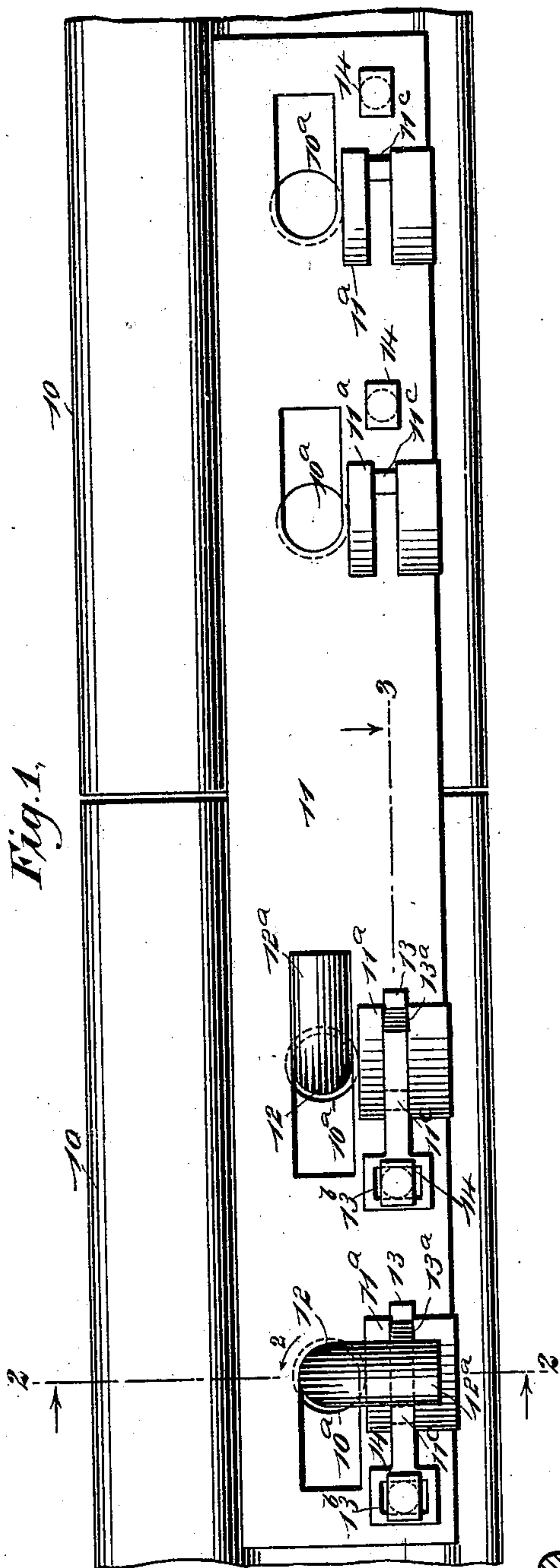


(No Model.)

W. D. JONES.
RAIL JOINT.

No. 554,602.

Patented Feb. 11, 1896.



WITNESSES:
Edward Thorpe.
Wm. I. Patton

Fig. 1.

