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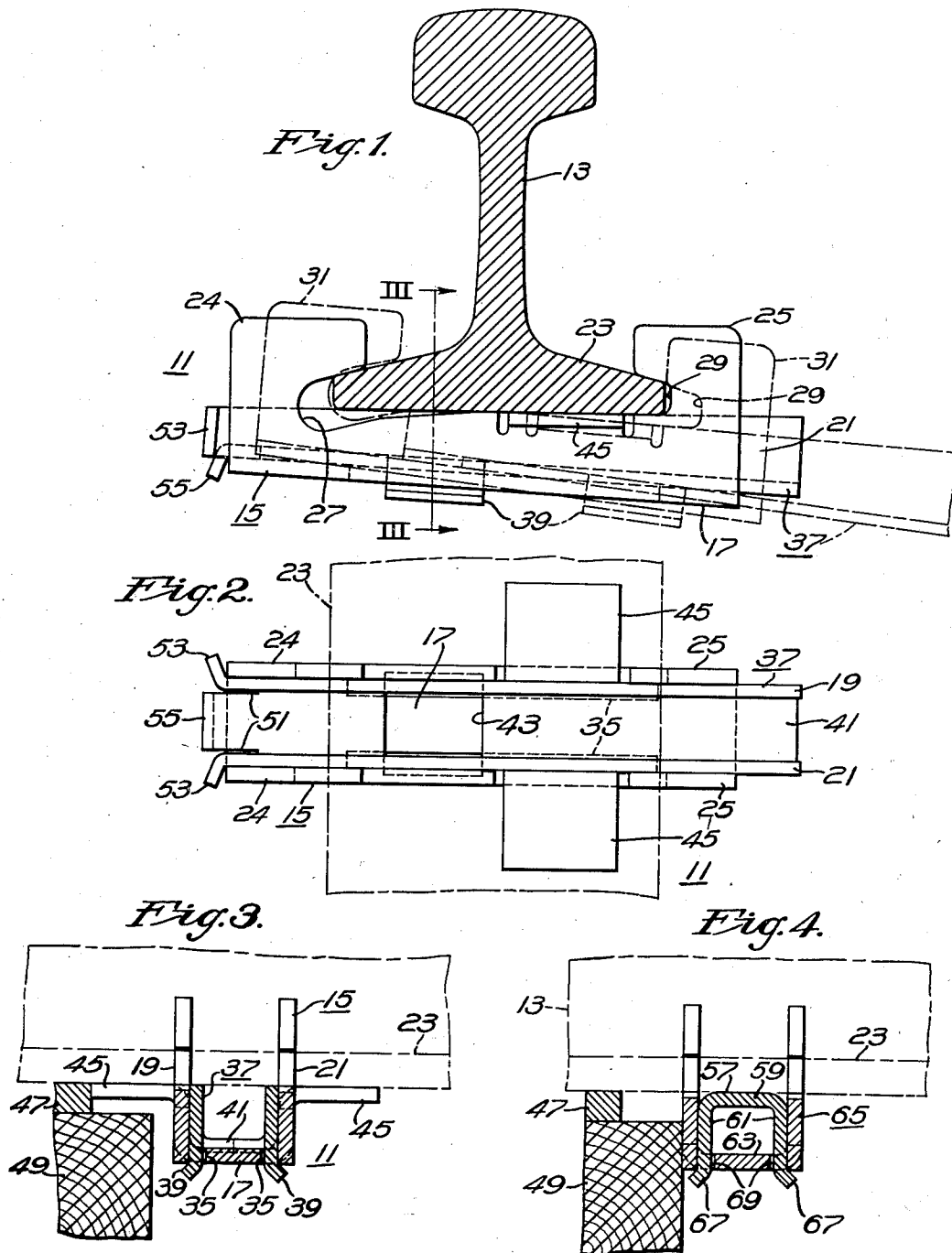
K. F. ELSERS

**2,036,686**

RAIL ANCHOR

Filed Jan. 31, 1935

2 Sheets-Sheet 1.



INVENTOR

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BY

ATTORNEY

April 7, 1936.

