

No. 652,265.

Patented June 26, 1900.

R. E. HELLER.

RAILWAY TIE.

(Application filed Nov. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

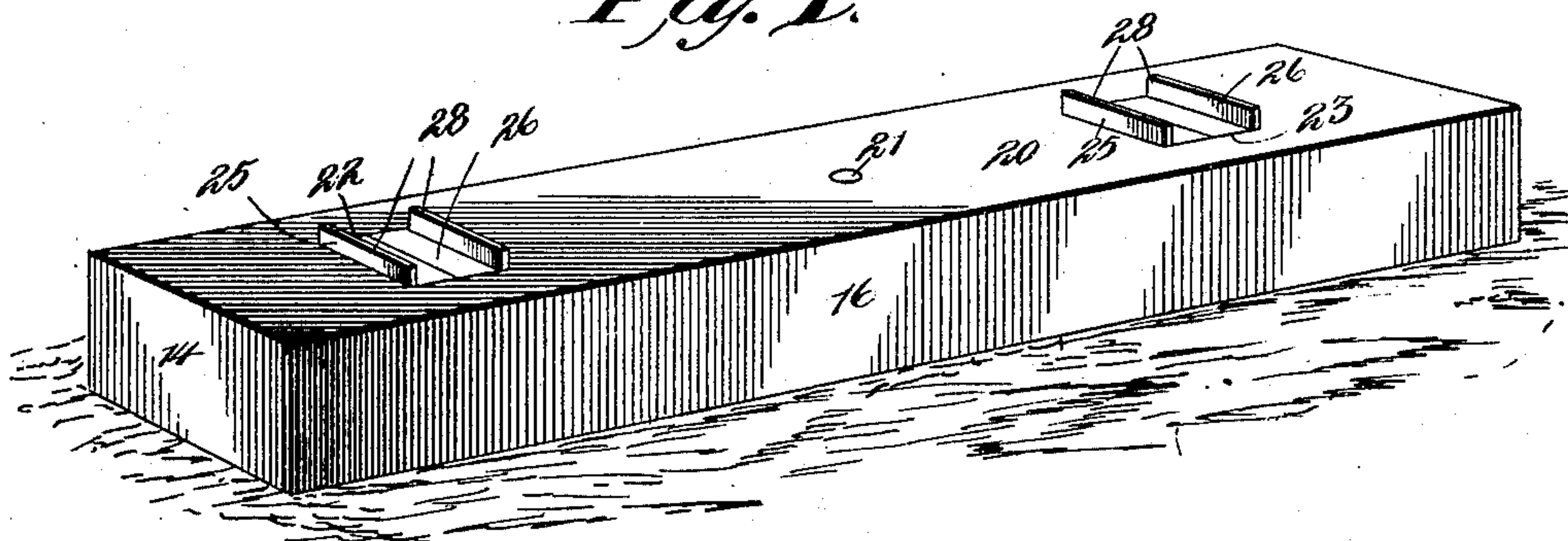


Fig. 2.

