

(No Model.)

2 Sheets—Sheet 1.

T. BREEN.
RAILROAD TIE.

No. 294,191.

Patented Feb. 26, 1884.

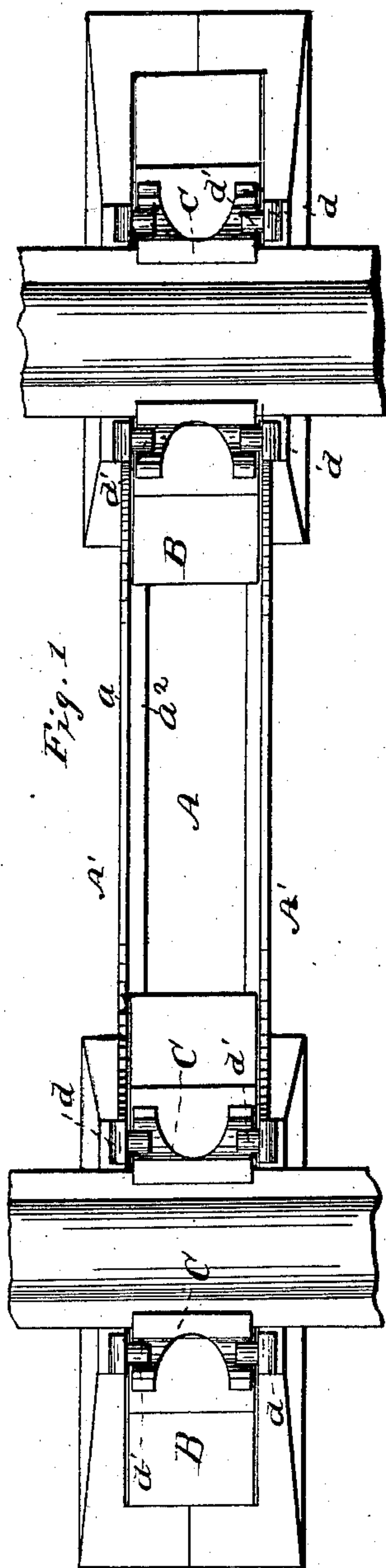


Fig. 1.

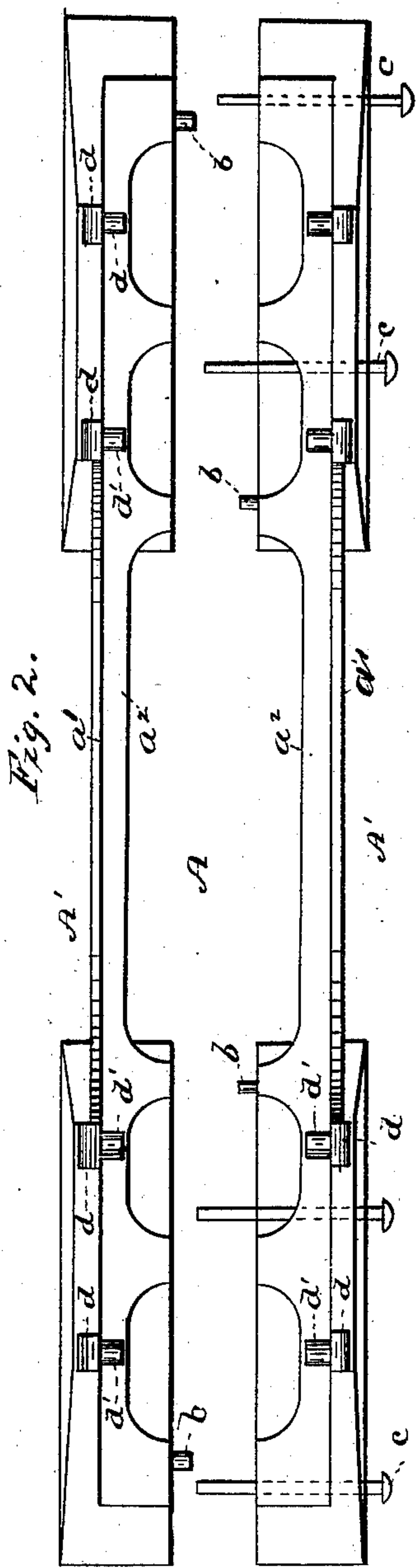


Fig. 2.

