

No. 877,817.

PATENTED JAN. 28, 1908.

B. WOLHAUPTER.  
INSULATED COMPROMISE RAIL JOINT.

APPLICATION FILED MAR. 22, 1907.

4 SHEETS—SHEET 1.

Fig. 1.

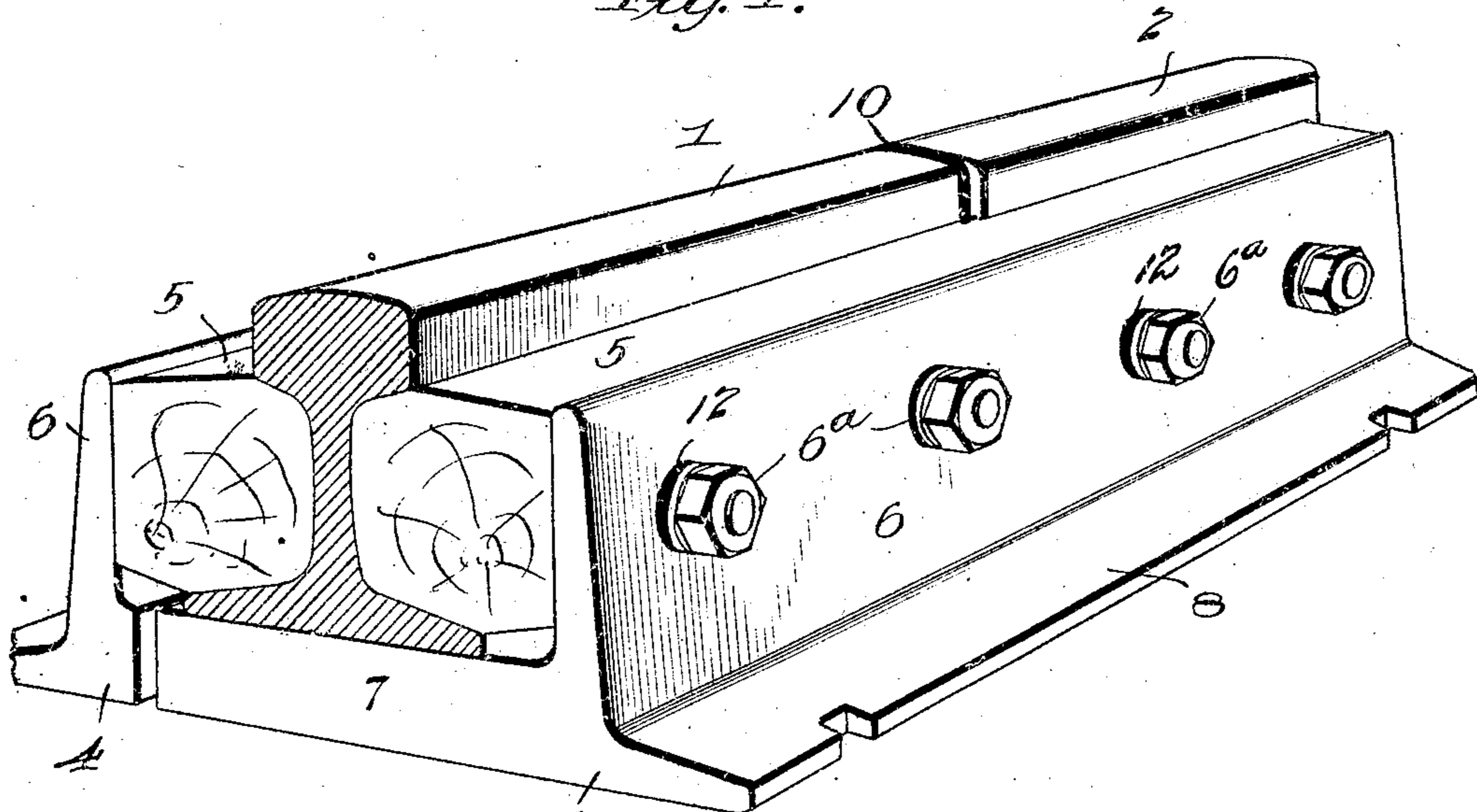


Fig. 2.