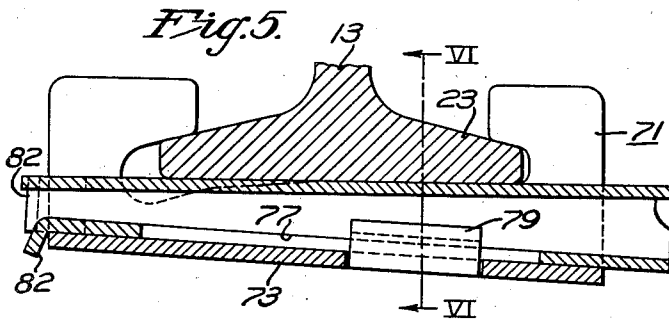
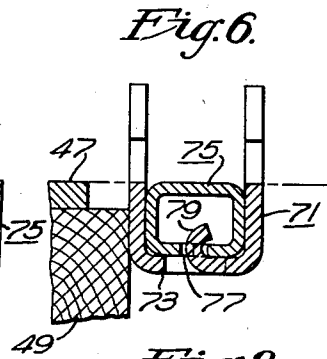
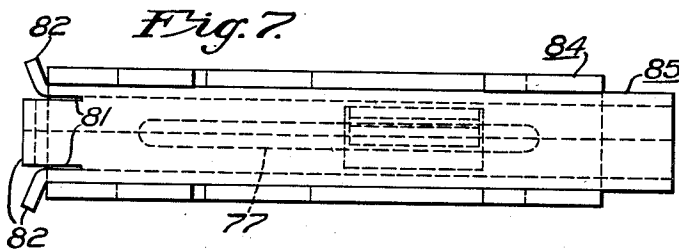
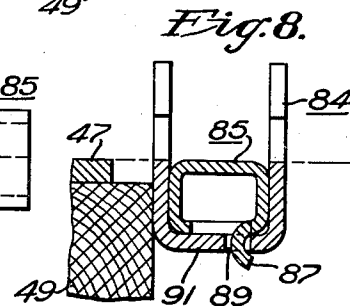
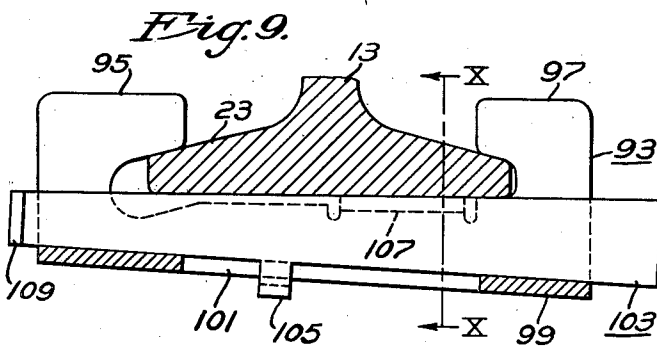
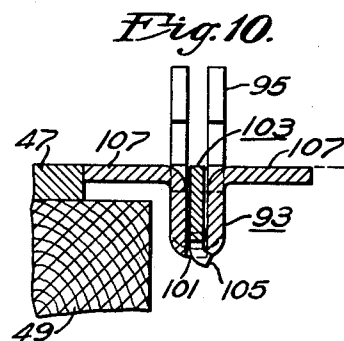
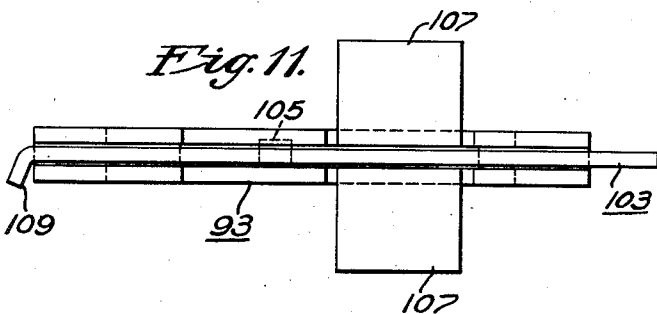
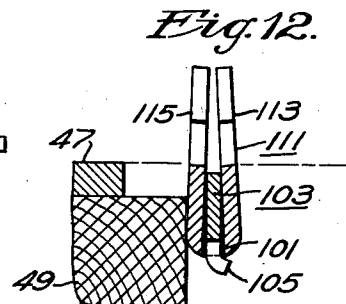
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RAIL ANCHOR

