Oct. 7, 1930. A. F. FIFIELD 1,777,750

RAIL ANCHOR

Filed Oct. 26, 1928 2 Sheets-Sheet 1

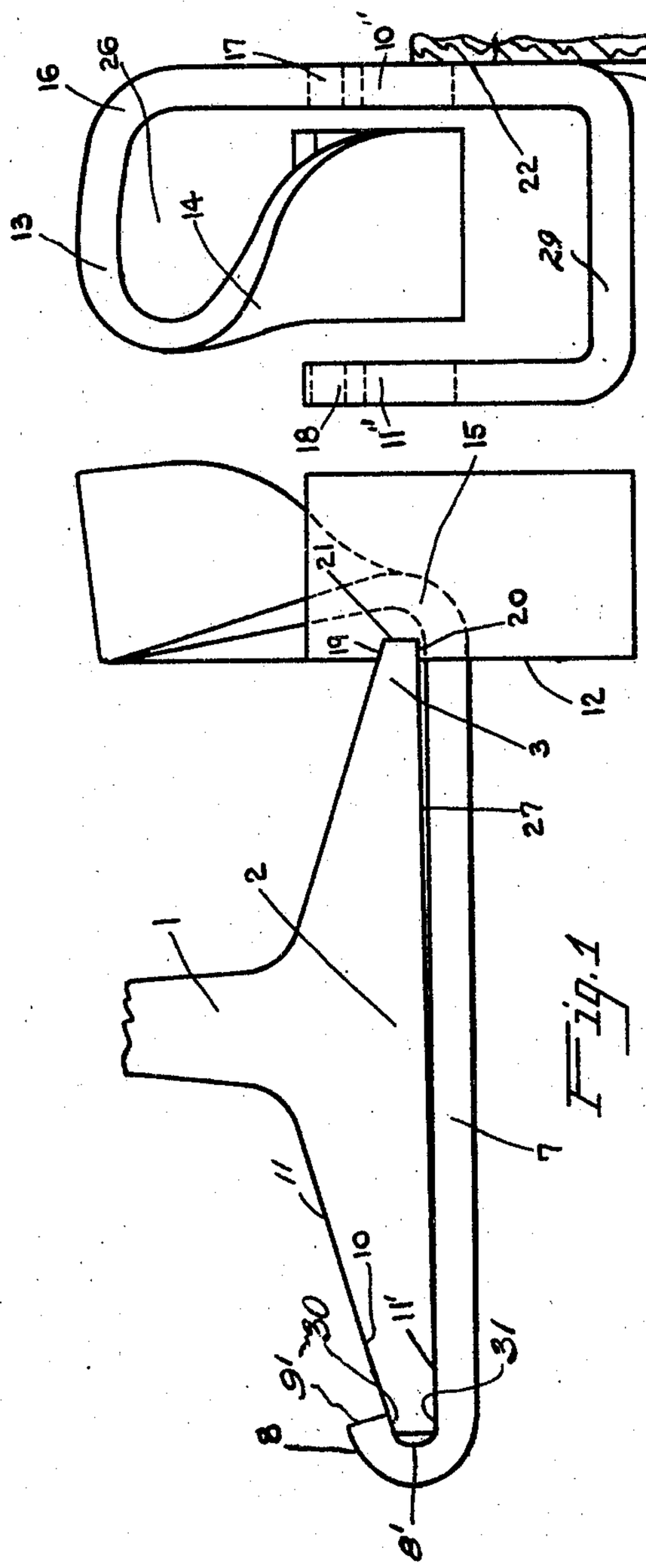

Fig. 1

