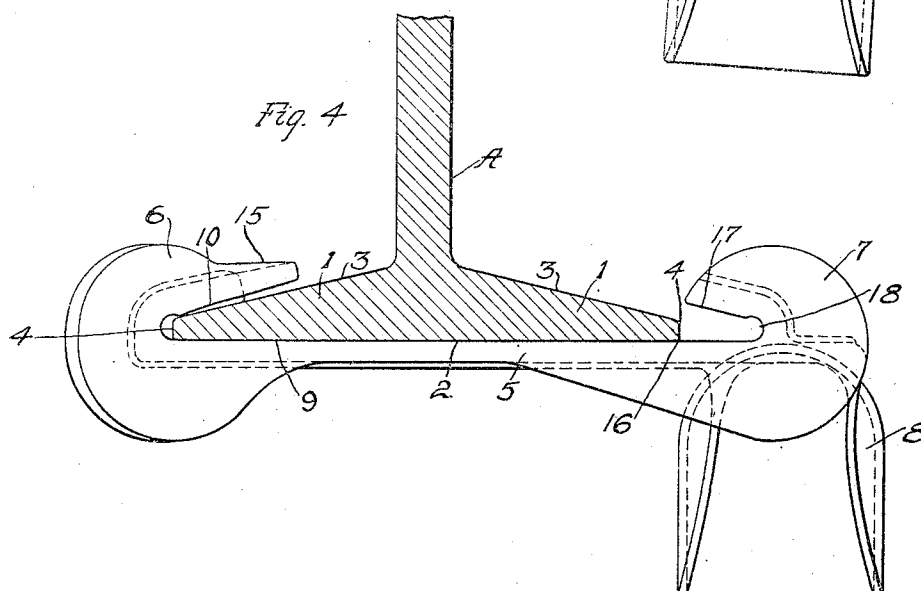
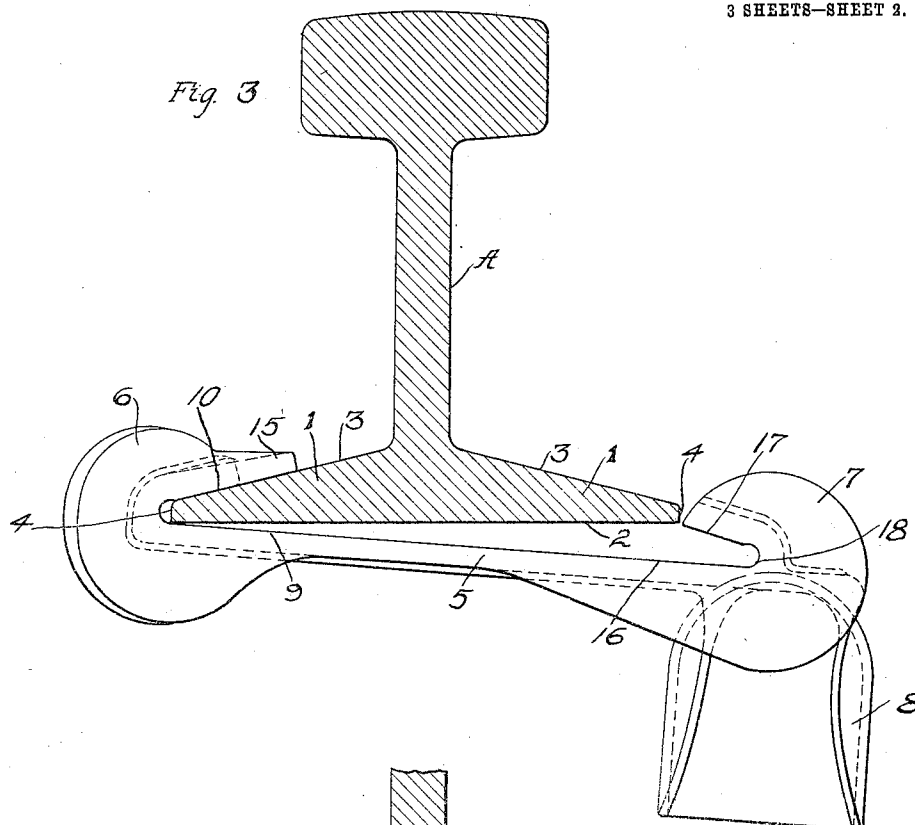
Fig. 1



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3 SHEETS—SHEET 2.



