

No. 828,453.

PATENTED AUG. 14, 1906.

H. F. BEAL.

TRACK CONSTRUCTION FOR RAILWAYS.

APPLICATION FILED JUNE 28, 1905. RENEWED MAY 10, 1906.

2 SHEETS—SHEET 1.

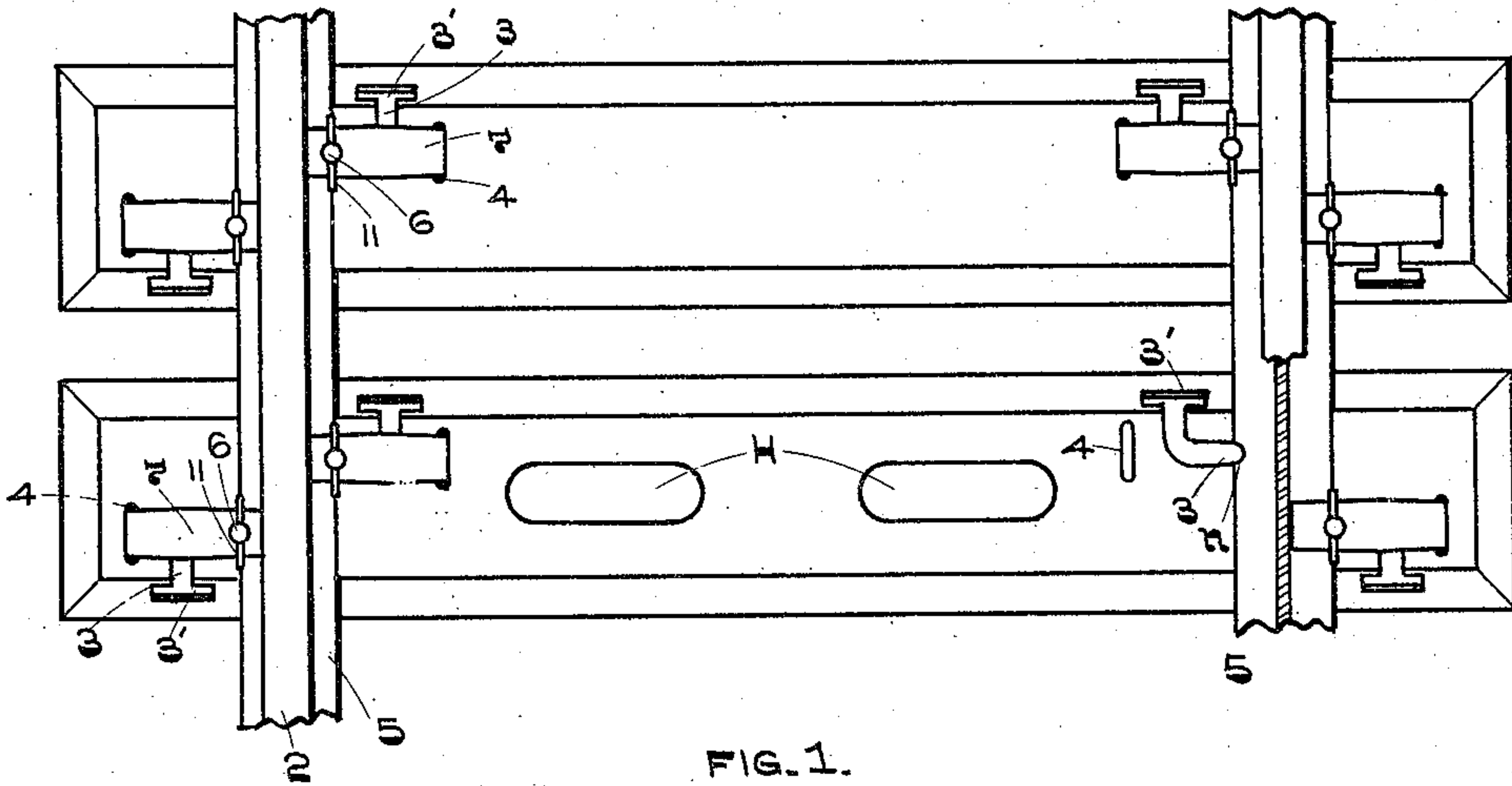


FIG. 1.

