

(No Model.)

D. SERVIS.
TIE PLATE.

No. 590,689.

Patented Sept. 28, 1897.

FIG. 1.

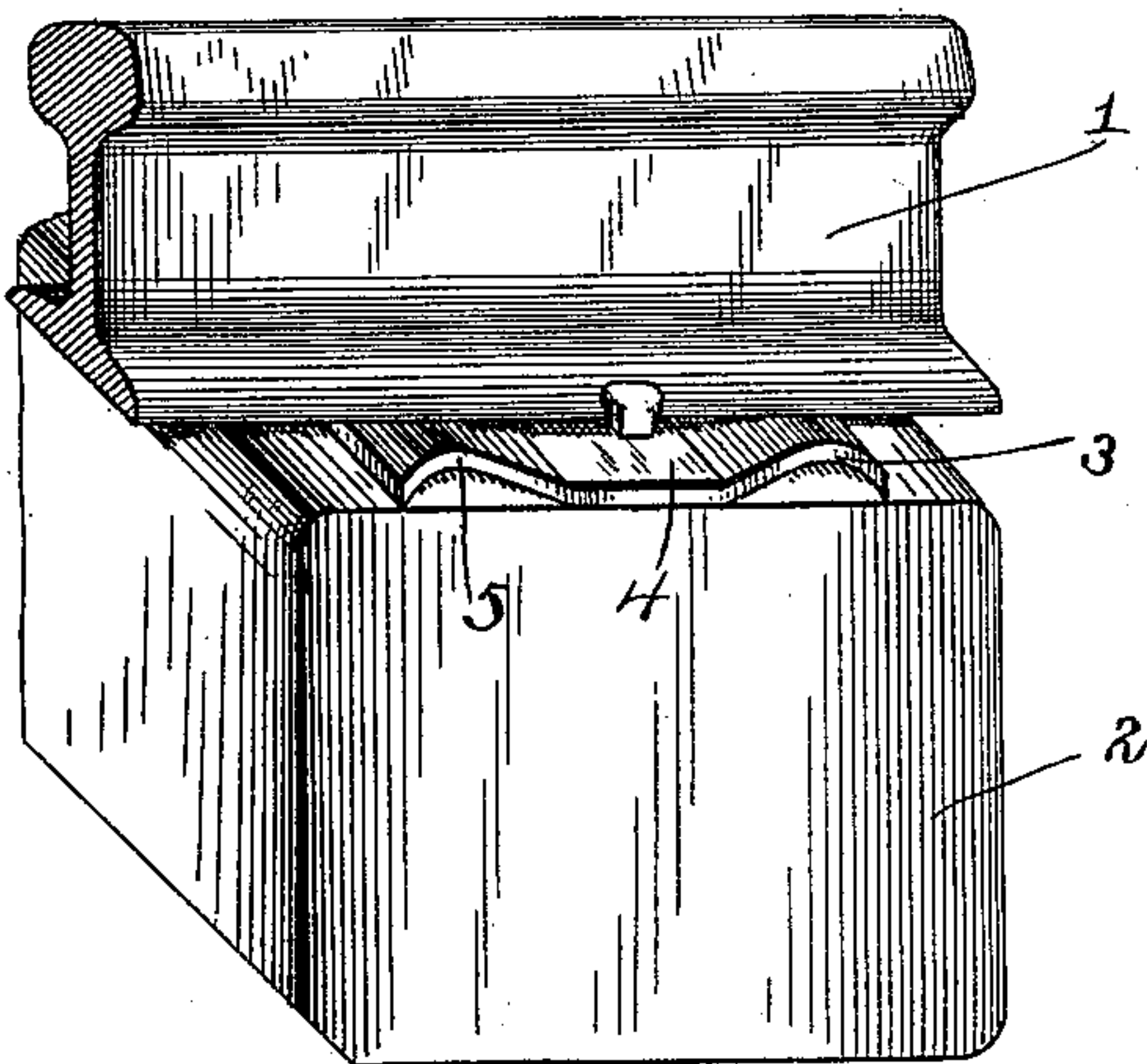


FIG. 2.

