

W. McKEE.
TIE PLATE.

APPLICATION FILED JUNE 23, 1909.

947,618.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

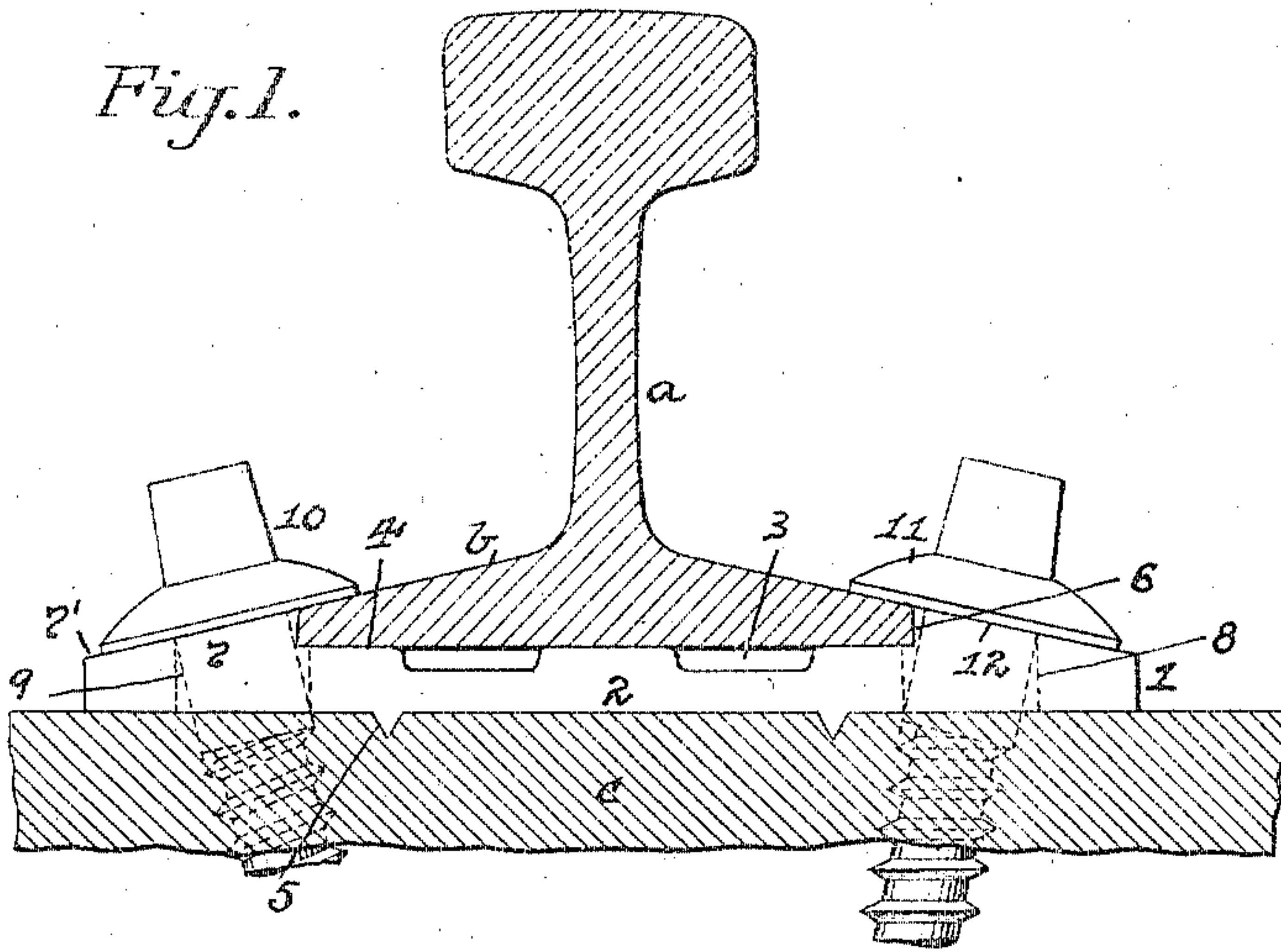


Fig. 2.

