No. 724,711. PATENTED APR. 7, 1903.

W. S. JONES.

RAIL CLAMP.

APPLICATION FILED JULY 3, 1901.

NO MODEL.

Fig. 1.

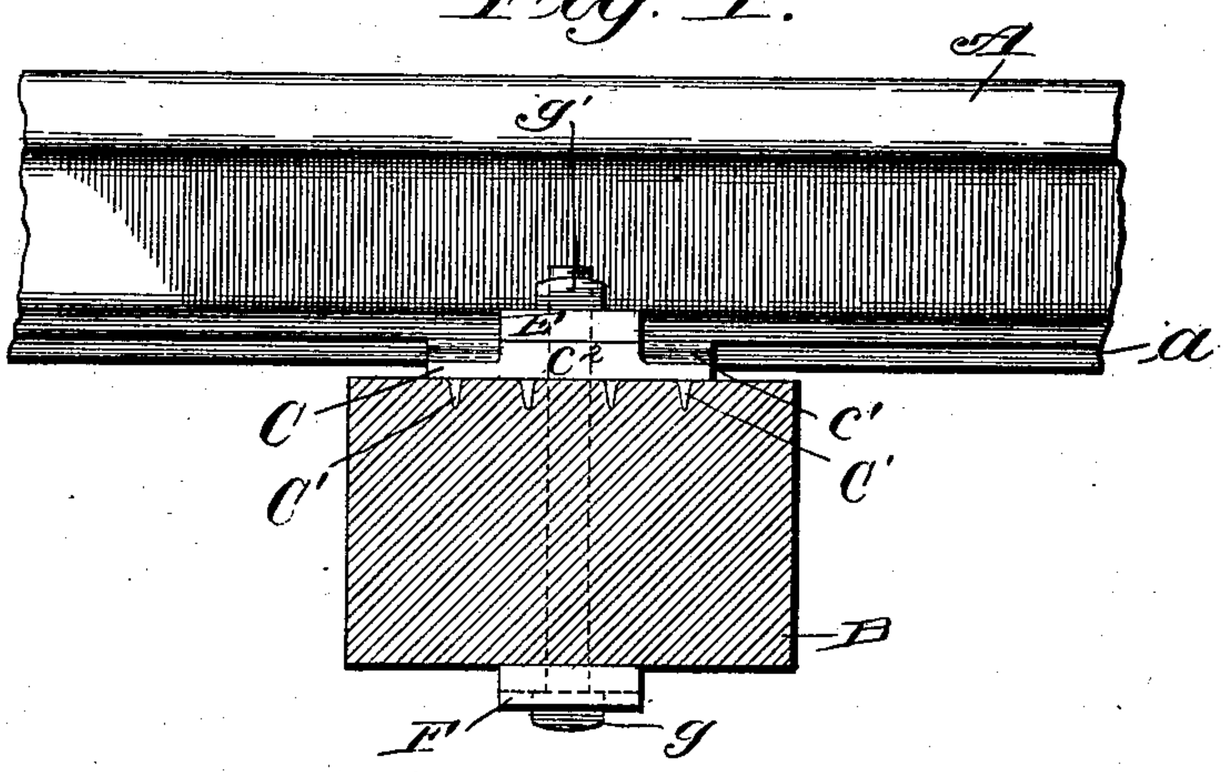

Fig. 2.