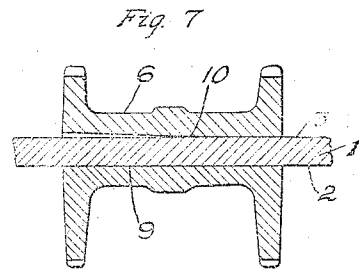
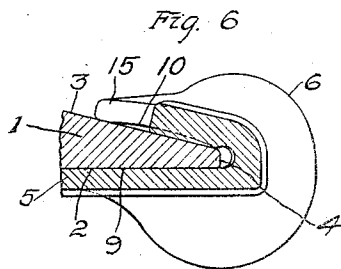
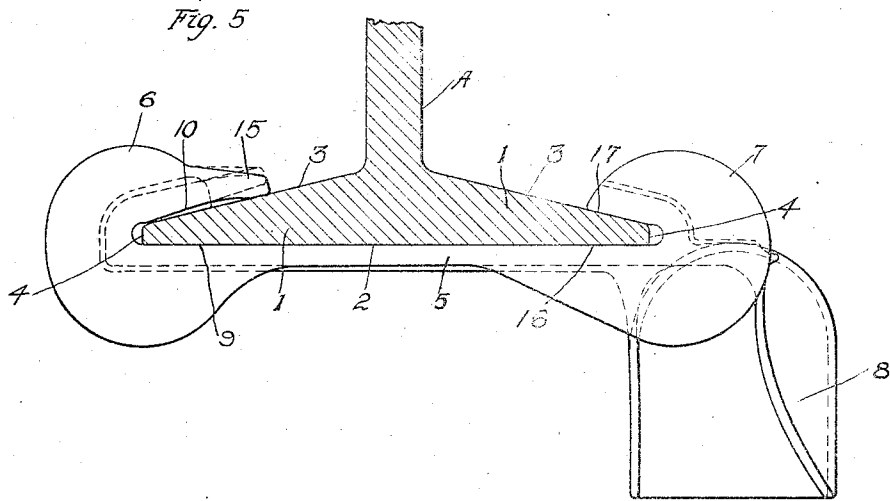
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Benjamin B. Betts.
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UNITED STATES PATENT OFFICE.

BENJAMIN B. BETTS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO POSITIVE RAIL ANCHOR COMPANY, OF LOUISVILLE, KENTUCKY, A CORPORATION OF VIRGINIA.

RAIL-ANCHOR.

1,036,518.

Specification of Letters Patent. Patented Aug. 20, 1912.

Application filed June 1, 1910. Serial No. 564,499.

To all whom it may concern:

Be it known that I, BENJAMIN B. BETTS, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Rail-Anchors, of which the following is a full, true, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to improvements in rail anchors or anti-creeping devices and has particular reference to a modification of one of the rail anchor forms shown in Letters Patent No. 915,655 granted to me

15 March 16, 1910.

In employing rail anchors upon elevated structures it is desirable and practically necessary to secure them to the rails in a positive manner so that they cannot drop from the rail. My so-called one-piece rail anchor, shown in said patent, if properly driven into place upon the rail and against the tie, cannot be easily dislodged therefrom, but if carelessly or improperly applied

25 might be loosened by the vibration of passing trains and fall from the rail. The avoidance of such mischance is the primary object of the present invention.