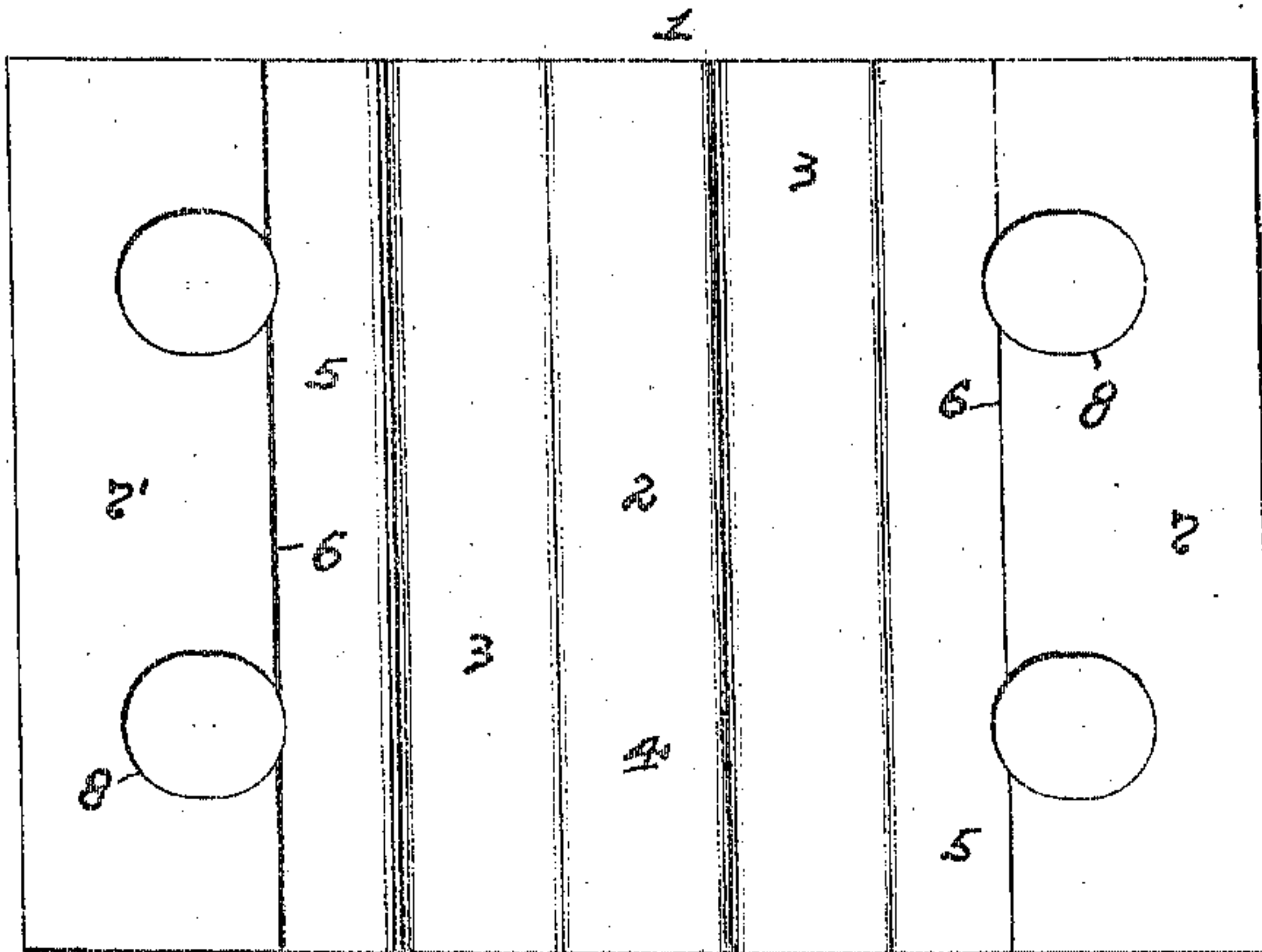
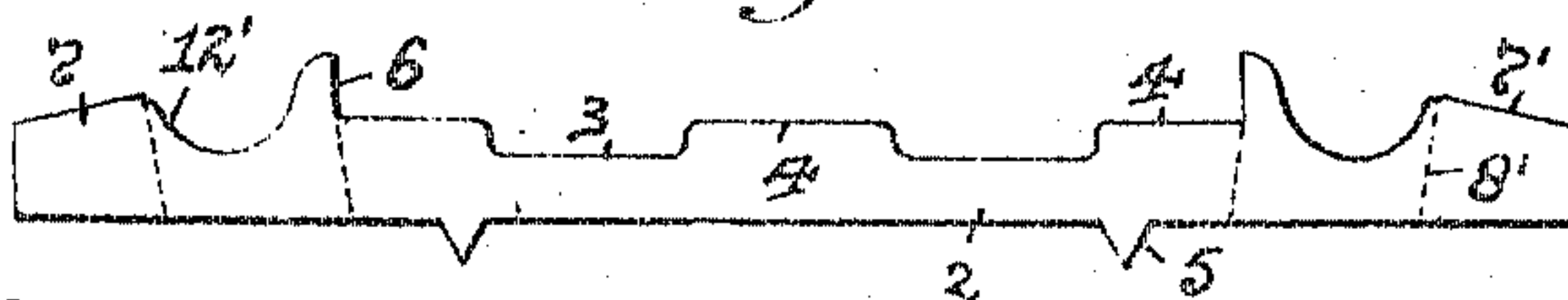


