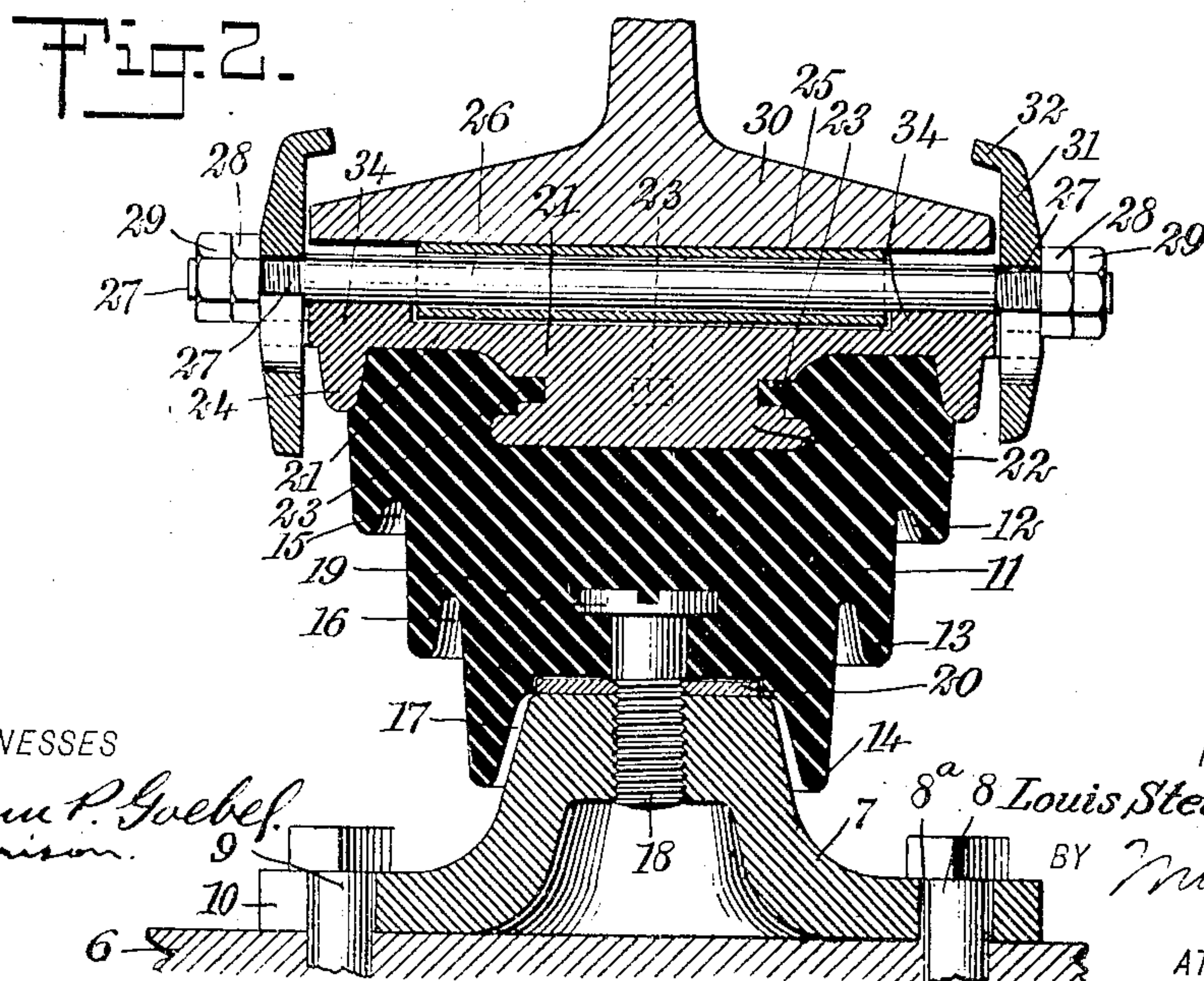