My invention consists in a rail anchor comprising a bar having rail flange engaging jaws at opposite ends adapted to be engaged and disengaged from the rail base by relative rotation of the bar and rail and means arranged on one end of the bar in conjunction with one of the hooks adapted to prevent the removal of the anchor from the rail after the anchor has been placed thereon.

My invention also consists in a rail anchor comprising a bar having relatively offset or angularly positioned rail base engaging jaws provided with strengthening ribs which are substantially parallel, and which occupy positions substantially perpendicular to respective edges of the rail when the device is in operative position thereon.

My invention also consists in various details of construction and in forms and relations of parts, which, being brought together in one device, constitute a remarkably simple and efficient rail anchor appli-

ance, all as hereinafter described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which:

Figure 1 is a plan view of a rail and rail anchor embodying my invention, as these parts appear when the anchor is being placed upon or removed from the rail; Fig. 2 is a similar view showing the rail anchor, rail and the cross tie in operative positions; Fig. 3 is a section of the rail on the line 3—3 of Fig. 1 showing the anchor in end elevation. Fig. 4 is a view in end elevation of the anchor before the anchor has been turned to its clamping position; Fig. 5 is a view, similar to Fig. 3 showing the anchor locked to the rail by the bent down retaining lug; Fig. 6 is a detail section of one of the jaws on the line 6—6 of Fig. 2; and Fig. 7 is a detail section of one of the jaws on the line 7—7 of Fig. 2.

In said drawings A represents a rail and B a cross tie. The rail shown is of ordinary cross-section having the usual T base flanges, 1—1. The bottom 2, of the rail is flat and the upper surfaces 3 of the flanges are slightly inclined.

4—4 are the edges of the rail base.

The cross tie B is the usual wooden or metal tie upon which the rail rests, the rail and the tie being arranged at right angles. The rail is secured to the tie by the usual spikes or other fastenings (not shown) which prevent lateral displacement of the rail upon the tie, but do not prevent longitudinal movement or creeping of the rail, across the tie. My anchor is designed to prevent such longitudinal movement of the rail.

This device is made up of four principal parts or integral portions, namely: The bar portion 5, the rail engaging hooks 6 and 7 and the strut or tie-engaging portion 8. Said bar portion 5 is comparatively thin and wide and its upper surface lies flat against the bottom 2 of the rail when the anchor is raised into engaging position. The hook 6 forms a continuation of the bar 5 and its lower surface 9 is coincident with

the top of the bar. The upper surface 10 of the hook conforms to the inclined surface 3 of the rail flange, one portion being inclined at a slightly greater angle than the inclination of said surface 3 of the rail flange to permit the engagement of the anchor with the rail as more fully described hereinafter. The end surface, or bottom 11 of the hook conforms to the edge 4 of the rail flange. The end surface 11 is of less width than the width of the hook, being cut back on the outer side of the anchor or on the side away from the tie as indicated by the dotted line 12 (see Fig. 2) for the purpose of increasing the effective distance between the hooks 6 and 7 to permit the placing of the anchor upon the rail base. The side edge 13 of the hook 6 overhangs the inner edge of the bar 5, that is, the edge toward the tie B, thereby increasing the effective clamping surface of the hook, and as this portion of the hook does not fully engage the rail flange in the position shown in Fig. 1, but is brought into engagement therewith as the anchor is rotated to the diagonal position, the inclination of the upper surface 10 of this portion of the hook conforms to the inclination of the surface 3 of the rail flange. Consequently as the anchor is rotated to its diagonal or engaged position, said hook 6 is wedged upon the rail flange and engages the upper and lower surfaces of the flange as well as the outer edge thereof. The opposite point or edge 14 of the hook is provided with an extension or projecting lug 15, whose under or rail engaging surface extends in a plane with the surface 10 of the hook (see Fig. 3).