Fig. 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

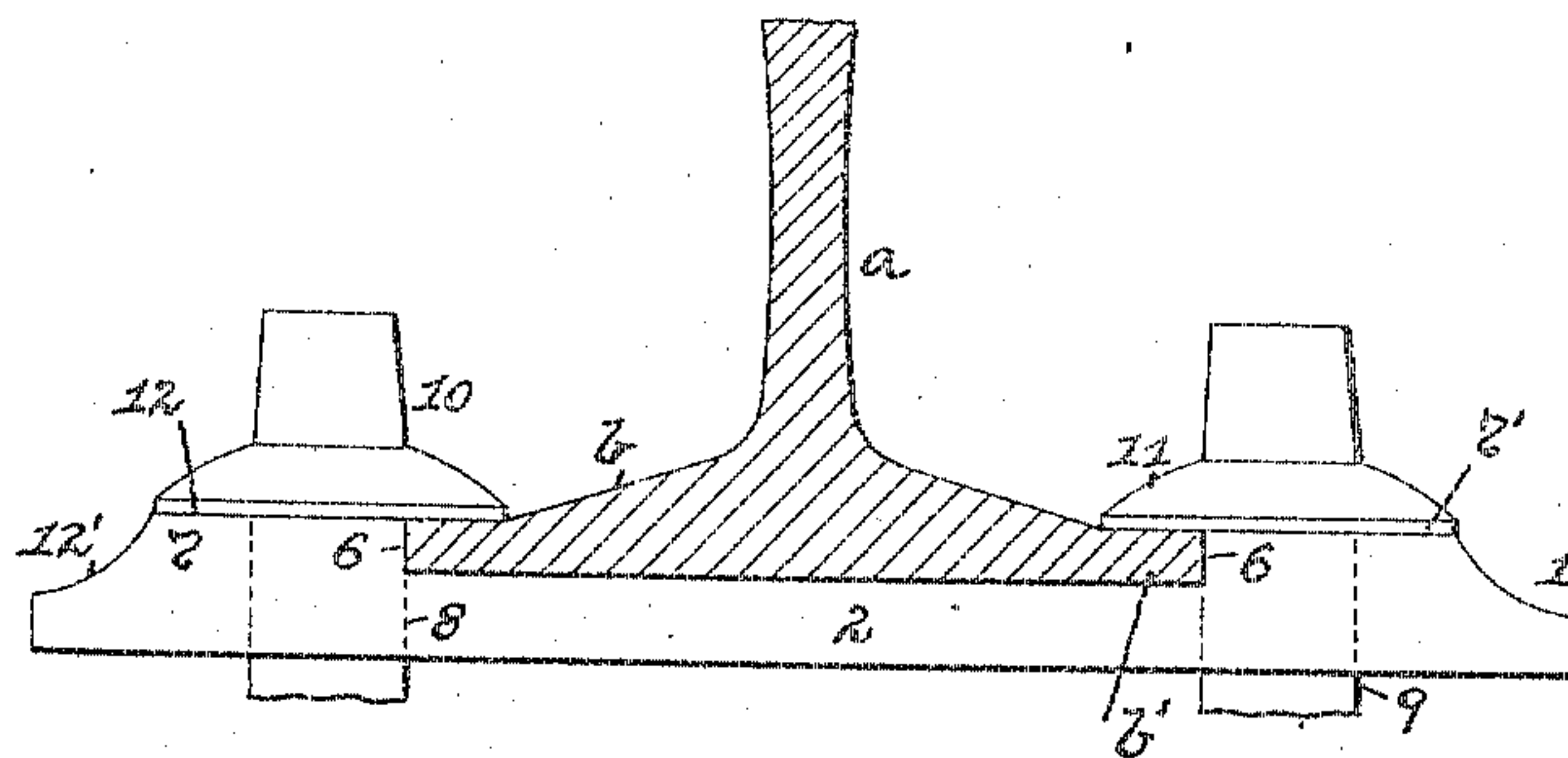


Fig. 5.