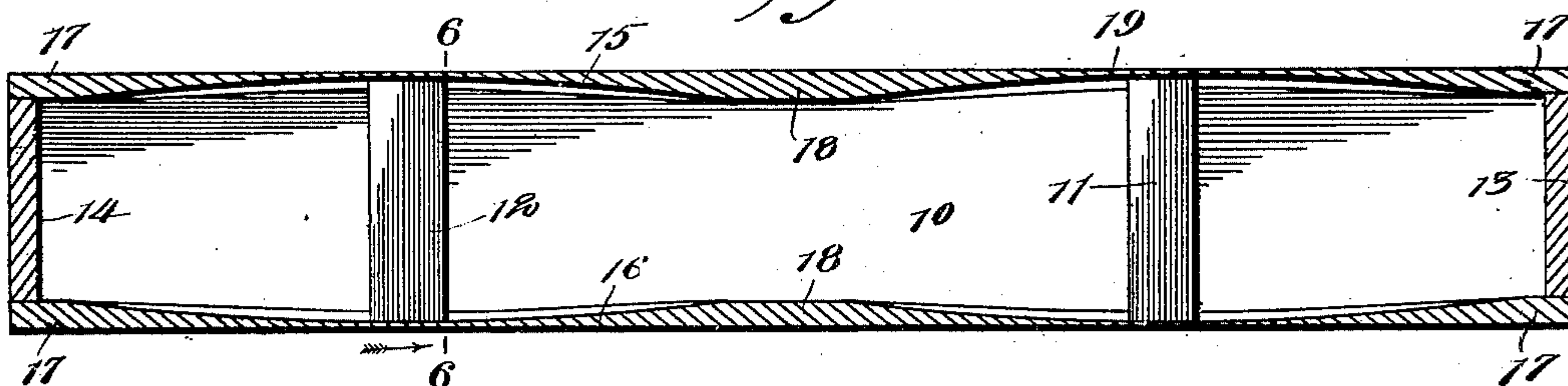


Fig. 6.