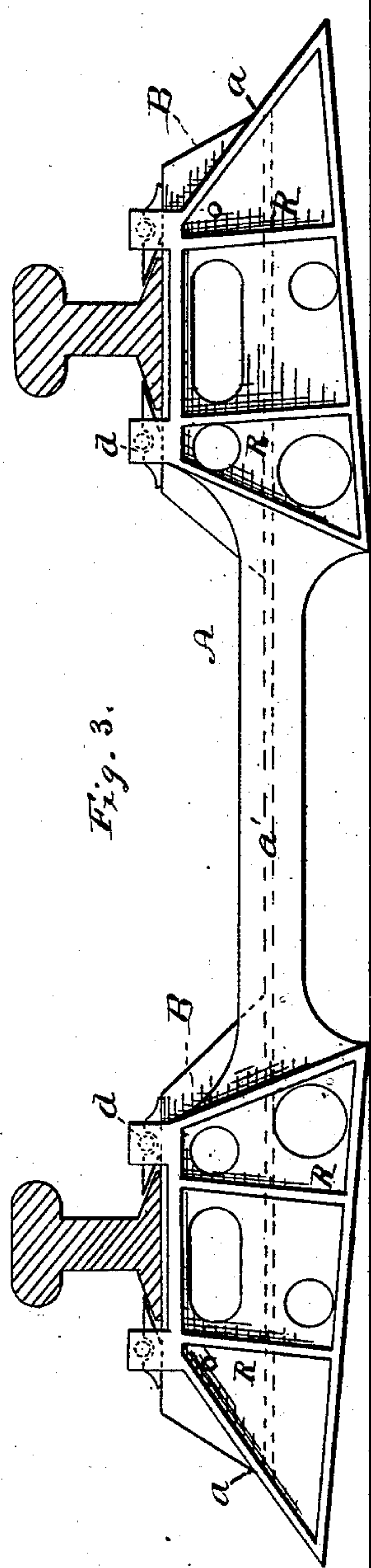


Fig. 3.

