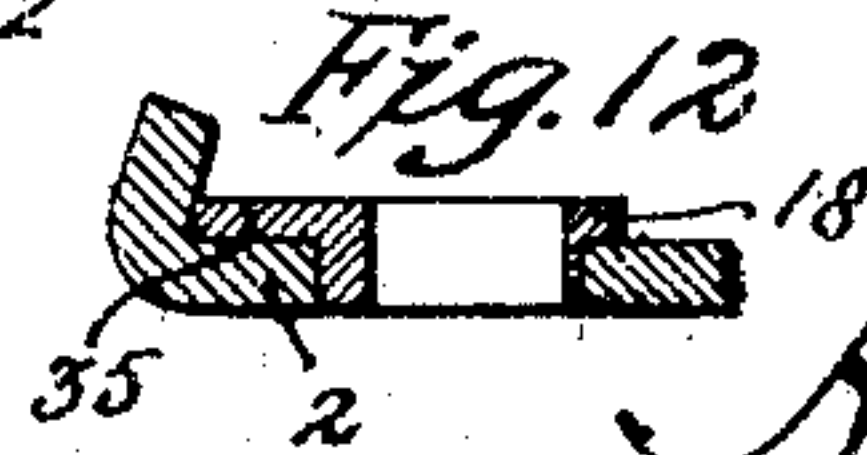
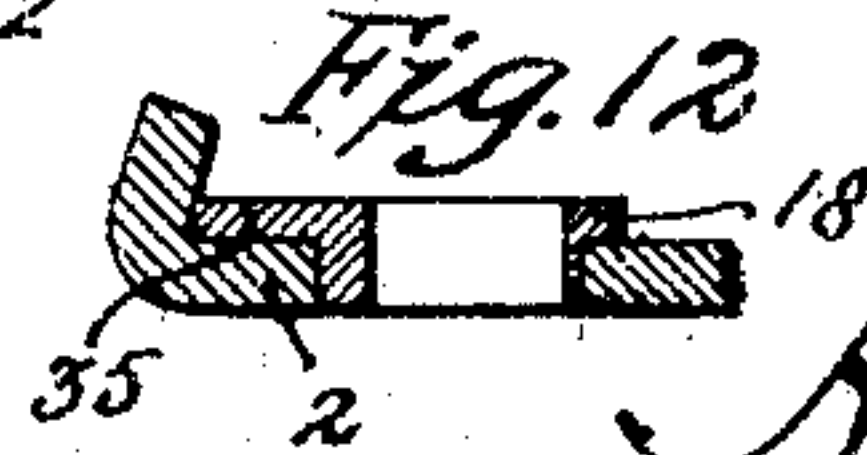
