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PATENTED JUNE 16, 1908.

G. S. & R. P. BICKLEY.

METALLIC CROSS TIE.

APPLICATION FILED SEPT. 26, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

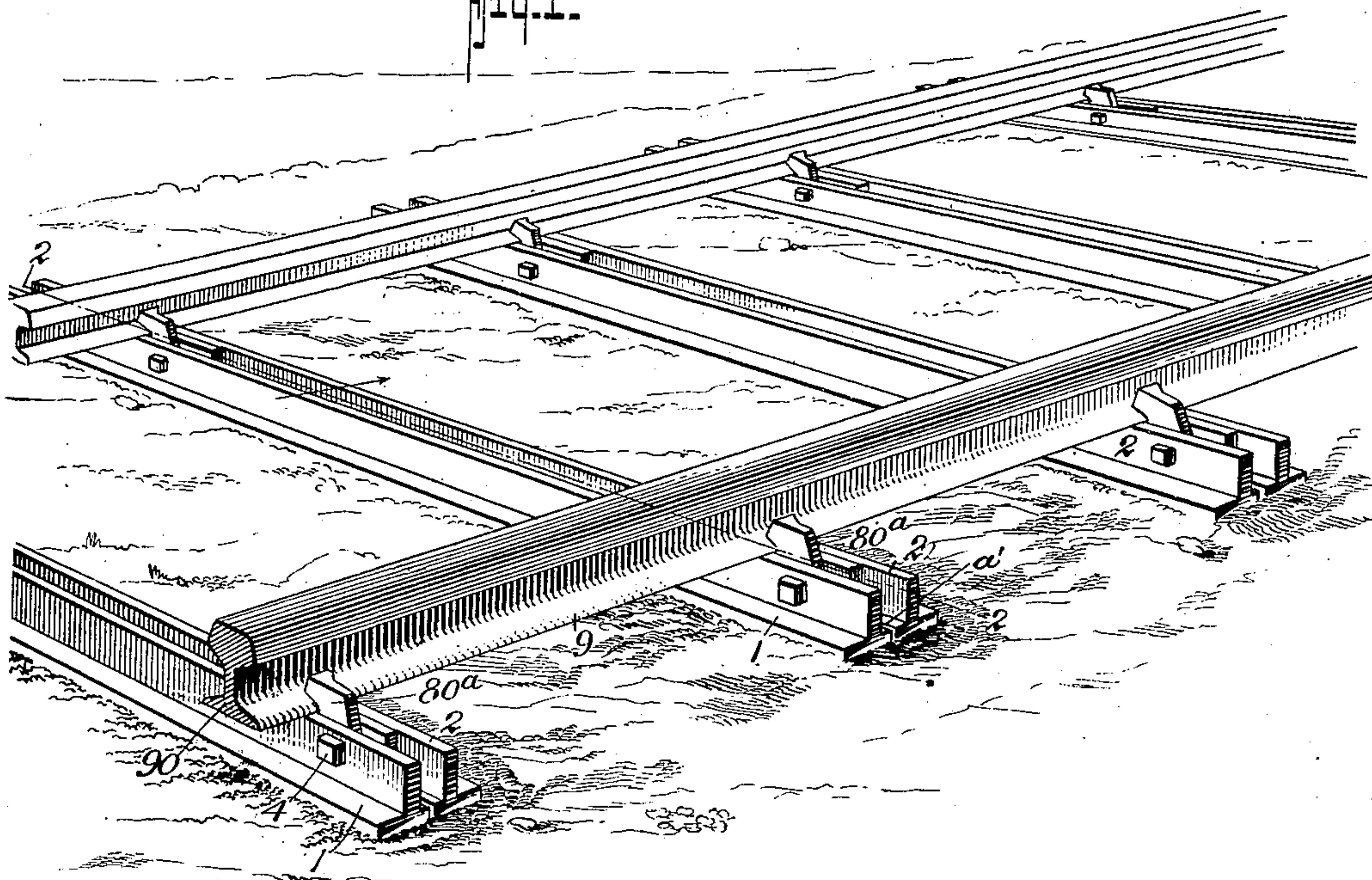
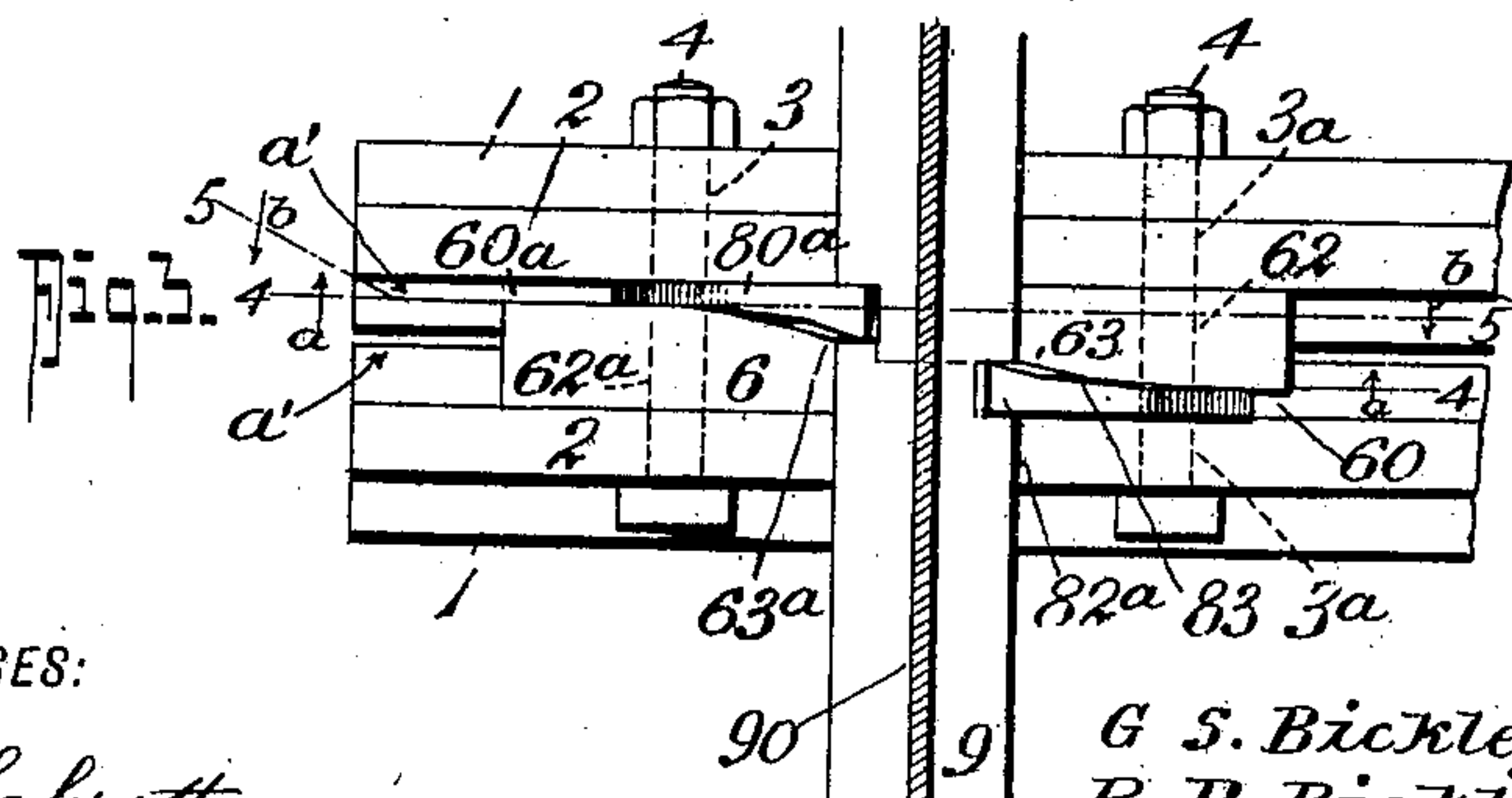
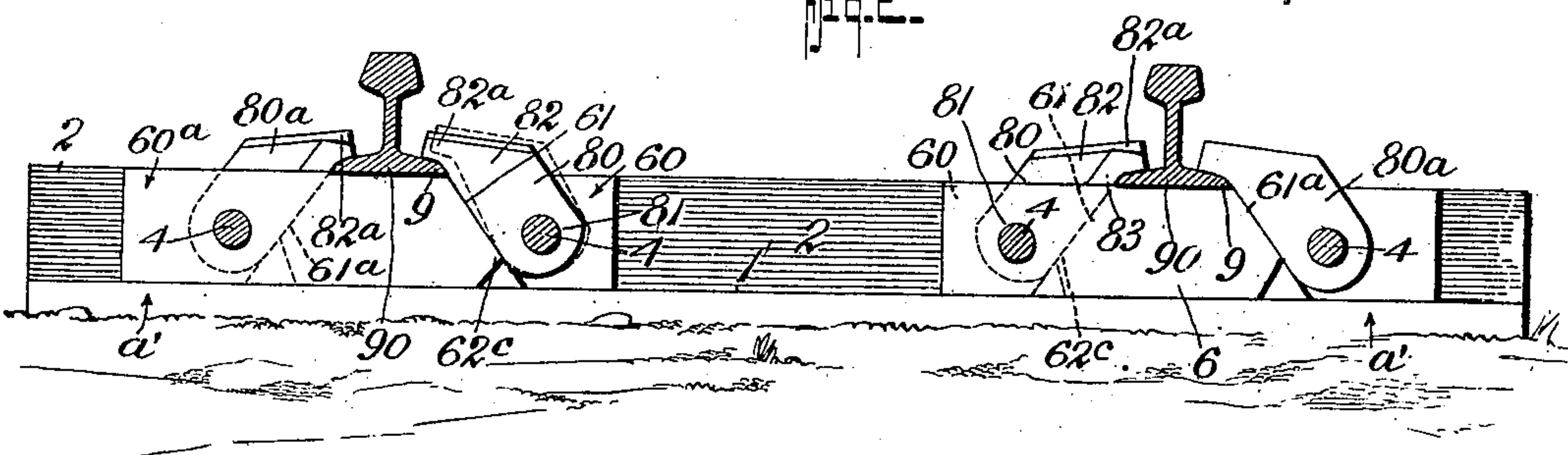


Fig. 2.