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,036,686

## RAIL ANCHOR

Karl F. Elers, Pittsburgh, Pa.

Application January 31, 1935, Serial No. 4,274

11 Claims. (Cl. 238—328)

My invention relates to railway track appliances and particularly to rail anchors.

An object of my invention is to provide a relatively simple, inexpensive and compact rail anchor.

Another object of my invention is to provide a compact two-part rail anchor that shall be so designed and constructed as to constitute a unitary assembly.

Another object of my invention is to provide a relatively simple, unitary rail anchor that shall be easily handled and applied to a rail without the use of any tool except a hammer.

Other objects of my invention will either be specifically pointed out hereinafter during the following description of several modifications of rail anchors embodying my invention or will be apparent from such description.

In practicing my invention I provide a yoke of substantially channel shape in lateral section having upper rail-base-embracing portions and locate within said yoke a key member of wedge shape in longitudinal section, this key member being either of channel shape, of box shape, or of bar shape in lateral section and frictionally engaging the bottom surface of the rail base and the upper surface of the web portion of the yoke to thereby hold the anchor structure firmly in its proper operative position on the rail. Integral portions of the key at its narrower end are adapted to be bent around the adjacent end of the yoke, to hold the key in its adjusted and driven position in the yoke.

In the drawings,

Figure 1 is a view, in side elevation, of a rail anchor embodying my invention and shown in its proper operative position on a rail,

Fig. 2 is a top plan view of the rail anchor assembly shown in Fig. 1 of the drawings,

Fig. 3 is a view, in vertical section therethrough, taken on the line III—III of Fig. 1,

Fig. 4 is a view, in vertical section similar to that of Fig. 3 but showing a slightly modified form of rail anchor,

Fig. 5 is a view, in vertical longitudinal section, of a still further modification of device embodying my invention,

Fig. 6 is a view, in vertical lateral section therethrough, taken on the line VI—VI of Fig. 5,

Fig. 7 is a top plan view of the rail anchor shown in Figs. 5 and 6,

Fig. 8 is a view, in vertical lateral section of a modified form of the structure shown in Figs. 5, 6 and 7,

Fig. 9 is a view, in vertical longitudinal section

of a still further form of rail anchor embodying my invention,

Fig. 10 is a view, in vertical lateral section therethrough, taken on the line X—X of Fig. 9,

Fig. 11 is a top plan view of the rail anchor shown in Figs. 8 and 9 of the drawings, and,

Fig. 12 is a view, in vertical lateral section, of a modified form of the structure shown in Figs. 9, 10 and 11, before mounting the same on a rail base.