The space between the outer end of the hook and the bar 5 is greater than the thickness of the rail engaged at this point as indicated in Figs. 3, 4 and 7, and this permits the placing of the anchor upon the rail in the manner described, as the hook 7 may be passed beneath the rail to the position illustrated in Fig. 3 as the hook 6 is being placed upon the rail. After the anchor has been placed upon the rail to the position illustrated in Fig. 3 the bar 5 is raised into contact with the lower surface of the rail base and the anchor can then be twisted or rotated in relation to the rail thereby causing the hook 7 to engage the edge of the rail base as indicated in Figs. 2 and 5, the projection 15 on said hook 6 then having the position indicated in dotted lines on Fig. 5 in which position it stands free of the rail flange. When the anchor is in this position, the projection 15 is bent or driven down against the surface 3 of the rail flange and thereby prevents the bar 5 from dropping away from the rail and even being rotated back to its freeing position. This results from the fact that for the anchor to be turned back as shown in Fig. 1, it is neces-

sary that the edge of the rail flange be forced into the cut away portion of the inner face of the hook 6 and against said face. To accomplish this the lug 15 would have to be forced farther up into the upper face of the rail flange, but this is prevented by the sloping surface of said rail flange and the fact that said lug 15 has been bent into close contact with the upper face of said rail flange when in the position shown in Fig. 2. The space then between the lug 15 and the bar 5 is too small to permit of the thicker portion of the rail flange being forced therein. The anchor is thus securely locked upon the rail and cannot be removed therefrom without first bending the projection 15 back to its original position which can readily be done if desirable by downward pressure applied to the opposite end of the anchor in an obvious manner. The hook 7 is similar to the hook 6, its lower surface 16 being coincident with the upper surface of the bar 5 and its upper surface 17 being inclined to conform with the surface 3 of the rail flange. The bottom surface 18 of the hook 7 is cut back away from the edge of the rail so that even in the extreme rotated position it does not engage the edge 4 of the rail. In other words, the hook 7 is formed to engage only the upper and lower surfaces of the rail flange and not the edge of the rail. The free end 19 of the hook 7 is substantially parallel with the cut-back portion 12 of the bottom surface 11 of the hook 6 and the distance between the surface 12 of the hook 6 and the free end 19 of the hook 7 is slightly greater than the width of the rail base thus permitting the placing of the anchor upon the rail in the manner described. Said hook portion 6 is provided with flanges or ribs 20 and 21 which extend from the free end of the hook around the outer end of same and back along the bottom of the bar 5 merging into it adjacent the middle portion thereof. Said flanges are comparatively thin and deep and extend along the lateral edges of the hook and bar. The hook portion 6 is also provided with a comparatively shallow central rib 22 between said ribs 20 and 21. The hook portion 7 is provided with ribs 23 and 24 along its lateral edges similar to the ribs 20 and 21 on hook 6 and with a shallow central rib 25.

The anchor is designed to be placed upon the rail from beneath when the bar 5 is substantially at right angles to the rail, as shown in Fig. 1, and it is then rotated to a diagonal position, as shown in Fig. 2, in which position the hooks 6 and 7 are in engagement with the rail flanges. The hooks 6 and 7 are relatively offset to stand substantially at right angles to the rail when the anchor is in its diagonal or engaged position and therefore the strengthening

flanges on the hooks also stand substantially at right angles to the rail in which relation they are best adapted to resist the opening or the breaking of the hooks by the strains incident to their engagement with the rail base.

The strut or tie engaging member 8 is integral with and joins the hook 7. This strut merges in the back of the hook and the ribs thereon at one end, adding considerable to the strength of the hook, and is preferably inclined downwardly and forwardly toward the tie. The free end of the strut is provided with a base or pressure foot 26 so arranged that when the anchor is rotated to working engagement with the rail, as illustrated in Fig. 2, the said base will lie substantially flat against the adjacent face of the tie. It is obvious that as the hook 6 is moved toward the tie the free end of the strut will move out from the rail and being positioned against the tie will tend to force the hook 7 upon the rail base. The arm 8 may be round or oval in section and either solid or hollow, but in most cases I prefer that its cross-section shall be of an inverted U-shape, as shown in dotted lines in the various figures.