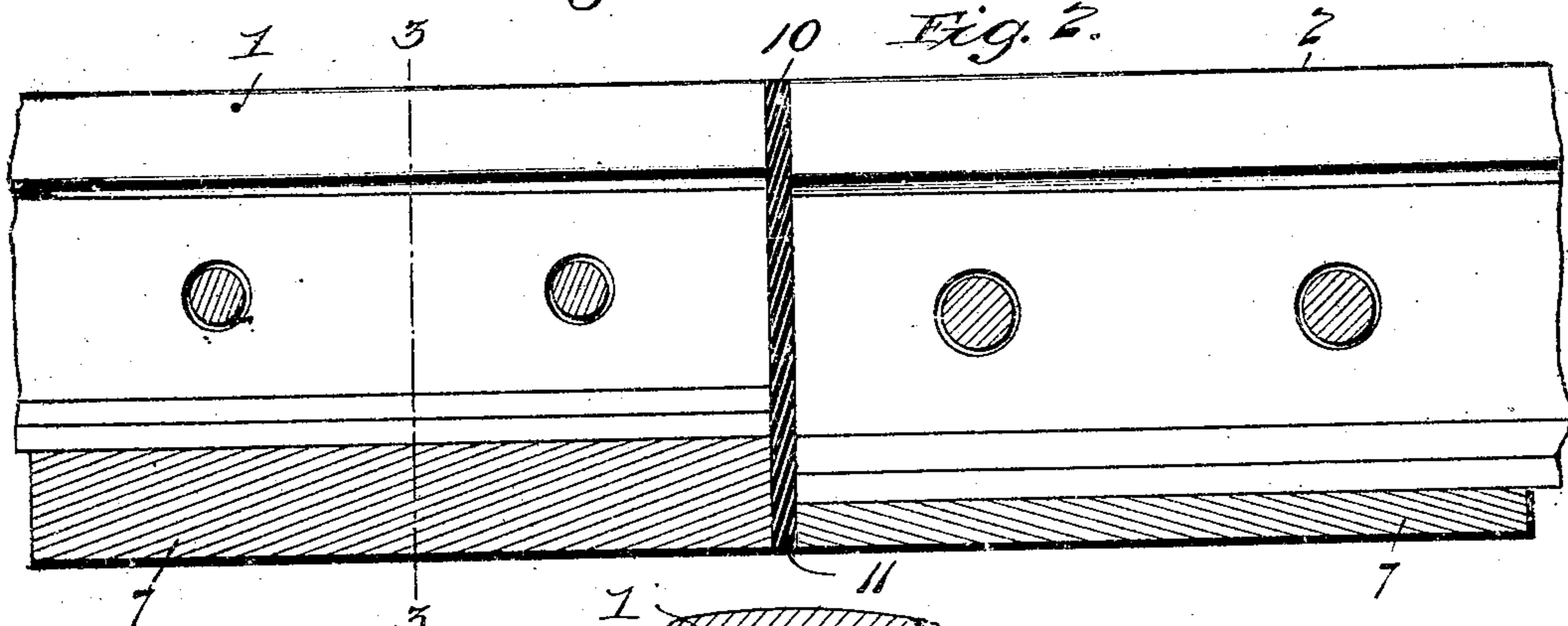
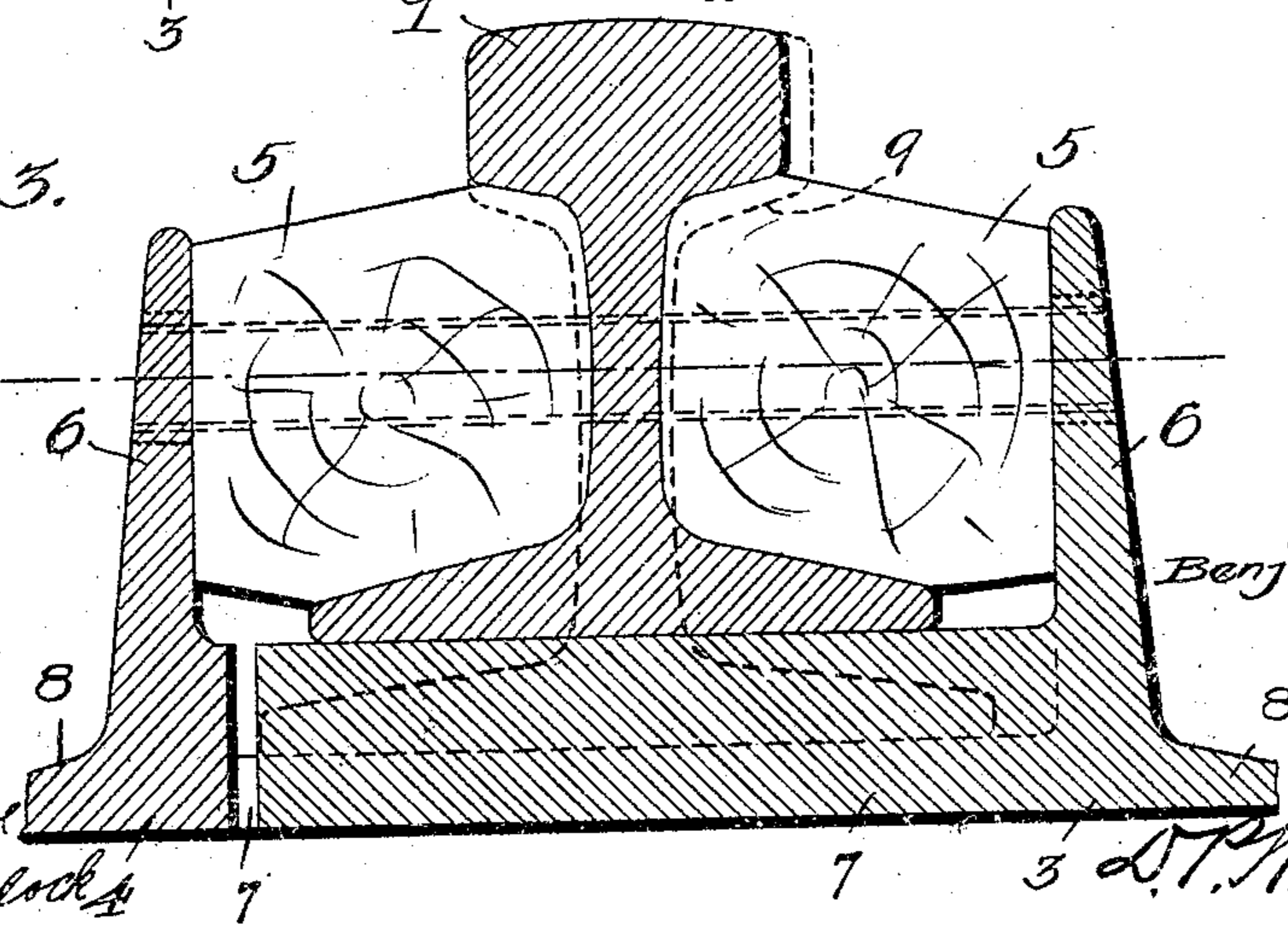


Fig. 3.