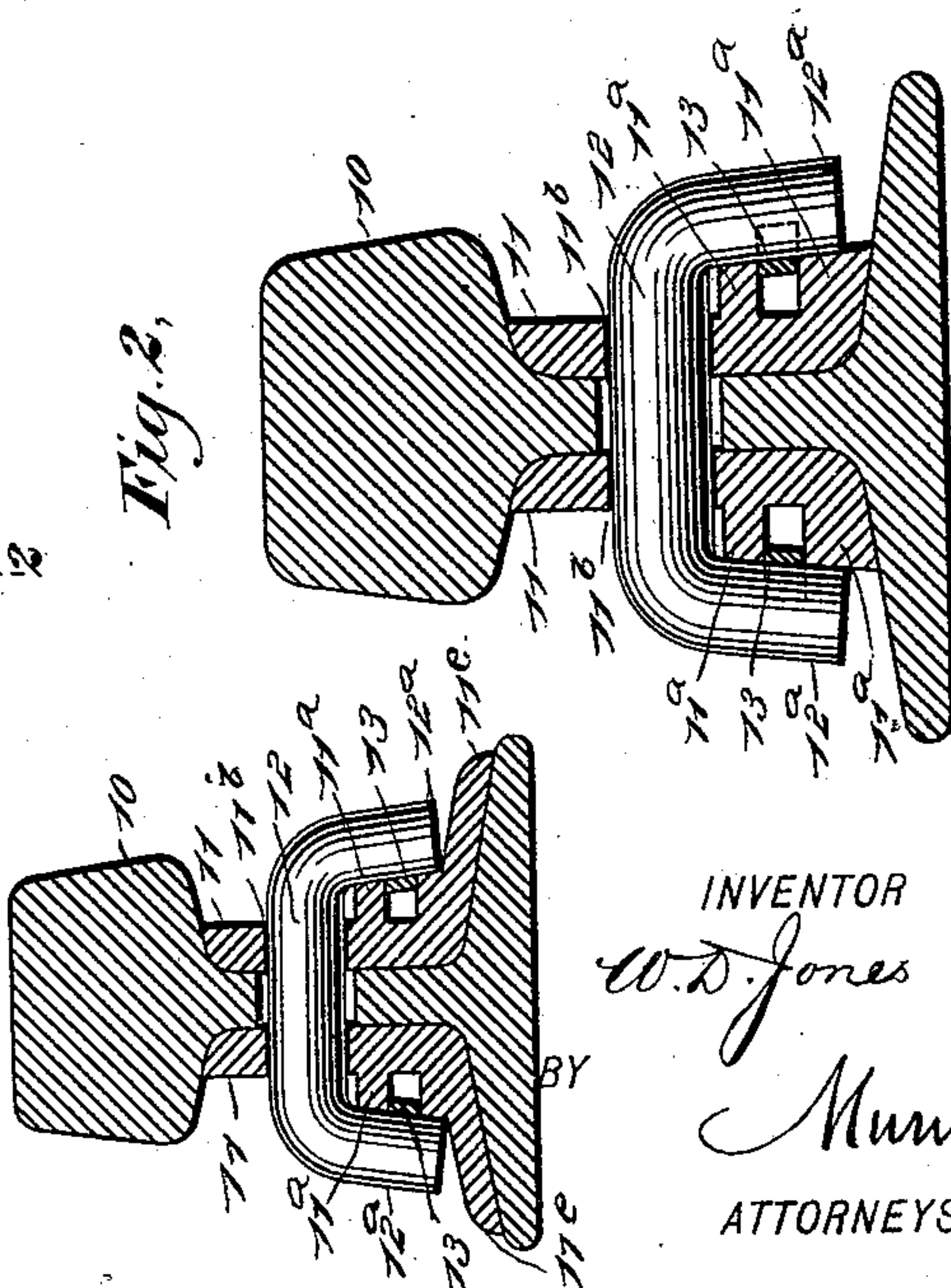


Fig. 2.