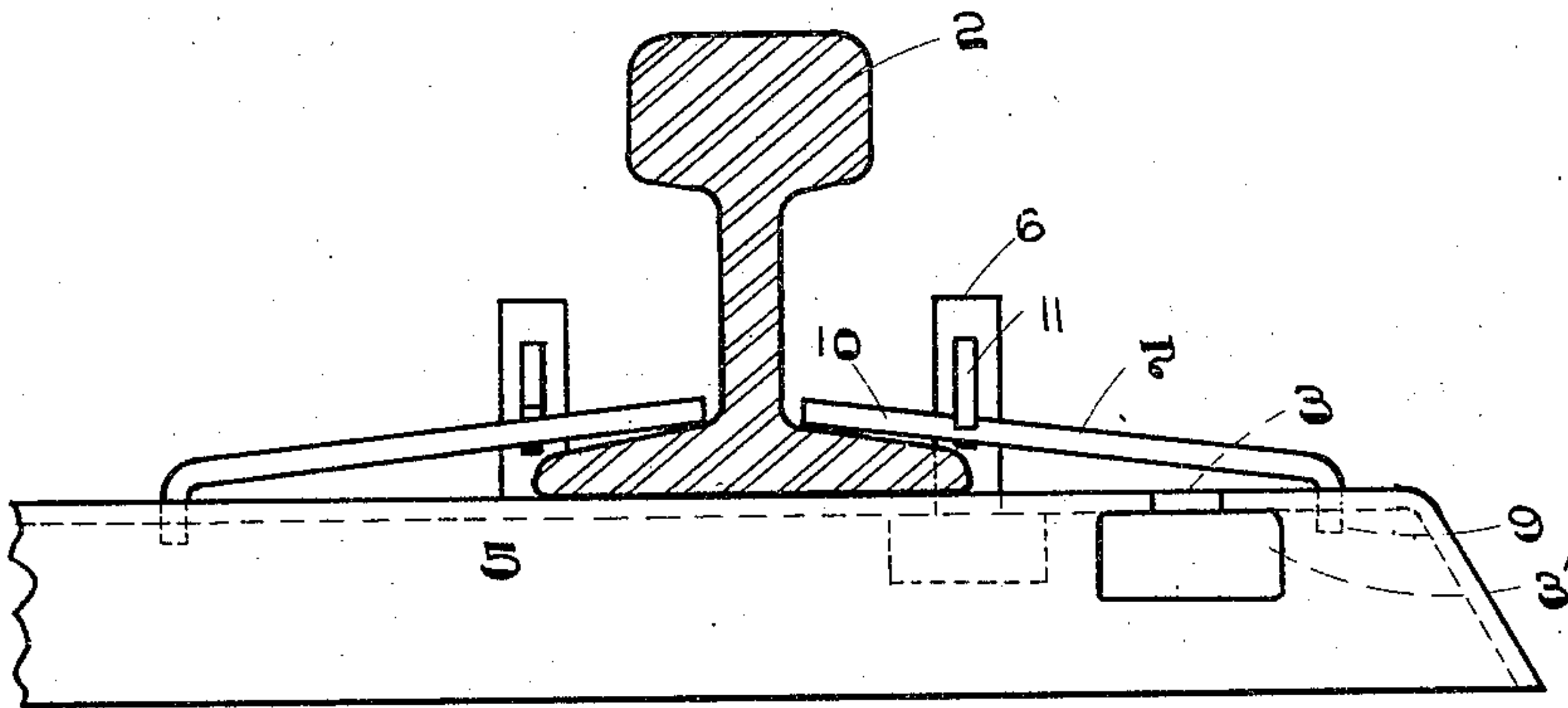


FIG 1A

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2 SHEETS—SHEET 2.