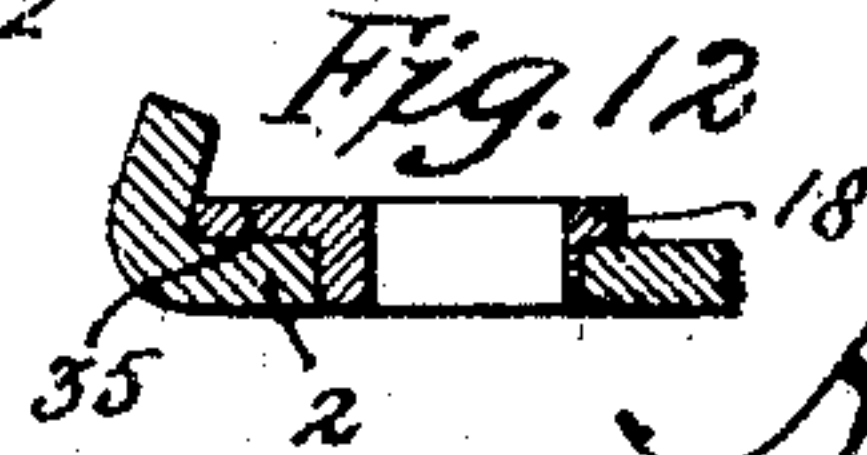
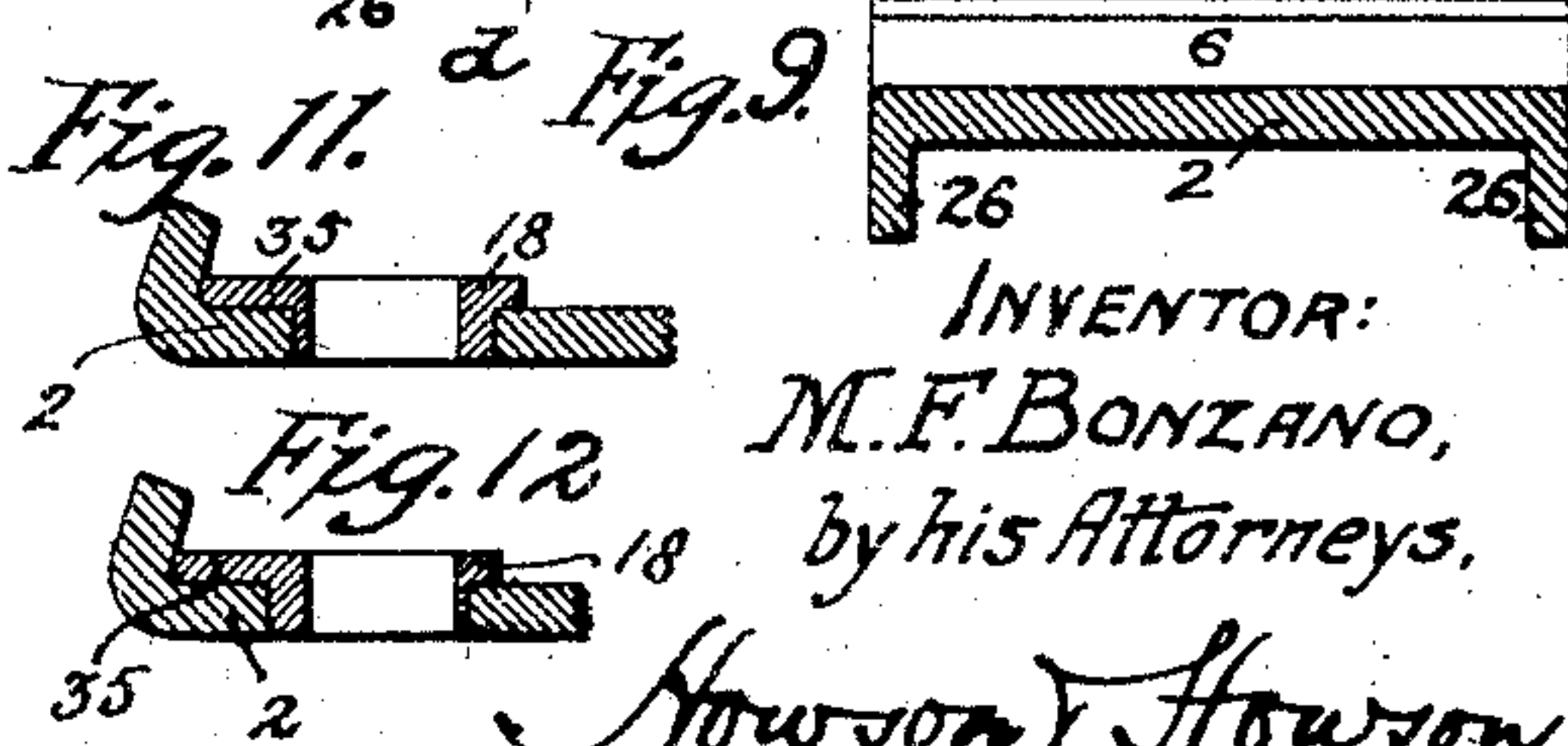
