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RAILROAD TIE.

APPLICATION FILED FEB. 10, 1906.

Fig. 1.

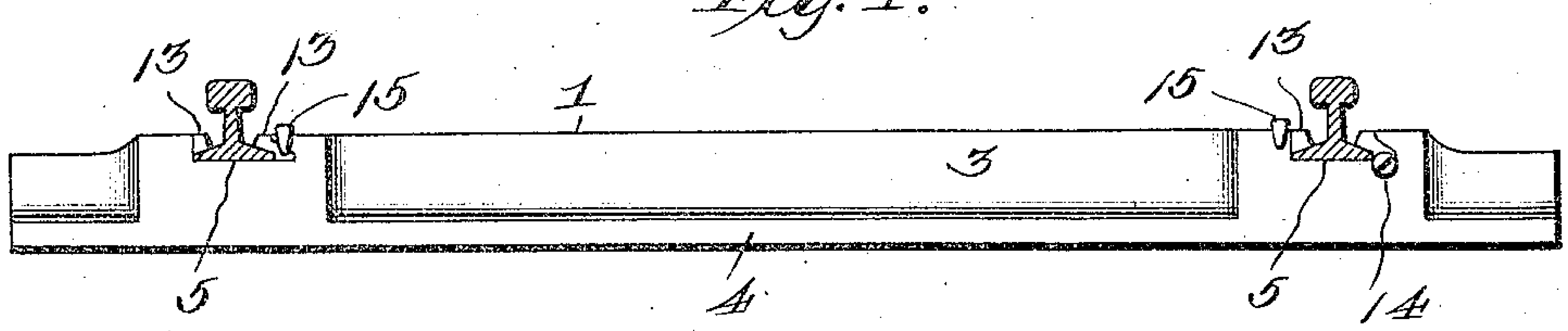


Fig. 2.