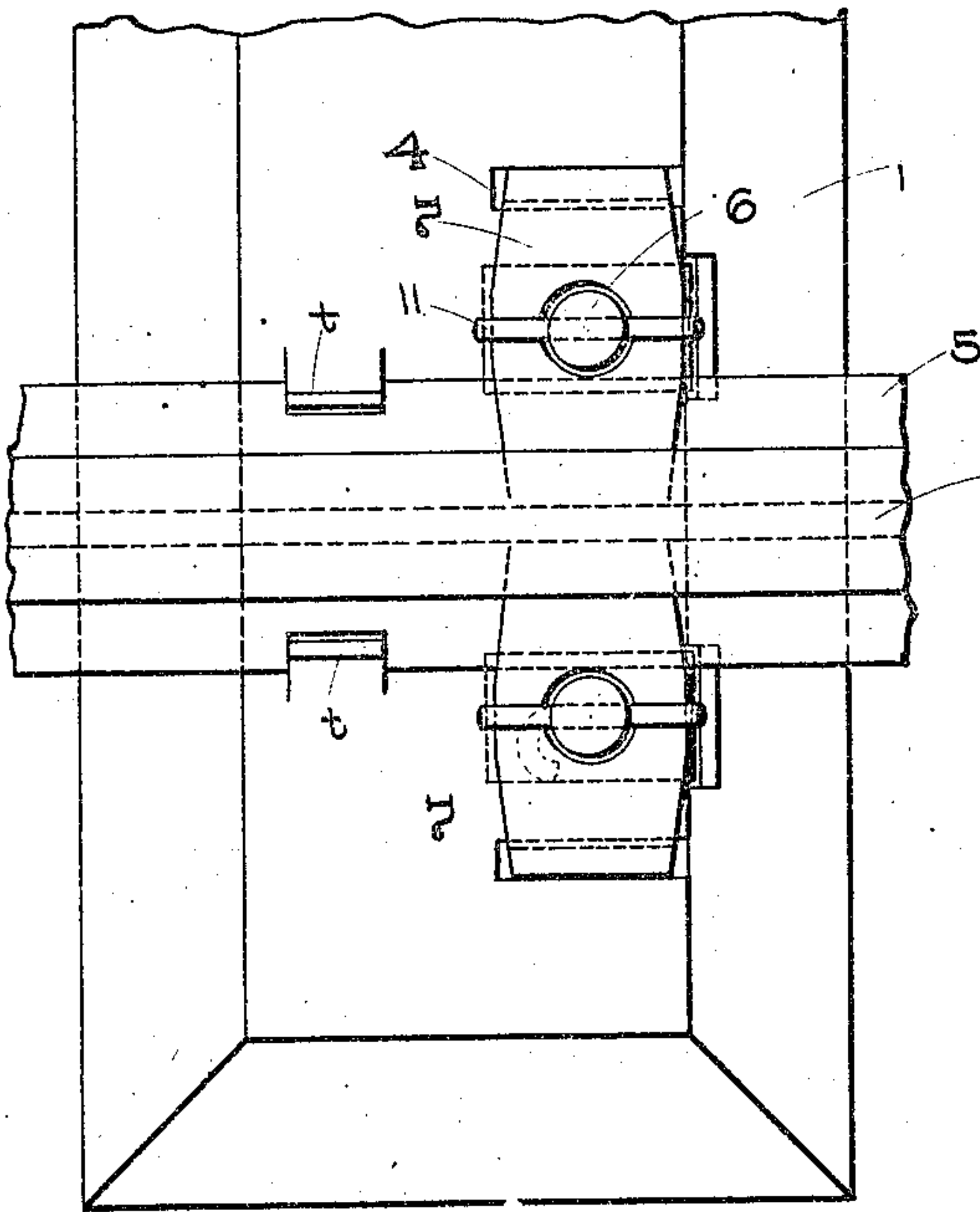


FIG. 2.