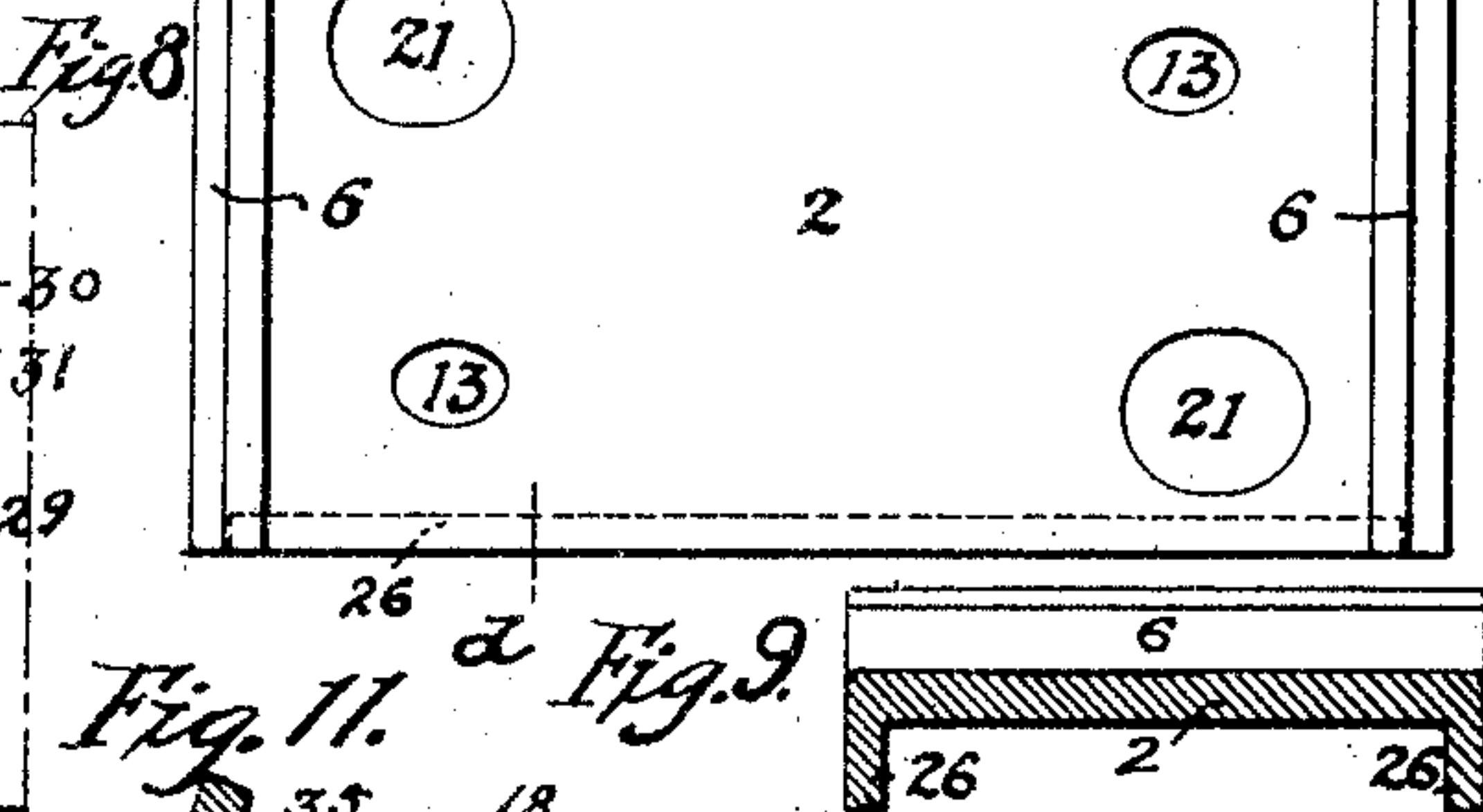
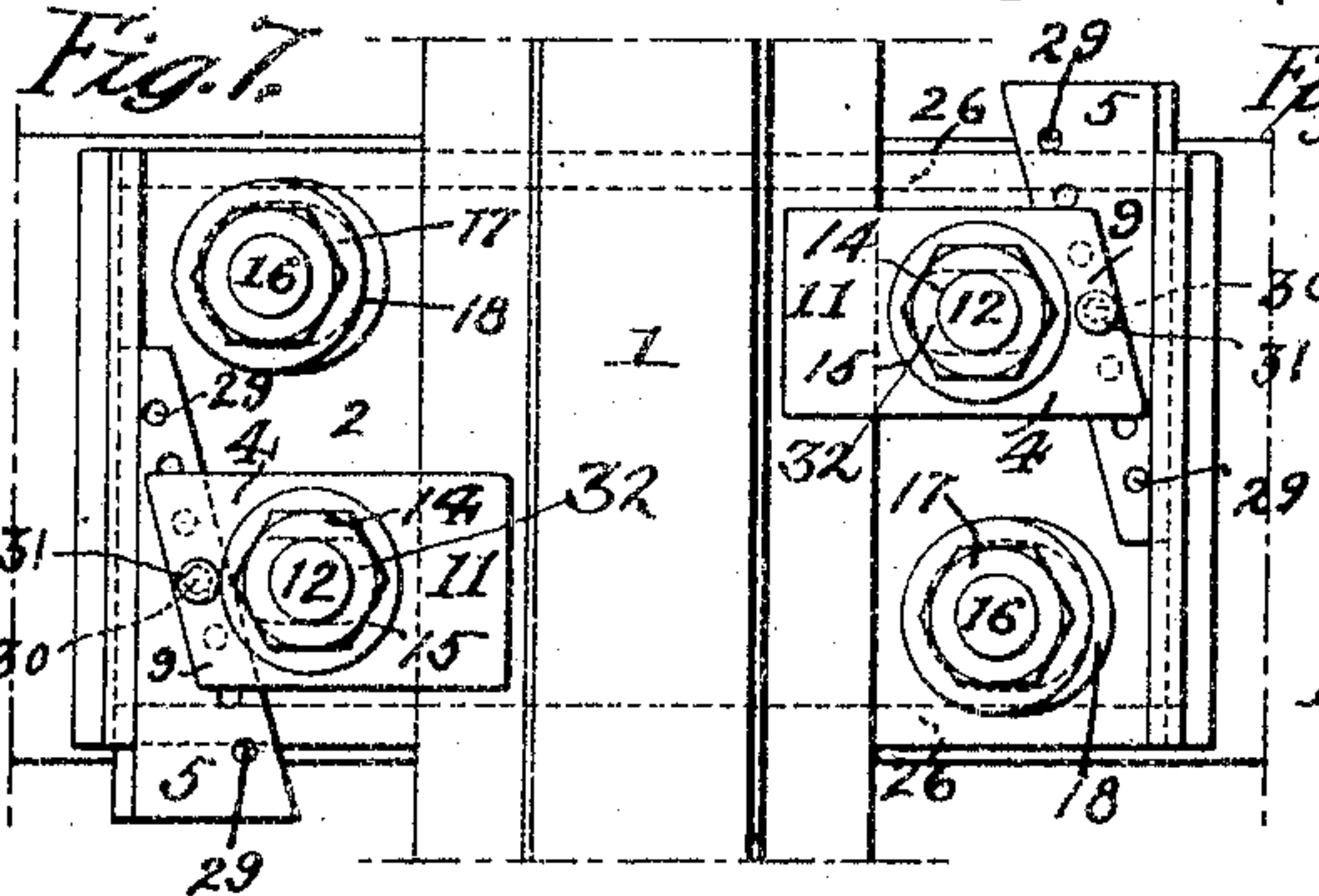