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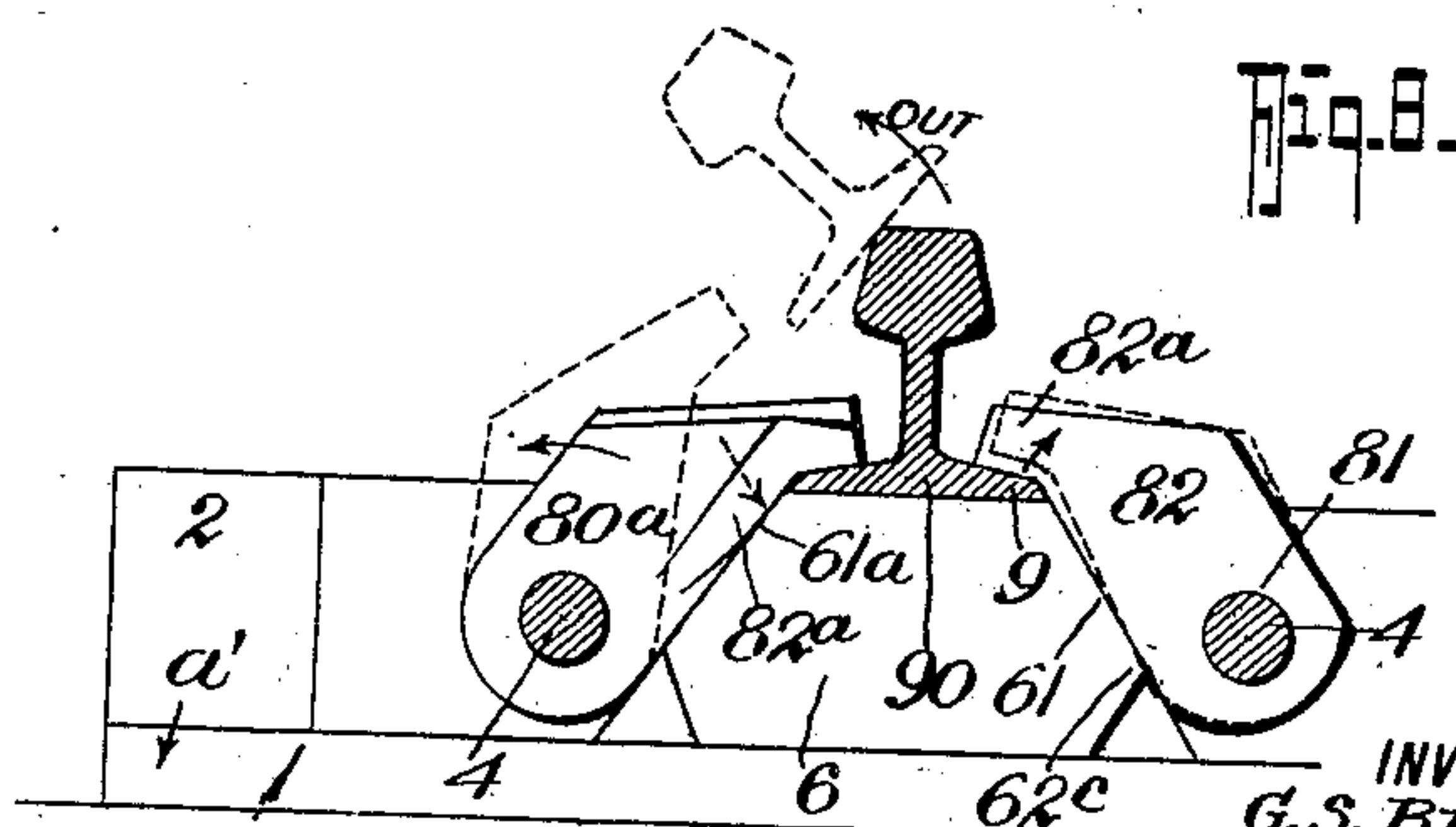