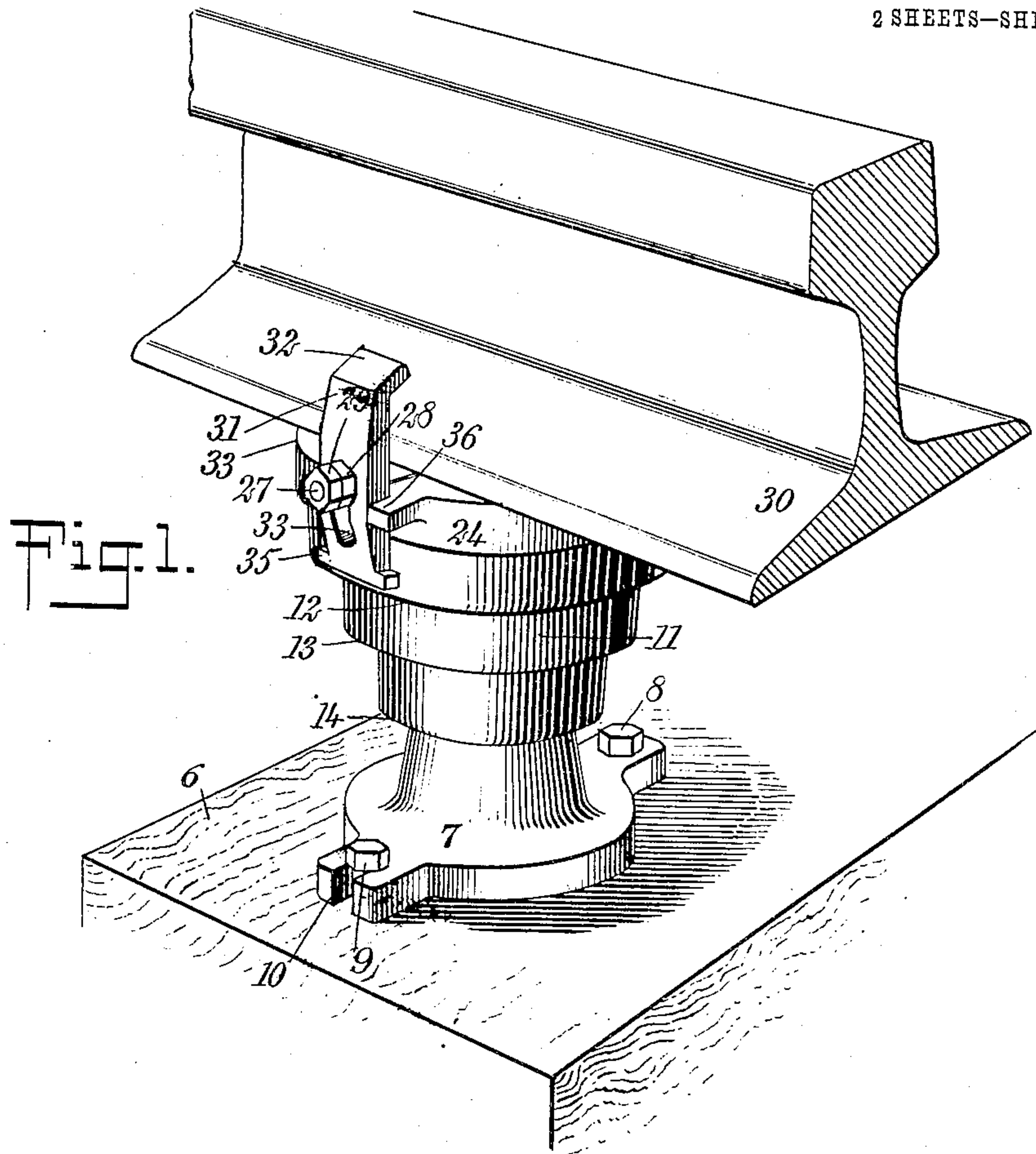