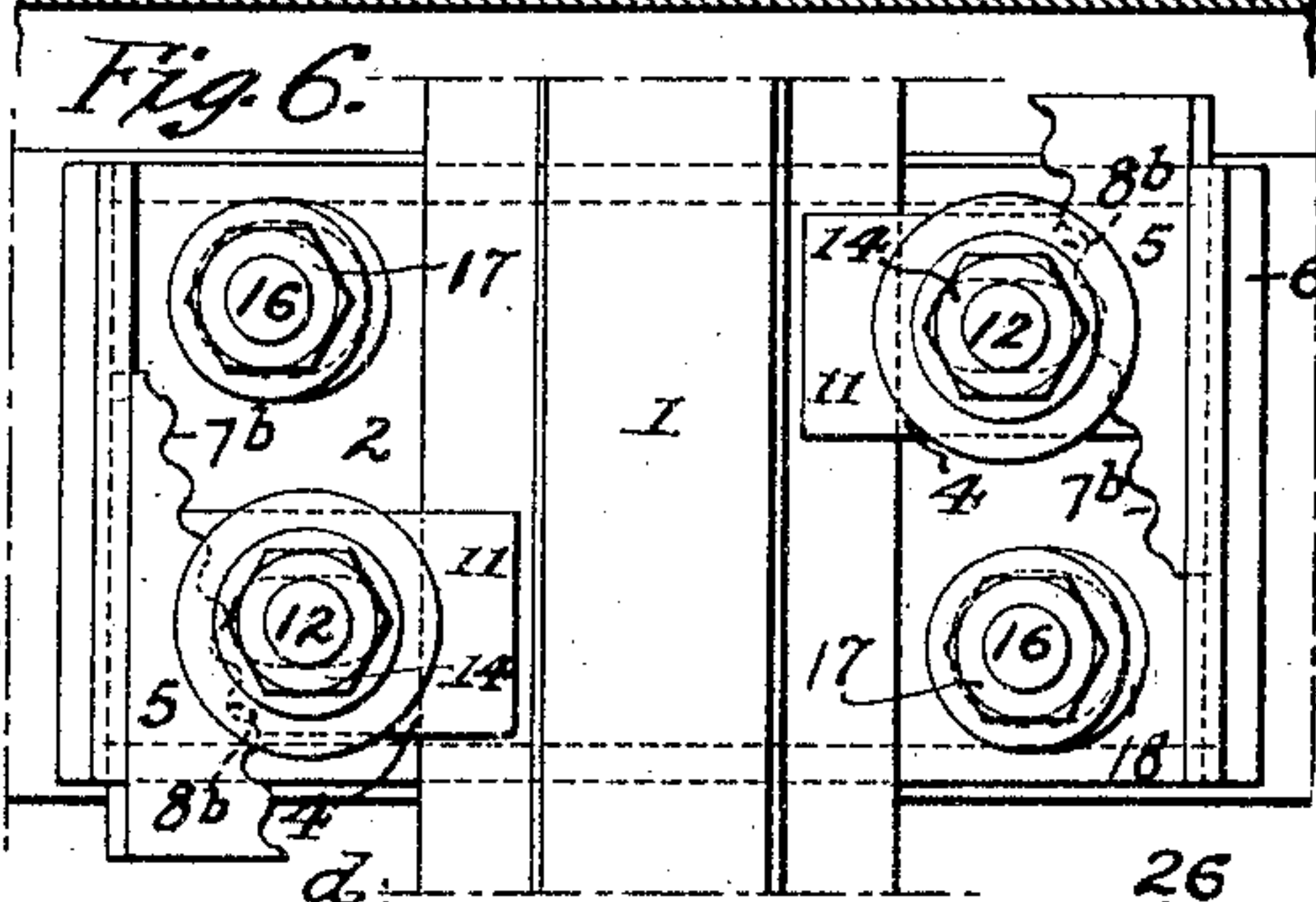
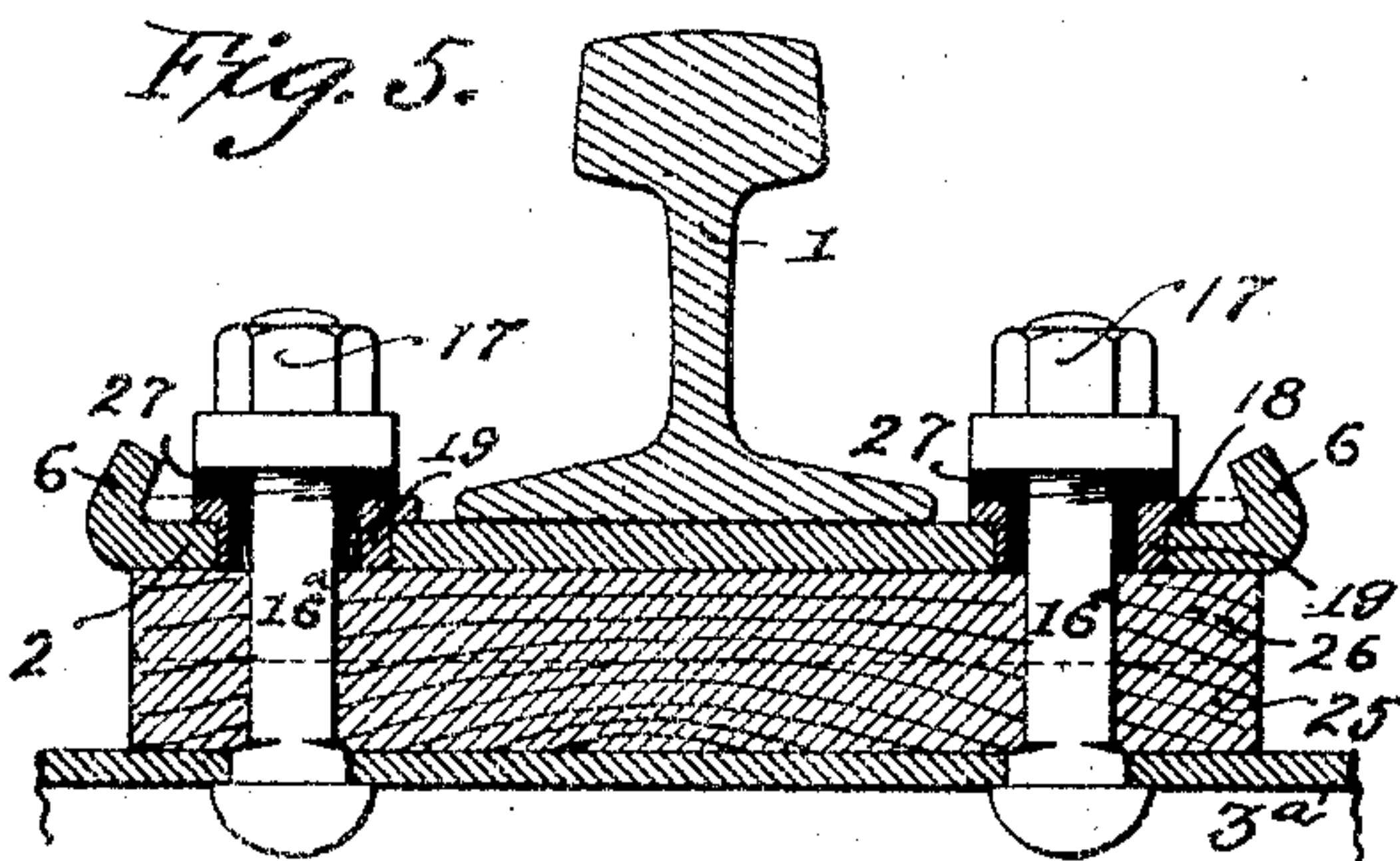