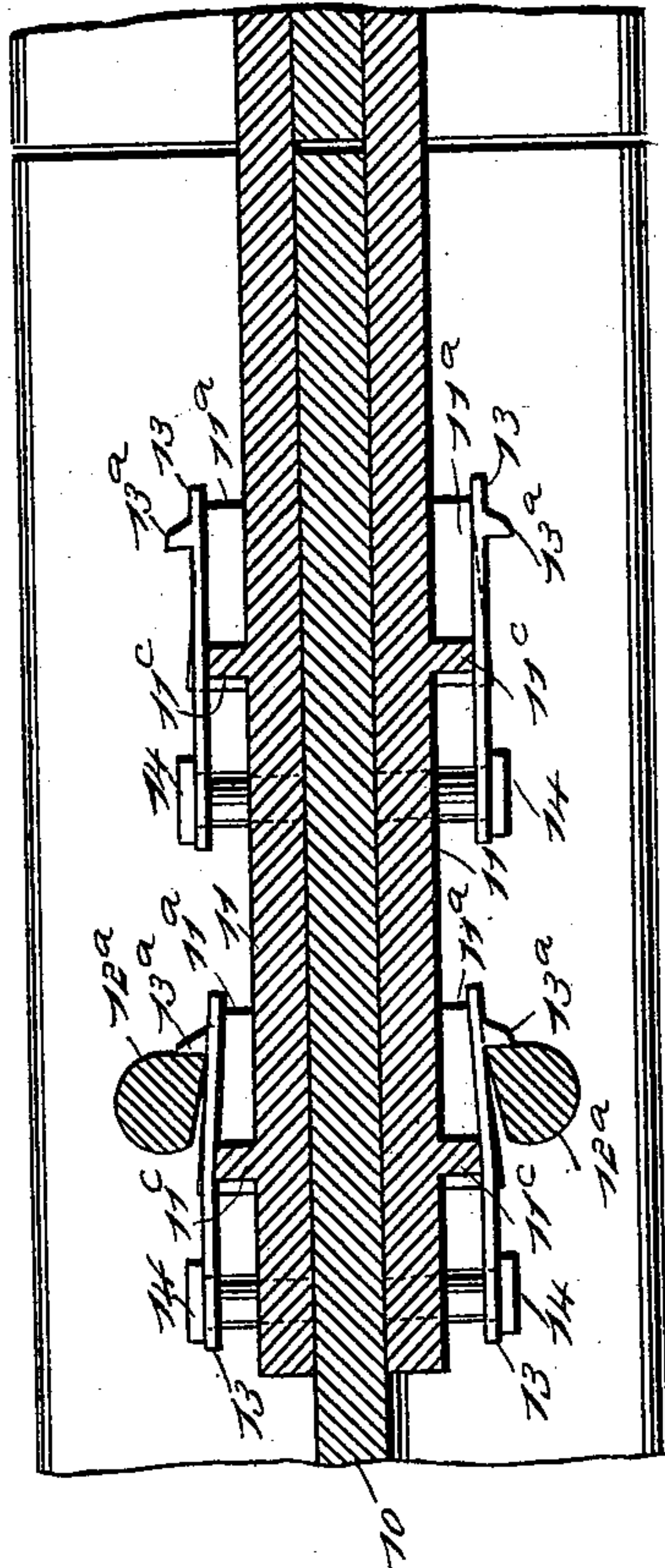


Fig. 3.

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WILLIAM D. JONES, OF HOMESTEAD, PENNSYLVANIA.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 554,602, dated February 11, 1896.

Application filed June 3, 1895. Serial No. 551,545. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. JONES, of Homestead, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Rail-Joint, of which the following is a full, clear, and exact description.

This invention relates to an improved means for detachably securing together the ends of railroad-track rails, and has for its objects to provide a novel simple rail-joint which will be very convenient to apply, will be reliable in service, be adapted for ready removal when rails of a track are to be displaced for repairs, and that will be comparatively inexpensive to produce.

The invention consists in the construction and combination of parts, as hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of the adjacent portions of two track-rails and the improvement applied thereto. Fig. 2 is a transverse sectional view on the line 2 2 in Fig. 1. Fig. 3 is a sectional plan view of the improvement as applied, taken on the line 3 3 in Fig. 1; and Fig. 4 is a transverse sectional view of a track-rail and the improvement applied to said rail and to two fish-plates of a form differing from those shown in Fig. 2.

The improvement is adapted for use in connection with track-rails of the ordinary T-rail pattern and which are indicated at 10 in Fig. 1 and other views of the drawings. Two fish-plates are supplied for each joint, which plates may have angle-flanges at their bases, as shown in Fig. 4, or preferably be produced without flanges, as represented at 11 in Figs. 2 and 3. The improved means for detachably securing the pair of fish-plates 11 on the webs of two meeting ends of aligned track-rails 10 consist of clamps, such as 12. (Plainly shown in Figs. 2 and 4.)