L. STEINBERG JR.
THIRD RAIL INSULATOR.
APPLICATION FILED JUNE 5, 1907.

917,501.

Patented Apr. 6, 1909
2 SHEETS—SHEET 1.



WITNESSES
William P. Goebel
W. Harrison

INVENTOR
Louis Steinberger
BY Munn & Co.
ATTORNEYS

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Fig. 3.

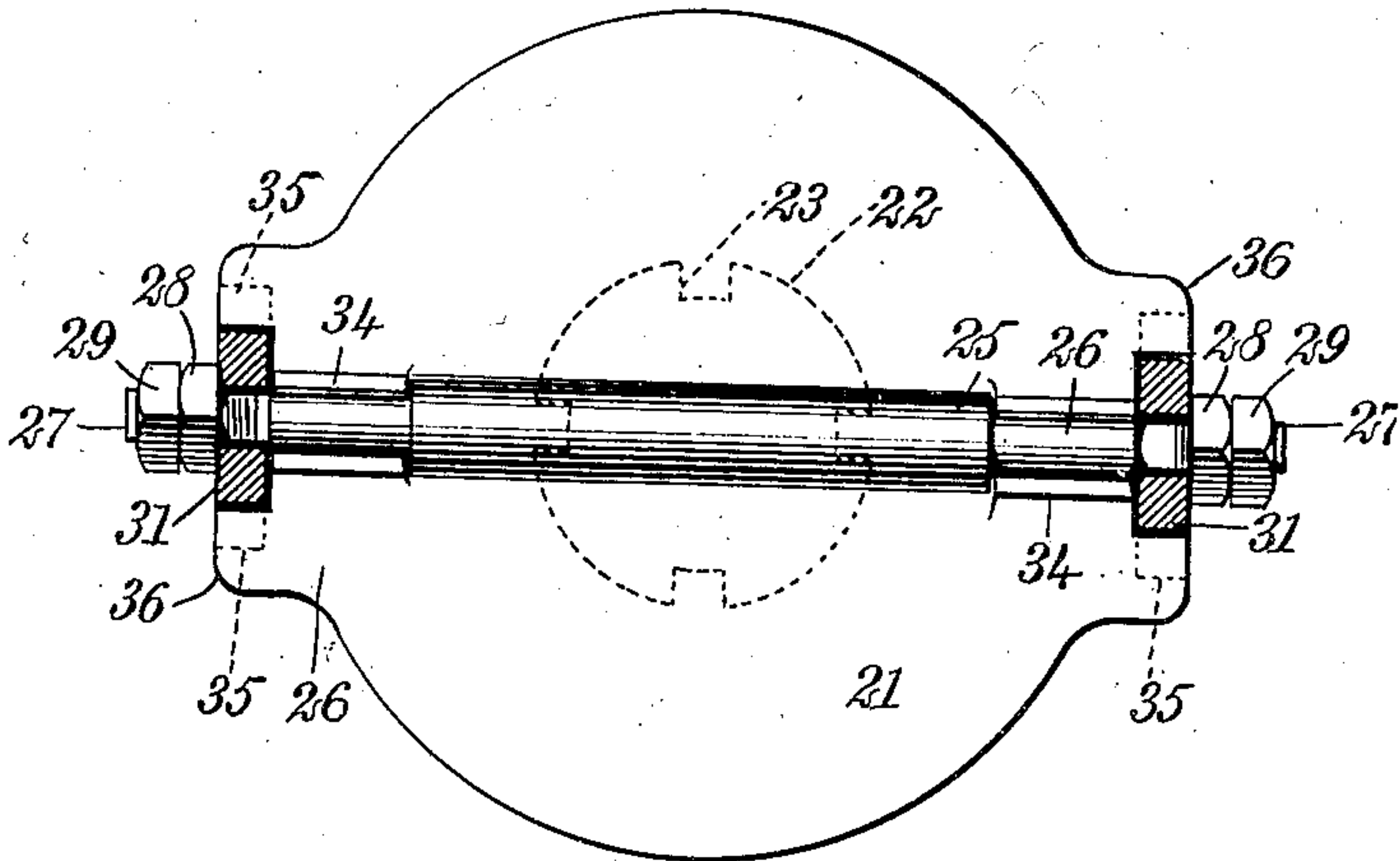
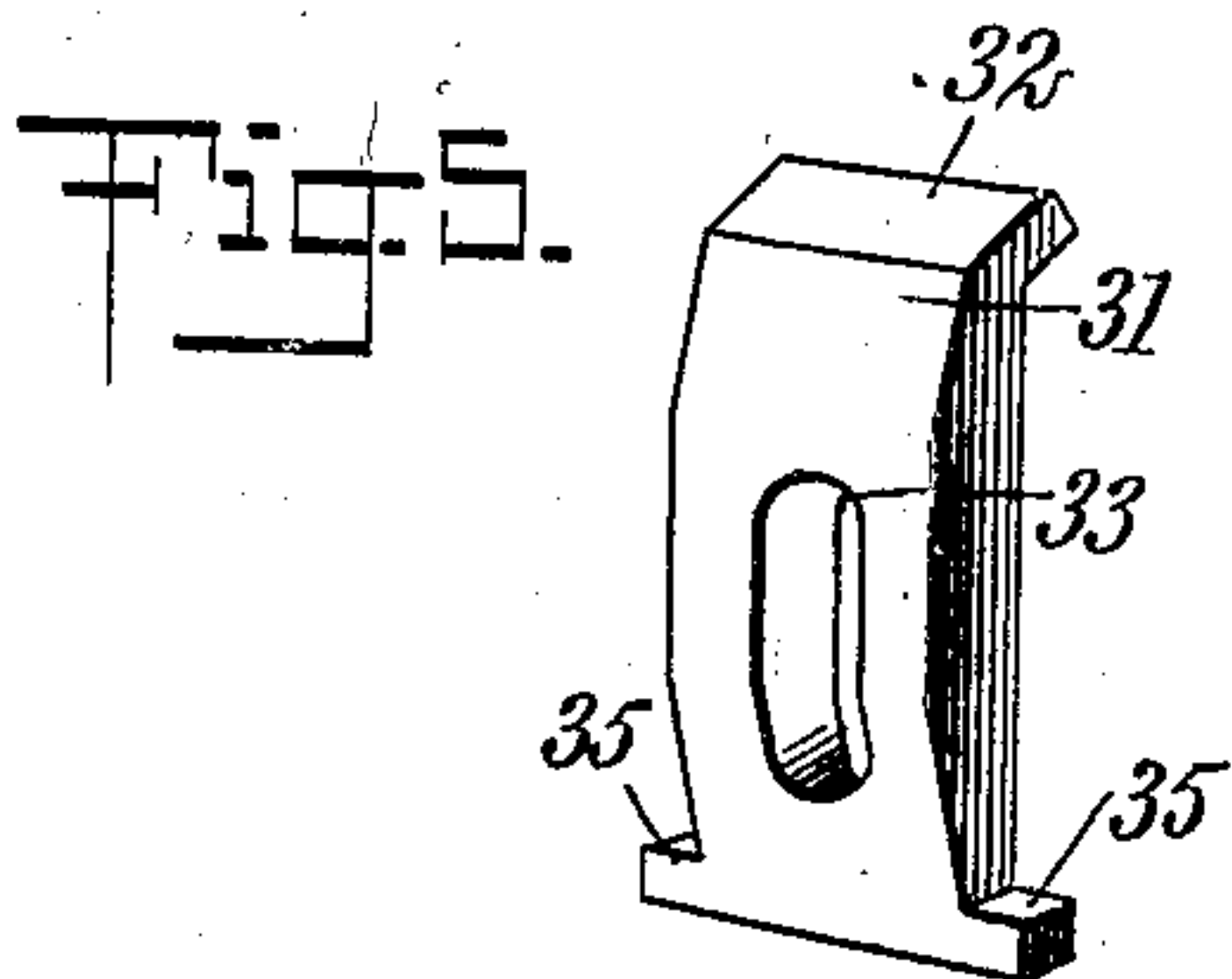
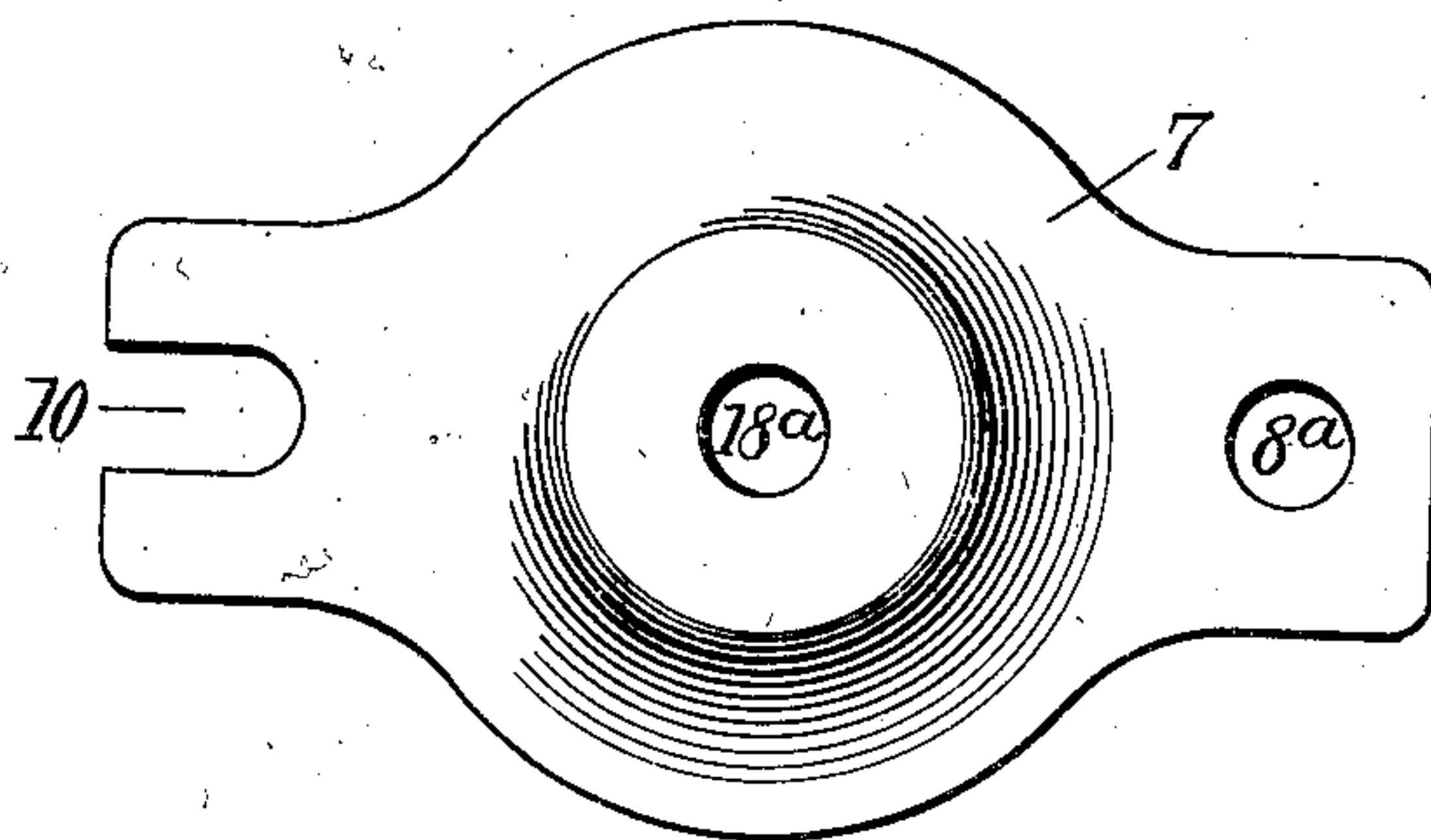