Referring first to Figs. 1, 2, and 3 of the drawings, I have there illustrated a rail anchor structure 11, which is shown in Fig. 1 of the drawings as being operatively associated with a rail 13. The rail anchor assembly includes a yoke 15 which is of substantially channel shape in section, as will be seen more particularly by reference to Fig. 3 of the drawings. This yoke is preferably made of relatively thick high grade iron or steel and includes a web portion 17 as well as two substantially vertically-extending side walls 19 and 21. The inner end portions of the side walls 19 and 21 are adapted to overhang the upper surface of the respective side portions of the rail base 23, in a manner well known in the art. The end portions of the side walls 19 and 21 at the left hand side of rail 13 are designated by numeral 24 in Fig. 1 of the drawings, and by numeral 25 at the right hand side of Fig. 1. These overhanging jaws or portions are separated from the intermediate parts of the sides by recesses 27 and 29, the recess 27 differing slightly in shape from recess 29, also in a manner well known in the art, to permit of easily and quickly mounting the unitary rail anchor assembly on the base 23 of the rail. This is accomplished by moving the yoke toward the right of the rail, as seen in Fig. 1 of the drawings, until it occupies the position shown by the broken lines 31, when it will be possible for the jaws 25 at the right hand side to be moved upwardly and slightly above the sloping upper surface of the base 23, after which the yoke can be moved to the left into the position shown by the full lines in Fig. 1 of the drawings.

I wish to point out particularly that the upper surface of the web portion 17 of the yoke does not extend parallel to the bottom surface of the rail base, but extends at a slight angle relatively thereto for a purpose to be hereinafter set forth in detail. The web portion 17 is provided with two longitudinally-extending recesses 35 whose purpose will be hereinafter set forth. These recesses are located in the web closely adjacent to and inside of the side portions 19 and 21.

A key member 37, which is here shown as of

channel-shape in lateral section is located within the hereinbefore described yoke member 15, and is also made of wedge-shape longitudinally thereof, the slope or change in its vertical height being

substantially the same as that of the web 17 relatively to the bottom surface of the rail base 23.

The key 37 is provided with two downwardly extending integral lugs 39, for which see particularly Fig. 3 of the drawings. These lugs are punched out of the web portion 41 of the key 37 thereby leaving an opening 43 in the web, as will be seen by reference to Fig. 2 of the drawings. The lugs 39 extend downwardly through the elongated longitudinally-extending recesses 35 in the web 17 of the yoke and, as shown in Fig. 3 of the drawings, the bottom ends thereof are bent outwardly over the bottom surface of the side walls of the yoke immediately adjacent to the recesses 35. I wish to point out that I do not rely upon frictional engagement between the outside surfaces of the side walls of the key and the inside surfaces of the side walls 19 and 21 of the yoke, but that there is a small clearance therebetween so that the key will slide freely in the yoke when the anchor is not mounted in its proper operative position on the base of a rail. In other words, I rely entirely upon friction between the lower surface of the web of the key and the upper surface of the web of the yoke, and between the upper edges of the side walls of the key and the bottom surface of the base of the rail, to hold the anchor in its proper operative position thereon.

I have shown a pair of laterally projecting lugs 45 integral with the yoke 15 which are adapted to engage a metal tie plate 47 on a wooden tie 49, but these are not an essential part of my invention and may be omitted.

The smaller or shallower end of key 37 is provided with a plurality of longitudinally-extending saw cuts 51, as shown in Fig. 2 of the drawings. After the unitary rail anchor assembly has been located in its proper operative position on the base of the rail, as hereinbefore described, the key 37, which was held in its furthestmost right hand position, is then driven to the left, as seen in Fig. 1 of the drawings, until it is tightly wedged between the base of the rail and the web of the yoke. The design and construction are such that a part of the key will project beyond on the left hand end of the yoke 15. The projecting portions 53 of the side walls and the projecting portion 55 of the web may then be bent outwardly and downwardly respectively, as shown in Figs. 1 and 2 of the drawings to securely lock the key in the position into which it was driven, as by repeated blows of a hammer.