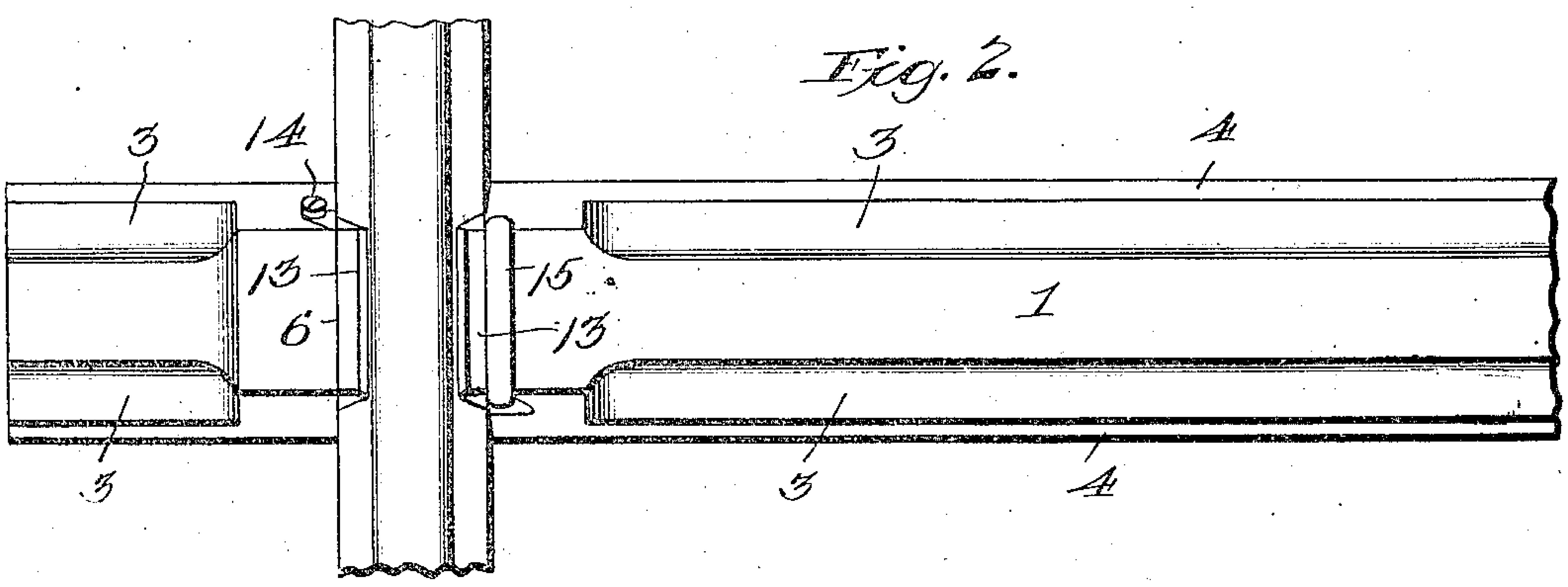


Fig. 3.

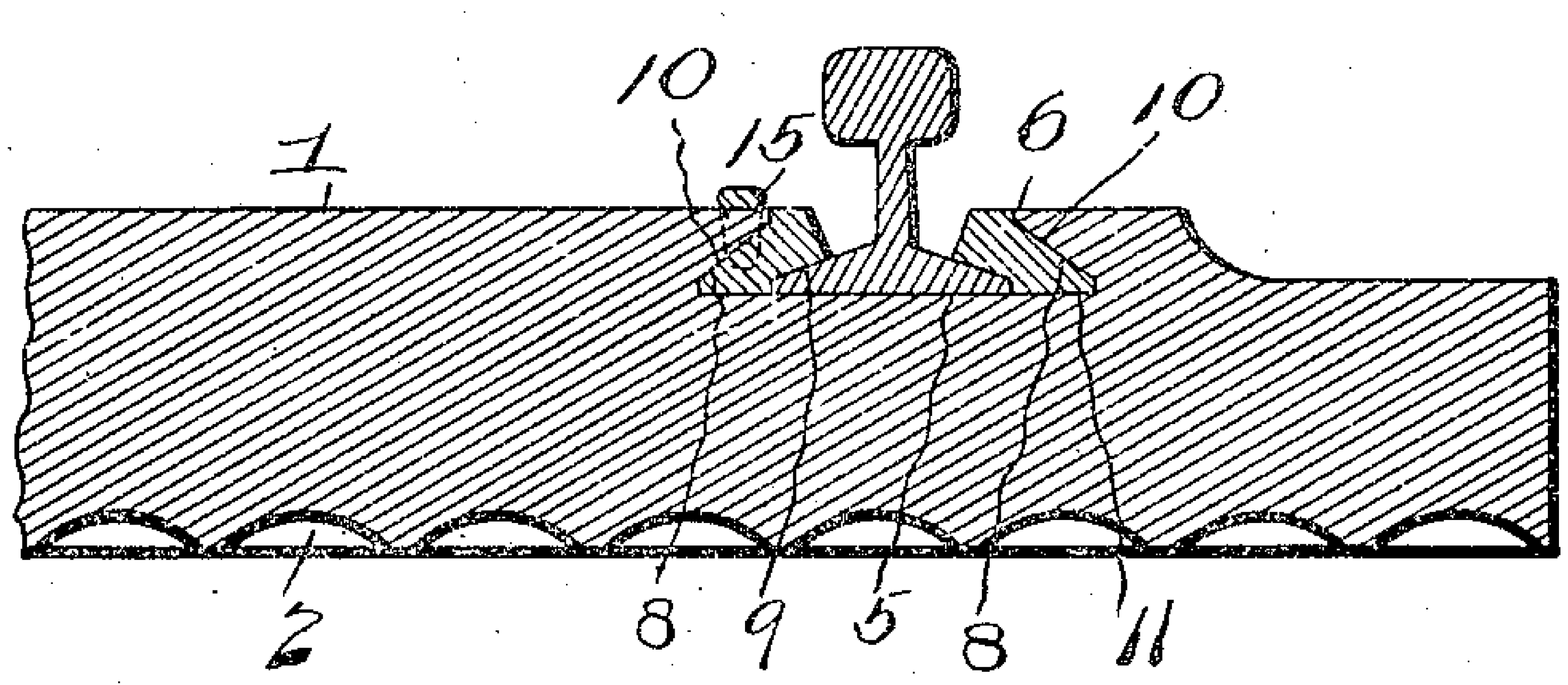


Fig. 4.