Fig. 4.



WITNESSES

William P. Goebel.
Walton Harrison.

INVENTOR

Louis Steinberger

BY *Munn Co.*

ATTORNEYS

UNITED STATES PATENT OFFICE.

LOUIS STEINBERGER, OF NEW YORK, N. Y.

THIRD-RAIL INSULATOR.

No. 917,501.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed June 5, 1907. Serial No. 377,344.

To all whom it may concern:

Be it known that I, LOUIS STEINBERGER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Third-Rail Insulator, of which the following is a full, clear, and exact description.

My invention relates to insulators, my more particular object being to provide an insulator suitable for use in connection with third rails and in analogous relations where heavy conductors are employed.

Among the several objects of my invention are the following: 1. to provide an anti-friction bearing for supporting the rail, thus permitting the rail to undergo movement in consequence of expansion and contraction without injury to the insulator; 2. to promote freedom of movement so as to allow the cross-tie to be depressed, and to relieve the supports of undue strains, thereby insuring a long term of usefulness in active service; 3. to admit of the removal or the replacing of any of the parts or the entire support without the necessity of raising or removing the rail or interfering with any of the other supports or otherwise interrupting the traffic; 4. to permit a maximum relative movement as between the rail and its support in a plurality of directions; 5. to provide a support embodying the most thorough form of insulation and possessing the greatest mechanical strength; 6. to avoid breakage of any of the parts due to sudden relative movements as between the rail and its supports; 7. to provide an insulated rail support presenting a relatively small mechanical contact surface to the rail, thereby allowing the rail free movement and avoiding the possibility of the rail binding on its support by rusting, freezing or otherwise, and thereby bending or breaking it. These and other objects of my invention are described below and pointed out in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a fragmentary perspective showing one of my improved insulators as applied to the under surface of a third rail; Fig. 2 is a vertical cross-section through the

insulator body and its accompanying parts, showing a mounting for the rail; Fig. 3 is a plan view of the platform surface of the insulator, this view showing the links in section and also showing the position of the roller used for supporting the rail; Fig. 4 is a plan view of the pedestal employed for supporting the insulator body and parts connected therewith; and Fig. 5 is a perspective of one of the links employed for limiting movement between the insulator body and the rail due to depression of the cross-tie.

A cross-tie is shown at 6, and resting upon it is a pedestal 7 secured thereto by means of bolts 8, 9. The bolt 8 passes through a hole 8^a and the bolt 9 through a slot 10, as will be understood from Figs. 2 and 4.

The insulator body is shown at 11 and is provided with annular concentric petticoats 12, 13 and 14, these being provided with concentric air spaces 15, 16, and 17. A threaded bolt 18 passes through a hole 18^a in the pedestal 7 and is provided with a slotted head 19 anchored directly into the insulator body.

A plate 21 of substantially circular form is provided with a head 22 and with apertures 23, for the purpose of affording a good anchorage in the insulator body 11. The plate 21 is provided with an annular flange 24 integral therewith and concentric to the head 22. This annular flange strengthens the union between the body portion 11 and the plate 21 and also tends to preserve the plate 21 from abrasive injury from any source. A roller 25 having the form of a longitudinal sleeve is mounted upon a bolt 26. This bolt is provided with threaded ends 27 which are engaged by revoluble nuts 28, 29. The nuts 29 serve as nut-locks for the nuts 28 as will be understood from Fig. 2.