It is preferred to employ two of the clamps 12 for each rail end, and as represented the said clamps are each formed of a billet of cylindric metal having a suitable diameter and length, the end portions of the billet being bent to provide two similar short limbs 12^a,

which project at the same side of the cylindric body and are preferably made to diverge slightly.

The webs of the rails 10 are each horizontally perforated at two points, producing circular apertures 10^a, which are adapted to loosely receive the clamps 12, all the apertures being slightly larger than are the limbs 12^a of the clamps, so that any one of the clamps may be freely slid endwise through said apertures 10^a and then be rocked therein. The fish-plates 11 are of like form, and each has its side that engages with the web of the rails 10 made to conform therewith, as indicated in Fig. 2, and at points which will locate them below the apertures 10^a, similar projections being provided for each clamp 12. The fish-plates 11 have slotted apertures formed in them, as shown at 11^b, these apertures being of a width equal to the diameter of the apertures 10^a, and are so spaced apart that when two of said fish-plates are located directly opposite on the webs of adjacent rail ends 10 the slots 11^b and apertures 10^a in the rails and plates will register and permit the clamps 12 to be passed through the same.

Each projection 11^a is horizontally grooved in its outer face at a suitable point, and said faces on all the projections slope from like side edges toward opposite side edges, so as to laterally incline these faces of the projections toward the longitudinal centers of the fish-plates, or, in other words, toward the joint between two meeting rail ends, when the improvements are applied thereto. The outer face of each slotted projection 11^a also inclines upward and inward, or toward the level face of the fish-plate above the projection. Hence it will be evident that if a pair of fish-plates are in position on two adjacent rail-end portions 10 a clamp, such as 12, may be inserted in one of the horizontal apertures of the fish-plates and perforations in the rail and be rocked over two of the projections 11^a.

For efficient service it is essential that the length of the similar clamps 12 be so proportioned to the joint thickness of the rail-web and two applied fish-plates that the slightly-diverging limbs 12^a will require force applied laterally to rock the said limbs onto the laterally-inclined faces of the projections 11^a, first

engaging the lowest edge of the latter. To facilitate this operation and afford a sufficient bearing for the limbs of the clamps on the faces of the projections they engage, said limbs may be, and preferably are, flattened on the sides that ride on the projections, as clearly shown in Fig. 3, and if the parts are correctly proportioned, when the clamps 12, provided to clamp a pair of the fish-plates 11 on the rail ends 10, are rocked so that their limbs are in a vertical depending position, as shown at the left side in Fig. 1, the fish-plates will be tightly clamped on the rails.

To prevent the clamps 12 from riding back toward the lower edge of the projections 11^a, and so become loosened in service, it is preferred to employ a spring latch-piece 13, one being furnished for each clamp. The similar latch-pieces 13 each consist of an elastic metal strip or plate having a latch-hook 13^a formed on the end that in use lies nearest the lower side edge of the projection 11^a, and the width of the spring-plate permits it to play freely in the flat-bottomed groove of said projection. There is a preferably rectangular orifice formed in each latch-piece at its end opposite from that having the hook on it, and, as shown, said orifice 13^b is adapted to interlock with the rectangular head of a stud 14 that projects from the side of the fish-plate near the highest side edge of the projection 11^a, this locking engagement being completed when the head of the stud is passed through the longer diameter of the orifice in the latch-piece, and the latter is then rocked so as to be over the groove of the projection 11^a, as clearly shown in Figs. 1 and 2. The rounded ends of each pair of the slotted apertures in the plates 11 should be located at the terminations of said apertures which are farthest from the ends of the fish-plates wherein they are formed, which form the relative position of the projections 11^a, and direction of inclination given to the outer faces of the latter will adapt the clamps in pairs for receiving rotatable movement in opposite directions or toward the end of each track-rail joined together by the pair of fish-plates, which adjustment of parts will prevent the fish-plates from longitudinal movement when clamped against the rails.