In applying my anchor to a rail, the hook 7 is passed beneath the rail, the bar being substantially at right angles thereto and the hook 6 being brought into engagement with its adjacent rail flange. The anchor is then raised into contact with the bottom of the rail, the hook 7 freely passing its adjacent rail edge. From this position the anchor is freely rotated to a diagonal position thus reducing the effective distance between the hooks and causing them to engage the rail flanges with a wedging action as described.

At the time that the anchor is rotated the base of the strut is positioned against the adjacent face of the tie and the anchor is set in place by a few light hammer blows delivered on the hook 6 to drive it toward the tie. The lug 15, which in this position projects above the rail flange, is now driven or hammered down into contact with the rail and securely locks the anchor to the rail. As long as the anchor is firmly held against the tie by the tendency of the rail to creep or move in that direction, there is no danger of the anchor falling from the rail, but when by a change in the tide of traffic, or for any other reason the anchor is carried away from or out of contact with the tie, the continual vibration imparted to the rail by the passing wheels may cause the anchor to be so loosened from the rail flanges that it will rotate back to its transverse position. Should this occur it will still be held in its raised position and the hook 7 is thus prevented from passing beneath the rail and consequently the anchor cannot drop from the rail.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

1. A rail anchor comprising a bar of greater length than the width of the rail to which it is fitted, rail engaging members on the bar and a tie engaging portion, said members being so located on the bar that in one position thereof it may be lifted against the bottom of the rail and rotated to engage said members with the rail flanges and one of said members having that part of its upper jaw farthest from the tie provided with an inwardly projecting portion, said portion formed to be bent down upon the rail after the device is rotatably positioned thereon, such bendable portion, after it is thus bent, serving to prevent the device from dropping from the rail and from rotating in a backward direction.

2. A rail anchor comprising a bar of greater length than the width of the rail to which the device is to be attached, angularly disposed opposite rail base engaging hooks on the bar, and a tie engaging portion, said hooks being so positioned that the bar may be lifted against the bottom of the rail when it is substantially at right angles thereto, and rotated to engage the hooks with the rail, and a bendable projection on the upper end of one of said hooks formed to be bent down against the rail after the device is positioned thereon, such bendable projection after it has been bent down serving to prevent the device from dropping from the rail, or being turned to its disengaging position.

3. A rail anchor comprising a body portion to extend beneath the flanges of the rail, an arm or extension to engage the tie, hooks or jaws at each end of said body portion to grip the flanges of the rail, and a lug or extended portion on the upper side of one of said jaws to be bent against the rail flange.

4. A rail anchor formed of a single piece and comprising a body portion 5, a hook or jaw 6 to grip the flange of the rail, the cavity of said hook or jaw being formed with a portion of the inner face of the outer wall cut-away, a lug or extended portion 15 at the upper side of said hook or jaw 6 to be bent downward into close contact with the rail flange when in a position of use, a hook or jaw 7 at the opposite end of said body portion 5 to grip the opposite rail flange, and an arm or extension 8 to engage the tie.

5. A rail anchor formed of a single piece and comprising a body portion 5, a hook or jaw 6 to grip the flange of the rail, the cavity of said hook or jaw being formed with a portion of the inner face of the outer wall cut away, a lug or extended portion 15 at the upper side of said hook or jaw 6 to be bent downward into close contact with the rail flange when in a position

of use, a hook or jaw 7 at the opposite end of said body portion 5 to grip the opposite rail flange; and an arm or extension 8 to engage the tie; said hooks or jaws 6 and 7 being at such a distance apart and said jaw 7 having its inner edge so inclined that the anchor may be readily slipped into engagement with the flanges of the rail.

In testimony whereof, I have hereunto set my hand, this 10th day of May, 1910, in the presence of two subscribing witnesses.

BENJAMIN B. BETTS.

Witnesses:

FREDK. J. O. WILSON,
K. S. STONER.