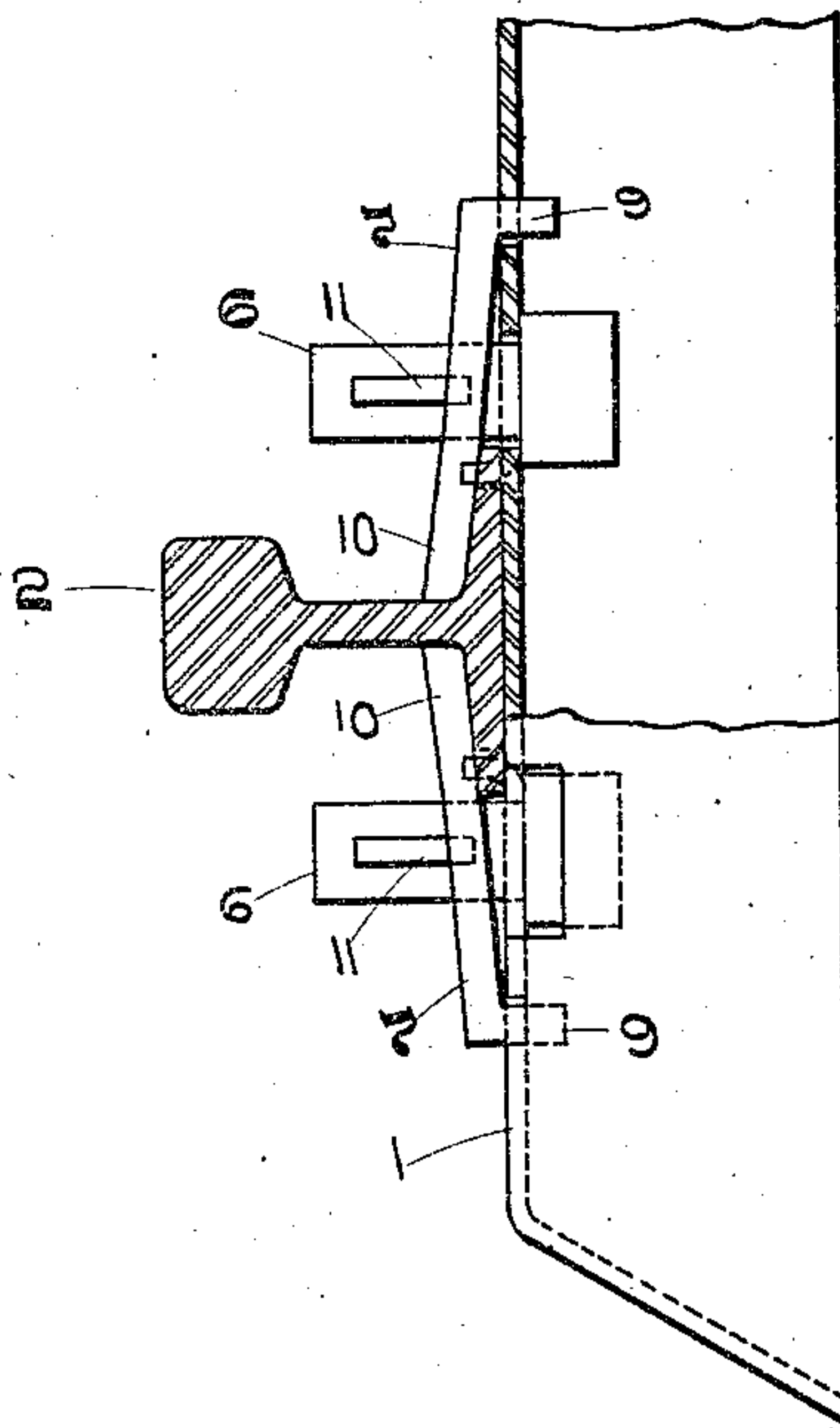


FIG. 3.