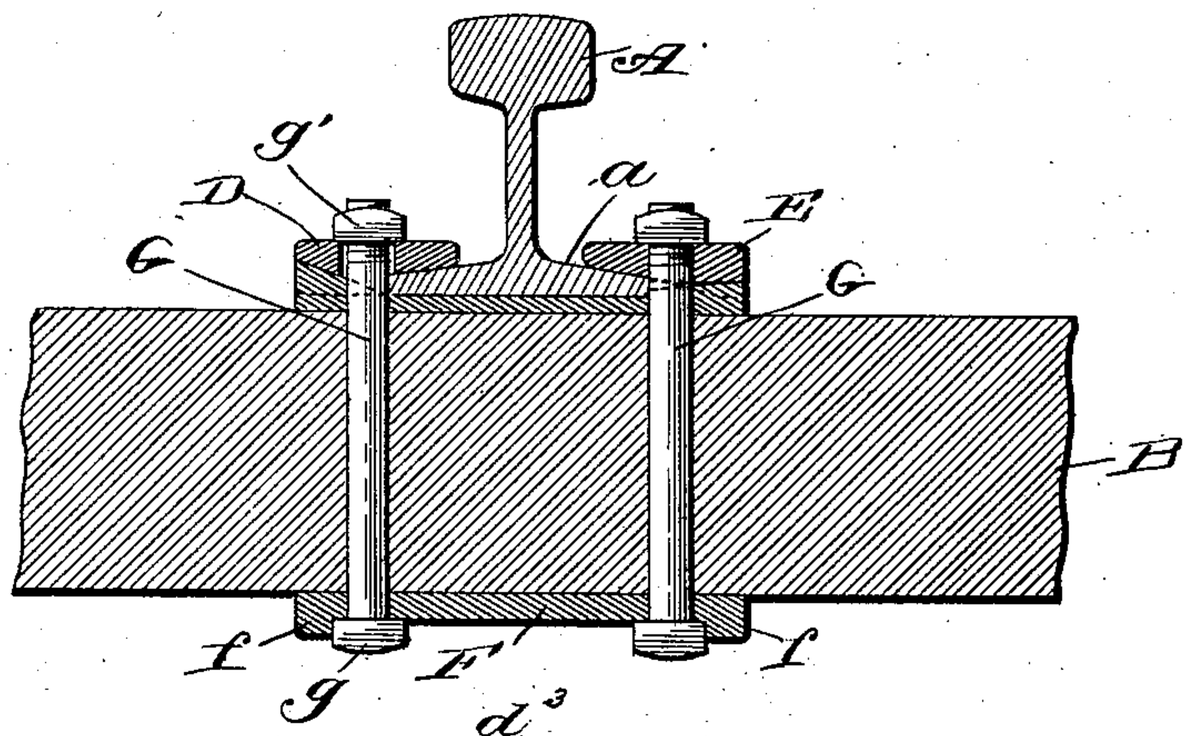

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIS S. JONES, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE RAILROAD SUPPLY COMPANY, A CORPORATION OF ILLINOIS.

RAIL-CLAMP.

SPECIFICATION forming part of Letters Patent No. 724,711, dated April 7, 1903.

Application filed July 3, 1901. Serial No. 66,939. (No model.)

To all whom it may concern:

Be it known that I, WILLIS S. JONES, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented a certain new and useful Improvement in Rail-Clamps; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to fastening devices for securing the rails of a railroad to the ties, and more particularly to that class of such devices in which the rails are secured to the ties without the use of spikes.

It has been found impossible in laying underground railroads to secure the rails to cross-ties in the usual manner—namely, by driving spikes into the ties on each side of the base of the rail, with the heads of the spikes overlapping the edges of the rail-base—inasmuch as the walls of the tunnel prevent the swinging of a sledge necessary to deliver a blow of sufficient force to drive the spikes into the ties. This objection has rendered the use of cross-ties in underground railroads impracticable and has necessitated the employment of longitudinally-extending strips to support the bases of the rails.

The object of my invention is to provide a device for fastening rails to ties and which can be easily and securely applied without the use of spikes or nails.

A further object of my invention is to provide a device of the character described which will be simple in construction, inexpensive in manufacture, and efficient in use.

The invention will be more fully described hereinafter with reference to the accompanying drawings, in which the same is illustrated as embodied in a convenient and practical form, and in which—

Figure 1 shows a rail secured to a tie by means of my invention, the rail being shown in elevation and broken away at its ends and the tie being shown in cross-section; Fig. 2, a vertical cross-section through a rail and the parts constituting my invention, the tie being shown in longitudinal section and broken away at its ends; and Fig. 3, a perspective view of the parts of my invention detached from the rail and tie.

Similar reference characters indicate the same parts in the several figures of the drawings.

Reference character A indicates a rail of common form consisting of a tread portion, a web, and a base *a*.

B indicates a cross-tie, which may be of any desired material.

C indicates a base-plate, which is adapted to be secured to the tie at the point where the rail is to be located. This plate is provided with an inclined projecting portion or wedge *c*, such portion gradually rising from the upper surface of the plate toward one of the edges thereof. Shoulders c' are provided on the plate C at a distance from the wedge *c* corresponding approximately to the width of the base of the rail. These shoulders c' are preferably two in number and separated from each other by an intermediate raised portion c^2. This raised portion declines slightly, so that its edge, which is flush with the vertical faces of the shoulders, is slightly lower than the upper ends of the shoulders.

D indicates a clamp member, which is provided with an inclined lower surface corresponding in inclination to the wedge *c* on the plate C. The clamp member D is cut away, so as to form a shoulder d', rising from the lower edge of the inclined portion. The portion d^2 projects from the shoulder d' and is inclined slightly upwardly to correspond with the upper surface of the base of the rail.

E indicates a second clamp member, which is fulcrumed upon the raised portion c^2 of the plate C.

The under surface of the clamp member E is preferably slightly inclined to correspond with the upper surface of the base of a rail with which it engages.

Bolt-holes c^3 are provided through the plate C, such bolt-holes passing through the lower portion of the wedge *c* and through the inner part of the raised portion c^2. Bolt-holes e^3 and d^3 are also provided through the clamp members E and D, respectively, the hole d^3 being slightly larger than the other holes for a reason which will later appear.

The under surface of the base-plate C may be provided with projecting ribs C′, which are driven into the tie to hold the plate in the desired position.

A plate F, having shoulders *f* at each end and bolt-holes adjacent thereto, may be located on the under side of the tie to serve as a lock for the heads of the bolts.