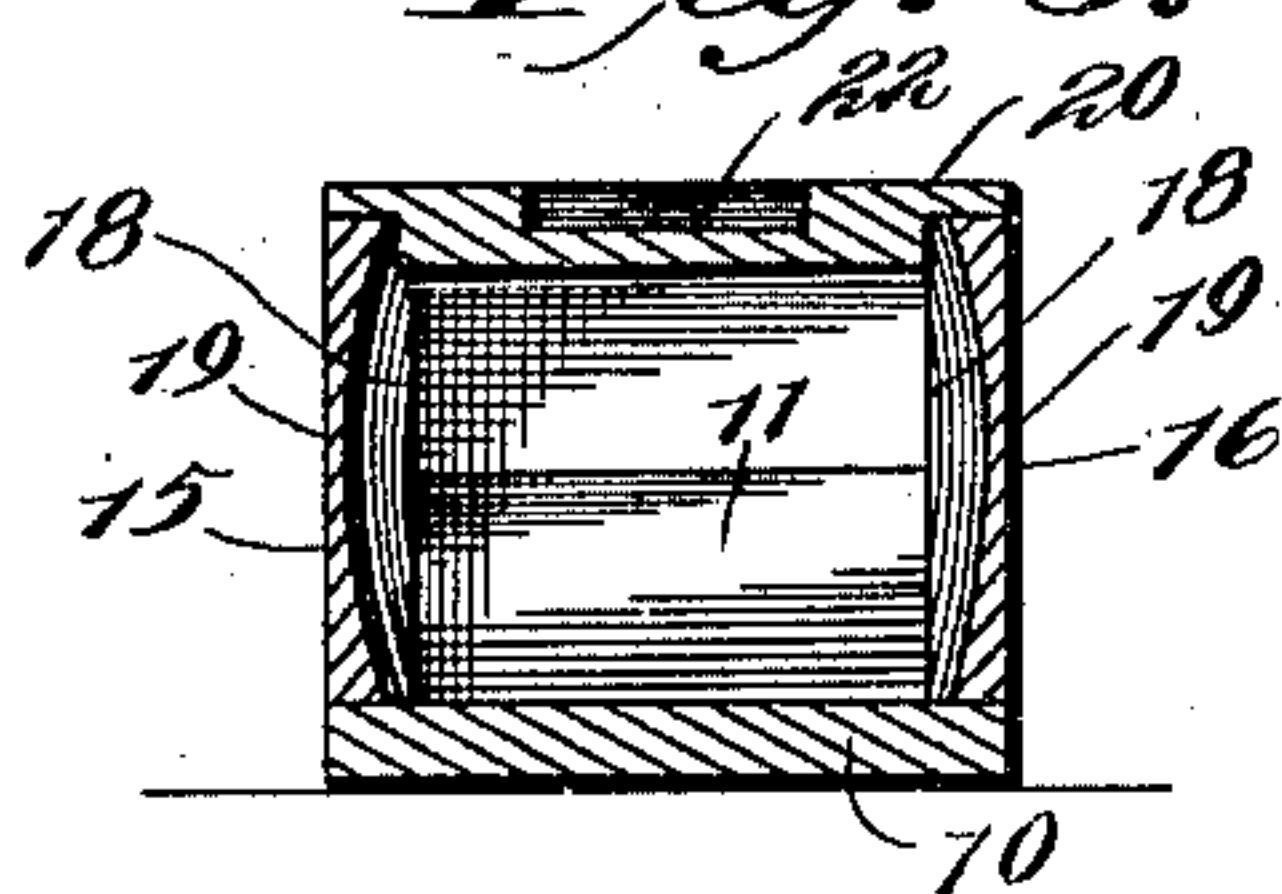
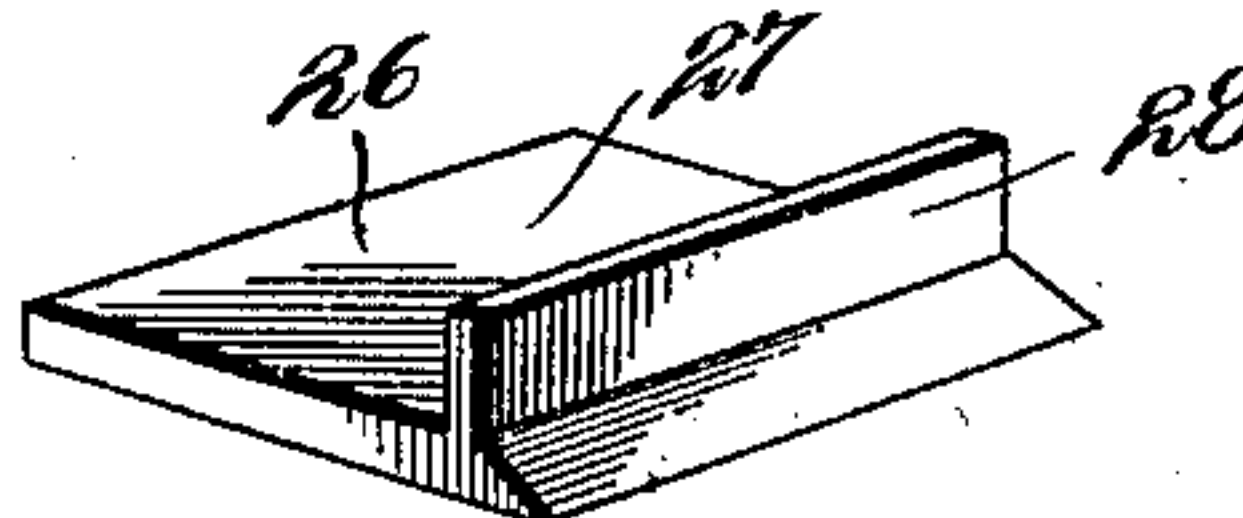