Referring now to Fig. 4 of the drawings, I have there illustrated a slightly modified form of key 57 which may be utilized with the yoke 15 hereinbefore described. The key 57 has its intermediate or web portion 59 engaging the lower surface of base 23, while the lower surface of the side portions 61 of the key frictionally engage the upper surface of the web 63 of the yoke 65. The yoke 65 is in general identical with the yoke 15 as was hereinbefore described. The side portions 61 of the key are provided with short depending integral lugs 67 which extend downwardly through longitudinally extending recesses 69 in the web 63, the recesses 69 being the counterpart of the recesses 35 shown in Fig. 2 of the drawings. In all other respects the assembly of the key 57 in the yoke 65 is the same as for the parts shown in Figs. 1, 2, and 3. I have shown one side wall

of the yoke 65 as located adjacent to one side of a tie 49, a tie plate 47 being located on the top of tie 49 to directly support the rail 13.

Referring now to Figs. 5, 6 and 7, I have there shown a modified form of rail anchor comprising a yoke member 71 which is in general the counterpart of yoke 15 illustrated in Figs. 1, 2, and 3 of the drawings. The web 73 extends angularly relatively to the base of the rail as was hereinbefore set forth for yoke 15.

A key member 75 is here shown as being of substantially box-shape in lateral section and is of greater vertical dimension at one end thereof than at the other end thereof. The lower web of key 75 is provided with an opening 77 therein extending longitudinally thereof. The web portion 73 of the yoke has an upwardly extending lug 79 formed therefrom as by punching it out from the web, this lug being relatively short, fitting into the opening 77 and being bent around the inner surface, substantially as shown in Fig. 6 of the drawings. This ensures that the key will be movably held in the yoke so that there is no danger of the two parts becoming disengaged during the time that they are handled after assembly and before they are located in proper operative position on a rail.

Here again I desire to point out that I do not rely upon friction between the vertically extending walls of the yoke and of the key, but utilize only the friction between substantially horizontally-extending surfaces. The narrower end of the key is provided with a plurality of saw cuts 81, shown more particularly in Fig. 7 of the drawings to provide a plurality of tongue portions 82 which may be bent outwardly and downwardly to lock the key in its proper operative position on the base of a rail.

I have shown a somewhat different form of key, in Fig. 8 of the drawings, which may be used with a yoke 84. The key 85 is of box shape in lateral section and has a small integral portion 87 bent downwardly through a longitudinal slot 89 in the web 91 of the yoke and around on side wall thereof, substantially as shown in the drawings.

I may point out here that the keys 75 and 85 are provided with a single locking lug only and that I may use a single depending lug 39 or 67 instead of a pair of such lugs as shown in Figs. 3 and 4 of the drawings. The web of the yoke will then be provided with a single longitudinal slot 35 or 69 instead of two such slots.

Referring now to Figs. 9, 10, and 11 of the drawings, I have there illustrated a still further modification of a rail anchor embodying my invention. A yoke 93 of substantially channel-shape in lateral section has a plurality of upper overhanging jaw portions 95 and 97, which are similar in shape and use to the portions 23 and 25 of yoke 15. The web portion 99 of yoke 93 is provided with a longitudinal slot 101 therein. A key 103 is of substantially bar shape, has a greater vertical dimension at one end thereof than at the other end, and is further provided with an integral depending lug 105 which extends through the recess or slot 101 and is bent laterally around the bottom surface of the web 99, in a manner shown particularly in Fig. 10 of the drawings.

The side portions of yoke 93 may be provided with integral lateral extensions 107 which are the counterpart of the lateral lugs 45 of Figs. 1, 2 and 3. It may be here pointed out that the web of yoke member 93 extends at a small angle

relatively to the bottom of the rail base 23 and further that the key 103 is of wedge shape, as will appear more particularly by reference to Fig. 9 of the drawings.

Preparatory to mounting the anchor on the rail the key 103 is moved as far to the right, as seen in Fig. 9 of the drawings, as the interfitting lug 105 and slot 101 will permit. After the yoke has been properly located on the rail base, substantially as shown in Fig. 9 of the drawings, the key 103 is driven as far as may be possible into the yoke, so that its upper surface will frictionally engage the bottom surface of rail base 23 while its bottom surface will engage the upper surface of the web 99 of the yoke 93. The design and construction of the key is such that an end portion thereof, at its shallower end, will project beyond the yoke and this over-hanging portion 109 may be bent over against a side wall of the yoke 93 in order to hold the key in tight-fitting engagement in the yoke and to prevent its becoming loose in operation and use of the track.