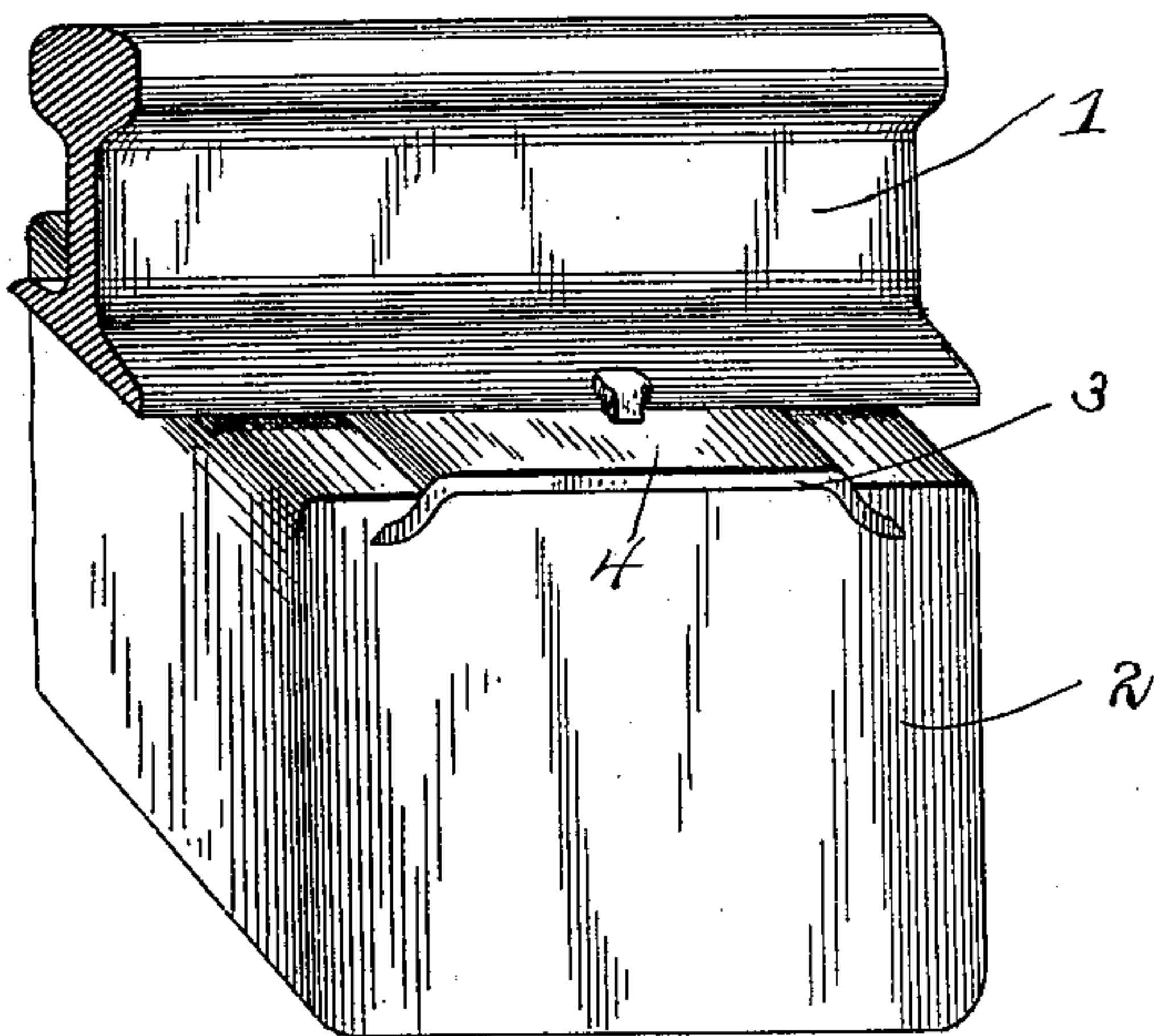


FIG. 3.