Fig. 7.



Witnesses

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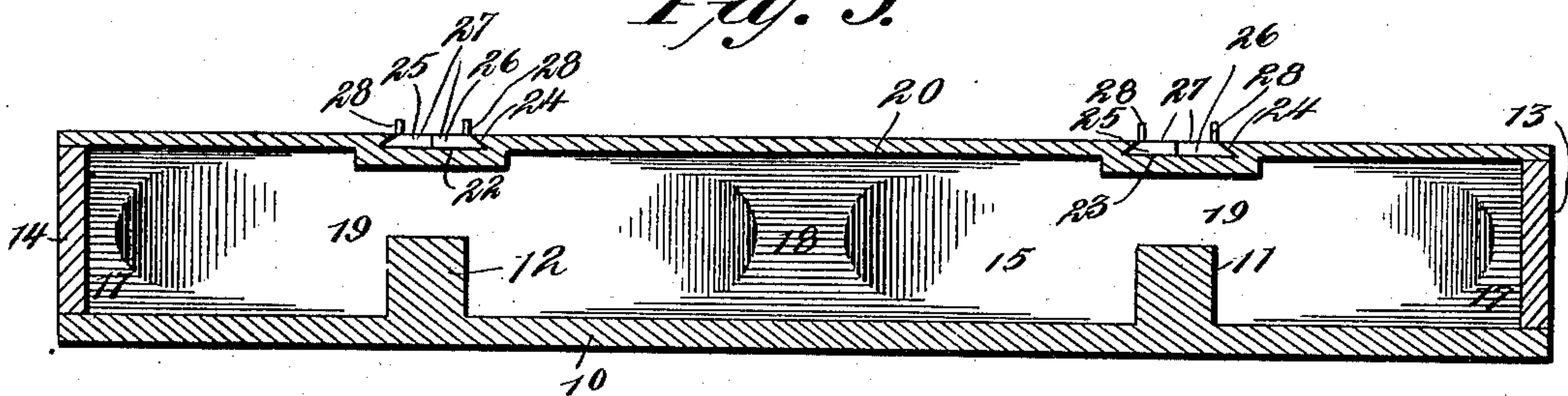
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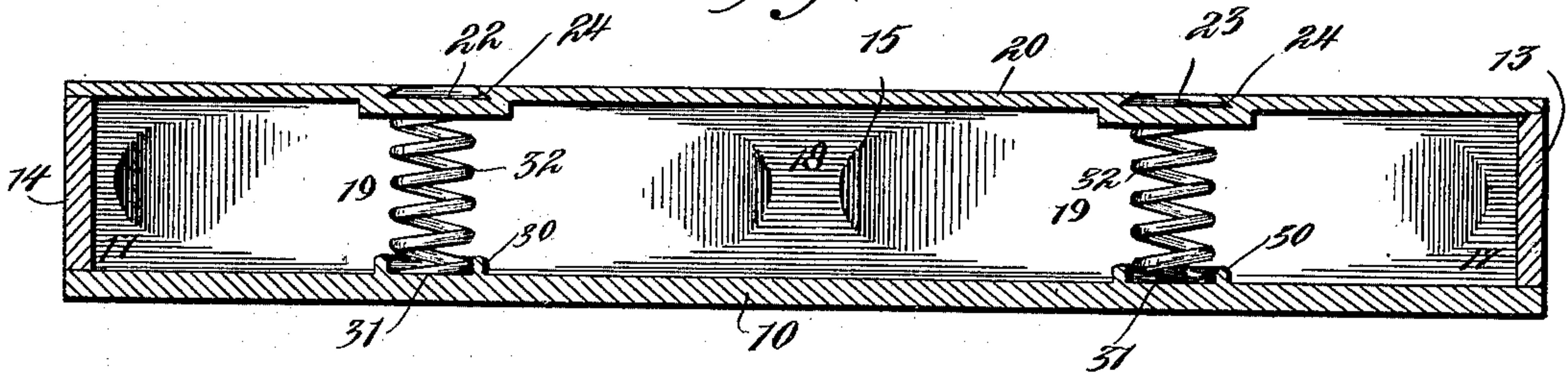
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2 Sheets—Sheet 2.

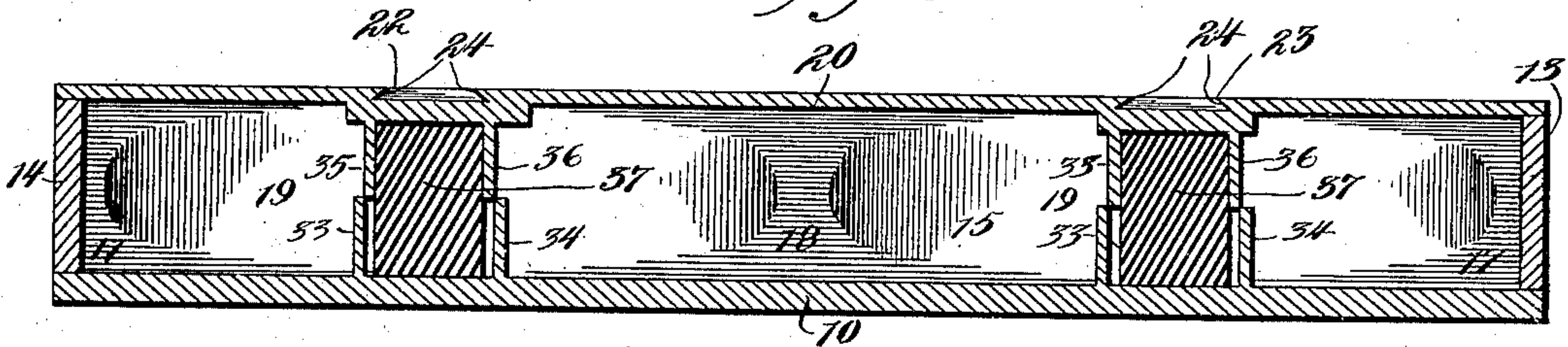
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBLEY EUGENE HELLER, OF ABINGDON, ILLINOIS.

## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 652,265, dated June 26, 1900.

Application filed November 28, 1899. Serial No. 738,616. (No model.)

*To all whom it may concern:*

Be it known that I, ROBLEY EUGENE HELLER, a citizen of the United States, residing at Abingdon, in the county of Knox and State of Illinois, have invented a new and useful Railway-Tie, of which the following is a specification.

This invention relates to trackways of railroads in general, and more particularly to the ties thereof; and it has for its object to provide a construction in which the rails will be yieldably supported and will thus absorb the vibration incident to the running of a train and will eliminate the necessity for the employment of springs upon the cars and will avoid the objectionable sidewise movement of the cars which is incident to the present arrangement of springs.

In the drawings forming a portion of this specification and in which similar numerals of reference designate like and corresponding parts in the several views, Figure 1 is a perspective view showing a complete tie constructed in accordance with the present invention. Fig. 2 is a transverse horizontal section of Fig. 1, taken just below the top plate of the tie. Fig. 3 is a vertical longitudinal section of the complete tie with the rail-chairs in position. Fig. 4 is a view similar to Fig. 3, with the chairs omitted and showing yieldable supports disposed beneath the chair-sockets to assist in sustaining the weight applied to the rails. Fig. 5 is a view similar to Fig. 4 and showing a different construction of yieldable supports. Fig. 6 is a section on line 6 6 of Fig. 2. Fig. 7 is a detail perspective showing one of the parts of a rail-holding chair.

Referring now to the drawings, and more particularly to Figs. 1, 2, 3, 6, and 7, in constructing a tie in accordance with one embodiment of this invention there is employed a base-plate 10, having a preferably-uniform thickness, excepting at two points upon its upper surface, where lugs 11 and 12 are formed, and which lugs are equidistant from their respective ends of the base and are separated by an interspace equal to the separation of the rails of the trackway to be supported by the tie. Secured upon the ends of the base 10 or formed integral therewith are end plates 13

and 14, and to the side edges of these end pieces and resting upon the base 10 are secured side plates 15 and 16. The side plates 15 and 16 are equal in thickness at their ends and central portions, as shown at 17 and 18, respectively, while between their ends and their central portions they are formed much thinner, as shown at 19, these thin portions permitting the proper elasticity and flexibility of the steel from which the plates are formed. As shown in Fig. 2 of the drawings, the lugs 11 and 12 project sufficiently to enter the recesses formed by the thin portions of the side plates and act to brace these portions. Upon the upper edges of the side and end plates is fixed a top plate 20, this top plate being adapted to lie with its outer edges flush with the outer faces of the side and end plates and having an opening 21, communicating with the inclosure of the hollow tie. The joints between the several plates of the tie are hermetically sealed, after which compressed air is forced into the tie, and the opening 21 is then closed. In order to secure the rails to the top plate of the tie, two recesses 22 and 23 are formed in the top plate and transversely thereof, the end walls of the recesses lying within the inclosure of the side edges of the top plate. The side walls of the recesses are beveled downwardly and outwardly, as shown at 24. In the recesses 22 and 23 are disposed chairs, each of which comprises two elements 25 and 26, consisting of a bottom plate 27, the length of which is equal to that of the recess, while its greatest width is equal to one-half the greatest width of the recess. One edge of each plate is beveled to correspond to the beveled side wall of the recess, and at the termination of the bevel and upon the upper surface of the bottom plate is formed a flange 28. The flanges 28 are separated by an interspace sufficient to receive the flange of a rail, and after the rail has been put in place the flanges 28 are bent inwardly to lie upon the flange of the rail, and thus hold the rail securely in place. It will of course be understood that the elements of the chairs are of malleable metal, and, as shown in Fig. 3 of the drawings, the top plate is thickened to compensate for the material cut away in the formation of the recesses. As shown in the



drawings, the chair-receiving recesses are disposed directly above the lugs 11 and 12, and hence under the influence of excessive weight upon the rails the downward movement of the top plate will be limited by the engagement of the thickened portions thereof with the lugs 11 and 12.