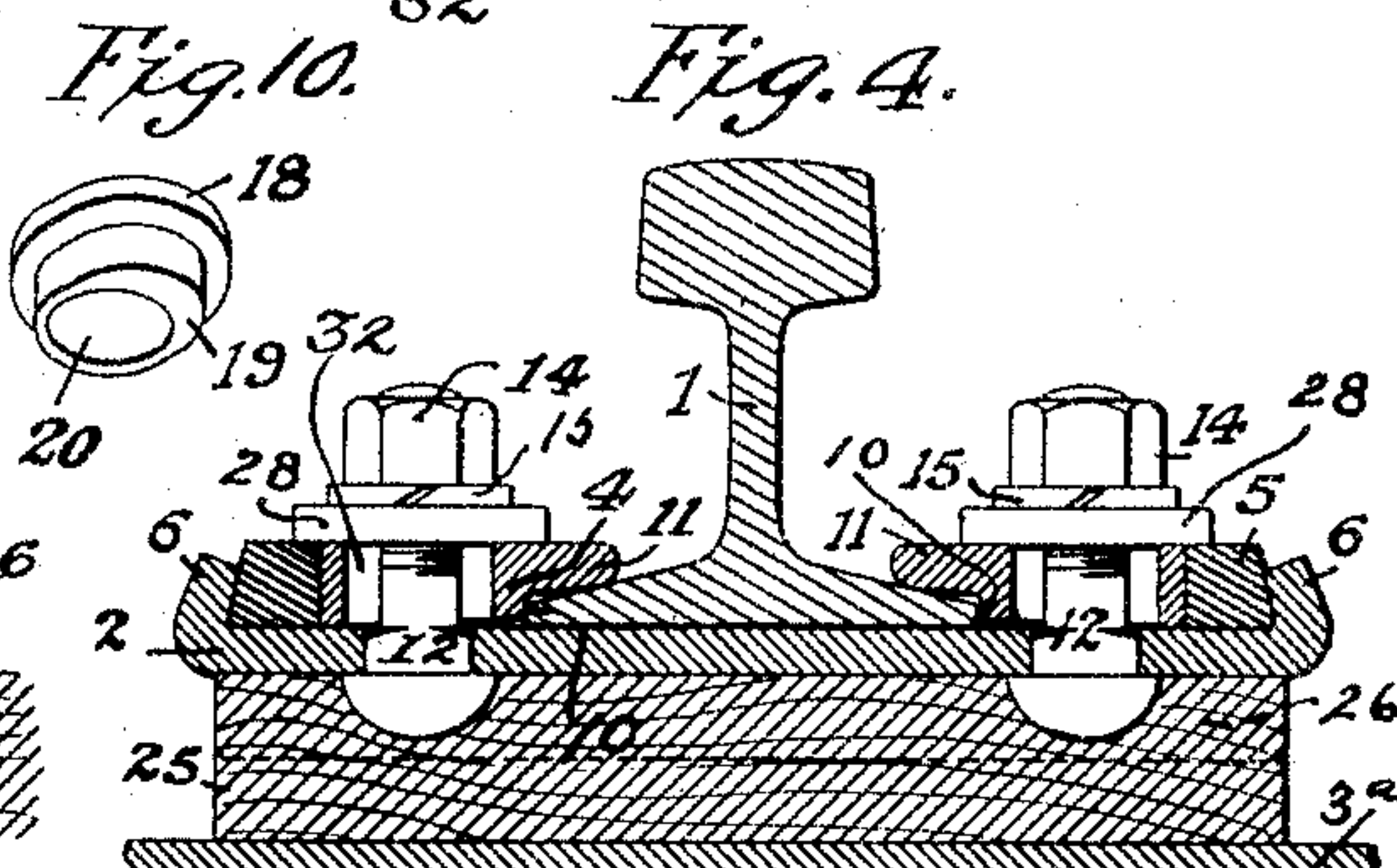
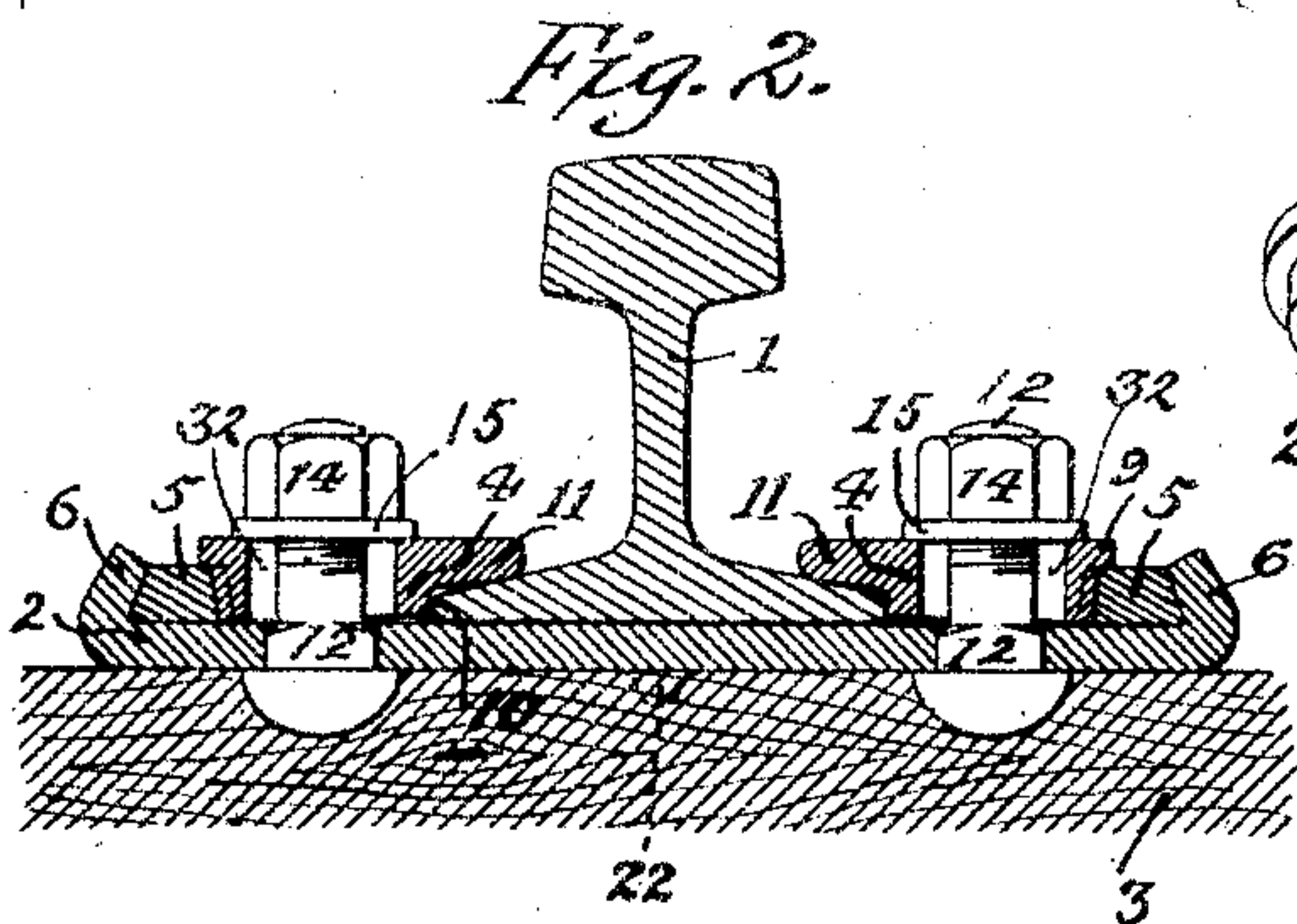