My invention is applied as follows: The base-plate C is fixed upon the tie at the point where the rail is to be located, its position being determined by a gage, so that the shoulders *c′* will properly position the base of the rail. Bolt-holes registering with the aperture c^3 in the base-plate are then made through the tie, and the bolts G are passed through the openings in the locking-plate F, through the holes in the tie, and through the openings c^3 in the base-plate C. The rail is then located upon the base-plate between the wedge *c* and shoulders *c′* and between the bolts G, after which the clamp member D is placed above the wedge *c*, the inclined surface *d* thereof engaging the surface of the wedge and the enlarged opening d^3 surrounding the end of the bolt G which projects above the wedge. The other clamp member E is located above the raised portion c^2, with its inclined under surface in contact with the base of the rail on the opposite side thereof from the clamp member D, the aperture e^3 surrounding the end of the bolt G which projects above the raised portion c^2. The nuts *g′* are then turned onto the screw-threaded ends of the bolts, the bolts being prevented from turning by the engagement of their heads with the flanges *f* of the locking-plate. When the nut on the end of the bolt above the clamp member D is turned toward the head of the bolt, said clamp member, owing to the engagement between its inclined under surface and the wedge *c* on the base-plate, is drawn downwardly and at the same time inwardly. This inward movement is permitted by the opening d^3, which is slightly greater in diameter than the bolt. The second clamp member E when the nut on the bolt above it is turned toward the head of the bolt is rocked slightly upon the raised portion c^2 as a fulcrum, and thereby forced into close engagement with the upper surface of the base of the rail.

It is evident from the foregoing description of the manner in which my invention is applied that a rail may be readily and securely fastened to a tie without the use of nails or spikes, the base on one side of the rail being securely held between the clamp member E and the base-plate C, while the base of the rail on the opposite side is not only securely held against the base-plate, but is also forced laterally into engagement with the shoulders *c′*, thereby accurately positioning the rail upon the tie.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, the combination with a base-plate having a shoulder and a wedge gradually rising from the plate at a point distant from said shoulder substantially equal to the width of the base of a rail, of a clamp having an inclined portion engaging said wedge and a vertical shoulder rising from said inclined portion adapted to engage the base of a rail, and means for drawing said clamp toward said base-plate thereby forcing the base of the rail against said shoulder and also securing the rail to the base-plate, substantially as described.

2. In a device of the character described, the combination with a tie, of a base-plate having a shoulder and a wedge spaced apart a distance substantially equal to the width of the base of a rail, of a clamp having an inclined portion engaging said wedge and a vertical shoulder rising from said inclined portion adapted to engage the base of a rail, and a bolt passing through said tie and base-plate and also through an enlarged opening in the inclined portion of said clamp, substantially as described.

3. In a device of the character described, the combination with a base-plate having a shoulder and a gradually-inclined wedge on its upper surface, of a clamp having an inclined portion extending from one side thereof to approximately its center engaging said wedge and a vertical shoulder rising from the central edge of said inclined portion adapted to engage the edge and top of the base of a rail, and means for drawing said clamp toward said base-plate whereby the base of the rail is forced against said shoulder and also secured to the base-plate, substantially as described.

4. In a device of the character described, the combination with a base-plate having a shoulder and wedge on its upper surface, of a clamp having an inclined portion engaging said wedge and a shoulder adapted to engage the edge and top of the base of a rail, a second clamp adapted to engage the top of the base on the opposite side of the rail from the first clamp, and bolts passing through said base-plate and clamps whereby the base of the rail is forced against said shoulder and also secured to the base-plate, substantially as described.

5. The combination with a tie, a rail supported thereon, a shoulder projecting above the tie with which an edge of the rail-base engages, a gradually-inclined wedge also projecting above the tie at a distance from said shoulder substantially equal to the width of

the rail-base, a clamp having an inclined portion extending from one side thereof to approximately its center engaging said wedge and a vertical shoulder rising from the central edge of said inclined portion engaging the edge of a rail-base, and means for securing said shoulder and wedge to said tie and coincidently forcing said clamp through its engagement with said wedge against the edge and top of the rail-base, substantially as described.

6. The combination with a tie, of a rail supported thereon, a base-plate having a shoulder and a wedge projecting from the upper surface thereof, of a clamp-plate having an inclined portion engaging said wedge and a shoulder engaging the edge and top of the rail-base, a second clamp engaging the top of the rail-base adjacent to said shoulder, and bolts passing through said tie, base-plate, and clamps, whereby the rail-base is forced against said shoulder and together with said base-plate secured to the tie, substantially as described.

7. As an article of manufacture, a base-plate comprising shoulders on its upper surface, a raised portion between, and declining to a lower level than, said shoulders, a wedge declining toward said shoulders also on the upper surface of the base-plate, a seat between said shoulders and wedge for the base of a rail, said plate having bolt-holes passing through said raised portion and wedge, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIS S. JONES.

Witnesses:
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