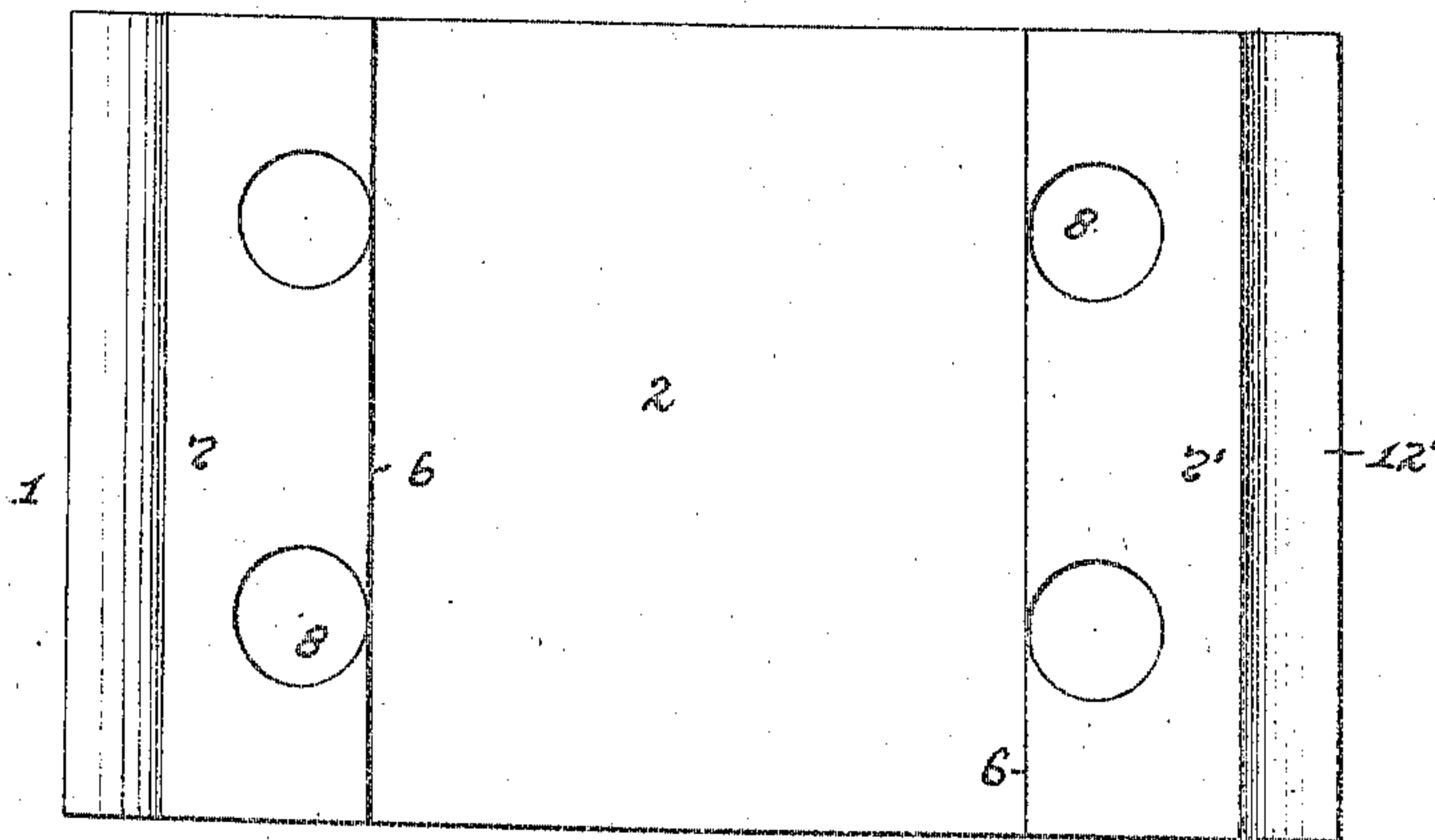