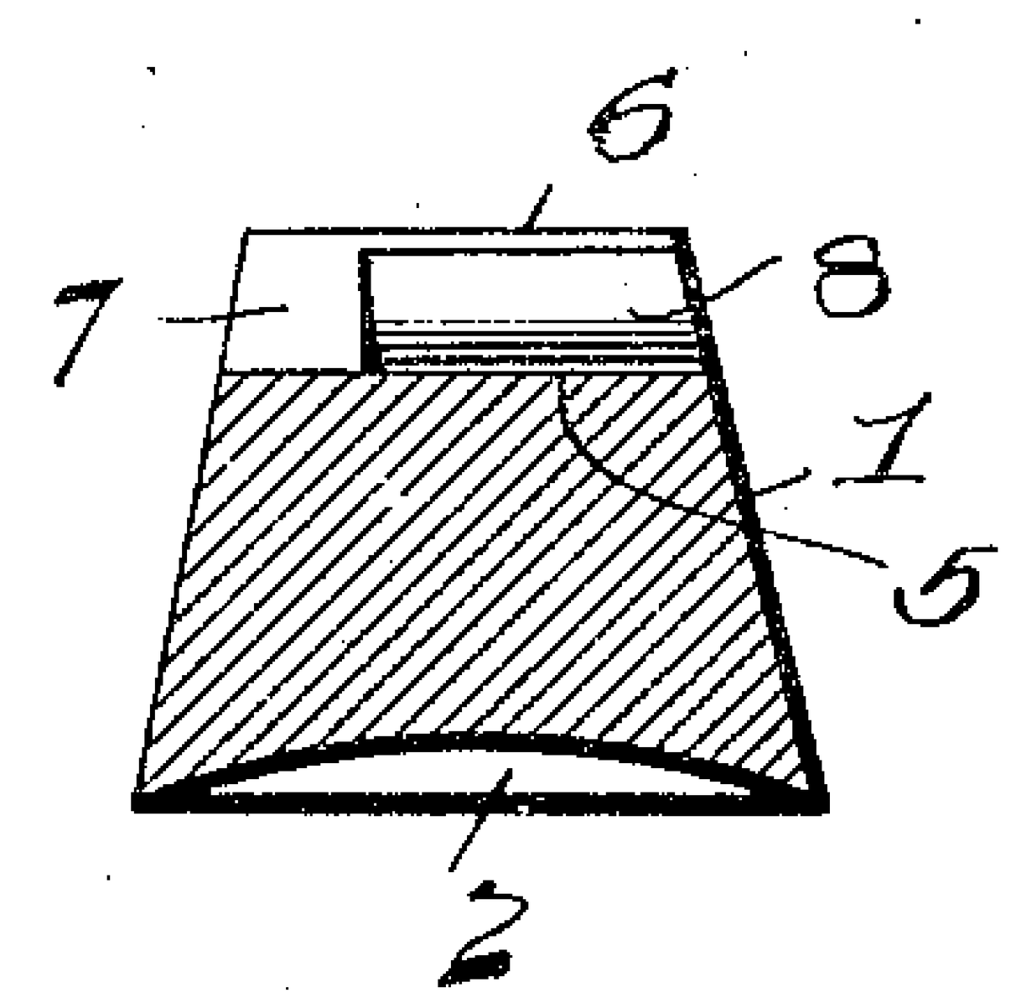


Fig. 5.