Each projection 11^a has an abutment or cross-wall 11^c formed or secured between it and the adjacent stud 14, these abutments affording fulcrums whereon the latch-pieces 13 may rest and be supported above each groove of the projections, so that when the clamps 12 are rocked toward the latch-hooks 13^a the latch-pieces 13 will elastically yield at these engaged ends and be depressed, occupying the grooves while the clamp-limbs are passing over the hooks mentioned, the latches 13 then resuming normal shape and holding the hooks against the flat sides of the limbs 12^a, thus preventing the latter from being rocked backward for release.

When it is desired to remove the fish-plates, it can be done easily if the ends of the latch-pieces 13 are held depressed sufficiently to allow the limbs of the clamps 12 to receive a backward rocking movement, or in direction of the arrow 2 in Fig. 1, so that the clamps, after receiving part of a revolution, will have their limbs aligned with the apertures in the rails and fish-plates, which will permit their removal in an obvious manner.

In Fig. 4 the fish-plates are shown having a flange projecting at an angle from the upright portions of the same, these flanges 11^c having contact with the top of the rail-base, and it will be seen that if the length of the limbs on the clamps 12 is proportioned correctly the ends of said limbs will not interfere with the flanges 11^c. Should it be found necessary in some cases, however, there may be shallow recesses produced in the flanges mentioned, directly below the clamps, so that the ends of the limbs 12^a may be freely rocked and have clearance from the flanges 11^c. Should it be preferred, but one of the improved fish-plates and a common fish-plate may be used, and be located oppositely at a rail-joint for the clamped connection of the ends of two adjoining rails, the same clamps being employed, but in a slightly-modified form, to permit one limb of each clamp to merely press on the common fish-plate, while the other limb effects a clamped connection of parts.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a rail-joint, the combination, with transversely-apertured rails and fish-plates, said plates having projections, sloped on their faces and grooved in said faces, of clamps passed through the aligned apertures in the rails and fish-plates and having slightly-diverging limbs and spring latch-pieces on the fish-plates adapted to detachably lock the limbs of the clamps, substantially as described.

2. In a rail-joint, the combination, with rails apertured in their webs, of apertured fish-plates having projections below the apertures therein, said projections being sloped vertically and laterally on their outer faces, bent clamps having slightly-diverging limbs adapted to ride on the inclined faces of the projections on the fish-plates, and elastic latch-pieces each having one end located on the fish-plate, and furnished with a latch-hook at the other end adapted to detachably interlock with a limb of the clamp, substantially as specified.

3. In a rail-joint, rails having circular apertures, and fish-plates having oblong apertures, and also having projections near said apertures, which projections are sloped on their outer faces and grooved in said faces, clamps each bent from a cylindrical billet, producing two limbs extending nearly paral-

10 5 10
lel and in the same direction, which limbs are adapted to ride on the projections on the fish-plates, and latch-pieces each comprising a flat elastic plate having an orifice at one end for interlocking engagement with a headed stud on one of the fish-plates, and having a latch-hook at the opposite end adapted to interlock with one limb of one of the clamps when said limb rides on the projection on the fish-plate, substantially as specified.

4. In a rail-joint, the combination of two fish-plates having aligned apertures, a clamp rockable in said apertures and having limbs at its ends with an angular relation to its

main portion, and a spring on each fish-plate 15 and respectively co-operating with the limbs, substantially as described.

5. The combination of two fish-plates having aligned apertures, a clamp rockable in said apertures and having an angularly-dis- 20 posed limb, and a spring-catch on one of the fish-plates and capable of holding the limb in engagement therewith, substantially as described.

WILLIAM D. JONES.

Witnesses:

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CHAS. SCHLEGEL.