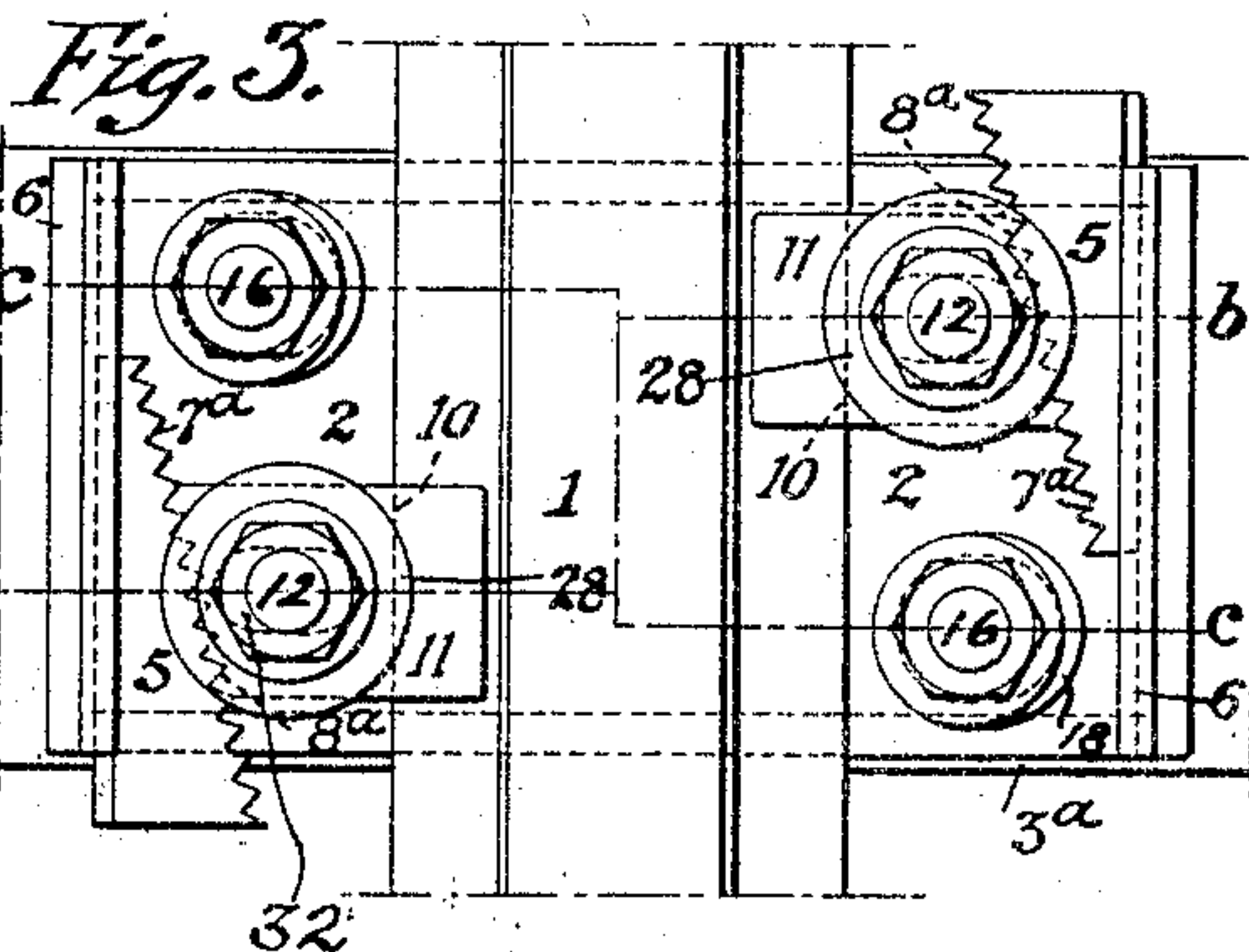
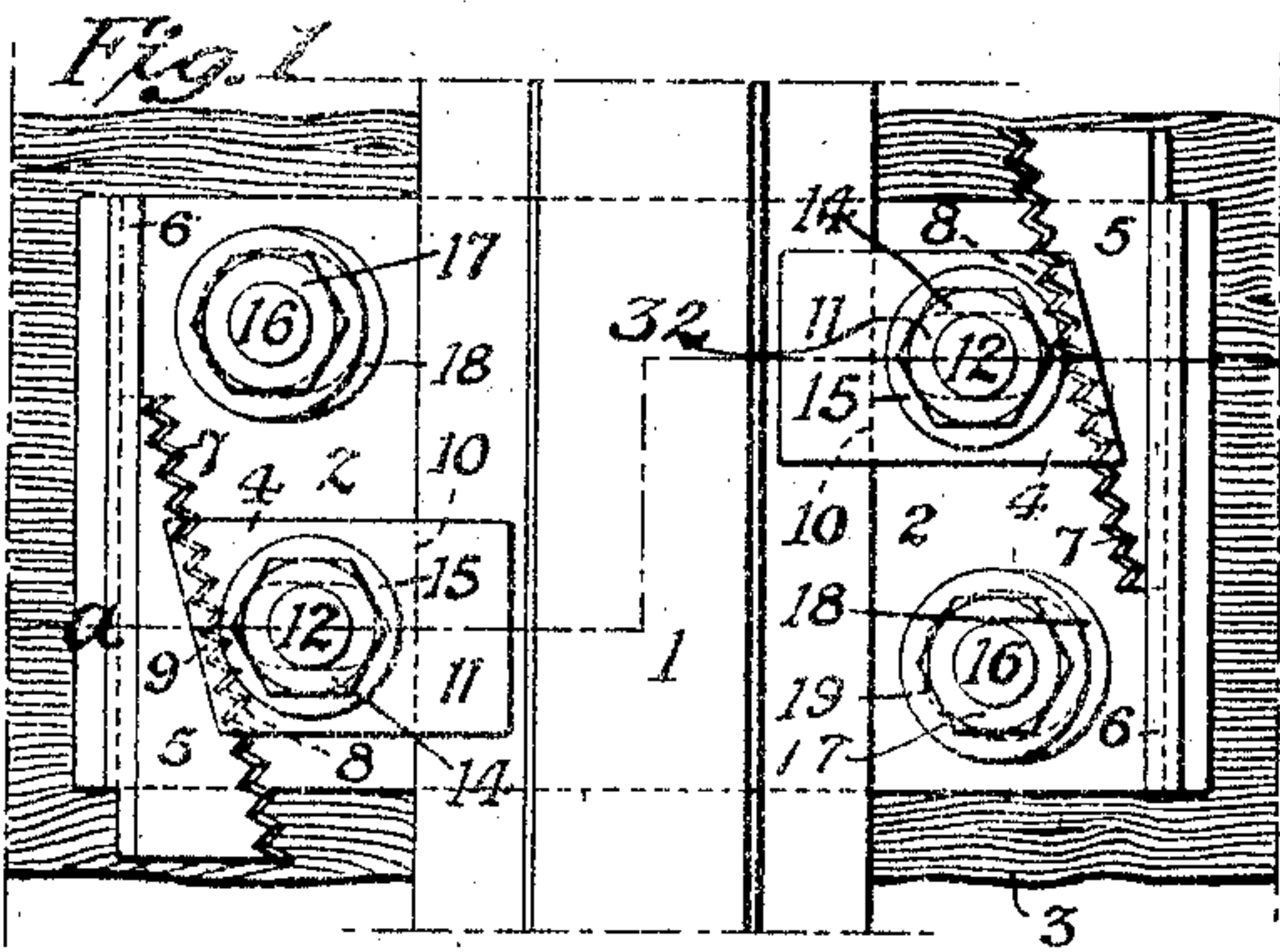