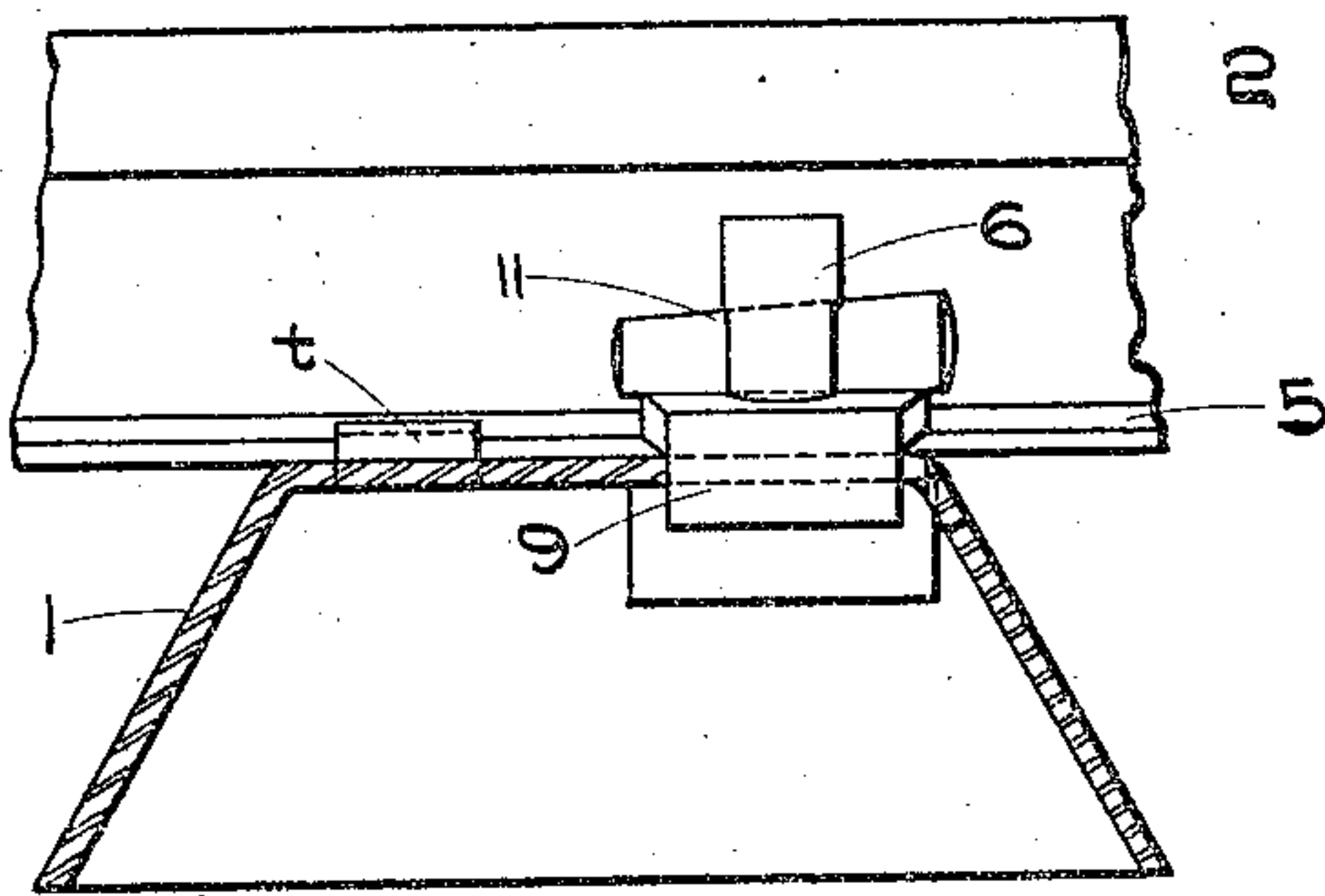


FIG. 4.

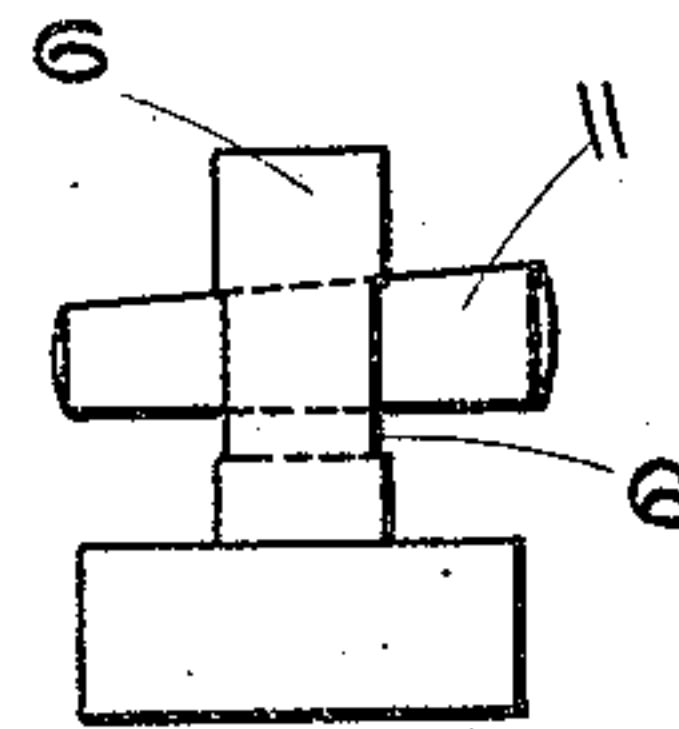


FIG. 5.