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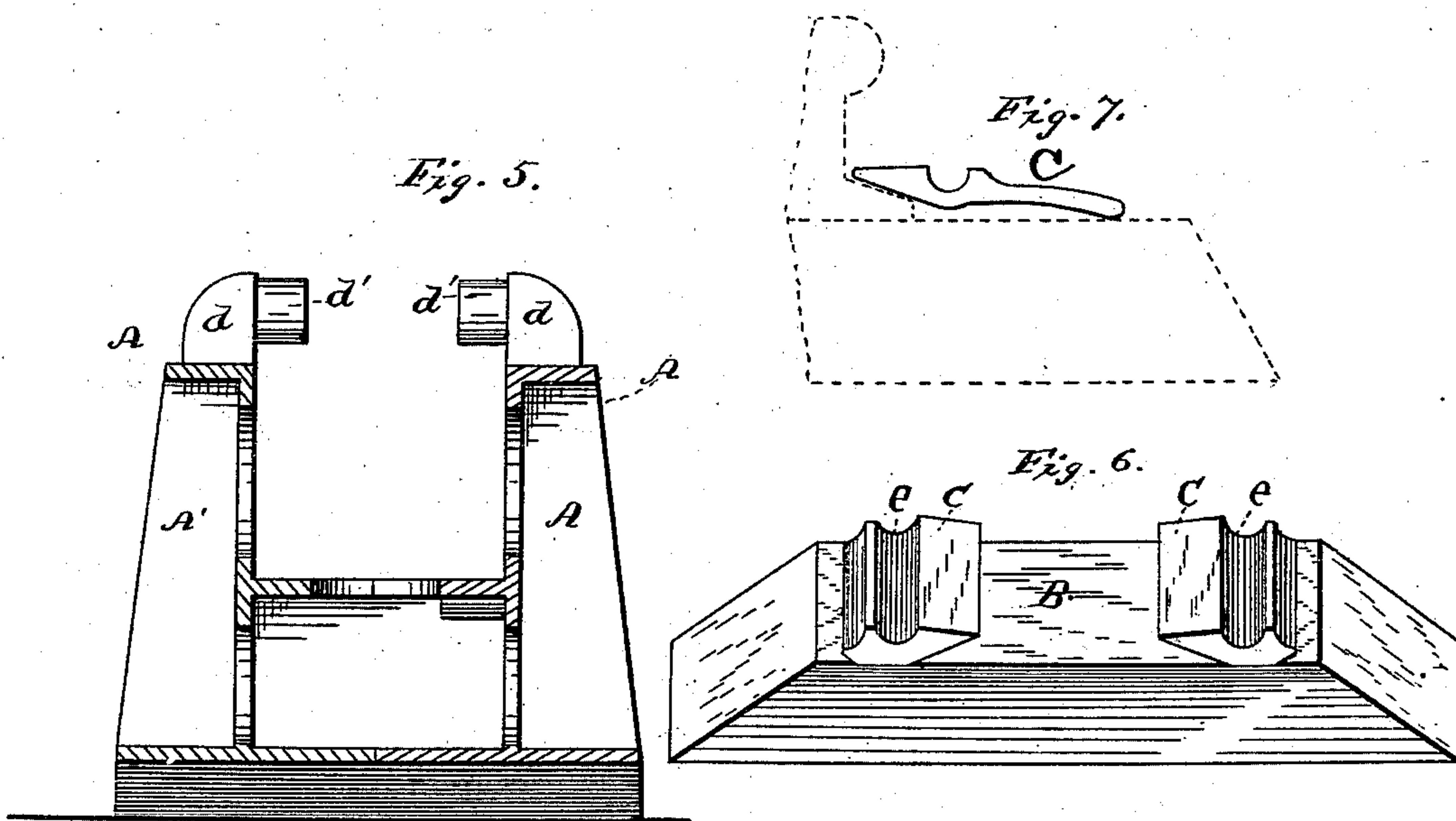
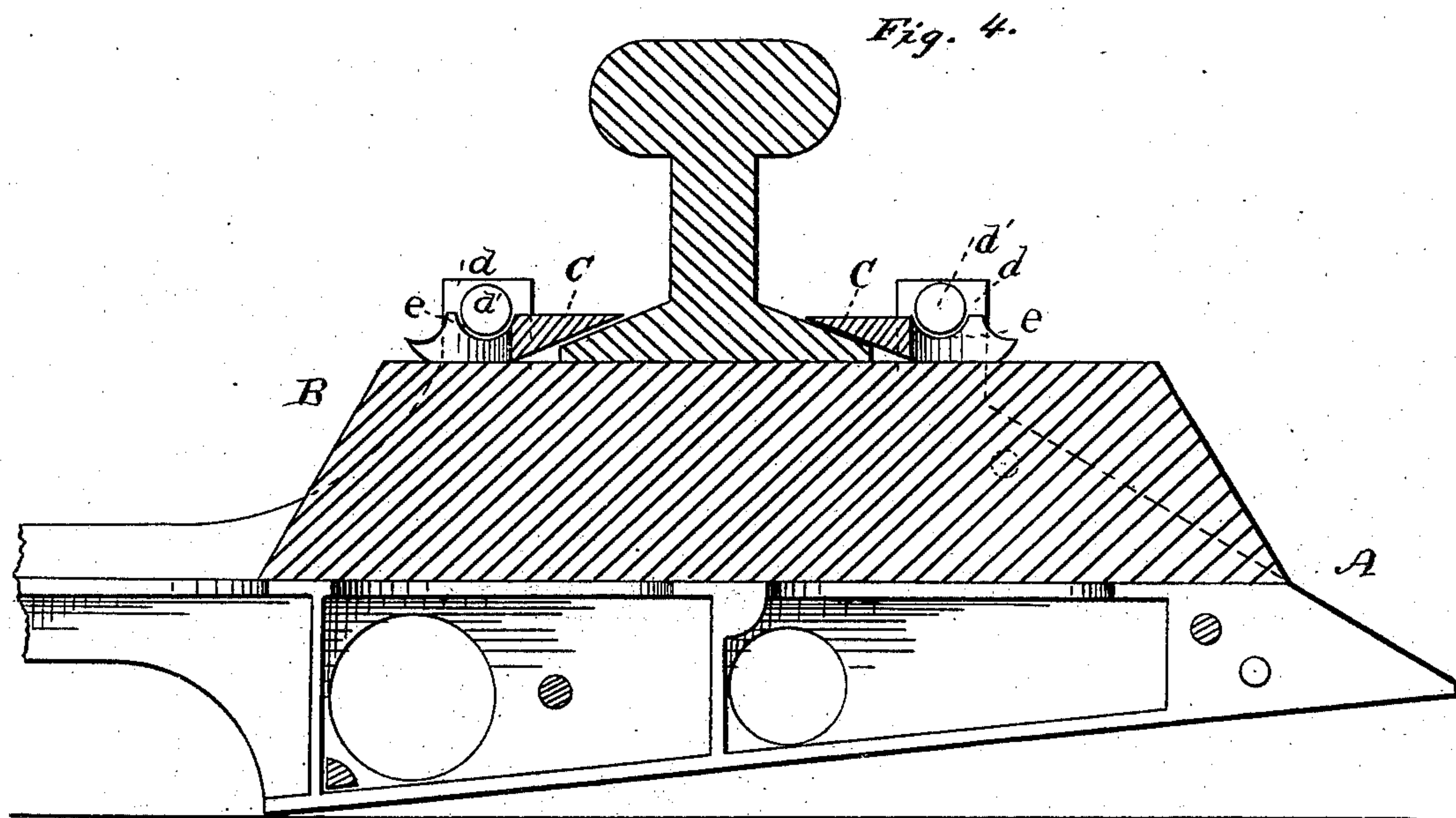
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UNITED STATES PATENT OFFICE.