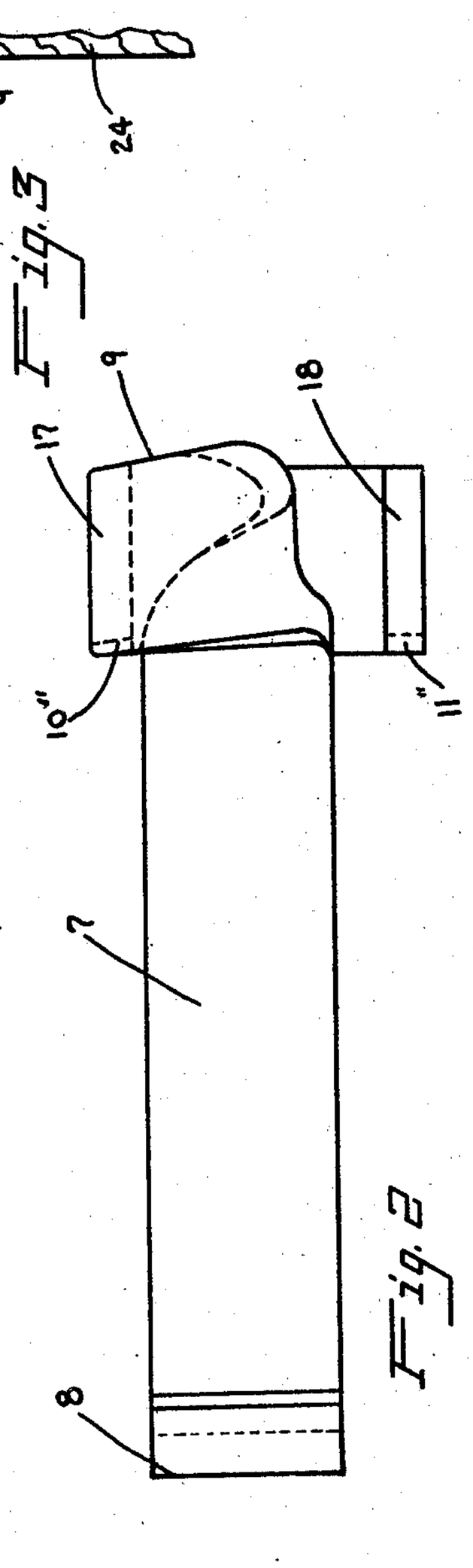

Fig. 3

Fig. 2

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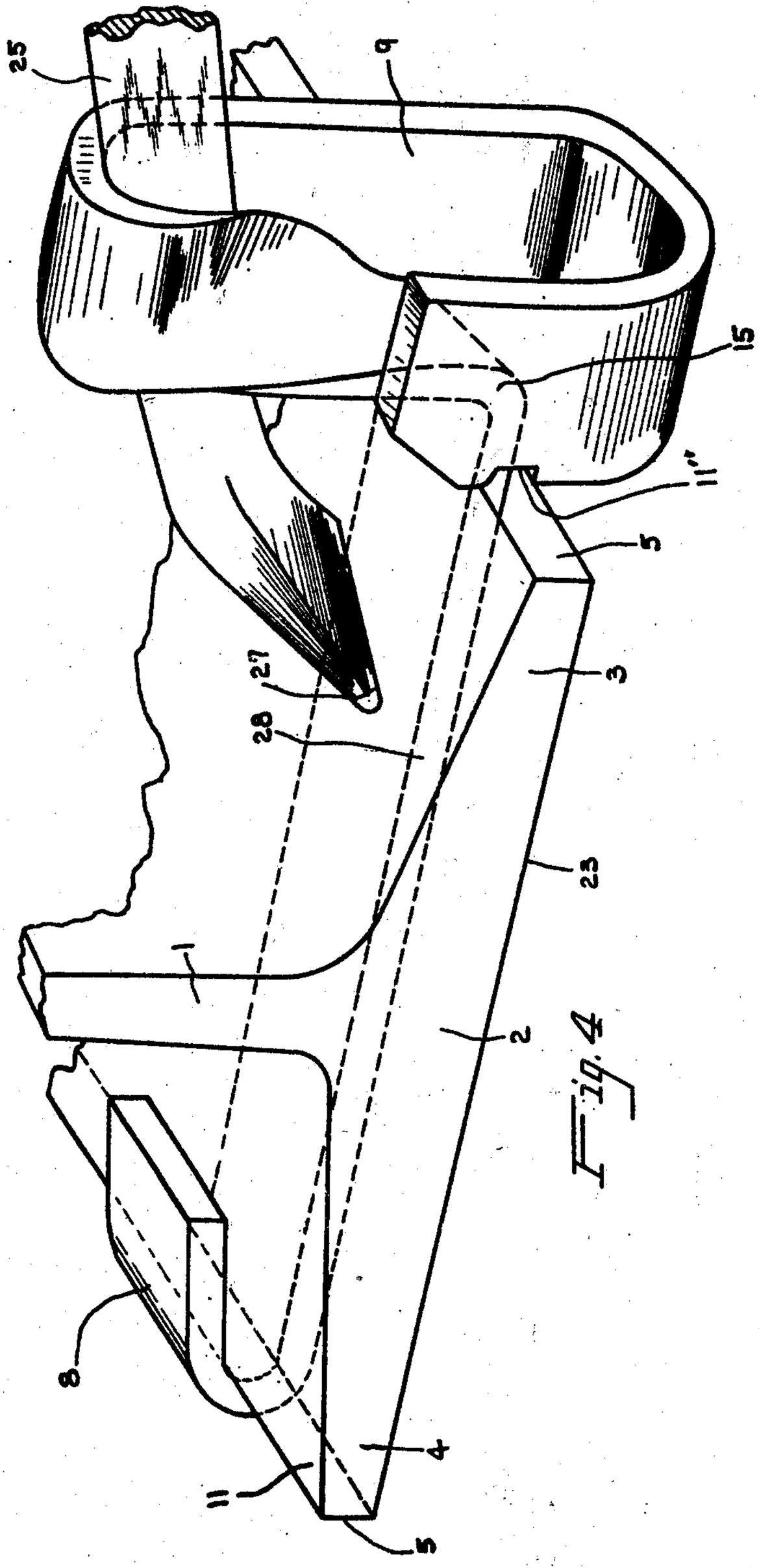