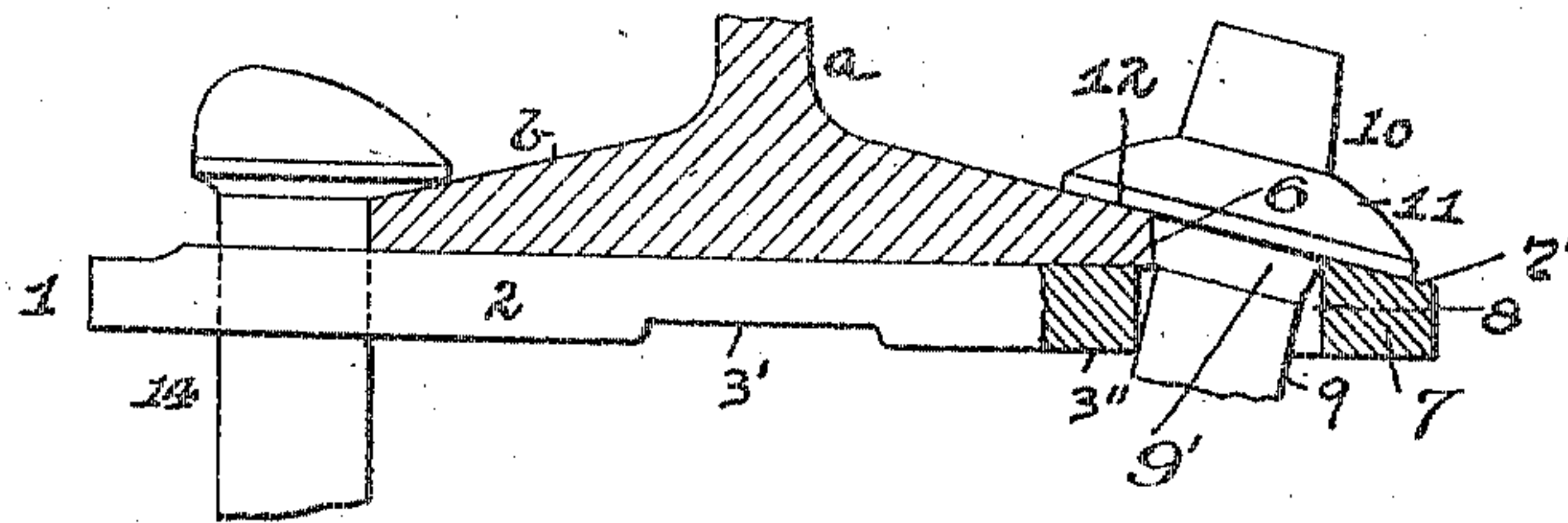