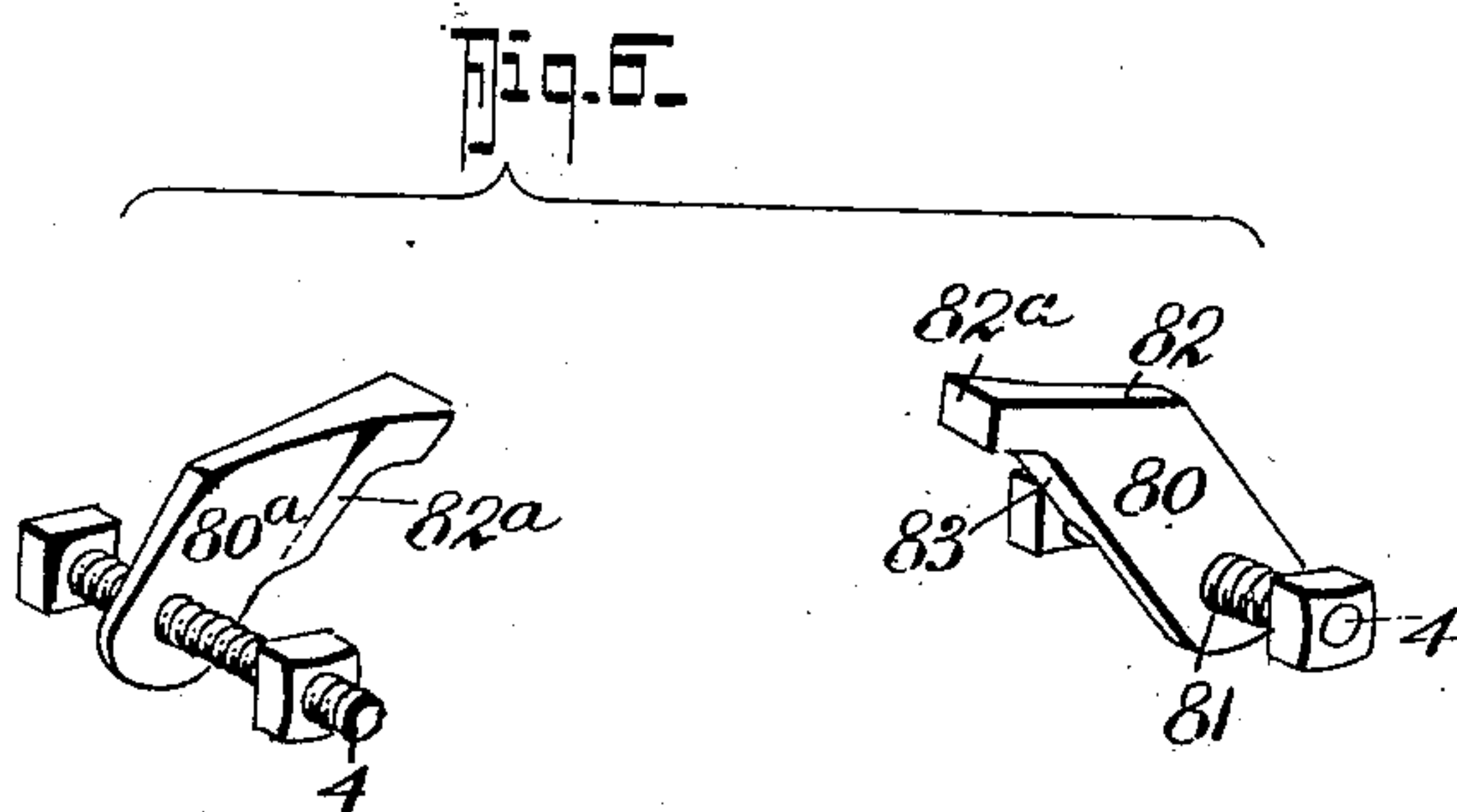
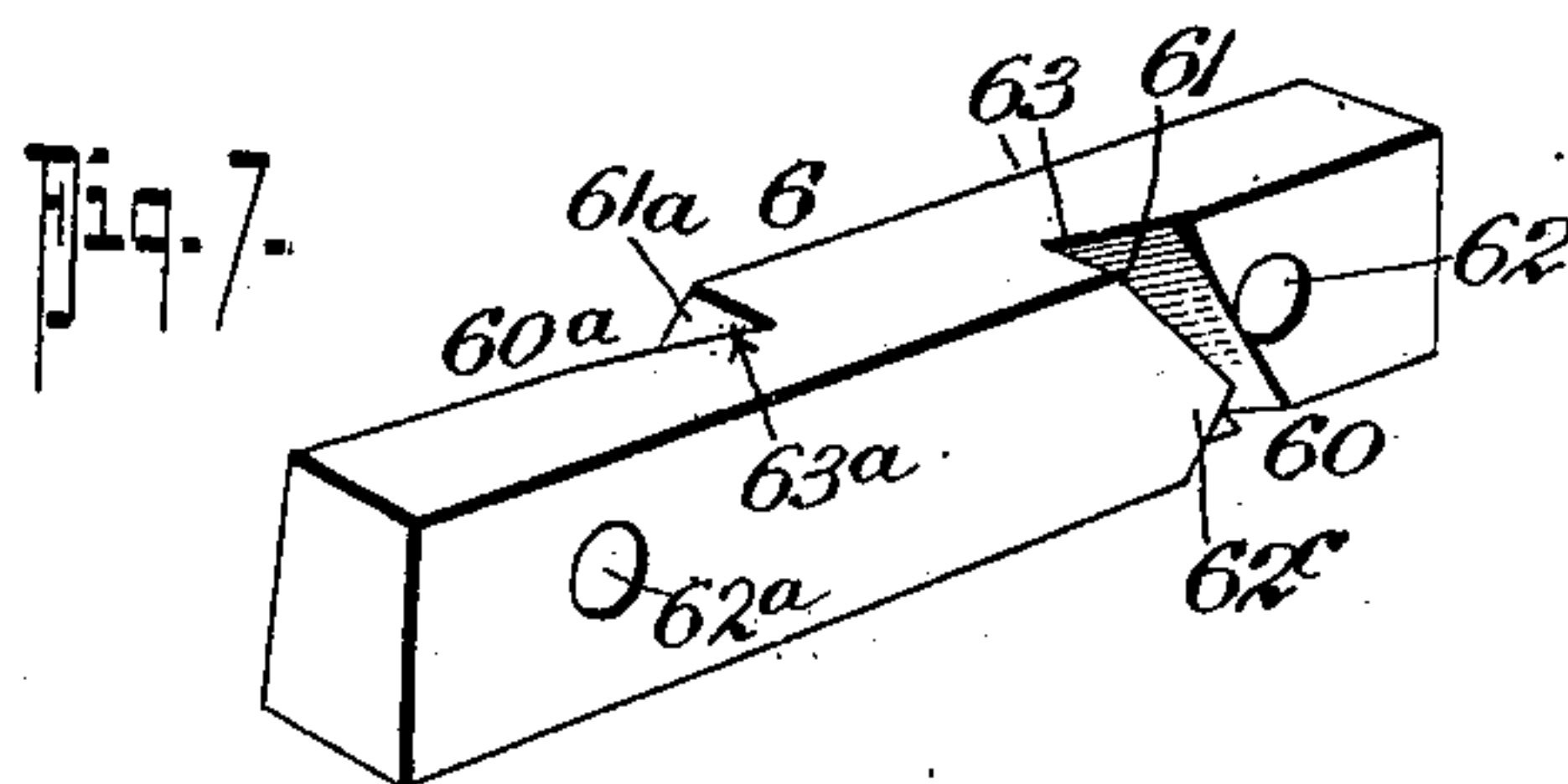