THOMAS BREEN, OF KNOWLTON, PENNSYLVANIA.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 294,191, dated February 26, 1884.

Application filed May 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BREEN, a citizen of the United States of America, residing at Knowlton, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Ties, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has for its object to provide a railroad-tie that is capable of effectually resisting endwise displacement; that can be tamped from the ends and be firmly anchored in the ground; that is adapted to dispense with
15 the use of the ordinary spikes for securing the rails in position; that clamps the rails in position as against becoming loose by reason of the shrinkage of the bed-pieces or sleepers; that provides a yielding or elastic bed-surface
20 for the rails; that permits the ready removal of a defective rail and its ready replacement by a new or whole one, and that, as an iron tie, is simple and light in construction, and susceptible of being readily put together in sections, which are also readily taken apart.

25 The invention therefore consists in the construction of a railroad-tie, together with certain adjunctive parts, whereby the aforesaid objects are attained, substantially as herein-
30 after fully set forth and claimed.

In the accompanying drawings, Figures 1 and 2 are plan views of my railroad-tie, the latter figure showing the sections of the tie separated. Fig. 3 is a side view thereof, with the
35 rails in section. Fig. 4 is a similar enlarged view of an end portion of the tie, with the remaining portion thereof broken away and the bed-block or sleeper, the chair-plates, and the rail taken in section. Fig. 5 is an enlarged
40 cross-section of the tie, showing in particular the chair-plate holding trunnion-shaped studs. Fig. 6 is a perspective view of one of the bed-blocks or sleepers and the key-plates in position thereon. Fig. 7 is a detailed view.

45 In carrying into effect my invention, I cast or make of iron a railroad-tie, A, in two longitudinal sections, A' A', of skeleton form, to impart to it lightness and simplicity of construction, while possessing requisite strength,
50 each section consisting of two end portions, a, a, which are connected together by a plate-

bar, a', cast integral therewith, along the lower inner edge of which and the end portions is cast an inwardly-projecting horizontal flange, a', Fig. 2, the flanges of the two sections at
55 the end portions, a, being adapted to meet, though cut out at coincident points for lightness. The connecting plate-bars a', Fig. 3, it will be observed, do not rest on the ground, nor do their upper edges occupy a position
60 flush with the upper edges or surfaces of the end portions, a, but occupy a considerably lower plane than that of the latter mentioned edges of the end portions, whereby the bearing-surface is confined to the end portions, and
65 lightness and durability are promoted. The end portions, a a, are of peculiar construction, being of an approximately wedge shape, their outer ends having the greater inclination or slope outward, while their under surfaces are
70 measurably inclined upward and outward from the lower inner edges of said wedges to the outer edges of the latter. These end portions or wedges are also strengthened or cast with vertical ribs R, edgewise disposed thereto, and
75 connecting with bottom and top flanges cast on said end portions. This construction of the end portions of the tie, it will be seen, causes the same to stand above the bottom of the excavation made to receive the tie, as most
80 clearly shown in Fig. 3, whereby the tie can be tamped from its ends in leveling the road-bed, or in restoring it to its original height when worn down, greatly facilitating this operation over the way heretofore adapted of
85 tamping from the side. Furthermore, this construction tends to throw the pressure of the weight of the passing train inward by reason of the principal points of bearing of the tie being located some distance inward from
90 the ends of the tie, and the inward tamping of the tie. These tie-sections A' A' are prevented individually from having endwise movement by studs b b, two cast on the meeting edges of the inner horizontal flanges of
95 the end portions or wedges, a, of said sections, one stud of each of the two studs of an end portion being arranged on one side, and the other stud thereof being arranged on the opposite side of the flange of a section and fitting into apertures or sockets of the tie-sections. These said tie-sections are separably
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connected together by rods *c c*, riveted in position.