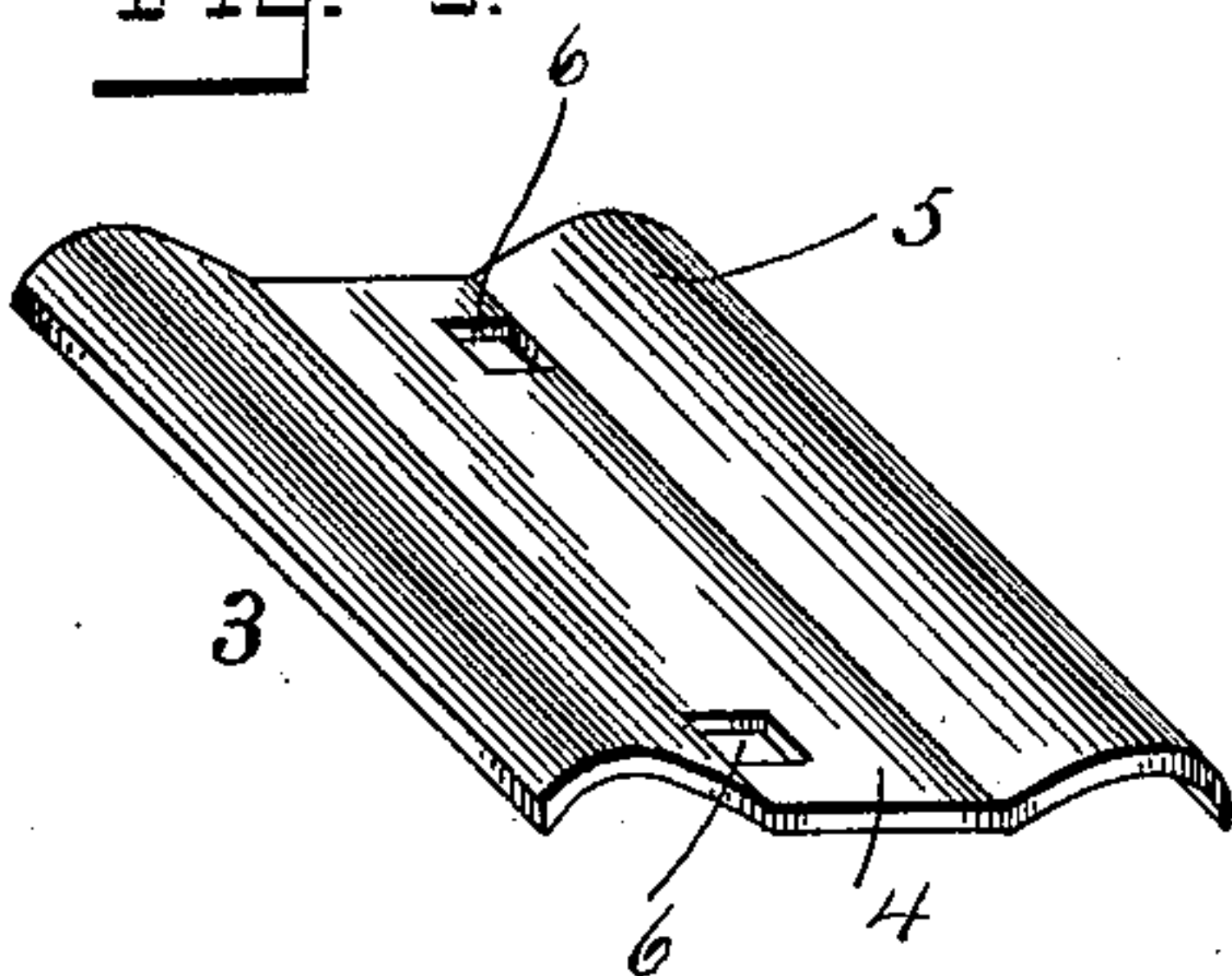
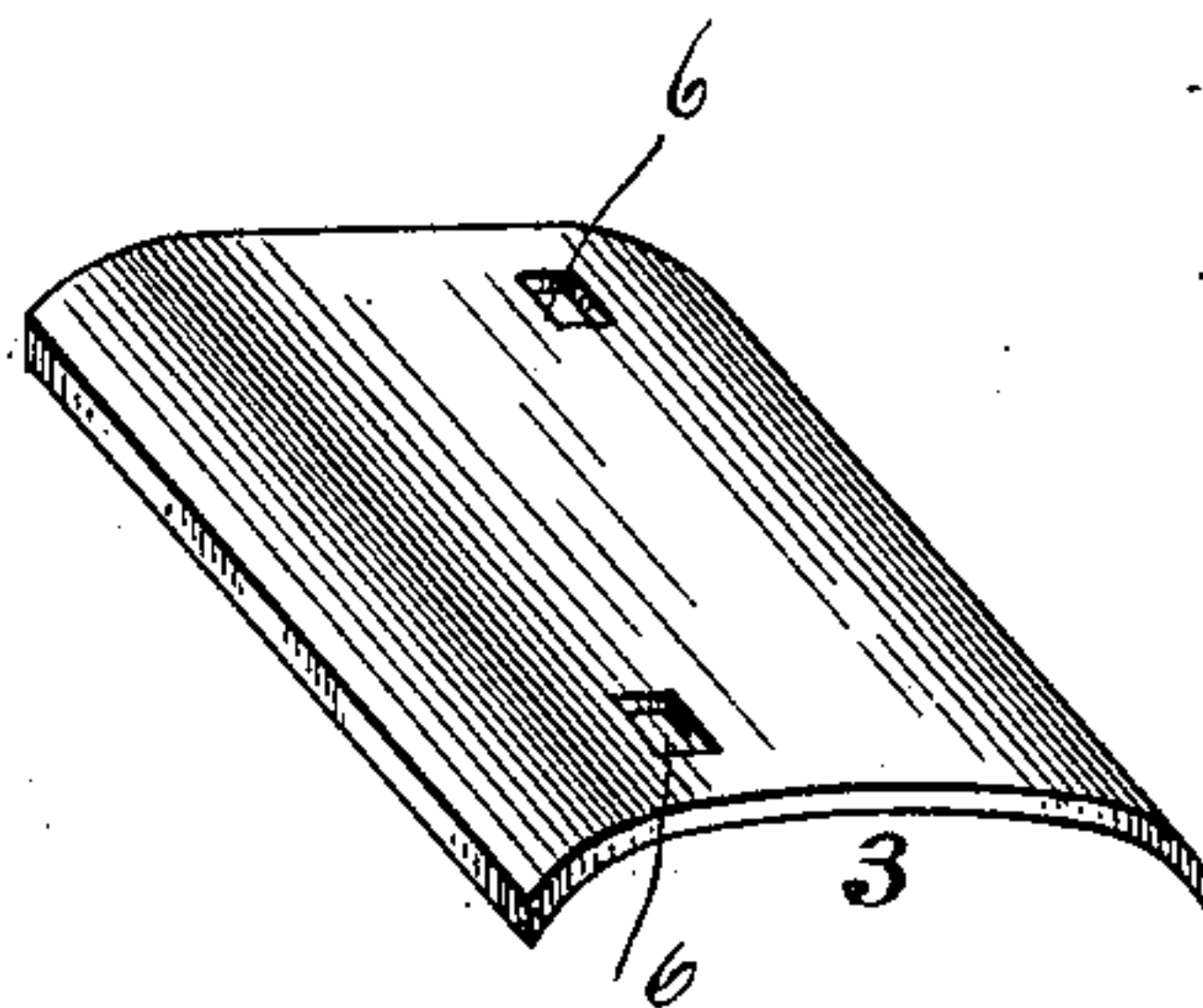