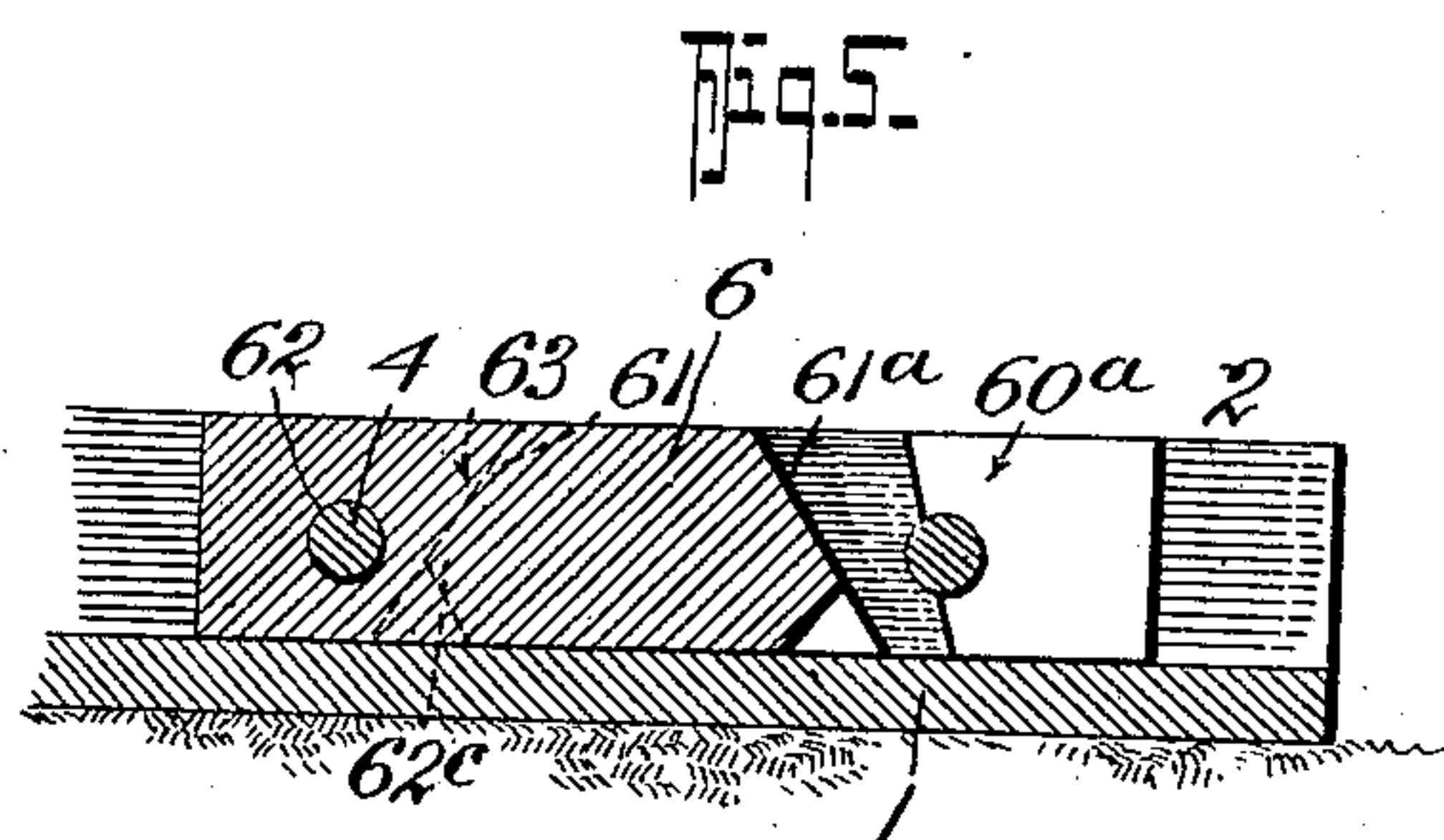
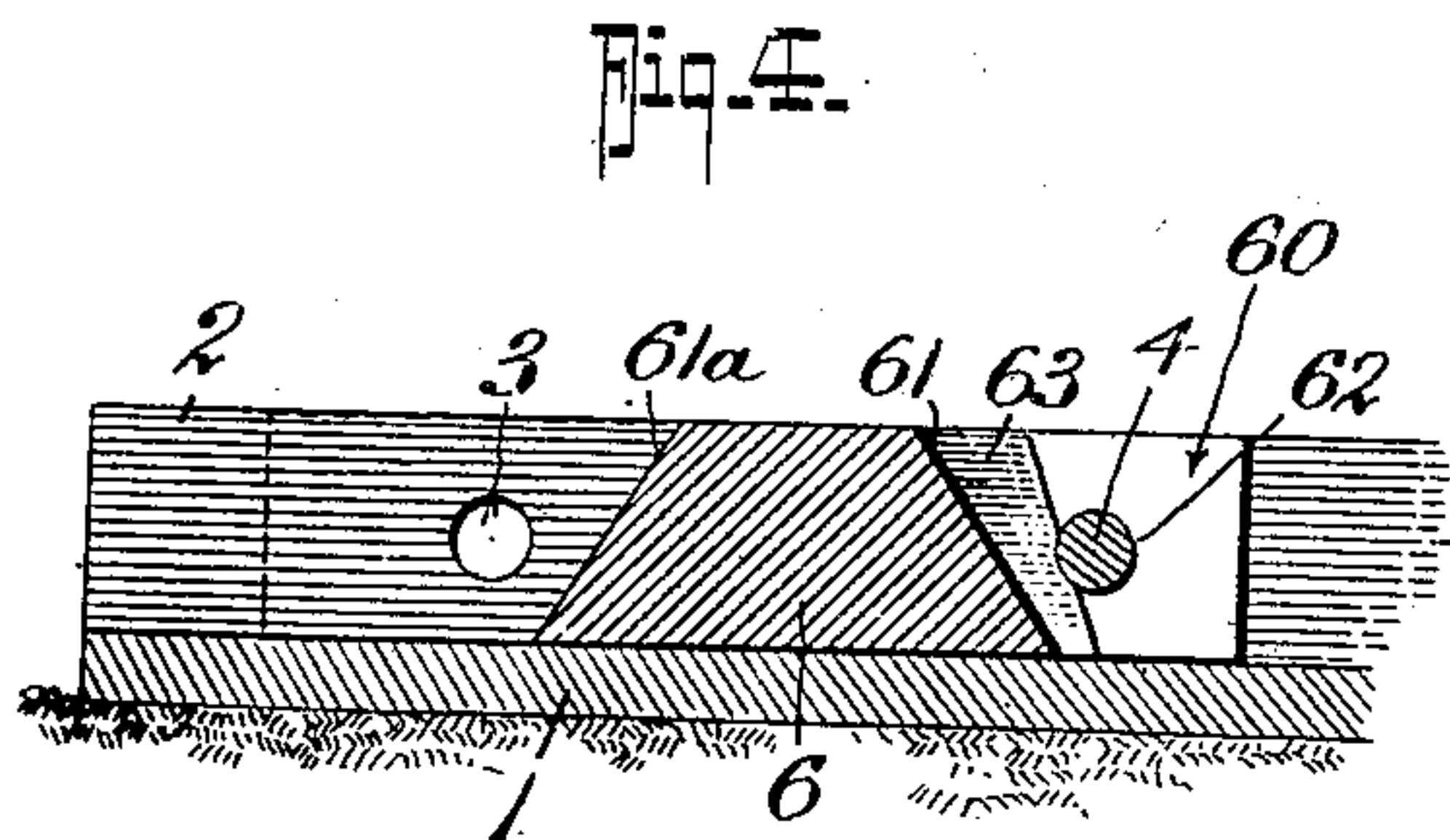
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UNITED STATES PATENT OFFICE.