Upon the top surfaces of the end portions, *a*, of the tie-sections are cast vertical projections *d*, from which project inwardly and horizontally trunnion-shaped studs *d'*, two of which projections, with their studs, being arranged on each tie-section, and a little farther apart than the width of the base of a rail, said studs extending parallel with the length of the rail, as more clearly seen in Fig. 1, the function of which will presently appear.

B B are bed-blocks or sleepers for the rails to rest on, said blocks being made of wood to provide a yielding or elastic bearing for the rails under the pressure of the weight of the passing train, to resist the tendency of the car-wheels to "jump" the track. These blocks or sleepers are inserted in between the side pieces of the end portions of the tie-sections, and are held therein by small spikes or nails, their upper surfaces projecting above the same surfaces or edges of the tie-sections.

C C are key-plates, one of which is applied to each side of a rail on an end portion of a tie. These key-plates are constructed each with an upwardly-inclined surface on its under side at the inner end, to fit the inclined upper surface of the base of the rail, while the upper surface of said key-plate, near its inner end, is provided with concavities *e*, which receive the studs *d'* of a tie-section, as seen in Figs. 1, 4, and 7. These key-plates *C* are formed with outwardly-extended narrow portions, which are hollowed or concaved on the under side, their entire underneath surfaces, save their inclined surfaces, resting on the bed-block. The outer end of the plate is caused to project slightly below a horizontal plane touching its inner end on the lower side. By reason of this construction, and by forming the said key-plates of steel or its equivalent elastic metal, of which they are to be made, it will be seen that with the plate held under the studs *d'*, into which they are held (it may be temporarily) in any suitable way for the time being, and with their inner ends resting upon the flange or base of the rail, upon inserting the bed-block or sleeper into position, the outer lower end of the plate will be slightly sprung upward, which will firmly clamp the inner end of the plate upon the coincident flange of the base of the rail, and that,

upon the bed-block reaching the outer lower end of the plate on the opposite side of the rail, it will likewise firmly clamp the inner end of that plate upon the coincident flange of the rail, whereby the rail will be effectually secured in place without spikes, whose use it is desirable to dispense with, because, among other reasons, of the breaking or dropping off of their heads, and whereby a certain amount of spring or elasticity of the plates is obtained, which, in addition to effecting the clamping of the rails in position, will, it is evident, compensate any shrinkage in the wooden bed-block, as is liable to happen in certain weather and by wear, thus preventing the possibility of the plates or rails working loose.

It is obvious, by reason of the flanges or webs of the end portions, as the dirt is tamped in between the same, the tie is firmly anchored in the ground.

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

1. In a railroad-tie, sections *A'*, having wedge-shaped end portions, in combination with blocks *B* and key-plates *C*, substantially as shown and described.

2. In a railroad-tie, the end portions and their connections formed in readily-separable sections, said sections having studs and sockets for the latter, to prevent individual end-wise displacement, substantially as and for the purpose set forth.

3. In a railroad-tie, the end portions having studs, in combination with the key-plates having concavities in their upper surfaces, and upwardly-inclined lower surfaces, substantially as and for the purpose set forth.

4. In a railroad-tie, the end portions having studs arranged parallel with the rail, in combination with the key-plates having concaved upper surfaces, upwardly-inclined under surfaces, and concaved lower outer surfaces, the ends of the latter projecting below the inner ends thereof, and the whole made of elastic metal, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS BREEN.

Witnesses:

J. NOTA MCGILL,
H. A. HALL.