Fig. 4

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UNITED STATES PATENT OFFICE

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RAIL ANCHOR

Application filed October 26, 1928. Serial No. 315,165.

My invention relates to rail anchors and relates particularly to one-piece rail anchors.

An object of my invention is to provide a rail anchor of the one-piece type, which may be relatively inexpensively made from spring steel in either rod or sheet form and yet which will be relatively efficient in use when attached to a rail base for preventing longitudinal movement of the rail relative to the supports therefor.

Another object of my invention is to provide a rail anchor of the one-piece type which is easily affixed to a rail base flange by the simple manipulation of the usual type of tools commonly had by track men.

Another object of my invention is to provide a rail anchor which, although easily applied to a rail base and strongly resisting longitudinal movement of the rail to which it is affixed and resisting accidental removal when in use, yet may be easily removed by a simple manipulation of the ordinary tools commonly had by track men.

Other objects of my invention and the invention itself will become more apparent from the following description of certain embodiments of my invention, and in which description reference will be had to the accompanying drawings forming a part of this specification.

Referring to the drawings:

Fig. 1 shows a side elevational view of a rail anchor embodying the principle of my invention, applied to a rail base.

Fig. 2 is a plan view of the anchor of Fig. 1.

Fig. 3 is an end elevational view of the anchor of Figs. 1 and 2; with a sectional view of a fragment of a rail tie to indicate the tie engaging surface of the anchor.

Fig. 4 is a perspective view of the anchor of the foregoing figures attached to a rail together with a fragment of an attaching tool adapted for attaching the anchor to the rail.

Referring to the embodiment of the invention illustrated in the different figures of drawing in all of which like parts are designated by like reference characters, at 1, I show the longitudinally upstanding web of a rail having a base 2 comprising lateral base flanges 3 and 4. The flanges are of progressively decreased thickness toward their vertical edges 5.

The rail anchor of the embodiment illustrated comprises a single piece of spring steel in the form of a relatively flat strip having an intermediate reach portion 7 adapted to extend transversely of the rail base 2 and underlying the rail base, and is formed with a hook 8 at one end and a loop 9 at the other end. The hook 8 comprises a tongue 9′ adapted to engage by its lower surface 10 with the upper surface 11 of a rail base flange such as 4, and which engages by its lower surface the upper surface 11′ of the bar underlying the tongue 9′. The edges of the base flange 4 abut the inner portions of the hook 8 adjacent the curved portion 8′. The relative position of the bar 7 with its hook 8 to the rail base flange is illustrated in Figs. 1 and 4.

At the other end of the reach bar 7, the loop 9 is carried. The loop 9 is approximately of J-form and depends from an upstanding twisted extension 14 of the bar 7, the twist extending upwardly from the end of the reach bar 7, which is indicated by dotted lines at 15, Figs. 1 and 4. The arm 14 at its top 13, projects laterally to a point 16 from which the J-loop portion of the bar depends vertically by its longer arm 17.

The intermediate twisted portion 14 is flanked on either side by the arms 17 and 18 of the pendant J-loop, the arm 18 being the short upwardly extending free end of the loop 9, carried on the lowermost transverse portion 29, underlying the twisted portion 14. Notches 10″ and 11″ of the arms 17 and 18, respectively, provide pairs of upper and lower jaws 19 and 20, respectively, joined by an edge surface 21, preferably abutting the vertical side edge of the rail flange 3.