GEORGE S. BICKLEY AND RUFUS P. BICKLEY, OF TYLER, TEXAS.

METALLIC CROSS-TIE.

No. 891,031.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed September 26, 1907. Serial No. 394,735.

To all whom it may concern:

Be it known that we, GEORGE S. BICKLEY and RUFUS P. BICKLEY, residing at Tyler, in the county of Smith and State of Texas, have
5 invented a new and Improved Metallic Cross-Tie, of which the following is a specification.

This invention is in the nature of an improved metallic cross tie for railroad rails and it primarily seeks to provide a tie of this character, of a simple and economical construction, in which is embodied an effective means for clamping the rails and for firmly holding the same under varying temperatures and in which the parts are coöperatively so arranged
10 whereby the operation of applying and locking the rails to the cross tie can be quickly and positively effected without the use of spikes and like holding means.

In its generic nature our invention comprehends a tie formed of two like longitudinal members, each having a vertical flange extending the length thereof, a pair of spacing blocks, clamp bolts that take transversely through the tie flanges and the spacing blocks
20 and form pintles for adjustable rail clamping members held between the two rail sections to engage the spacing blocks, the latter members having special formation of parts whereby under certain adjustment of the clamping
25 bolts and nuts the said blocks serve as locking members for firmly holding the rail clamps down against the rail base flange and under another adjustment admits of the said clamps being moved to permit the placing of
30 the rail in proper position on the cross tie or the disconnection of the rail and tie, as conditions may require.

In its more subordinate features, our invention consists in certain details of construction and peculiar combination of parts, all of which will be fully described, pointed out in the appended claims and illustrated in the accompanying drawings, in which:—

Figure 1, is a perspective view which illustrates our improved cross tie as in use. Fig. 2, is a longitudinal section of the cross tie, taken on the line 2—2 on Fig. 1. Fig. 3, is a plan view of one end of the tie, the rail that is clamped thereon being in section. Fig. 4,
45 is a longitudinal section on the line 4—4 on Fig. 3 and looking in the direction of the arrow *a*. Fig. 5, is a similar view on the line 5—5 of Fig. 3 and looking in the direction of the arrow *b*. Fig. 6, is a perspective view of
50 one set of the pivotally mounted rail clamps. Fig. 7, is a similar view of one of the spacing

blocks. Fig. 8, is a diagrammatic elevation view of one end of the tie, showing the two members loosely clamped to permit of swinging back one of the clamping members to
60 provide for placing the rail in position to be clamped.

In the practical construction, our invention consists of two opposing half sections of like form, each of which consists of a base 1
65 and an integral flange 2 that projects upwardly at right angles therefrom and which, at proper points, and at opposing ends thereof, have transverse alining apertures 3—3^a that are provided for receiving clamping
70 bolts 4 which, in our arrangement, preferably have non-circular heads.

At each end the tie has a spacing block which is of such width that when fitted between the vertical flanges 2—2 they hold the
75 flanges sufficiently apart to separate the adjacent ends *a'—a'* of the base 1 and thereby permit of closing up the two tie members firmly against the spacing block 6.

The blocks 6 are both constructed alike
80 and consist of a solid casting having the depth of the flange 2 and having their side faces at the opposite ends recessed as at 60—60^a, the inner end of the innermost recess 60 being inclined inwardly at an angle
85 of approximately 45° as indicated by 61, and the said inclined end 61 is disposed adjacent the bolt aperture 62 in the said block that registers with one of the inner sets of apertures 3^a and receives the clamping bolt 4 that
90 passes through the said apertures 3^a as shown.

Within the recess 60 is mounted a rail clamp, consisting of a body portion 80 apertured as at 81 to fit upon the bolt 4 and having a head portion 82 provided with a projecting hook like member 82^a adapted to fit
95 over the flange 9 of the rail base 90.