M. F. BONZANO.
RAIL FASTENING.
APPLICATION FILED JUNE 27, 1908.

906,860.

Patented Dec. 15, 1908.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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RAIL-FASTENING.

No. 906,860.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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To all whom it may concern:

Be it known that I, MAXIMILIAN F. BONZANO, a citizen of the United States, and a resident of New York city, New York, have invented certain Improvements in Rail-Fastenings, of which the following is a specification.

My invention relates to rail fastenings, and the principal object of my invention is to provide a fastening that will be positive in its action; being incapable of movement when once set in place, and yet capable of adjustment when necessity requires the setting over of the rail, to restore the original gage of the track when the rails become worn, or to change the gage of the track.

A further object of my invention is to provide a rail fastening available for use in securing rails to the ordinary form of wooden tie or sleepers, or to metallic ties. A wear-plate upon which the rail rests is employed as a part of the fastening structure, which wear-plate is secured to either form of tie by suitable means. When the fastening is used in connection with metallic ties, a block of wood or other material of a similar nature capable of performing the same function is interposed between each wear-plate and the top web of the tie; the means for securing the wear-plate to the tie passing through such block of wood or other material. The block of wood or other material serves as a resilient support for the rail and may form part of the means for insulating the rail from the tie when insulation is desired.

My invention is fully shown in the accompanying drawings, in which:

Figure 1, is a plan view of one form of the rail fastening structure made in accordance with my invention, showing the wear-plate employed with the same as applied to a wooden tie; Fig. 2, is a sectional elevation of the structure shown in Fig. 1, taken on the line *a-a*; Fig. 3, is a plan view of another form of the fastening structure made in accordance with my invention, showing the wear-plate employed with the same as applied to a metallic tie; Fig. 4, is a sectional elevation on the line *b-b*, Fig. 3; Fig. 5, is a sectional elevation, taken on the line *c-c*, Fig. 3; Figs. 6 and 7, are plan views similar to Figs. 1 and 3, showing modified constructions of parts of the fastening forming the subject of my invention; Fig. 8, is a plan view of the wear-plate; Fig. 9, is a sectional view on the line *d-d*, Fig. 8; Fig. 10, is a

perspective view of a part of the wear-plate fastening, and Figs. 11 and 12, are views illustrating a detail of the wear-plate fastening.

In the drawings herewith, 1 represents a rail; 2 a wear-plate suitably secured to a tie as 3 or 3^a; 4, 4, clips for securing the rail to the wear-plate and in proper position with relation to the tie, and 5, 5, adjusting blocks which are interposed between the side or end wall of the clips and flanges 6 carried by the wear-plate and preferably paralleling the rail. As shown in Figs. 1 and 2, the adjusting blocks have inclined edges adjacent to and for engagement with the clips and these inclined edges are formed with notches or serrations therein, as indicated at 7. Such notches or serrations may be disposed at an angle with respect to a vertical plane and engage with similar notches or serrations 8 formed on the clips, or these notches or serrations may be vertical, and in most instances their inclination from the vertical is preferable. In addition, the clips may be provided with overhanging lips or flanges 9, which overlie the adjusting blocks 5 and tend to prevent the same rising, and the flanges of the wear-plate are preferably undercut as shown, for the same purpose.

The clips are provided with shoulders 10 which abut against the flange of the rail as shown, and an overlying portion 11 which rests directly upon the top of the flange. Such construction insures the proper retention of the rail when the clip is secured in place. To secure the clips to the wear-plate whereby they may be held against the rail, bolts 12 are provided which extend through apertures 13 in the wear-plate and are secured to the clip by means of nuts 14. Washers 15 are preferably interposed between said nuts and the clips, and if desired elastic washers may be placed between the heads of the bolts and the wear-plate, or between the bolt heads and the under side of the top web of the tie when the latter is of metal.

The wear-plate 2 upon which the rail rests is fully shown in the several views and in the detached views, Figs. 8 and 9. It is secured to the tie by bolts 16, having nuts 17, and to make it, as well as the rail fastening means, adjustable with respect to the tie, washers 18, having elongated flanges 19 of oval or other suitable cross section with bolt aperture 20 offset, are provided, adapted to fit similarly shaped openings 21 provided

for the same in said wear-plate. When the latter is employed with wooden ties, the bolts 16 may pass from below entirely through the tie, or a special bolt having a wood-screw end to be entered in the tie from the top may be employed, and such wear-plate may have a rib 22 on its under side, as shown in dotted lines, Fig. 2.

When my improved rail fastening is employed with metallic ties, I provide a special support for the same receiving the wear-plate, such support comprising a resilient block 25, of wood or other suitable material, which is secured to the tie by the means holding the wear-plate thereto. This portion of my invention is fully shown in the sectional views, Figs. 4 and 5, in which the metal tie is illustrated at 3^a and carries the block 25 which may be of wood or other material sufficiently resilient for the purpose and serving as a part of the means for insulating the rail from the tie, while the means for securing the wear-plate to the block and tie are also arranged to insulate the same from the tie. On top of this block of wood is the wear-plate 2, having in this instance depending side flanges 26 overlying the edge of the block, (which are omitted when the wear-plate is employed directly on a wooden tie) and the end flanges 6 between which and the clips 4 for engaging the rail, the adjusting blocks are mounted. For the purpose of securing the wear-plate and block to the metallic tie, I provide bolts 16^a, the heads of which underlie the top web of the tie as shown in Fig. 5; such bolts being secured by nuts 17 engaging suitable washers. For the purpose of insulating the wear-plate from the metallic tie, I provide insulating bushings 27, such as shown in Fig. 5, preferably of hard rubber or other suitable material, which enter the bolt aperture 20 of the washers 18, such aperture being enlarged to accommodate the same, as shown in Fig. 10.

In the structure shown in Figs. 3 and 4, the adjusting blocks are provided with vertical notches 7^a, and the clips with similar notches 8^a; abutting against the same. The clip in this instance is not provided with an overhanging lip or flange, but a washer 28 is provided, held in place by the nut 14, with a split or other form of washer 15 interposed between said nut and the washer 28.

In the structure shown in Fig. 6, notches or serrations 7^b and 8^b having rounded faces are provided. In the structure shown in Fig. 7, the adjusting-blocks are provided with apertures 29, and the clips 4 are provided with apertures 30 in their overhanging lip or flange 9 to register therewith; pins 31 being employed to hold the parts in their adjusted positions.

In the use of my improved fastening when adjusting the rails, the adjusting blocks will

be moved in parallelism while the clips will be moved at right angles to the rail and the movement of said adjusting blocks, and such movement of said clips is always in this direction; abutting against the rail in the same place. It will be readily understood, therefore, that adjustment may be made by simply lifting the clips 4 and then moving the adjusting blocks the desired distance in the proper direction for the proper engagement of the complementary notches in these parts; the clips being slotted at 32 to permit movement when the adjusting blocks are to be moved with relation thereto.

For the purpose of providing an adjustment for the wear-plate, in addition to the adjustment provided for by the clip fastenings, in order that the rail or rails may be laterally moved to place them in the desired position or positions, I provide the washers 18 before referred to having oval, elliptical or other shaped portions or flanges 19 with offset apertures 20, fitting similarly shaped apertures in the wear-plate and disposed in relation to each other in the manner indicated in Fig. 5; that is to say, with the thicker wall disposed on the same side or in the same direction, right or left, as the case may be. By preference, the portion or flange 19 of the washer is elliptical, fitting an aperture 21 of the same contour in the wear-plate. These washers also receive the insulating bushing 27. When it is desired to take advantage of the adjustment of the wear-plate in the repositioning of the rail, the washers 18 may be turned end for end, and this will have the effect of moving the wear-plate on the tie, or the block, as the case may be, and thereby change the position of the bolts 12 carried by said wear-plate which secure the clips 4 to hold the rail with respect to the bolts 16 securing said wear-plate to the tie. If desired, the washers 18 may be provided with extensions 35; projecting from the thick wall in one instance, and from the thin wall in the other instance, as shown in Figs. 11 and 12, so that they may exchange places instead of being turned in their seats, such projecting portions engaging the flanges 6 of the wear-plate in each instance.