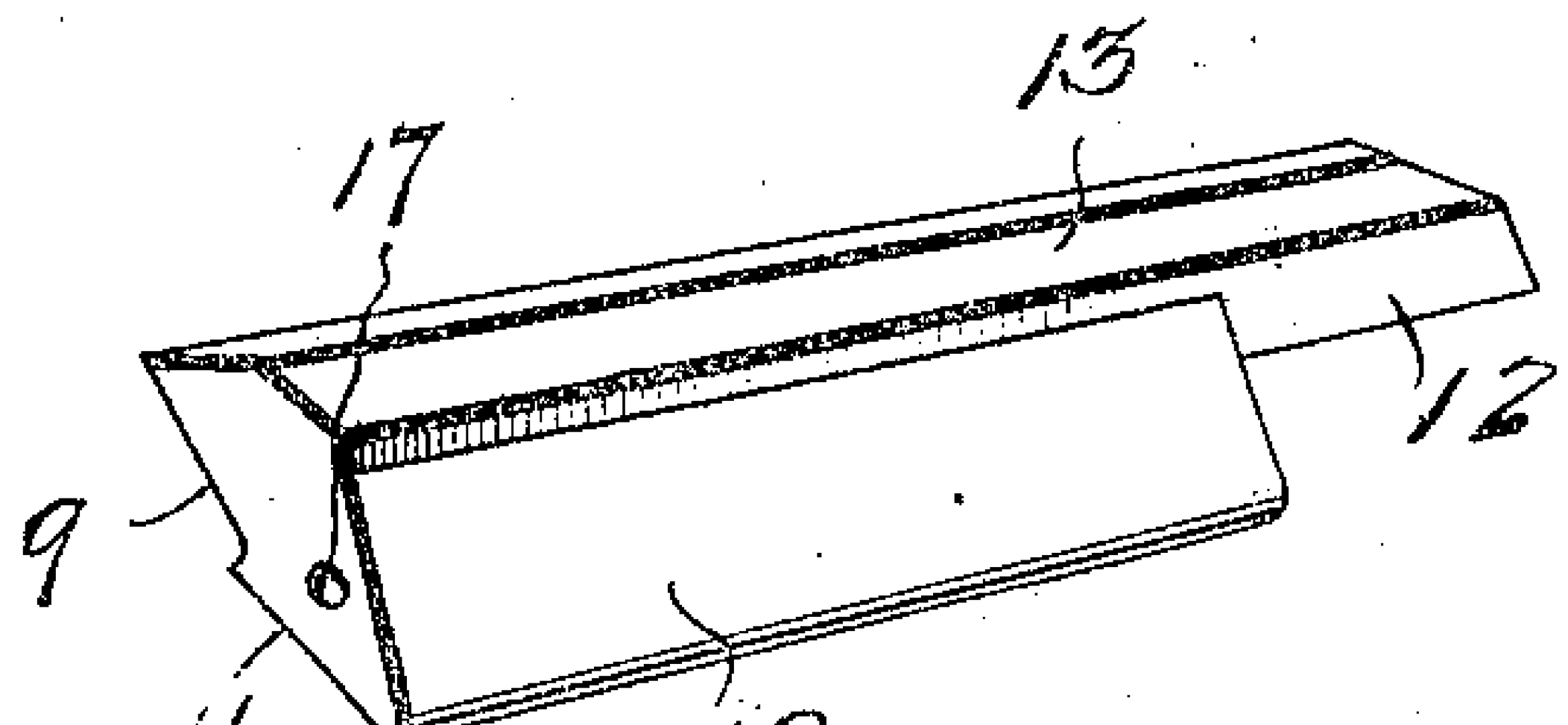
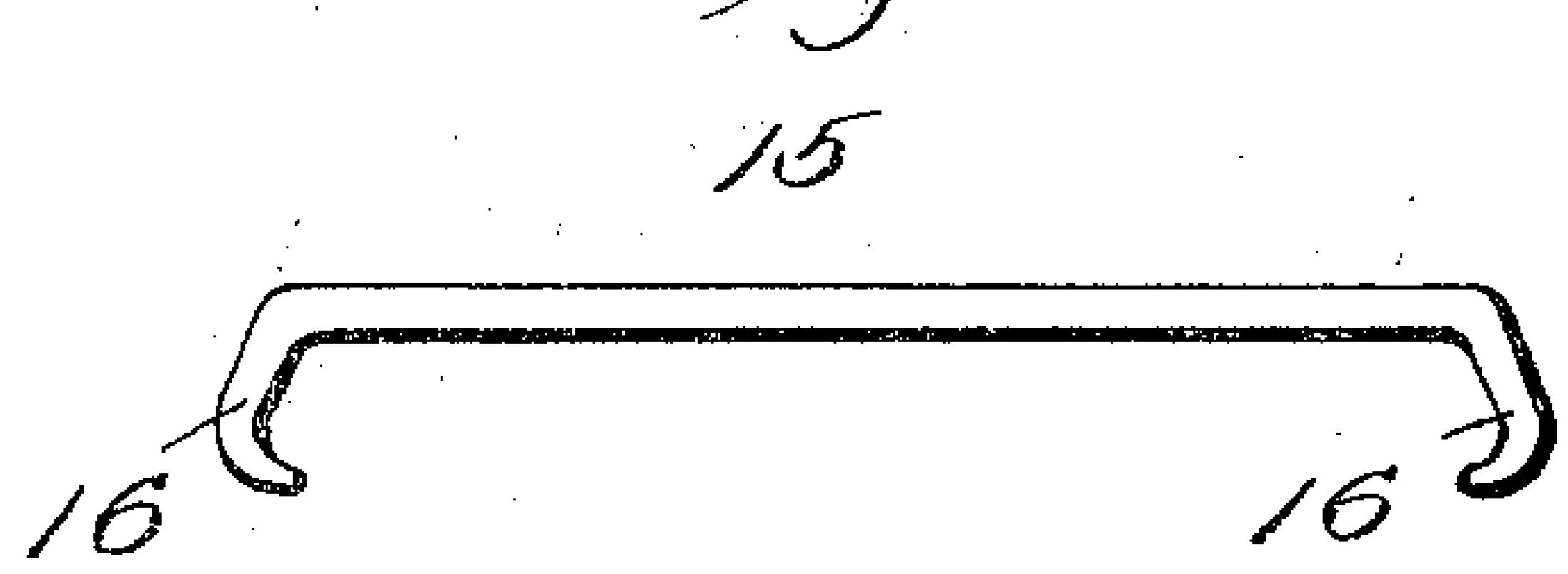