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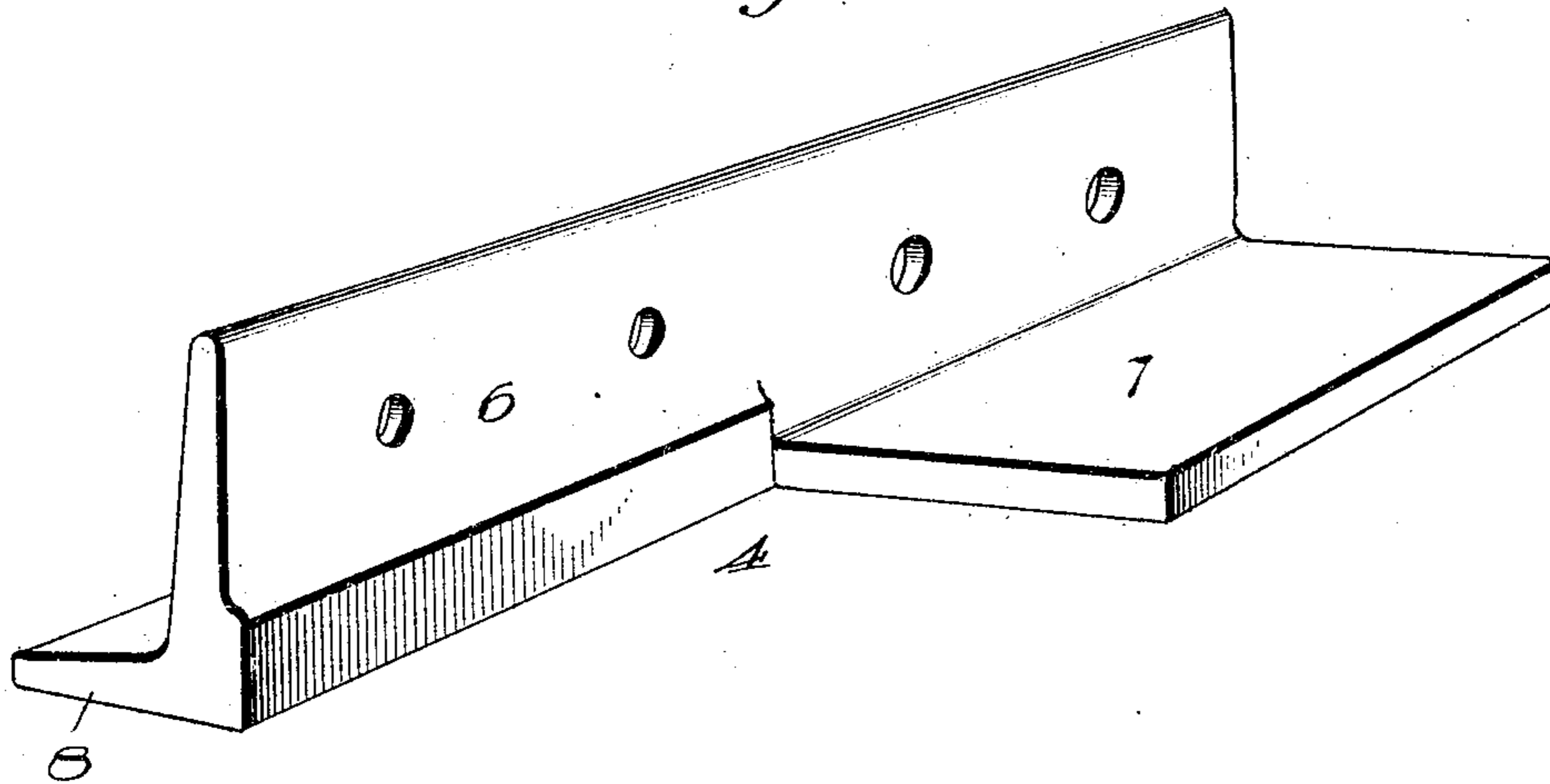
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