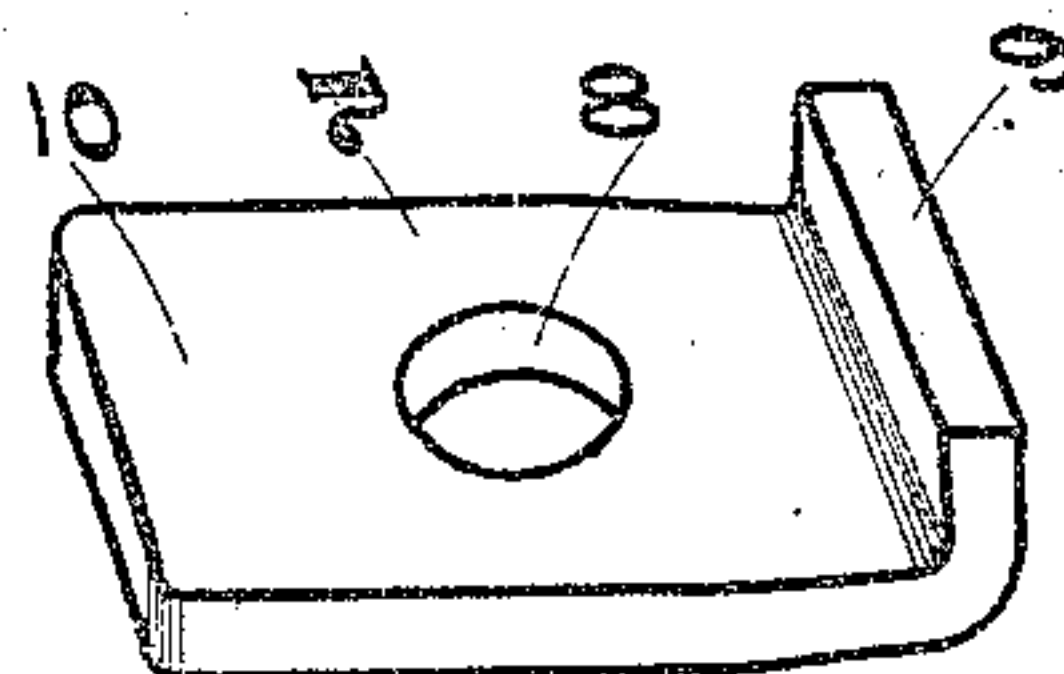


FIG. 6.

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# UNITED STATES PATENT OFFICE.

HARRY F. BEAL, OF FRANKLIN, PENNSYLVANIA.

## TRACK CONSTRUCTION FOR RAILWAYS.

No. 828,453.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed June 28, 1905. Renewed May 10, 1906. Serial No. 316,124.

*To all whom it may concern:*

Be it known that I, HARRY F. BEAL, a citizen of the United States, residing at Franklin, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Track Construction for Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in track construction for railways, which is fully illustrated in the drawings which form a part hereof and is specifically set forth in the following specification.

In the drawings, Figure 1 shows a portion of railway-track embodying my invention. Fig. 1<sup>A</sup> is a vertical transverse section of a rail, showing one end of my tie. Fig. 2 is an enlarged plan view of one side of the track, showing a fragment of the rail and one end of a tie of a slightly-modified construction. Fig. 3 is a vertical transverse section through a rail, a portion of the tie being also shown in longitudinal section, also showing the modified construction. Fig. 4 is a side elevation of a portion of a rail and a transverse section of the tie. Figs. 5 and 6 are details.

The growing scarcity of suitable timber from which to make ties for railway use is such that sooner or later some other material must be resorted to for this purpose and, in fact, is now being resorted to—experimentally, however, as yet—by the leading railroads of the country, though with the pretty generally conceded opinion that some substitute must eventually be found to take the place of wood. It is with the object of meeting this demand for such substitute that my cross-tie has been devised, which is made of metal, and preferably pressed from sheet-steel.