Fig. 6.



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UNITED STATES PATENT OFFICE.

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RAILROAD-TIE.

No. 828,448. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed February 10, 1906. Serial No. 300,489.

To all whom it may concern:

Be it known that we, WILLIAM H. APPENZELLER, residing at Greenville, Darke county, Ohio, and DAVID A. HOUSE, residing at Indianapolis, in the county of Marion and State of Indiana, citizens of the United States, have invented new and useful Improvements in Railroad-Ties, of which the following is a specification.

This invention relates to railroad-ties, and particularly to structural features for preventing the tie from slipping either in the direction of its length or longitudinally of the railway-bed. The tie also includes a particular key means and fastenings therefor to hold the rails in reliable connection with the tie and avoid the use of spikes or other fastenings and permitting the rails to be detached at any time desired and replaced by others in the event of wear.

The object of the invention is to provide a simple and effective tie of a strong and durable nature which can be manufactured at a comparatively small cost.

In the drawings, Figure 1 is a side elevation of a tie embodying features of the invention and showing rails held therein and illustrated in cross-section. Fig. 2 is a top plan view of a portion of the tie and of one rail. Fig. 3 is a longitudinal vertical section through a portion of the tie and rail as shown by Fig. 1. Fig. 4 is a transverse vertical section through the tie at the point of location of the rail-seat. Fig. 5 is a detail perspective view of one of the rail-securing keys. Fig. 6 is a detail side elevation of one means for securing the rail-securing keys against movement after such keys are inserted in the tie.

Similar numerals of reference are employed to indicate corresponding parts throughout the several views.

The numeral 1 designates a tie-body which may be of any suitable length and width proportionate to the gage of the railway and the weight of the rails held thereby. The base of the tie is formed with a series of corrugations or transverse cavities 2, extending fully thereacross in regular sequence and providing means to prevent the tie from slipping out of place in the direction of its length and also reducing the use of material in the manufacture of the tie. The opposite terminals of the upper curved walls forming the concavities 2 intersect the opposite side edges of the base of the tie at sharp angles, and the body of the tie being solid gives the necessary weight to the tie structure to render the cavities effective in preventing the tie from slipping after it is disposed in operative position. At intermediate points and at the ends the tie-body has recesses 3, extending longitudinally thereof and sloping from a base 4 inwardly and upwardly to the top of the tie. In fact, the opposite sides of the tie-body are sloped or inclined inwardly and upwardly, as clearly shown by Fig. 4, to permit the tie to be held in stable position when disposed on the road-bed by the dirt or ballast arranged in contact with opposite sides thereof. The longitudinal recesses 3 also lighten the tie or reduce the amount of material in the make-up of the tie without materially detracting from the strength or durabliity of the latter.