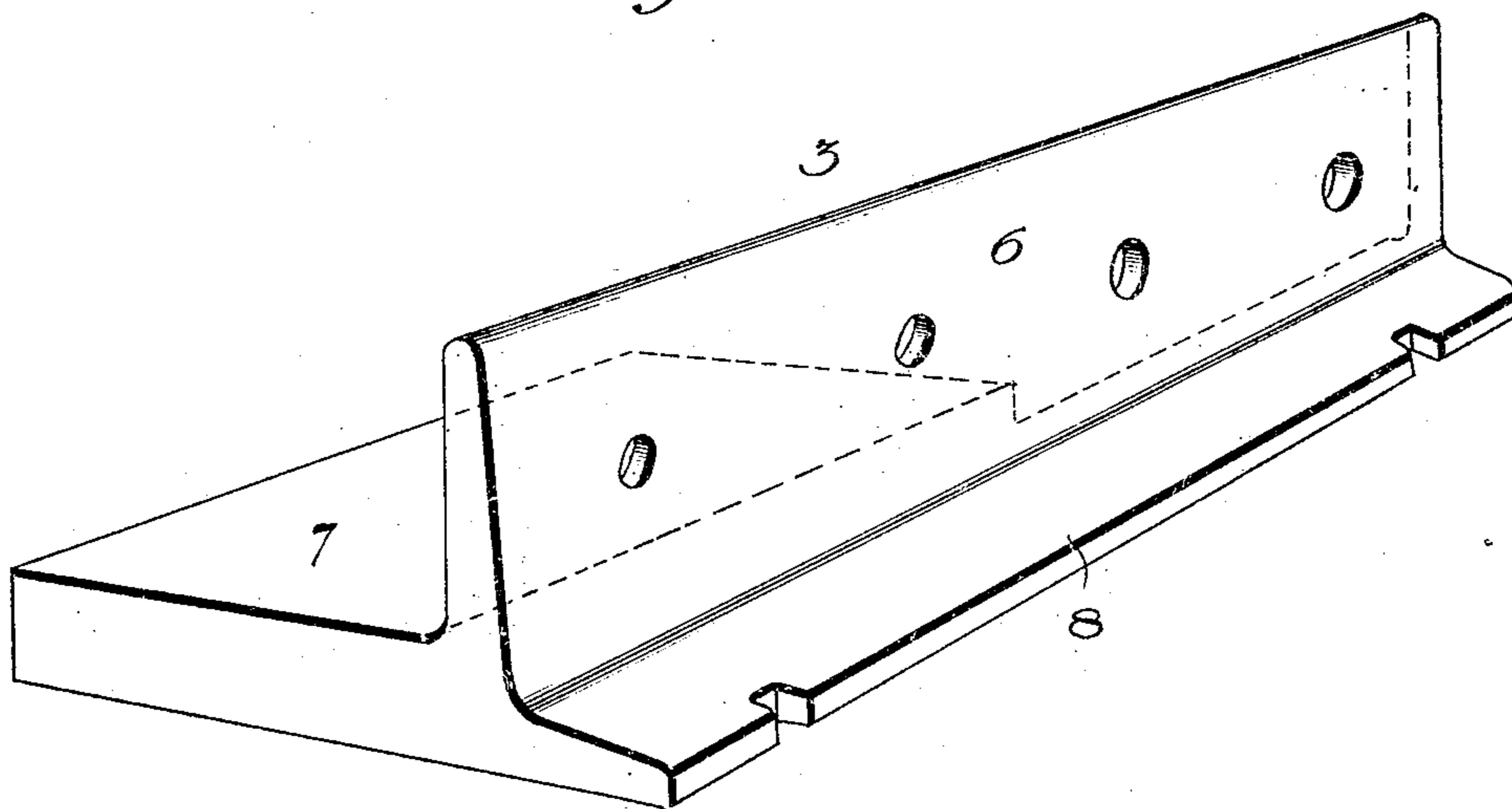
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4 SHEETS—SHEET 2.

