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E. R. PACKER.
GUARD RAIL CLAMP.
FILED MAY 19, 1920.

Fig. 1

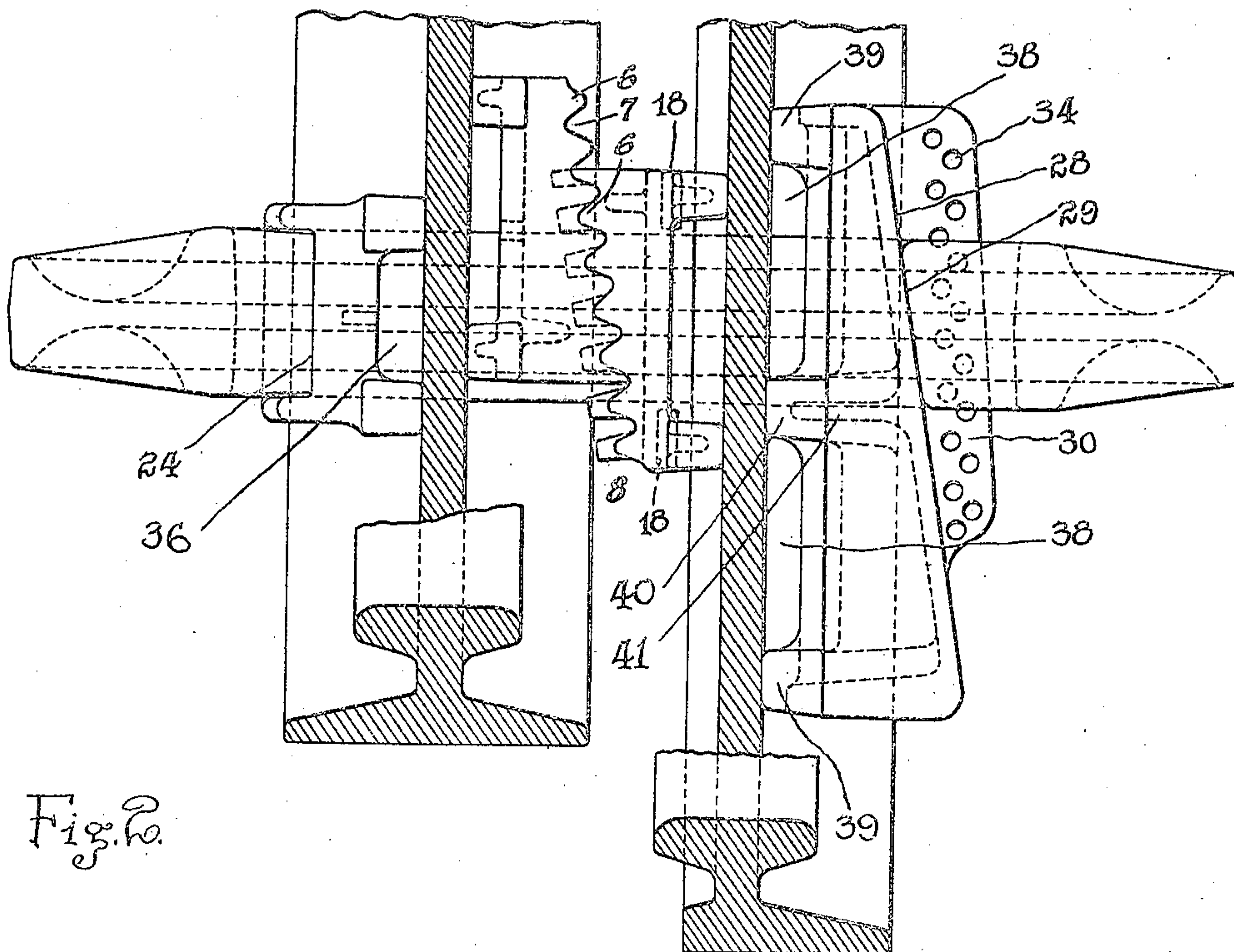
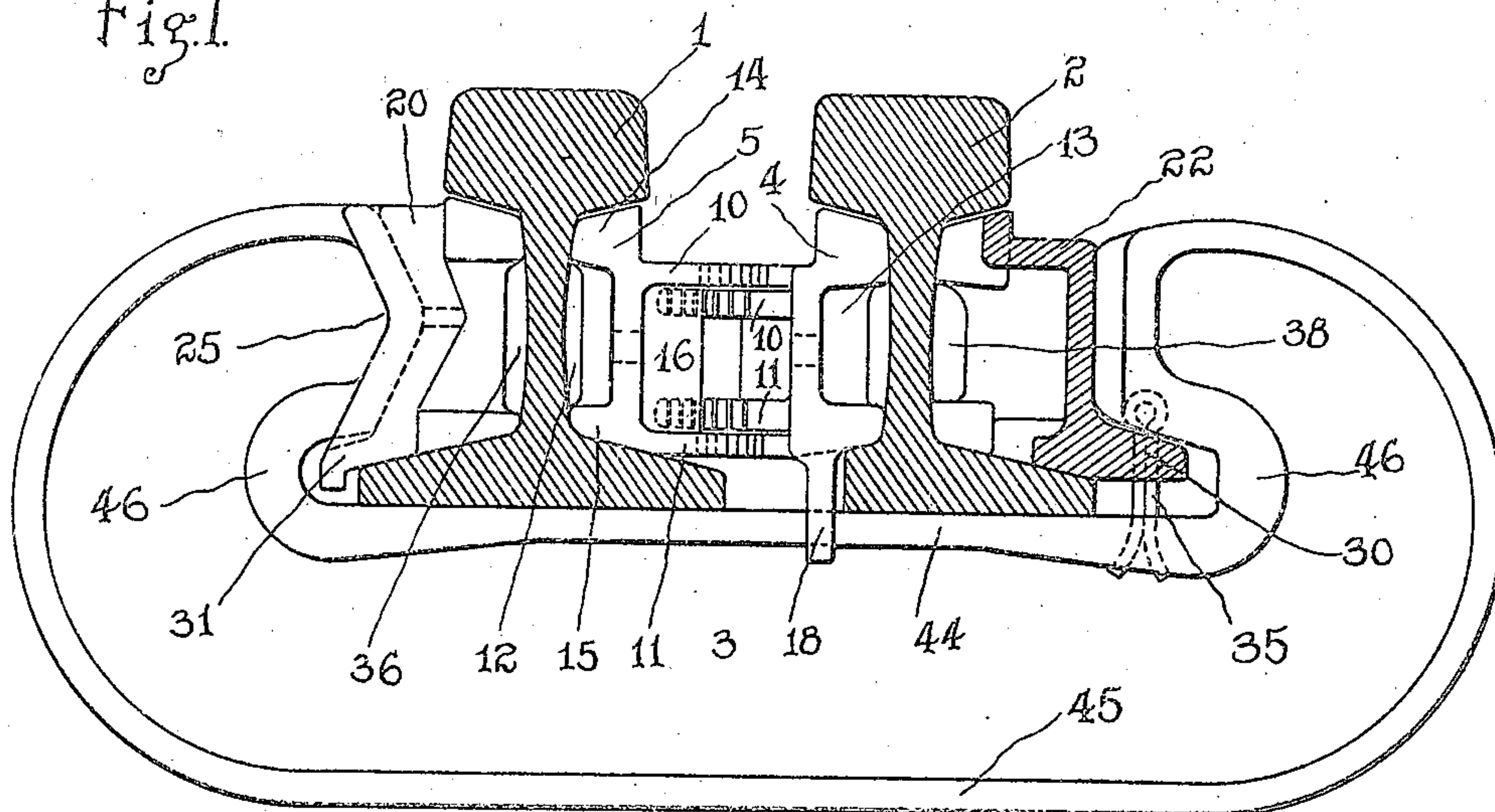