FIG. 4.



Witnesses

W. S. Belt.
H. Joseph Doyle.

Inventor

David Servis,
by T. E. Hughes, Attorney

UNITED STATES PATENT OFFICE.

DAVID SERVIS, OF ITHACA, NEW YORK.

TIE-PLATE.

SPECIFICATION forming part of Letters Patent No. 590,689, dated September 28, 1897.

Application filed December 23, 1896. Serial No. 616,714. (No model.)

To all whom it may concern:

Be it known that I, DAVID SERVIS, a citizen of the United States, residing at Ithaca, Tompkins county, and State of New York, have invented a certain new and Improved Tie-Plate for Railway-Rails, of which the following is a full, clear, and exact description.

This invention relates to tie-plates for railway-rails.

10 The object is to provide a tie-plate of such construction that the edges of the plate which extend parallel with the grain of the wood of the tie will engage the tie in such manner as to effect a secure and thoroughly reliable
15 union between the plate and the tie; furthermore, to provide a tie-plate in which any tendency thereof to rock, spring up, or move in the ties in any manner except to settle therein will be effectually overcome; further-
20 more, to provide a tie-plate combining the above characteristics which will be of great simplicity of construction, high efficiency and durability in use, and cheap both of production and of application.

25 Generally stated, my invention contemplates the employment of a flangeless tie-plate—that is to say, a plate devoid of flanges extending at right angles to its rail-supporting surface. Where a plate is employed hav-
30 ing flanges extending at right angles to its supporting-surface, the working of the flanges up and down in the tie under the wave motion imparted to the rail by the movement of the car gradually enlarges the openings or in-
35 cisions in the tie in which these flanges rest, causing the plate to have a loose bearing, thereby also forming large recesses, in which water, sand, and mud will settle, causing the rapid decay of the tie, and as a consequence
40 shortening the duration of its usefulness.