The outer surface 22 of one of the loop arms 17, such as the longer arm depending below the bottom surface 23 of the rail base, is adapted for engagement with a lateral surface of a railway tie such as 24 upon which the rail base is supported. This provides adequate surface engagement between

the tie and the rail to withstand the shocks and pressures tending to wear the tie and to move the anchor.

The anchor is applied to the rail by giving it a preliminary twist and deflection, against the power of its inherent resiliency, by lifting the loop 9 by its "lift strap" top portion 13 by a tool such as 25 projected through the opening 26, provided below the "lift strap" portion 13, and between the arms 17 and 18. The tip 27 of the tool is used as a "pry" or fulcrum against the upper surface 28 of the rail base flange 3. The anchor is thus secured tightly to the rail base by effecting an engagement of the two pairs of jaws 19—20 with the top, and bottom surfaces of the rail base flange 3, as shown in Figs. 1 and 4.

In practice, whenever the rail, due to traffic thereon, is caused to move longitudinally, the rail base will be tightly gripped by the jaws at the two ends of the anchor, comprising the jaws formed by the inner opposing surfaces 30 and 31 of the loop 8, engaging the upper and lower surfaces respectively of the rail base flange 4, and that one of the spaced pairs of jaws 19 or 20 which is formed in that arm 17 or 18 of the J-shaped loop at the other end of the bar which is other than the arm engaging the tie 24.

In other words, the pressure engagement of the lower portion of the arm 17, for instance, with a lateral surface of the tie, effects a slight sluing of the anchor around the hooked end 8, and effects a binding gripping engagement of the rail base flange, by the pair of jaws of the loop 8 and the pair of jaws 19 and 20 of the arm 18. At the same time, due to the resiliency of the loop and twisted support therefor, the jaws of the arm 17 also effect gripping contact with the rail base flange.

Having thus described my invention in connection with an anchor which is one embodiment thereof, I am aware that numerous and extensive departures may be made from the embodiment herein illustrated and described but without departing from the spirit of my invention.

I claim:

1. A rail anchor comprising a single strip of spring steel formed with a hook at one of its free ends, adapted to embracingly engage the top and bottom surfaces of a rail base flange and formed at the other end in an upstanding arm, a loop depending from an upper portion of said upstanding arm, the loop comprising lateral arms disposed at either side of the said upstanding arm, and a portion joining the lower ends of the lateral arms underlying said upstanding arm, each of said lateral arms having rail flange engaging edge portions forming jaw elements adapted to resiliently grippingly engage the other rail base flange.

2. A rail anchor comprising an upstanding resilient J-shaped loop of spring steel material, a bar extending downwardly from the top end of the longer arm of the loop between the arms and deflected laterally therefrom to form an elongated reach bar portion adapted for disposition below the base of a rail, said reach bar portion terminating in an upwardly and inwardly extending hook, the free end of the hook comprising a tongue adapted for engagement with the upper surface of a rail base, said J-shaped loop adapted for engagement by both of its arms with the opposite rail base flange, said flange engaging loop portions adapted to engage an upper surface portion of said opposite rail base flange, to retain the anchor on the rail base.

3. A rail anchor comprising an upstanding, resilient J-shaped loop of spring steel material, a bar extending downwardly from the top end of the longer arm of the loop between the arms and deflected laterally therefrom to form an elongated reach bar portion adapted for disposition below the base of a rail, said reach bar portion terminating in an upwardly and inwardly extending hook, the free end of the hook comprising a tongue adapted for engagement with the upper surface of a rail base, both arms of said loop having laterally aligned notches on their inner edge portions, both said notches adapted to receive longitudinally spaced portions of the adjacent rail base flange.

4. A rail anchor comprising a single strip of spring steel formed with a hook at one of its free ends, adapted to embracingly engage the top and bottom surfaces of a rail base flange and formed at the other end in an upstanding arm, a loop depending from an upper portion of said upstanding arm, the loop comprising lateral arms disposed at either side of the said upstanding arm, and a portion joining the lower ends of the lateral arms underlying said upstanding arm, each of said lateral arms having rail flange engaging edge portions comprising cooperating jaw elements adapted to resiliently grippingly engage an upper corner edge and a lateral surface of the other rail base flange.