The rail is shown at 30 and rests directly upon the roller 25. Clamps 31 encircle the threaded portions 27. Each clamp is provided with a lug 32 and with a vertical slot 33, as will be understood from Fig. 5. The plate 21 is provided with lugs 34 integral therewith and constituting bearings for supporting the stem 26. Each clamp 21 is further provided at its lower end with lugs 35 extending in opposite directions. The plate 21 is provided with lugs 36 extending horizontally therefrom and arranged in pairs as shown in Fig. 3; each pair partially encompassing one of the clamps 31. The lugs 35 serve as limiting stops for the upward move-

ment of the clamps 31. The lug 32 at the top of each clamp 31 serves as a limiting stop for preventing excessive movement of the clamp downward.

5 The operation is as follows: The parts being in position and the nuts 28—29 being tightened, the rail normally rests upon the roller 25 and the stem 26 normally rests upon the bearings 34. If, now, owing to the passing of a train, the cross-tie 6 is depressed, the insulator body carrying the plate 21 moves downward momentarily so that the lugs 32 approach, and may even rest upon the foot of the rail. Next the threaded portions 27 of the stem 26 reach the bottoms of the slots 33. The limit of movement, therefore, for the insulator body 11 and parts secured rigidly thereto, is represented by the added movement of the clamps 31 relatively to the rail and the movement of the bolt 26 relatively to the links 31.

Owing to expansion and contraction of the rail, the portion of the latter supported by the insulator tends to move back and forth in the general path represented by the length of the rail. The roller 25 being free to move, prevents the rail from catching upon the plate 21, or from pulling the insulator body 1 in a lateral direction so as to cause any breakage.

In order to remove the insulator from the rail, one of the nuts 28, 29 is unscrewed and the link 31 taken off. The bolts 8, 9 are next taken out and the insulator detached. To remove the insulator body from the pedestal 7 the insulator body is simply turned; this unscrews the bolt 18. By turning the insulator body 11 within proper limits, its height may be controlled at will and the insulator body thus adjusted relatively to the rail. Ordinarily the insulator body rests upon the washer and is clamped securely thereupon by aid of the bolt 18. If, for any reason, however, such as the temporary displacement of the cross tie 6, it be desired to raise the insulator body relatively to the base 7, the insulator body is simply turned until it clears the washer 20 and is raised a sufficient distance thereover, being now supported upon the bolt 18. In this way the insulator body is adjustable relatively to the base. The purpose of the washer 20 is to prevent abrasion of the insulator body in consequence of the turning of the latter relatively to the base 7, and especially in instances when the insulator body is turned when occupying practically its lowest limit of travel. As the width of the rail foot is greater than the length of the roller, the rail is not so rigid as would be the case if it rested upon a broad surface. This lack of excessive rigidity is an advantage.

I do not limit myself to any particular insulating material to be used in the construction of the insulator body, but prefer to use "electrose". Neither do I limit myself to

the exact form shown for any part, nor in all cases to the precise arrangement of the parts as disclosed in the drawings.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:

1. A device of the character described, comprising a body portion, a metallic plate mounted thereupon, a bolt extending across the top of said metallic plate and supported thereby, a roller mounted upon said bolt, clamps loosely encircling portions of said bolt and adapted to allow said bolt to move in a definite plane from said plate, and a rail engaging said roller and provided with portions for engaging portions of said clamps.

2. A device of the character described, comprising a metallic base, a body of insulating material supported thereupon and having substantially the form of an inverted cone frustum, said body of insulating material being provided with petticoats, a metallic plate mounted upon said body of insulating material, and a roller bearing mounted upon said plate and disposed centrally thereof for supporting a rail.