*Fig. 4.*



*Fig. 5.*



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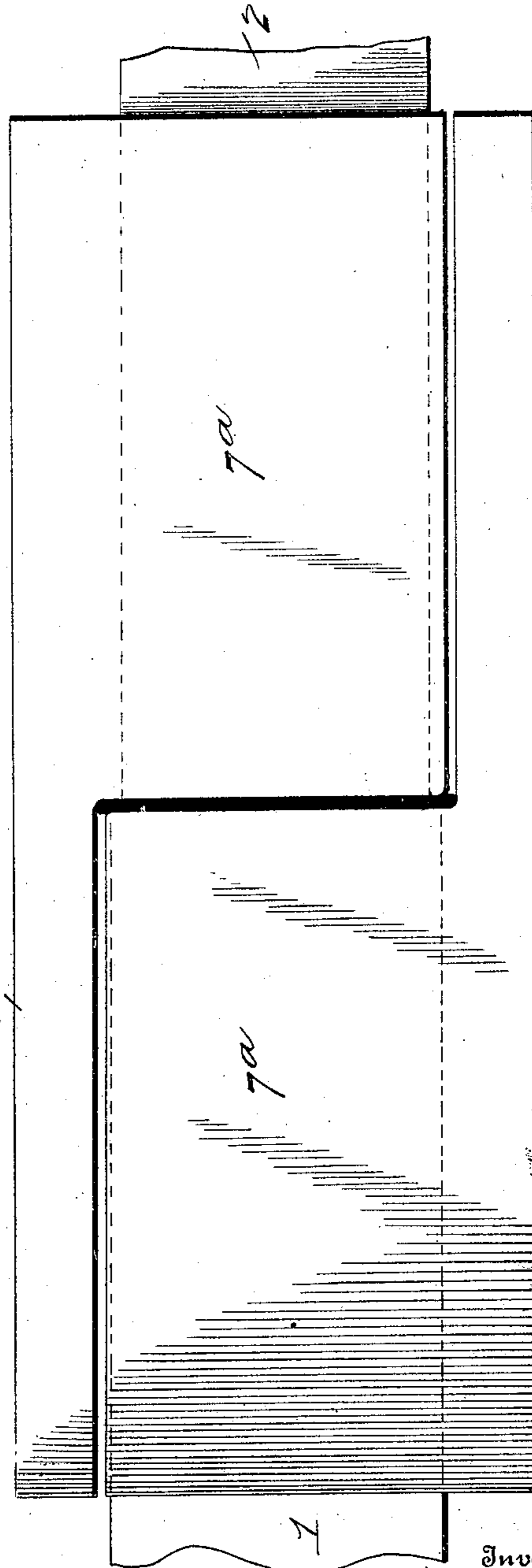
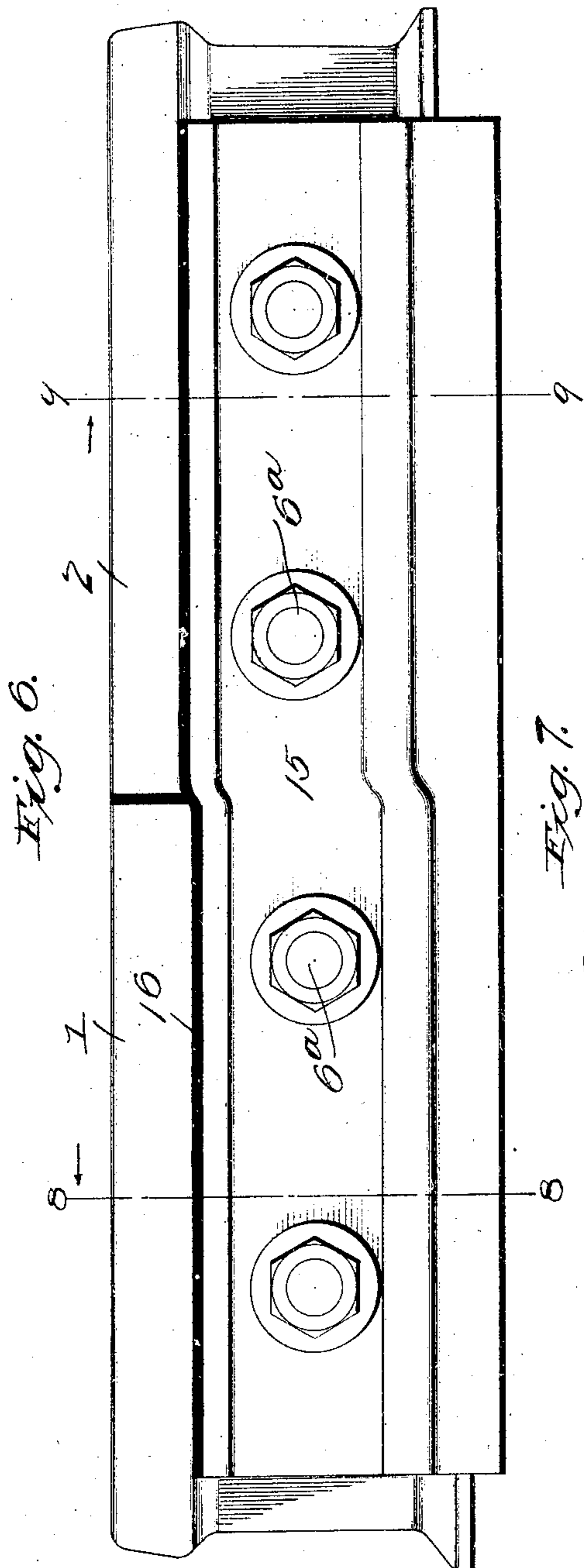
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4

Fig. 9.