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

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TIE-PLATE.

947,618.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed June 23, 1909. Serial No. 503,811.

To all whom it may concern:

Be it known that I, WILLIS McKEE, a resident of Elyria, in the county of Lorain and State of Ohio, have invented a new and useful Improvement in Tie-Plates; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to tie-plates and has special reference to what are known as railway tie-plates.

The object of my invention is to provide a cheap, simple and efficient form of a railway tie-plate which can be rolled from a metal bar or billet, such as steel, will enable the production of the form of tie-plate desired, in a rapid, easy and convenient manner, and will provide means thereon for the proper supporting of what are known as "screw spikes" when used in connection with such a plate, as well as the proper supporting of the rail used on such plate, and also the plate in its proper position.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved tie-plate, I will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is an end view of my improved tie-plate showing the same in position with the rail and spikes. Fig. 2 is a top plan view of the plate. Fig. 3 is an end view of another form of the plate. Fig. 4 is an end view of another form of plate showing the rail and spikes in position therewith. Fig. 5 is a top plan view of the plate shown in Fig. 4. Fig. 6 is an end view of another form of the plate with the rail and spikes in position therewith.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, 1 represents my improved tie-plate which is preferably rolled from a bar or billet of metal, such as steel into lengths, and then such lengths are cut in any suitable manner across the same to form such plate. The tie-plate 1 as shown in Figs. 1, 2 and 3 when so rolled or formed is provided with the body portion 2 having

grooves or depressions 3 formed in the upper face longitudinally of the same to form the broad rail bearing surfaces 4 on said face and with the longitudinal depending ribs or flanges 5 on the lower face of such body, which are preferably formed of triangular shape with sharpened edges for entering the tie in the usual manner and are so located as to come under the bearing surfaces 4 and at the outer sides of the depressions 3. The tie-plate 1 is also provided with a longitudinal rail-abutting shoulder 6 at each side of the same, and they extend up from and at the outer side of the outer bearing surfaces 4. At the outer sides of the plate 1 and extending from the shoulders 6 there are provided the longitudinal spike bearing portions 7, which have their top surfaces 7' formed on a downward incline from said shoulders and on the same plane as the top of the flange *b* of the rail *a* employed therewith. After the plate 1 has been so formed, spike-holes 8 are formed therein in any suitable manner, which extend through the bearing portions 7 for the reception of the shanks 9 on the screw-spikes 10, and such holes are in a vertical line and of sufficient size by elongating the same, so that such spikes will enter the tie *c* at an incline toward the center of the plate and under the rail *a*, when the parts are in position.

The heads 11 on the spikes 10 are provided with the flat surface 12 on the under side of the same, so that when the plate 1 is in position on the tie *c*, as shown in Fig. 1, and the rail *a* is in position on the bearing surfaces 4 of said plate and between the shoulders 6 thereon, the spikes 10 when screwed to the position shown, will enable the flat surfaces 12 on their heads to contact with the surfaces 7' of the bearing portions 7 and top of the rail flange *b*. The shoulders 6 are preferably slightly lower than the plane of the top of the rail flange *b* to insure the bearing of the surfaces 12 on such spikes 10 on the rail flange and bearing portions 7. If desired, the spike bearing portions 7 on the tie-plate 1 can be provided with depressions or recesses 12' therein, as shown in Figs. 3, 4 and 5, for decreasing the weight of the plate and cost in material in the same, and if desired the spike holes can be formed in a diagonal or angular line, as shown, at 8' in said Fig. 3, so as to be in the

same line as the spikes 10 in entering the tie *c* toward the center of the plate and under the rail *a*.