Fig. 2

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UNITED STATES PATENT OFFICE.

EBEN RAY PACKER, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO Q & C COMPANY, OF NEW YORK, N. Y., A CORPORATION OF MAINE.

GUARD-RAIL CLAMP.

Application filed May 19, 1920. Serial No. 382,543.

To all whom it may concern:

Be it known that I, EBEN RAY PACKER, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented new and useful Improvements in Guard-Rail Clamps, of which the following is a specification.

The present invention relates to guard rail clamps adapted for securing railway guard rails in proper relative position to the track rails and consists of an improved arrangement and construction of the several parts thereof designed particularly to produce a guard rail clamp which will have the maximum strength with the minimum of metal employed. To this end the constituent parts of my improved clamp are of an improved form wherein the distribution of the metal is such that additional metal or enlarged cross sectional areas of metal are provided immediately at the points or location of the greater stresses whereby for a given weight of metal greatly improved resisting values are obtained.

Further important features of my improved clamp construction consist of a novel arrangement of the parts particularly adapted to permit of their being readily and securely placed in position for use and adapted to be retained in effective position independent of the securing or tightening means. My improved device is moreover designed to possess other features of advantage over the clamps as heretofore made adapting it more successfully to resist the thrusts and pounding of heavy traffic without danger of displacement from its effective position. Other features and advantages of my present invention will be understood by reference to the accompanying drawings wherein like reference characters are applied to the corresponding parts in the several views.

In the drawings:—

Fig. 1 is a vertical cross sectional view through the respective rails showing the improved clamp of my invention in elevation.

Fig. 2 is a horizontal sectional view through the rails showing my improved clamp in plan.

Referring to the drawings wherein there is illustrated a desirable embodiment of the several features of my invention, 1 designates the usual track rail to which the guard rail 2 is attached in proper spaced relation

by means of the clamping yoke member 3. Arranged to coact with the yoke in the clamping of the rail and to space the respective rails from each other a suitable spacer or filler block 4—5 is provided and interposed between the respective rails as shown. This spacer block is composed of the two parts 4 and 5 which are separated in a vertical plane on a diagonal line to be capable of engagement in different positions of relative longitudinal adjustment so as to determine and adjust the separation of their outer contacting surfaces and in consequence the spacing of the rails. The adjacent and contacting surfaces of the parts forming the block are desirably formed with vertical corrugations composed of vertical ribs 6 and grooves 7 adapted to register so as to prevent relative longitudinal movement of the parts 4 and 5 and to permit of their assembly to adjust the width of the block for obtaining the desired spacing of the rails. Means are also provided to maintain the block members 4 and 5 against vertical displacement which, in accordance with the present invention, consists in providing the ribs 6 of the block member 4 with shoulder extensions or ledges 8 adapted to engage with horizontal surfaces of the coacting block member 5. As here shown the respective block members 4 and 5 are provided with upper and lower inwardly extending walls 10 and 11 upon the inner marginal edges of which are formed the coacting ribs and grooves 6 and 7. For obtaining a desirable lightness of construction the parts 4 and 5 are suitably cored out forming depressions 12 and 13 in their outwardly directed sides or faces directed toward the rails. As indicated this coring may desirably be in a manner to provide for four point contact with each of the rails by means of the upper and lower engaging shoulders 14 and 15 formed to engage the under side of the rail head and the upper surface of the rail flange respectively. As indicated each of the members 4 and 5 is provided with a transversely arranged vertical reinforcing wall or rib 16 connecting the horizontal walls 10 and 11 upon which the corrugations are formed thereby to lend additional strength thereto.

The improved arrangement of the shoulder extensions 8 upon the ribs 6 of the member 4 as will be readily understood provides a

simple and effective means for preventing relative vertical displacement of the members 4 and 5 in a manner requiring a comparatively small addition of metal. To prevent movement of the spacing block formed by the members 4 and 5 longitudinally of the rails and with relation to the yoke member 3, one of the blocks is provided in the usual manner with depending lugs to engage the side of the yoke. For this purpose as here shown the member 4 has integrally formed on its under side at its extremities suitable lugs 18, 18 positioned to engage with the side surfaces of the yoke member 3 and thereby to prevent longitudinal shifting of the spacing block. To coact with the yoke 3 and spacing block in clamping the guard rail in position there is provided a spacer block or shoe 20 interposed between the upper inwardly turned end portion of the yoke and the track rail and similarly interposed between the opposite inwardly turned end of the yoke and the guard rail there is arranged a wedge or tightening member 22. The shoe member 20 is formed as shown to bear upon the under side of the rail head and upon the rail base and is also provided with a socket 24 adapted to receive therein the tapered nose portion 25 of the yoke whereby the shoe 20 is held thereby from both longitudinal and vertical displacement.

As best shown in Fig. 2 the wedge member 22 is formed with a tapered or inclined outer surface or bearing wall 28 adapted to bear against a flat vertical bearing surface 29 of similar inclination formed on the inner end of the yoke 3 and the wedge is also formed to bear against the under side of the rail head and upon the upper surface of the rail base in the customary manner.