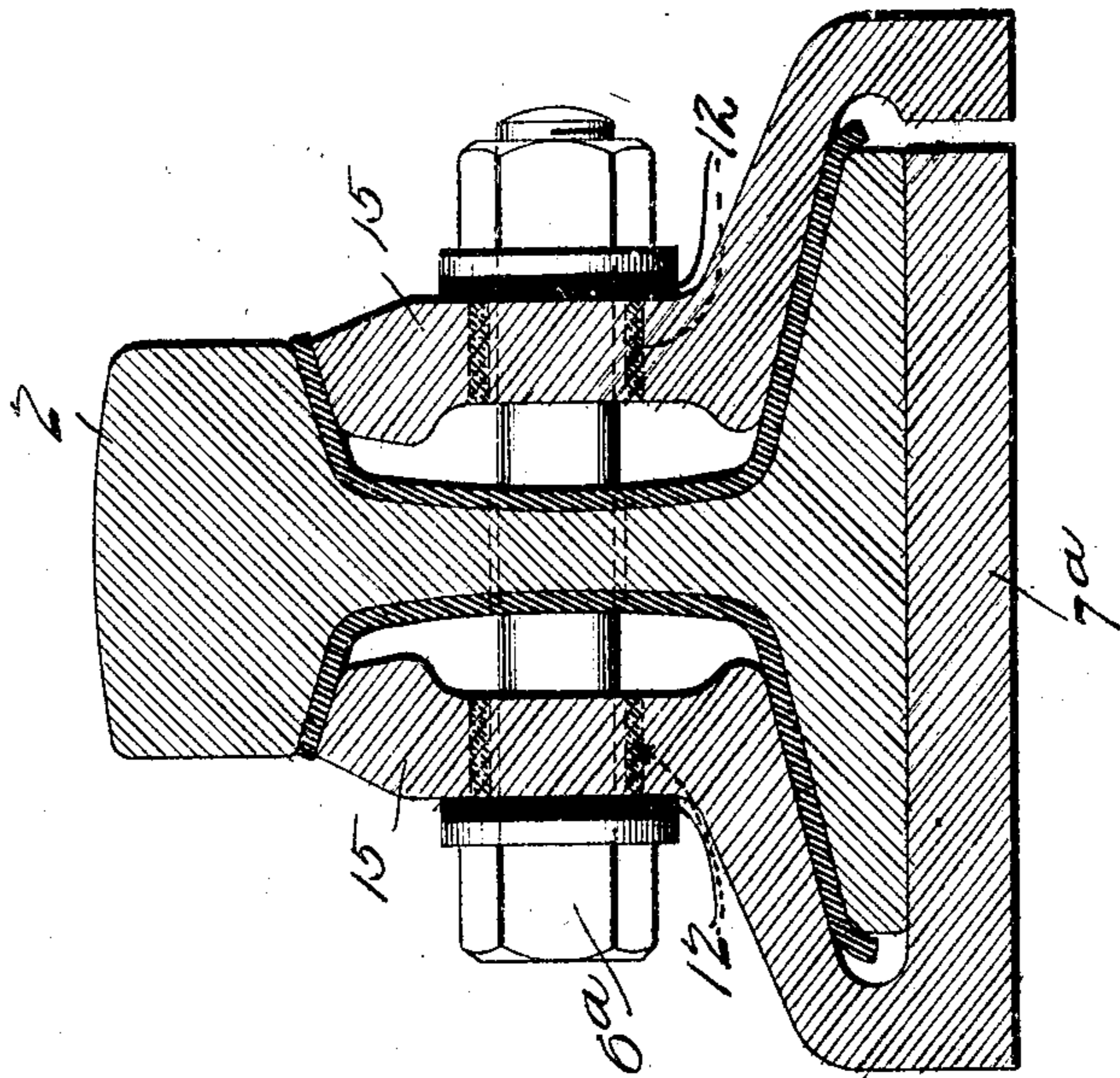
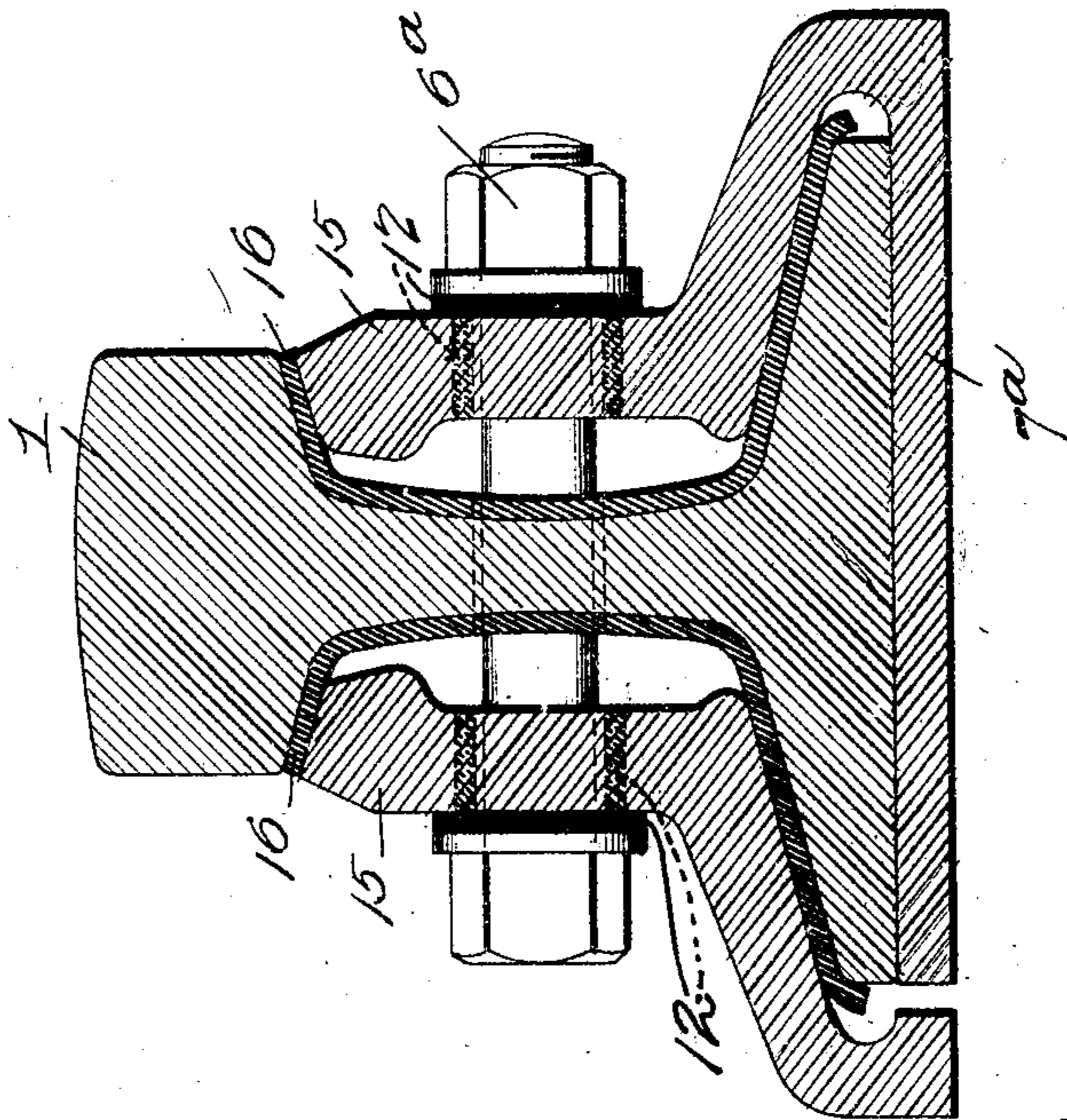


Fig. 8.