In Figs. 4 and 5, the tie-plate is shown with its body 2 flat on both faces, with the exception of the shoulders 6 on the upper face, and in this case, the screw-spikes 10 can be placed in a vertical position, instead of the angular, as previously described, by the rail *a* having its flange *b* provided with an extension *b'* on each side having a horizontal upper face, and the bearing surfaces 7' being also flat on their upper faces, so that such surfaces on said extensions and bearing surfaces will be in the same horizontal plane and the flat under face on the heads 11 of said spikes will contact with and bear against the same.

In Fig. 6, the plate is provided with a groove or depression 3' on the under face of the same for forming the tie-bearing surfaces 3'', and with screw-spikes 10 only on one side of the same, as shown in Fig. 1, while the other side of the plate has the ordinary form of spike 14 passing vertically through the same and having its head engaging with the top of the rail flange *b* in the usual manner. If desired, the shanks 9 of the screw-spikes 10 can be upset under their heads 11, as shown at 9' in Fig. 6, and of the thickness of the rail flange *b*, in order to come against such flange and thereby get line contact between the rail *a* and spike on such shank.

Various other modifications and changes in the design and construction of my improved tie-plate may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will be obvious that my improved tie-plate can be formed by straight rolling into lengths for the proper shape easily and quickly, but such plate can also be formed by other methods or processes and from various materials, if desired. The form of the plate will overcome the serious objections to the present method of fastening rails to the ties through this class of plates, and the structure of the same will serve its full purpose and be of such a form that the cost of manufacturing will be fully consistent with its installation upon any railroad. The plate is of such a design that it may be readily applied or removed from the track without the use of special machinery or tools, and when in use will overcome distortion and bending of the spike under the head from the lateral thrust or vertical pull of the rail. It will also be seen that my improved tie-plate will enable a surface contact between the head of the spike and top of the rail flange, as well as form a complete support back of the head of the spike, while the head of such spike will be assured of a good and broad bearing under the

flange or head of the spike and against both rail and plate. The plate will also overcome any liability to buckle and will eliminate any necking or cutting of the spike by abrasion from the side thrust or "back slap" of the rail.

What I claim as my invention, and desire to secure by Letters Patent is—

1. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, and a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head.

2. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, and a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike head, said bearing portion being provided with a recess therein.

3. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, and a rail bearing surface on said plate having grooves therein.

4. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, said bearing portion being provided with a recess therein, and a rail bearing surface on said plate having grooves therein.

5. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, and a rail bearing surface on the top of said plate having grooves therein.

6. A tie-plate for rails provided with base flanges having inclined upper surfaces, said

plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with the flat under face on a screw-spike-head, said bearing portion being provided with a recess therein, and a rail bearing surface on the top of said plate having grooves therein.

7. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, and flanges on the bottom of said plate for engaging with the tie.

8. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, said bearing portion being provided with a recess therein, and flanges on the bottom of said plate for engaging with the tie.

9. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, a rail bearing surface on the top of said plate having grooves therein, and flanges on the bottom of said plate for engaging with the tie.

10. A tie-plate for rails provided with base flanges having inclined upper surfaces, said plate having a rail-abutting shoulder at the side of the same, a bearing portion extending out from said shoulder and having its top surface inclined on the same angle as the upper surface of the rail flange and in the same plane for forming a surface contact with a flat under face on a screw-spike-head, said bearing portion being provided with a recess therein, a rail bearing surface on the top of said plate having grooves therein, and flanges on the bottom of said plate for engaging with the tie.

In testimony whereof I, the said WILLIS McKEE, have hereunto set my hand.

WILLIS McKEE.

Witnesses:

J. L. BARNARD,
P. J. MITCHELL.