I claim:

1. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable retaining member secured to said wear-plate and engaging the flange of the rail, said member having a notched or serrated edge, and an adjusting-block having a complementary notched or serrated edge interposed between said member and the flange of the wear-plate, said adjusting block being held in fixed position with respect to the wear-plate by the means securing the retaining member in place.

2. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable

retaining member in engagement with the top and side of the rail flange, said member having a notched or serrated edge, an adjusting-block having a complementary notched or serrated edge interposed between said member and the flange of the wear-plate, and means for securing said retaining member and adjusting-block in fixed position with respect to the wear-plate and rail.

3. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable clip secured to said wear-plate and engaging the flange of the rail, said clip having a notched or serrated edge, an adjusting-block having a complementary notched or serrated edge for engagement therewith and interposed between the same and the flange of the wear-plate, said notched portions being disposed at an angle with respect to a vertical plane, and means for securing said clip and adjusting-block in fixed position with respect to the wear-plate.

4. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable clip secured to said wear-plate and engaging the flange of the rail, said clip having a notched or serrated edge, an adjusting-block having a complementary notched or serrated edge for engagement therewith and interposed between the same and the flange of the wear-plate, said notched portions being disposed at an angle with respect to a vertical plane, means for securing said clip and adjusting-block in fixed position with respect to the wear-plate, and means for adjusting said wear-plate with respect to the tie.

5. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable clip secured to the wear-plate and engaging the flange of the rail, an adjusting-block interposed between the flange of the wear-plate and said clip, the latter having a lip or flange overhanging said block, means fixed with relation to the wear-plate for securing said clip and adjusting-block in fixed position with respect to the wear-plate, and means co-acting with said clip and adjusting-block for preventing horizontal movement of the same.

6. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable clip secured to the wear-plate and engaging the flange of the rail, an adjusting-block interposed between the flange of the wear-plate and said clip, the latter having a lip or flange overhanging said block, means fixed with relation to the wear-plate for securing said clip and adjusting-block in fixed position with respect to the wear-plate, and angularly faced complementary teeth carried by said clip and adjusting-block for preventing horizontal movement of the same.

7. The combination with a tie, of a wear-plate having a flange, a rail, an adjustable clip secured to the wear-plate and engaging the flange of the rail, an adjusting-block in-

terposed between said clip and the flange of the wear-plate, said clip and adjusting-block having complementary notched or serrated engaging faces, a lip or flange carried by the clip and overlying the adjusting-block, and means fixed with respect to the wear-plate for securing said clip and adjusting-block in fixed relationship.

8. The combination with a tie, of a wear-plate having a flange, a rail, a clip secured to the wear-plate and engaging the flange of the rail, said clip being slotted for adjustment with respect to said flange, an adjusting-block interposed between said clip and the flange of the wear-plate, said clip and adjusting-block having complementary notched or serrated engaging faces, a lip or flange carried by the clip and overlying the adjusting-block, a bolt carried by the wear-plate and passing through said clip, and a nut for securing said clip and adjusting block in fixed relationship.

9. The combination, in a rail fastening, of a wear-plate, a tie to which the same is secured, a rail resting on said wear-plate, and means for securing said wear-plate to the tie, said securing means including washers having offset apertures and movable with respect to the wear-plate for adjusting the position of the same.

10. The combination, in a rail fastening, of a tie, a wear-plate mounted on said tie, a rail, means for securing the rail to the wear-plate, flanges carried by said wear-plate, means for securing the wear-plate to the tie, and adjusting means combined therewith and disposed in engagement with the flanges of said wear-plate.

11. The combination, in a rail fastening, of a tie, a wear-plate mounted on said tie, a rail, means for securing the rail to the wear-plate, flanges carried by said wear-plate, bolts for securing the wear-plate to the tie, and adjusting means for said wear-plate combined with said bolts and disposed in engagement with the flanges of said wear-plate.

12. The combination, in a rail fastening, of a tie, a wear-plate mounted on said tie, a rail, means for securing the rail to the wear-plate, flanges carried by said wear-plate, bolts for securing the wear-plate to the tie, and washers having offset apertures combined with said bolts, said washers having projecting portions disposed in engagement with the flanges of said wear-plate.

13. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, bolts passing from the tie through said block and wear-plate whereby said parts may be secured to the tie, and means for adjusting the wear-plate with respect to its securing bolts.

14. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, bolts securing

said wear-plate and block to the tie, and adjustable washers forming part of said fastening means to permit longitudinal movement of the wear-plate with respect to the tie.

5 15. The combination with a metallic tie, of a wood block carried thereby, a wear-plate carried by said block, bolts passing from the tie through said block whereby the latter may be secured to the tie, means for adjusting the wear-plate with respect to its securing bolts, and rail securing means carried by said wear-plate.

16. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, means including bolts for fastening said wear-plate and block to the tie, and adjustable washers forming part of said fastening means and interchangeable with each other to permit longitudinal movement of the wear-plate with respect to the tie.

17. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, bolts passing from the tie through said block and wear-plate whereby said parts may be secured to the tie, means for insulating the wear-plate from the tie, and means for adjusting the wear-plate with respect to its securing bolts.

30 18. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, bolts securing said wear-plate and block to the tie, means

for insulating said wear-plate from the tie, and adjustable washers forming part of said fastening means to permit longitudinal movement of the wear-plate with respect to the tie.

19. The combination with a metallic tie, of a wood block carried thereby, a wear-plate carried by said block, bolts passing from the tie through said block whereby the latter may be secured to the tie, means for insulating the wear-plate from the tie, means for adjusting the wear-plate with respect to its securing bolts, and rail securing means carried by said wear-plate.

20. The combination with a metallic tie, of a resilient block carried thereby, a wear-plate carried by said block, means including bolts for fastening said wear-plate and block to the tie, means combined with the fastening means for insulating said wear-plate from the tie, and adjustable washers forming part of said fastening means and interchangeable with each other to permit longitudinal movement of the wear-plate with respect to the tie.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

MAXIMILIAN F. BONZANO.

Witnesses:

MURRAY C. BOYER,
WM. A. BARR.