Referring to Fig. 12 of the drawings, the anchor assembly there shown comprises a yoke 111, which is substantially the same as yoke 93 except that it is not provided with the lateral portions 107 and is therefore adapted to be located against a vertical surface of a tie 49. The key 103 may be used in this assembly, the interlock between the two members being provided by a depending lug 105 extending through a slot 101 in the web 99 of the yoke.

I have shown the two side walls 113 and 115 in the positions they are to occupy when finished and ready for use. The two side walls are bent toward each other to substantially the positions shown in the drawings which is done with the key 103 in its initial position, that is where it is far to the right as possible, as seen in Fig. 9 of the drawings. When the assembly has been placed on the rail base and the key has been driven in, it will be held in its desired locking position not only by the frictional engagement with the bottom of the rail base and the top surface of the web of the yoke, but also by the inner surfaces of the side walls of the yoke. This provides an additional frictional holding means for the key.

The main characteristics of all of the modifications hereinbefore described may be briefly summed up as follows:— the yoke member is so designed and constructed as to have a web portion which extends non-parallel with the base of the rail, and the key member operatively associated with the yoke is of wedge shape in vertical longitudinal section. The yoke and key have interfitting tongue and slot portions, the tongue portion extending through and beyond the slot and being bent laterally thereof in such manner that the two interfitting members cannot be disassembled by ordinary handling thereof, such as they may experience while being shipped or while being carried to the place where they are to be used. The rail anchor embodying my invention thus provides a unitary plural-section device which is simple, easily constructed as by punching operations, is easily assembled and which will remain in assembled position during ordinary handling thereof.

It is obvious that the slot in yoke need not be located in the web but could be located in a side wall of the yoke.

The device embodying my invention relies entirely upon friction between adjacent members located in horizontal planes and once the key

member has been hammered into tight engagement between the web of the yoke and the bottom of the base of the rail it is held in such tight-fitting position by having one or more integral end portions thereof bent out of their original plane and over against adjacent portions of the yoke.

It is obvious that further modifications can be made in the device embodying my invention without departing from the spirit and scope thereof, and I desire therefore that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:—

1. A rail anchor comprising a rail base-embracing-yoke of channel shape in cross section having a web portion non-parallel with the base of the rail, a key wedge shaped in longitudinal vertical section disposed in the yoke and interfitting tongue and slot portions in the yoke and key to maintain them in assembled relation for use as a unit.

2. A rail anchor comprising a rail base-embracing-yoke of channel-shape in cross section having a web portion extending non-parallel with the base of a rail, a wedge-shaped key in the yoke, the key being wedged shaped in longitudinal vertical section and interfitting tongue and slot portions in the web portion of the yoke and in the key permitting relatively longitudinal movement of the yoke and key while maintaining them in assembled positions relative to each other forming a unit.

3. A unitary rail anchor structure comprising a rail base-embracing-yoke of channel shape in cross section, the web portion being non-parallel with the bottom surface of the rail base, a key of wedge shape in vertical longitudinal section and adapted to be driven into wedging engagement with the base of the rail and the web of the yoke and interfitting tongue and slot portions in the key and the yoke permitting relative longitudinal movement thereof while maintaining the two parts in assembled positions relative to each other forming a unit.

4. A unitary rail anchor structure comprising a rail base-embracing-yoke of channel shape in cross section, the web portion extending angularly relatively to the bottom surface of the rail base, a key of wedge shape in vertical axial section and adapted to be driven into wedging engagement with the bottom surface of the rail base and the web of the yoke, interfitting tongue and slot portions in the key and the web of the yoke permitting relative longitudinal movement while maintaining the two members in assembled positions relatively to each other forming a unit, an end portion of the key being adapted to be bent over the end of the yoke to maintain the tight wedging engagement of the two members.