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# UNITED STATES PATENT OFFICE.

BENJAMIN WOLHAUPTER, OF NEW YORK, N. Y., ASSIGNOR TO THE RAIL JOINT COMPANY,  
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## INSULATED COMPROMISE RAIL-JOINT.

No. 877,817.

Specification of Letters Patent.

Patented Jan. 28, 1908.

Application filed March 22, 1907. Serial No. 363,919.

*To all whom it may concern:*

Be it known that I, BENJAMIN WOLHAUPTER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Insulated Compromise Rail-Joints, of which the following is a specification.

This invention relates to that class of insulated rail joints embodying a two-part or sectional supporting base for the rail ends, whereby a separate supporting base section is provided for each rail end, while at the same time providing for such insulation of the joint that there is no insulating material which is required to carry the load or weight of the passing trains.

To this end the invention primarily contemplates a simple, thoroughly practical, and strong construction of compromise rail joint having a two-part or sectional supporting base wherein each of the opposite joint bars or shoes is provided with a short length integral base section for one rail end, each of said base sections being adapted to afford the rail end thereon a support on both sides of the meeting point of the rail ends.

A more general object of the invention is to improve rail joints of the compromise or step type which are employed to connect rails of different heights and sections, so that the tops and inner sides of these dissimilar rails are supported in alinement. In this connection, the invention has in view the provision of a separate or individual supporting base or base section for each rail end whereby the individual support for each rail end is in a sense independent of that for the other, and thus admitting of the very desirable feature of providing means whereby the supporting base for one of the dissimilar rails, in a compromise rail joint, affords said rail end the support of the ties on both sides of the meeting point of the rails without metallic contact with the corresponding base section.

Furthermore, the invention also provides a construction of compromise rail joint wherein the joint may be thoroughly and effectively insulated throughout with a minimum amount of insulating material, and without disposing any insulating material in places where the same would receive the load or weight imposed on the rails.

With these and many other objects in view, which will more readily appear as the nature

of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The invention is exemplified by the practical embodiments thereof shown in the accompanying drawings, in which:

Figure 1 is a sectional perspective view of a compromise rail joint constructed in accordance with the present invention. Fig. 2 is a central longitudinal sectional view thereof showing more clearly the differential height or stepped relation of the separate base sections. Fig. 3 is a vertical cross sectional view on the line 3—3 of Fig. 2. Figs. 4 and 5 are separated perspective views, respectively, of the opposite joint shoes employed in the construction of joint shown in the preceding figures. Fig. 6 is a side elevation of an angle bar type of step joint embodying the present invention. Fig. 7 is a bottom plan view of the joint shown in Fig. 6. Fig. 8 is a cross sectional view of the joint on the line 8—8 of Fig. 6. Fig. 9 is a cross sectional view on the line 9—9 of Fig. 6.

Like references designate corresponding parts in the several figures of the drawings.

The essential features of the invention may be embodied in various forms of construction according to the special conditions to be met, but for illustrative purposes there is shown in the drawings one of the preferred and practical embodiments of the invention. This design of compromise rail joint, shown in the drawings, embodies in its organization the dissimilar service rails 1 and 2 of different height and section, the oppositely arranged complementary joint shoes 3 and 4, the wooden or equivalent filler blocks 5 interposed between the upright members of the shoes and the sides of the rails, and the series of joint bolts 6<sup>a</sup> passing through the aligned bolt holes or openings in the rails, the filler blocks, and the said upright members of the shoes. The joint shoes 3 and 4 are located respectively at opposite sides of the dissimilar rails 1 and 2, and each consists of an angle or angle plate having an upright member 6 constituting a side joint bar for the joint, and a short length horizontal base section 7 preferably formed integral with and projected inwardly from the lower edge of the member or bar 6, and arranged to lie beneath the base of one of the rail ends. As

indicated in the preferable construction of joint, the upright member or joint bar 6 of each shoe is integral with each base section or base plate 7, and at the outer corner of the shoe the same may also be provided with a continuous reinforcing and spiking flange 8 extending the full length thereof. Furthermore, in carrying out the invention, the upright member or side joint bar 6 of each shoe may be arranged perpendicularly, or at an inclination to the horizontal plane of the base section 7, according to the design and requirements of the joint, but in all adaptations of the invention, the base section 7 of each shoe is preferably of an extreme length approximately equaling one-half the full length of the rail joint members so that each base section receives and supports thereon one rail end. In this connection it will be observed that the opposite joint shoes 3 and 4 are arranged in rights and lefts, and are so constructed that one of the shoes, designated by the numeral 3, has its base section 7 projected inwardly from one end portion thereof only, while the opposite shoe, designated by the numeral 4, has its base section 7 projected inwardly from the correspondingly, but diagonally, opposite end portion of the same. Hence, each base section receives thereon one rail end to afford the latter a support on both sides of the meeting point of the rail ends without contact with the corresponding base section or supporting base for the other rail end.