3. A device of the character described, comprising a metallic plate provided with lugs integral therewith, means for supporting said metallic plate, clamps disposed intermediate said lugs and movable relatively to the same, said clamps being provided with portions for lodging against said plate, a bolt extending through said clamps and adapted to raise the same relatively to said plate, and a member engaging said bolt and provided with a portion for engaging a rail.

4. A device of the character described, comprising a metallic plate provided with lugs, means for supporting said metallic plate, clamps disposed intermediate said lugs and provided with portions for lodging against said lugs, said clamps being movable relatively to said plate, a bolt extending through said clamps and adapted to lift the same, and a revoluble member encircling said bolt and adapted to turn relatively thereto, said revoluble member being adapted for engagement with a rail.

5. The combination of a metallic plate provided centrally with an opening, a bolt extending across said plate, a roller encircling said bolt and extending into said opening, said roller being adapted to engage a rail, and mechanism connected with said bolt and with said plate for permitting a limited play therebetween.

6. A device of the character described, comprising a metallic supporting member provided with lugs projecting upwardly therefrom, a bolt extending across said plate and normally resting upon said lugs, an anti-friction bearing secured upon said bolt for engaging the under side of a rail, clamps mounted upon the ends of said bolt and dis-

posed loosely in relation thereto, said clamps being provided with portions for engaging said plate and with portions to be engaged by said rail.

5 7. A device of the character described, comprising a metallic supporting member, a bolt extending across said metallic supporting member and normally resting thereupon, clamps provided with openings through
10 which said bolt extends, means for limiting movement between said clamps and said supporting member, and mechanism mounted upon said bolt for engaging a rail.

15 8. A device of the character described, comprising a member of insulating material, means for supporting the same, a metallic plate mounted upon said member of insulating material and provided with lugs extending upwardly, a roller disposed intermediate said lugs and revoluble in relation
20 to said metallic plate, and a rail resting upon said roller.

9. A device of the character described, comprising a body of insulating material, a
25 metallic plate resting upon the same, a bolt movable relatively to said metallic plate and normally resting thereupon, said bolt being adapted to normally support the weight of a rail, and clamps mounted upon said bolt
30 and normally hanging therefrom, said clamps being provided with lugs to be engaged by the base of said rail, and being further provided with lugs for engaging portions of said metallic plate.

35 10. The combination of a metallic plate provided with a pair of lugs, a clamp disposed intermediate said lugs and movable relatively to the same, said clamp being provided with portions for engaging said
40 lugs when said clamp is moved to its limit in one direction, a bolt engaging said clamp and adapted to move the same relatively to said metallic plate, said bolt being adapted to support a rail and normally resting upon
45 said plate but being movable relatively to

the latter in order to adjust said rail to abnormal positions.

11. The combination of a metallic plate, means for supporting the same, a roller disposed adjacent to said metallic plate, said
50 roller being movable bodily in relation to said plate but normally occupying a predetermined general position relatively thereto, said roller being adapted to normally
55 engage a rail, a longitudinal member extending through said roller, and mechanism connected with said longitudinal member and with said plate for the purpose of allowing a limited amount of play between said longitudinal member and said plate.
60

12. A device of the character described, comprising a metallic supporting member, a longitudinal member movable in relation thereto and normally resting thereon, said
65 longitudinal member being provided with means for supporting a rail, a clamp connected loosely with said longitudinal member and having a limited play relatively thereto, said clamp being provided with lugs
70 for engaging said rail.

13. A device of the character described, comprising a base, a body of insulating material supported thereby, a metallic plate mounted upon said body of insulating material, and roller mechanism mounted upon
75 said plate for supporting a rail.

14. A device of the character described, comprising a base, a body of insulating material supported thereby, a metallic member mounted upon said insulating material, 80
clamping mechanism connected to said metallic member, and roller mechanism connected to said clamping mechanism.

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

LOUIS STEINBERGER.

Witnesses:

WALTON HARRISON,
EVERARD B. MARSHALL.