5. A unitary rail anchor structure comprising a rail base-embracing-yoke of channel shape in cross section, the web portion extending angularly relatively to the bottom surface of the rail base, a key of wedge shape in vertical axial section and adapted to be driven into wedging engagement with the bottom surface of the rail base and the web of the yoke, an axial slot in the yoke, a tongue portion integral with and projecting laterally of the key into the axial slot and bent over one wall of the axial slot, a portion of the smaller end of the key being adapted to be bent over the adjacent end of the yoke to retain the key in said wedging position.

6. A unitary rail anchor structure comprising

a rail base-embracing-yoke of channel-shape in cross-section, the web portion thereof extending angularly relatively to the bottom surface of the rail base, a key of channel-shape in cross-section, tapering in height from one end to the other and adapted to be driven into tight wedging engagement with the web of the yoke and the bottom surface of the rail base, the web of the yoke having a longitudinal slot therein and the key having a downwardly projecting tongue portion extending through the longitudinal slot in the web and being bent over against one wall of the slot to retain the key in axially movable position in the yoke and a portion of the end of the key of lesser height being adapted to be return-bent around an adjacent wall of the yoke.

7. A unitary rail anchor structure comprising a rail base-embracing-yoke of channel-shape in cross section, the web portion thereof extending slightly angularly relatively to the bottom surface of the rail base and having a longitudinally extending slot therein, a bar-shaped key in the yoke of wedge shape in vertical longitudinal section and adapted to be driven into tight engagement with the bottom surface of the rail base and the web, an integral depending tongue portion extending into and through the slot in the web and bent over an adjacent wall of the slot and a portion of the key at its smaller end bent around an end portion of the yoke to hold the key in its tightly wedged position.

8. A unitary rail anchor structure comprising a rail base-embracing-yoke of substantially channel-shape in cross-section, the web portion thereof extending slightly angularly relatively to the bottom surface of a rail base and having a longitudinally-extending slot therein, the side walls of the yoke being bent towards each other, a bar-shaped key in the yoke, of wedge shape in vertical longitudinal section and adapted to be driven into tight engagement with the bottom surface of a rail base and the web and to spread

the side walls and an integral tongue extending into and through the slot in the yoke and bent over an adjacent wall of the slot.

9. A rail anchor for mounting on a rail base comprising a yoke of channel shape in cross-section provided with inwardly extending jaws for engaging the rail base and supporting the bottom of the yoke in a plane extending at an angle to the bottom of the rail base and transversely thereof presenting a keyway under the rail, a key mounted in the keyway, a lug provided on the key, the yoke having a recess provided therein for receiving the lug and means for retaining the key in position in the keyway.

10. A rail anchor for mounting on a rail base comprising a yoke of channel shape in cross-section having an arcuate slot cut therein providing inwardly extending overhanging jaws for engaging the rail base to suspend the yoke transversely of the rail and present a keyway, the slot being deep enough on one side to permit the fitting of it far enough over one side of the rail to enable the moving of the other jaws into position to engage the other side of the rail base, a key for mounting in the keyway, lugs provided on the key, the yoke having slots therein for receiving the lugs to guide the movement of the key, and means provided on the key adapted to be engaged with the yoke to retain the key in the keyway.

11. A rail anchor for mounting on a rail base, comprising a yoke of channel shape in cross-section, means for suspending the yoke transversely of rail base providing a wedge shaped keyway, a key of channel shape in cross-section and of wedge shape conforming to the shape of the keyway, the key and yoke being inverted relative to one another and so disposed as to present a key face parallel to the base of the rail cooperative to retain the anchor in a predetermined position on the rail and means for holding the key in position in the keyway.

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