In this design of joint, one of the distinctive features thereof resides in the fact that in order to secure the compromise or stepping effect necessary to connect the dissimilar rails so that the tops and inner sides thereof are supported in alinement, it is only necessary to have the separate base sections 7 of the opposite shoes 3 and 4 in a stepped relation, that is, of different heights so that while each of the dissimilar rails has a similar kind of support, the tops or running surfaces thereof are held in alinement. In the form of joint illustrated in the drawings, the stepped relation of the separate base section 7, or the differential height thereof, is preferably provided for by making one base section thicker than the other, thereby disposing the upper rest or supporting faces in different elevations, that is, in different horizontal planes, as plainly shown in Figs. 2 and 3 of the drawings.

In the construction described, it will be observed that by reason of interposing the wooden or equivalent filler blocks 5 between the upright members or side bars 6 of the shoes and the rail sides, the exterior design and dimensions of the conventional joint shoe or shoe angle may be preserved. That is, the said upright members or side bars of the shoes may be left of uniform design throughout without regard to the dissimilarity in the

section of the connected rails 1 and 2, thus permitting the stepping of the rails being accomplished solely through the differential heights of the two base sections 7—7, and the recessing of the filler blocks along their inner sides at one end portion thereof as indicated at 9 in Fig. 3, to compensate for the projection of the larger rail beyond the plane of the sides of the smaller rail. Also, by reason of the employment of the wooden or equivalent filler blocks 5, a well defined air gap or interval is maintained between the longitudinal edge of each base section 7 and the opposite joint shoe, and insulation may or may not be employed at this point to provide for insulating each shoe from the longitudinal edge of the base section carried by the other shoe, while in order to provide insulation between the rail ends and also between the inner adjacent end edges of the base sections, an insulating end post 10 may be utilized to perform these functions. The insulating end post 10 is of the conventional design, the same being adapted for interposition between the rail ends, but the present invention contemplates providing the end post 10 with a base extension 11 of sufficient extent to project into and close the space between the inner end edges of the base sections 7—7.

To complete the insulation of the joint, any suitable approved insulating expedients may be employed for insulating the joint bolt 6<sup>a</sup>, such for instance as the insulating washer and bushings 12 arranged at the inner sides of the heads and nuts of the bolts and lining the bolt holes in the upright members or bars 6 of the separate shoes.

As already indicated, the essential features of this invention may be embodied in various forms of construction, according to the special conditions to be met, and therefore the design of side joint bars 6 may be varied without departing from or sacrificing any of the advantages of the invention. For illustrative purposes, the side joint-bars 6 are shown in the drawings as constituting the upright members of shoe angles cooperating with filler blocks interposed between the said members and the sides of the rails, but obviously as shown in Figs. 6 to 9 inclusive, the said side joint bars designated in said figures by the number 15, may be made of the angle bar type closely fitting the sides of the rails with suitable insulation 16 interposed, without altering the feature of having each of said side joint bars provided with a short length base section 7<sup>a</sup> affording a support for one rail end, and the separate base sections 7<sup>a</sup> being disconnected and having their supporting surfaces arranged in stepped relation.

Other obvious modifications of the invention will readily suggest themselves to those skilled in the art, and it will therefore be understood that various changes in the form, 130

proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. In an insulated compromise rail joint, the service rails, opposite shoes, each provided with a short-length base section affording a support for one rail end, said separate base sections being disconnected and having a stepped relation, and means for insulating one rail from the other.

2. In an insulated compromise rail joint, the service rails, opposite shoes, each provided with a short-length base section for one rail end and affording such rail end a support on both sides of the meeting point of the rail ends, said separate base sections having a stepped relation, and means for insulating one rail from the other.

3. In an insulated compromise rail joint, the service rails, opposite shoes, each provided with a short-length integral base plate affording a support for one rail end, said base sections projecting respectively from diagonally opposite portions of the opposite shoes and bearing a stepped relation to each other, and means for insulating one rail from the other.

4. An insulated compromise rail joint having separate disconnected base sections respectively for the dissimilar rails, said base sections having a stepped relation and each affording one rail end a support on both sides of the meeting point of the rail ends, and means for insulating one rail from the other.

5. In an insulated compromise rail joint, the service rails, opposite shoes, each provided along one end portion thereof with a short-length base section affording a support for one rail end, said separate base sections having their rest faces respectively at different elevations for stepping the dissimilar rails, and means for insulating one rail from the other.

6. In an insulated compromise rail joint, the service rails, opposite shoes, each pro-

vided with an independent short length base section affording a support for one rail end, and a side joint bar of uniform design, said separate base sections having their rest faces arranged in stepped relation, and means for insulating one rail from the other.

7. In an insulated compromise rail joint, the service rails, opposite joint shoes, each provided along one end portion with a short length integral base section for one rail end and with an upright member of uniform design throughout, the separate base sections having their rest faces arranged in stepped relation, and means for insulating one rail from the other.

8. In an insulated compromise rail joint, the service rails, opposite shoes, each provided with a short length base section affording a support for one rail end, fillers interposed between the sides of the rails and the upright members of the shoes, and means for insulating one rail from the other.

9. In an insulated compromise rail joint, the service rails, opposite shoes, each provided along one end portion with a short length base section affording a support for one rail end, the separate base sections being respectively of different heights, filler blocks interposed between the sides of the rails and the upright members of the shoes, and means for insulating one rail from the other.

10. In an insulated compromise rail joint, the service rails, opposite shoes, each provided with a short length base section affording a support for one rail end, the said sections being respectively of different heights, side insulation interposed between the shoes and the rails, and an insulating element interposed between the rail ends and projected between the separate base sections.

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

BENJAMIN WOLHAUPTER.

Witnesses:

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E. A. VAN DEUSEN.