In all metal constructions thus far devised the matter of suitable means of attaching the rails has been the serious structural problem, and it is in the novelty, simplicity, practical efficiency, and convenience of this feature of my device that my invention chiefly lies.

The construction of my device is substantially as follows:

My tie 1 is of box-shaped construction, having an open bottom and downwardly-diverging side and end walls. If found desirable, holes H may be provided through the top wall of the tie for the purpose of permitting a more effectual tamping of the ballast or fill-

ing beneath the tie. Near each end of the tie and upon each side of the line where the rail 2 is located is formed a bolt-slot 3 and approximate thereto a clip-slot 4, which slot is elongated transversely of the tie. Each bolt-hole 3 is for the reception of a bolt 6, which is slipped into the slot from the side of the tie through the opening 3', provided for that purpose. Through each bolt 6 is formed a key-slot 6' for the reception of a tapered key. When said bolts 6 are in position, the rails are placed upon the tie, and a clip 7 (shown in perspective in Fig. 6) is placed upon each side of the rail, with one of said bolts entering the hole 8 of the clip. The inner end of the clip bears upon the flange 5 of the rail, and the lug 9 upon the other end of the clip enters and occupies the slot 4 in the tie for the purpose of assisting to relieve bolt 6 of the shear caused by the tendency of the rails to spread and also to prevent any longitudinal movement of the clip in either direction. After the clip 7 has been placed upon the bolt 6 it effectually prevents said bolt from moving away from the rail or backward in the slot in the way in which it was inserted. A tapered key 11 is then placed in the key-slot 6' and firmly driven in, the wedge-shape of said key causing it to impinge upon the clip and in turn causing said clip to bear firmly upon the flange of the rail for the obvious purpose of clamping it firmly to the tie. If found necessary so to do, key 11 may be clenched, as shown in dotted lines in Fig. 2, to insure its safe and proper retention.

If it should be found necessary to provide means to prevent the rails from creeping, a notch may be cut in the side of the rail, as shown at n, Fig. 1. The end of slot 3 may be so located that each of bolts 6 will occupy a notch, and thus prevent in great measure the creeping of the rail.

The construction shown in Figs. 2, 3, and 4 is a somewhat-modified construction, as I have not here shown a slot for the reception of the bolt 6, there being merely a hole through the top wall of the tie for this purpose, and while this is not so good a construction as that shown in Figs. 1 and 1<sup>A</sup> it is as practical, efficient, and convenient in every particular as that of the insertion and removal of bolts after the tie is in position. In Figs. 2, 3, and 4 I have shown a tongue t, struck up from the top wall of the tie, which tongue occupies a notch in the side of the rail-flange. It will be readily understood



that said tongue could as well occupy a notch in the flange of the fish-plate (not shown) as a notch in the flange of the rail, also that the location of the bolt-holes 3 and slots 4 and the construction of bolts 6 and clip 7 may be so modified as to admit of a ready application of the clip at a rail-joint.

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

1. In an improved track construction for railways, a metallic cross-tie, having top, side and end walls, said side and end walls diverging downwardly, there being bolt-slots and clip-slots in said top wall, located approximate to and on each side of the rail, the rails resting upon said cross-tie, a bolt occupying each of said bolt-slots, there being a key-slot in each of said bolts, in combination with a clip located upon each side of said rail, with one of its ends bearing upon the flange thereof, there being a hole in said clip for the reception of one of said bolts, and through which said bolt passes, a lug upon the other end of said clip, entering said clip-slot, and the key

passing through said key-slot and bearing upon said clip.

2. In an improved track construction for railways, a metallic cross-tie of box-shaped construction, having an open bottom and the downwardly-diverging side and end walls, the rails resting upon said tie, there being bolt-holes through the top wall of said tie, approximate to and upon each side of said rails, there being also clip-slots approximate to said holes, the bolts in said holes, there being a key-slot in each of said bolts, clamps, each having a hole therein for the reception of one of said bolts and a lug upon one end thereof, entering said first-mentioned slot, the other end of each of said clamps bearing upon the flange of the rail, and a key passing through each of said bolts and impinging upon its respective clamp.

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

HARRY F. BEAL.

Witnesses:

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A. K. RHEEM.