Adjacent to opposite ends the tie is formed with upper rail-seats 5, which open through the top thereof and have horizontal flat bottoms on which the flanges of the rails are adapted to rest. The side walls 6 of these seats, as shown by Fig. 4, at one extremity are vertically straight, as at 7, and are also formed for the remaining portions of their lengths with inclined slots or recesses 8, which project inwardly and outwardly in the respective inner and outer side walls. The vertically-straight portions 7 and recesses or slots 8 in the side walls of the seats 5 are in reverse position in the opposite walls, each slot 8 at one end opening out through one side of the tie close to the seat with which it communicates. The side walls constructed as set forth are adapted to have locking-keys coöperate therewith, and each key is of the form shown by Fig. 5, it simply being necessary to reverse the key end to end to adapt it for application to either side wall. The key has an inner angular recess 9 to fit over the upper side of the base-flange of the rail and a flange 10, extending throughout a portion of its length to engage the slot 8. The base of the flange and a portion of the body of the key, as at 11, being horizontally flat to bear upon the base-wall of the seat 5, that portion of the key which is clear of or without the flange 10, as at 12, contacts with the verti-

cally-straight portion 7 of the side wall, and the upper face 13 of the key will be flush with the upper portion of the tie adjacent to the rail when said key is properly inserted in position in the seat. Furthermore, when the key is inserted in the seat in engagement with the rail-flange the outer end of the flange 10 will be flush with the side of the tie through which one extremity of the slot 8 opens, or, in other words, the key snugly fits in the seat and is flush with the opposite sides of the tie adjacent to the rail.

There are many means that could be adopted for holding the keys or wedges, as shown by Fig. 5, in immovable position in the seats or to insure a reliable retention of the rails in said seats. It has been found, however, that the best means consists of a screw 14 let into the outer portion of the slot 8 in each instance and engaging an adjacent part of the key. Another means which is adapted to be used in conjunction with the screw is a clamp 15 (shown in detail by Fig. 6) and having hooked terminals 16 to respectively engage an opening 17 in one end of the key and a corresponding opening in the opposite side of the tie. Either of these securing means may be readily removed and the keys driven out in the event that it is desired to replace the rails or for other purposes. In assembling the rails with the ties the rails are first disposed in the seats 5, and the keys are then placed in position and secured.

The improved railway-tie will be found to possess many advantages, and it is preferred that the same be constructed of metal, though other materials may be used, if desired. It will also be understood that the keys and securing means therefor will be of metal and by use of the particular key-fastening means the employment of spikes or other devices of like nature for securing the rails to ties is avoided.

What I claim is—

1. A railroad-tie having inwardly and upwardly inclined sides intersecting the side edges of the bottom to form angular edges to engage the soil and prevent movement of the tie, the bottom of the tie-body having a series of concavities extending transversely thereacross and the intermediate portions of the opposite sides of the tie having recesses extending longitudinally thereof and sloping from the tie-body inwardly and upwardly to the top of the tie to receive a portion of the bed material or ballast disposed between the ties, and rail-seats in the upper portions of the tie-body adjacent to the opposite ends of the latter.

2. A railroad-tie having rail-seats in the upper portion thereof near opposite ends, the side walls of said seats having slots extending throughout a portion of the length thereof and in reverse positions, keys insertible in said seats and provided with flanges engaging said slots, and means for wholly securing said keys against movement.

3. A railroad-tie having a body with rail-seats in the upper portion thereof near the ends, the side walls of said seats being slotted for a portion of their length and also vertically straight for the remaining portion, keys insertible in the said seats and having flanges to engage the slots and vertically-straight portions to bear against the vertically-straight portions of the side walls of the seats, and means for holding the keys against movement.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. APPENZELLER.
DAVID A. HOUSE.

Witnesses:

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