The body portion 80 extends relatively to the head portion at an angle of 45° and the
100 said body is of a tapering shape and at its inner face on the front edge it has a wedge portion 83 that tapers from the lower to the upper end, the greatest thickness being at the upper end and the said wedge portion
105 is arranged to coöperate with a similarly shaped depression 63 formed in the inner end of the recess 60 for a purpose presently explained. At this point it should be stated that the bolt aperture 62 is relatively so disposed with reference to the inclined edge 61
110 that the clamp 80 has but a slight back

swing on the bolt 4 since its lower end engages the said edge 61, at 62° and prevents the clamp being swung back, such relation of these parts being provided to hold the clamp 80 in a substantially fixed position to the tie for guiding the setting of the rail flange in the projecting hook portion 82.

The opposing end of the block has the inclined end 61^a of its recess positioned relatively to the bolt aperture 62^a, the latter registering with the tie aperture 3, so that the clamp member 80^a can be freely swung back to the position shown in dotted lines on Fig. 8, when the tie members are sufficiently loosened to allow the wedge flange 82^a of the said clamp being moved out of the coacting wedge seat or depression 63^a, such arrangement of parts being provided for readily clamping the rail in position on the tie, it being manifest that in the tie the block on the rail after its flange on one side has been slid under the hook end of the substantially fixedly held closed clamp, the other clamp can be conveniently swung over to engage with the opposing flange of the rail. When the two clamping members are thus positioned on the rail flange, they can be simultaneously drawn tightly thereon by tightening the nuts of the tie bolt which effects the closing together of the two tie members and the forcing of the clamp against the block 6, which, by reason of their wedge edges engaging the correspondingly shaped depressions in the block recess, are caused to swing down in the direction of the arrow on Fig. 8 and in consequence tightly grip the rail flange.

By reason of the manner in which the clamp and the spacing block that carry the clamps are constructed, it is manifest ample provision is made for the natural expansion and contraction of the parts under varying temperatures without affecting the rail gripping action of the clamp which, in our construction has such connection with the rail and the tie, that spreading of the rails is absolutely prevented without breaking the parts.

To replace the broken or worn rail, it is only necessary to loosen the tie sections sufficiently to permit the swinging back the outer clamp when the rail can be readily swung from a locked engagement with the fixedly held clamp.

From the foregoing, taken in connection with the accompanying drawings, the complete construction and manner in which our invention is practically applied and its advantages will be readily apparent to those skilled in the art to which it appertains.

Among other advantages it should be stated that in the event of either one of the clamps becoming broken or worn, it may be readily removed by drawing the bolt on which it is held as the new one is substituted therefor.

Having thus described our invention, what we claim and desire to secure by Letters Patent, is:—

1. A metallic cross tie which comprises in combination with separable members; a spacing block located between each end of the separable members, clamp bolts that extend transversely through the said members and the spacing blocks, the said blocks each having their ends recessed at diagonally opposite sides, a rail clamp mounted on each of the bolts and in the said recesses, said clamps and that portion of the block against which they bear having opposing wedge portions whereby when the separable members are drawn together the clamps will be firmly held to the rail flange gripping position.

2. In a metallic cross tie, the combination with two opposing tie members and the drawing bolts and nuts mounted transversely thereon; of a spacing block having its ends recessed, the recesses at one end being at the side opposite the recesses at the other end, said blocks having apertures in the recessed ends for the drawing bolts, the rail clamp pivotally mounted on each bolt and within the block recess, said clamps each having a rail flange engaging hook, the inner ends of the recesses being inclined toward each other, the walls of the recesses adjacent the inclined end having wedge shaped depressions, the clamping members having like shaped projections for engaging said depressions, the said depressions and projections being relatively formed whereby as the clamps are drawn tightly against the spacing blocks they swing down into a tight clamping engagement with the rail flanges, as set forth.

3. In a metallic cross tie, the combination with the two opposing tie members and the drawing bolts mounted transversely thereon; of a spacing block having its ends recessed, the recess at one end being at the side opposite the recess at the other end, said block having apertures in the recessed ends for the drawing bolts, a rail clamp pivotally mounted on each bolt and within the block recess, each of said clamps having a rail flange engaging hook, one of said clamps being mounted to freely swing back upon the bolt upon which it is mounted, the inner ends of the recesses being inclined toward each other, the walls of the recess adjacent the inclined end having wedge shaped depressions, the clamping members having like shaped projections for engaging with said depressions, the said depressions and projections being relatively formed whereby the rail clamps are drawn tightly against the spacing block to swing down into a tight clamping engagement with the rail flanges, as set forth.

4. In a metallic rail tie of the character described, the combination with the separable body members and the clamping bolts that coöperate therewith; of a rail clamp

mounted on each of the said bolts and held
to project inwardly toward each other and
having their upper ends projected above the
separable body members and formed with
5 hooks for engaging the rail flanges, and means
mounted between the separable members
that coöperates with the rail clamps for
fixedly engaging with the said clamps and

holding them to their rail flange gripping
position when the separable members are 10
tightly drawn together, as set forth.

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Witnesses:

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