In a tie-plate characterized by my invention those parts of the plate which will in use, generally stated, constitute the flanges are so disposed with relation to the rail-support-
45 ing surface of the plate that the passage of the cars over the rail will tend to cause these portions firmly to embed themselves in the tie in such manner as effectually to overcome any tendency to lift as the trucks of the car
50 pass from one plate to the next succeeding plate.

Specifically stated, my invention consists

of a tie-plate having a flat or substantially flat rail-bearing surface and curved portions on each side of the rail-bearing surface to en- 55
gage with the tie, the plate being of such thickness that the weight of the passing train will cause the edges of the plate to sink into the tie at an angle to the dead-weight line, so that when seated these two edges constitute 60
a dovetail union with the tie.

In the accompanying drawings, forming a part of this specification and in which like numerals indicate corresponding parts, I have illustrated a preferred embodiment of my in- 65
vention, together with a modified form thereof, and in which—

Figure 1 is a view in sectional elevation, displaying the tie-plate in position upon a tie before it is set in position by the rail. Fig. 2 70
is a similar view showing it in set position. Fig. 3 is a perspective detail view of the plate. Fig. 4 is a similar view of a modified form of plate.

Referring to the drawings, 1 designates the 75
rail, and 2 the tie, and as these parts may be of any preferred construction a detailed description of them is deemed unnecessary.

The tie-plate 3, which constitutes the gist of this invention, is constructed of a suitable 80
metal, preferably of steel, and of a thickness that will readily yield to weight without danger of fracture or breakage, and of any suitable dimensions required. This plate is pro-
vided with a flat rail-bearing portion 4, as 85
shown in Fig. 3, and with curved side portions 5, the edges of these curved portions being by preference in alinement with the under side of the rail-bearing portion 4, al-
though, if preferred, they may extend below 90
this portion, suitable spike-openings being furnished by which to secure the plate in place upon the tie. Instead of having the plate provided with double-curved side por-
tions, as shown in Fig. 3, the plate may be 95
bow-shaped or concavo-convex, substantially as shown in Fig. 4.

In assembling the plate with relation to the tie the plate is placed upon the tie with the rail-supporting portion 4 and the edges of the 100
curved portions 5 resting upon the ties. The spikes which serve to hold the rail in position upon the tie are then driven to their seats, and in seating force the curved portions 5

laterally and diagonally into the wood of the tie, as shown in Fig. 2, thereby establishing a close, intimate, and thoroughly effective union between the plate and the tie. It will
5 be seen that the continual passage of trains over the rails will serve to embed the flanges or edges of the plate at each passage more firmly into the tie, and as the flanges or edges are laterally embedded in the tie any tendency to lift on the part of the tie, should
10 the spike work loose, will be effectually counteracted, while the opening between the walls of the recesses in which these flanges are embedded will by their close and intimate
15 contact therewith effectually exclude the entrance of dust or moisture, such moisture, should any enter, serving to cause the tie more firmly to grasp the plate by reason of the consequent swelling of the wood.

20 While the edges of my tie-plate may be sharpened, this is not essential in all cases.

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

25 1. A tie-plate having a flat rail-bearing surface provided with spike-openings and curved side portions adapted to be driven laterally into the tie in the act of seating the rail, as described.

30 2. A tie-plate having a flat or substantially flat rail-bearing portion, and curved portions on each side of the rail-bearing surface, to engage with the tie, the plate being of such thickness that the weight of a passing train

or the seating of a rail will cause the edges 35 of the plate to sink into the tie, at an angle to the dead-weight line, so that when seated these two edges will constitute a dovetail union with the tie, as described.

3. A tie-plate of resilient material and uniform thickness provided with unobstructed 40 ends and whose sides, as embedded in the material of the tie are at substantially obtuse angles to the rail-bearing portion of the tie-plate.

45 4. A resilient curved tie-plate whose edges are adapted to seat themselves at an obtuse angle to the rail-bearing portion of the tie-plate, when driven into the tie.

50 5. A resilient tie-plate, the material of which is of substantially uniform thickness, having unobstructed ends and curved longitudinally, a central rail-bearing portion and curved sides, the longitudinal edges sharpened so as to readily enter the tie.

55 6. A resilient tie-plate of uniform thickness, having unobstructed ends and a curved portion between the rail-bearing portion and each edge said edges adapted to be embedded into the tie in the act of seating the rail.

60 In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses.

DAVID SERVIS.

Witnesses:

F. B. HENDRERSON,
J. H. MITCHELL.