5. A rail anchor formed of a single strip of material of substantially uniform width through its length, bent to engage an edge of a rail base at three points spaced in the direction of the rail length and to provide a resilient loop adapted to be tensioned upon operative assembly of the anchor on a rail to maintain the engagement, and terminating in a second loop pendant from an arm of the first loop and engaging by edge portions with an edge portion of the rail base flange.

6. A rail anchor comprising a flat strip of metal bent at one end to engage one flange of a rail base and bent toward the opposite end to upright U-form to engage, at two points spaced in the length of the strip, with

the other flange of a rail base at two points spaced in the length of the rail base.

7. A rail anchor comprising a flat strip of metal formed with a pair of laterally extending spaced notches in one edge thereof and a hook at one end adapted to engage one flange of a rail base, the said strip being bent at its other end to upright U-form to position the notches thereof for the reception of spaced portions of the other flange of a rail base.

8. A rail anchor comprising a flat strip of metal hooked at one end for engagement with one flange of a rail base, said strip being bent intermediate its ends to form an inverted resilient loop and being further bent to provide a U-shaped portion embracing said loop and adapted to engage the other flange of a rail base at points spaced in the length of said flange.

9. A rail anchor comprising a flat strip of metal formed toward one end with a pair of laterally extending spaced notches in one edge thereof and hooked at the opposite end to engage one flange of a rail base, the said strip being bent intermediate its ends to provide an inverted resilient loop and further bent to dispose the notched portions on opposite sides of the loop and spaced lengthwise of the rail flange and in position to receive the other flange of the rail base in the notches thereof.

10. A rail anchor comprising a strip of metal formed toward one end to extend lengthwise above and below a rail base to engage edgewise with one flange of a rail base at points spaced in the length thereof, the said strip being bent to form an upright resilient loop, and an arm extending from a pendant arm of the loop transversely beneath the rail base and a hook at the end of the arm adapated to engage flatwise of the strip with the other flange of the rail base.

11. A rail anchor comprising a flat strip of metal formed with a pair of spaced notches in one edge thereof, said strip being bent intermediate the notches to substantially upright U-form and to locate the notches in position to receive portions of a rail base flange spaced in the length thereof, said strip being bent to inverted looped form beyond the notches thereof and adapted to extend transversely beneath a rail base and hooked to flatwise engage the other flange of a rail base.

12. A rail anchor comprising a flat strip of metal formed toward one end with a pair of notches spaced in one edge thereof, the notched portion of said strip being bent to substantially upright U-form to provide a pair of spaced arms of unequal length adapted to receive one flange of a rail base in the notches thereof and adapted in operation to be disposed in substantially parallel planes substantially perpendicular to the plane of a rail base, the longer of said arms being reversely bent to form an inverted loop and a pendant portion adapted to extend transversely beneath a rail base and to occupy a plane substantially parallel with the plane of the rail base, and a hook at the extremity of said strip adapted to engage the other flange of the rail base.

13. A rail anchor formed of a single strip of material comprising a pair of arms each notched to embrace one flange of a rail base, a web disposed below the rail base connecting the arms and an extension from one of said arms twisted through approximately 90° and bent through approximately 90° and passing between and beyond the arms, and a hook at the extremity of said extension adapted to engage the other flange of a rail base.

14. A rail anchor formed of a single strip of material comprising a pair of substantially parallel arms of unequal length each notched to embrace one flange of a rail base, a web disposed below the rail base flange connecting corresponding ends of the arms, the longer of said arms being bent to form an inverted loop, a reach arm adapted to be flexed and to thrust upwardly against the lower surface of the rail base, said arm extending from a lower end of said loop, and a hook at the extremity of said reach arm adapted to engage the edge of the other flange of a rail base and to be held in such engagement by the upward thrust of the arm.

15. A rail anchor formed of a single substantially straight-edged strip of material bent to engage a rail base at three points spaced in the length thereof, two of said points of engagement being with one base flange and the other point being with the other base flange longitudinally intermediate the first two points of engagement, the said strip being further formed to provide an inverted loop shrouded between the two anchor portions engaging one base flange and to be tensioned by the engagement of the third anchor portion with the other base flange, thereby to maintain engagement of the anchor with the rail.

In testimony whereof I hereunto affix my signature this 24th day of October, 1928.

ALBERT F. FIFIELD.