A further valuable feature embodied in my improved structure consists in providing means to maintain the proper vertical alignment of the yoke so that it is not permitted to drop down at either end upon loosening of the wedge member. This is accomplished by providing the wedge member 22 with an outwardly extending bearing flange or ledge 30 arranged as shown to underlie the end of the yoke and provide a support thereto. Similarly the spacer block or shoe 20 is provided with an extending flange 31 arranged to underlie the opposite end of the yoke. As a result thereof upon assembling of the parts preparatory to tightening of the clamp the yoke will be properly positioned and the clamping may be effected by the simple operation of driving in of the wedge without the necessity of otherwise holding the yoke in its proper position.

For the purpose of securing the wedge member in its tightened position the ledge portion 20 thereof is provided with a longitudinally arranged series of apertures 34 adapted to receive a securing cotter pin 35 at the reduced

end side of the yoke member whereby the wedge is secured from withdrawal. In further accordance with my present invention I have formed the spacer shoe 20 and the wedge member 22 of an improved design to the end of further contributing to the reduction of metal and lightness of the device. As indicated the inwardly directed face of the spacer shoe 20 is cored out at 36 in a manner to provide for a four point contact with the rail and similarly the wedge member is cored out at its inwardly directed side at 38, 38 to provide for six points of contact with the rail by means of shoulders 39, 39 at its extremities and intermediate contact shoulders 40. A transversely arranged vertical wall 41 is integrally formed with the intermediate shoulders 40 to provide a central reinforcement for the wedge member whereby it will be of adequate strength without excess of metal.

An important feature of my present invention resides in an improved design of yoke member which is of a form adapted to possess the maximum strength with the minimum of metal employed. As illustrated the yoke member 3 is of approximately I-beam form in cross section throughout its length having a vertical web and opposite horizontal flanges 44 and 45 of which as illustrated the rail engaging flange 44 is materially enlarged in width and cross section relative to flange 45 and moreover is further enlarged in its cross sectional area immediately at the bent or curved portions 46, 46 thereof at which points it is subjected to the greatest tensional stresses. The improved distribution of the metal of the yoke member as shown is particularly strong in resisting the outwardly directed thrusts to which the yoke ends are subjected in that enlarged areas of metal are provided where the severe tensional stresses occur as at the inner portions of the bends and at the upper side of the connecting beam or rail engaging portion. The web portion of the yoke is moreover of substantial depth so that the flange enlargement 45, at the point furthest removed from the neutral axis is positioned, so as to obtain greater resisting value from the metal therein. My improved form of yoke is therefore designed especially with a view to obtaining the maximum strength for the metal therein so as further to contribute to the efficiency and lightness of construction with resulting economy in manufacture. The enlargement in width of the flange 44 as will be noted provides for a greater area of bearing engagement with the under sides of the rails thereby more firmly supporting the yoke member in proper correlation with the rails.

In the preferred embodiment of the features of my invention as here shown wherein the spacer shoe 20 is employed the arrange-

ment permits of the parts being assembled without removing the guard rail and further allows for employing the same yoke members with wedge blocks and spacing shoes of varied sizes adapted for different rail sections. It will however be understood that my improved device is subject to modification for instance by the omission of the spacer shoe 20 and forming its associated yoke end so as to have direct contact with the rail which is common in this art.

Having described my invention I claim:—

1. A rail clamp comprising a clamping bar or yoke member having inwardly directed end portions, a wedge member formed with a rail engaging portion and an inclined wedging surface adapted to be interposed between one end of the yoke and a rail, a bearing shoe member adapted to be interposed between the opposite end portion of the yoke and a second rail and an adjustable spacer block adapted to be interposed between the rails and said wedge, the shoe and spacer block members being cored out to reduce the cross sectional area of metal therein and to provide for multiple point contact with the rails, substantially as described.

2. A rail clamp comprising a clamping bar or yoke member having inwardly directed end portions, a wedge member formed with a rail engaging portion and an inclined wedging surface adapted to be interposed between one end of the yoke and a rail, a bearing shoe member adapted to be interposed between the opposite end portion of the yoke and a second rail and an adjustable spacer block adapted to be interposed between the rails, said wedge, shoe and spacer block members being cored out to reduce the cross sectional area of metal therein and to provide for multiple point contact with the rails, said yoke member being of approximately I-beam form in cross section and having a vertical web and upper and lower laterally extending flanges and said upper flange being substantially enlarged in width and cross section relative to said lower flange and being further enlarged in cross sectional area immediately at the bend or curved portions of the yoke, substantially as described.

In testimony whereof I have signed my name to this specification.

EBEN RAY PACKER.