In Fig. 4 of the drawings there is shown a tie constructed in the same manner as above described, with the exception that instead of the formation of the lugs 11 and 12 upon the base-plate there are annular flanges 30, resulting in the formation of seats 31, in which are disposed the lower ends of helical springs 32, which bear at their opposite ends against the top plate, directly below the chair-receiving recesses thereof.

In Fig. 5 of the drawings transverse flanges 33 and 34 are formed upon the base-plate in substitution of the flanges 30, flanges 33 and 34 being separated by an interspace and adapted to receive between them the corresponding flanges 35 and 36, which are formed upon the thickened portion of the top plate directly below the chair-receiving recesses. The flanges 35 and 36 are adapted for slidable movement with respect to the flanges 33 and 34, and within the inclosure of these flanges and between the top plate and the base-plate are disposed elastic blocks 37, of rubber or similar material, having the functions of the helical springs 32, for which they are substituted.

The advantages of the structures shown in Figs. 4 and 5 will be apparent, as they provide means for yieldingly sustaining the top plates and insure the proper resiliency of the structure.

It will of course be understood that in practice the tie may be supplied with a filling of any elastic fluid and that any other arrangement of springs or different form of elastic support may be employed without departing from the spirit of the invention. It will also be understood that the top and bottom plates, as also the sides and ends, may be made of iron or of any other suitable material, and it will be seen that with the present structure a cheap and lasting tie is produced.

What is claimed is—

1. A railway-tie consisting of flexible material having an elastic-fluid filling and adapted to receive rails.

2. A railway-tie formed of flexible material having an elastic-fluid filling and adapted for the attachment of rails thereto.

3. A railway-tie formed of flexible material having an elastic-fluid filling, and provided with recesses adapted to receive rail-holding chairs.

4. A railway-tie comprising a hermetically-sealed box including a base-plate, side plates, a front plate and ends, the side plates being reduced in thickness between their centers

and ends to increase the yieldability of the plate, and an elastic filling for the tie.

5. A railway-tie adapted for the attachment of rails thereto and comprising elastic plates adapted to lie normally in a predetermined position and to be deflected under the influence of pressure upon the rails supported thereby, and an elastic-fluid filling for the tie.

6. A hollow railway-tie adapted to hold rails and comprising a box including a base-plate, rigid end plates fixed to the base, resilient and elastic side plates fixed to the base-plate, a resilient top plate supported upon the side plates and end plates, and an elastic filling for the tie.

7. A hollow railway-tie adapted to receive a fluid under pressure and comprising a base-plate, resilient side plates mounted upon the base-plate, a top plate mounted upon the side plates and adapted for the attachment of rails thereto, and stops adapted to limit the movement of the top plate in the direction of the base-plate, the joints of the plates being hermetically sealed.

8. A hollow railway-tie including a box comprising a base-plate provided with flanges, resilient side plates mounted upon the base-plate, rigid end plates fixed to the base-plate, a resilient top plate mounted upon the side and end plates and provided with flanges adapted to slidably engage the corresponding flanges of the base-plate, and yieldable supports for the top plate disposed between the corresponding flanges of the top plate and base-plate.

9. A railway-tie comprising a plate having recesses, the side walls of which are beveled, and a chair disposed in each recess, each of said chairs having a beveled portion adapted to engage a beveled wall of the recess and adapted to lie with the opposite edges of their elements in engagement, and flanges adapted to engage the flange of the rail.

10. A railway-tie comprising a plate having recesses therein, the side walls of which are beveled, and chairs disposed in the recesses, each of the chairs comprising two plates having beveled edges adapted to engage the beveled walls of the recesses, and adapted to lie with their opposite edges in engagement, and flanges upon the plates of the chairs and adapted to be bent into engagement with the flange of a rail, the upper surfaces of the plates of the chairs lying flush with the plate of the tie.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBLEY EUGENE HELLER.

Witnesses:

W. H. HELLER,  
SUDA HATCHETT.