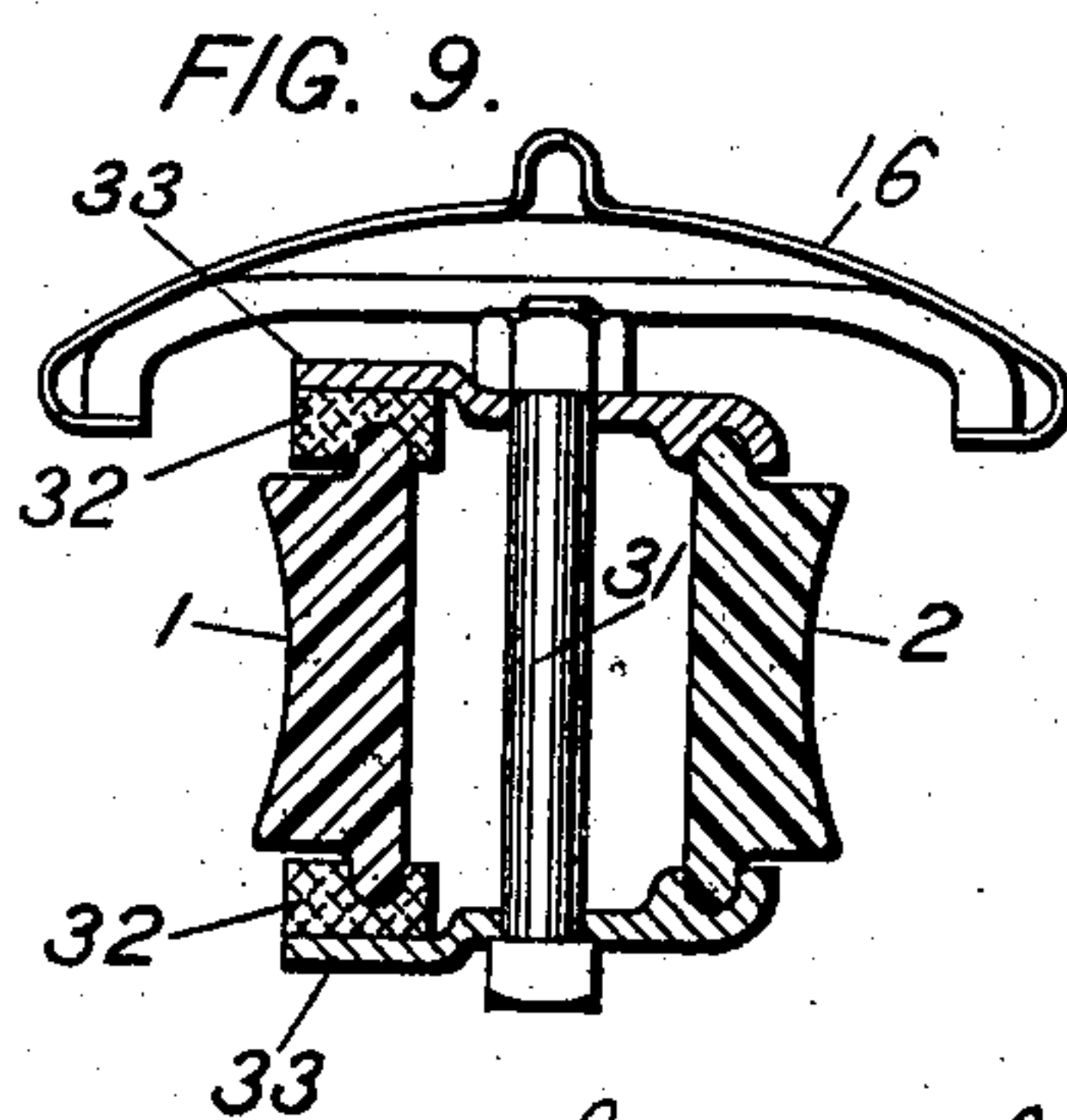
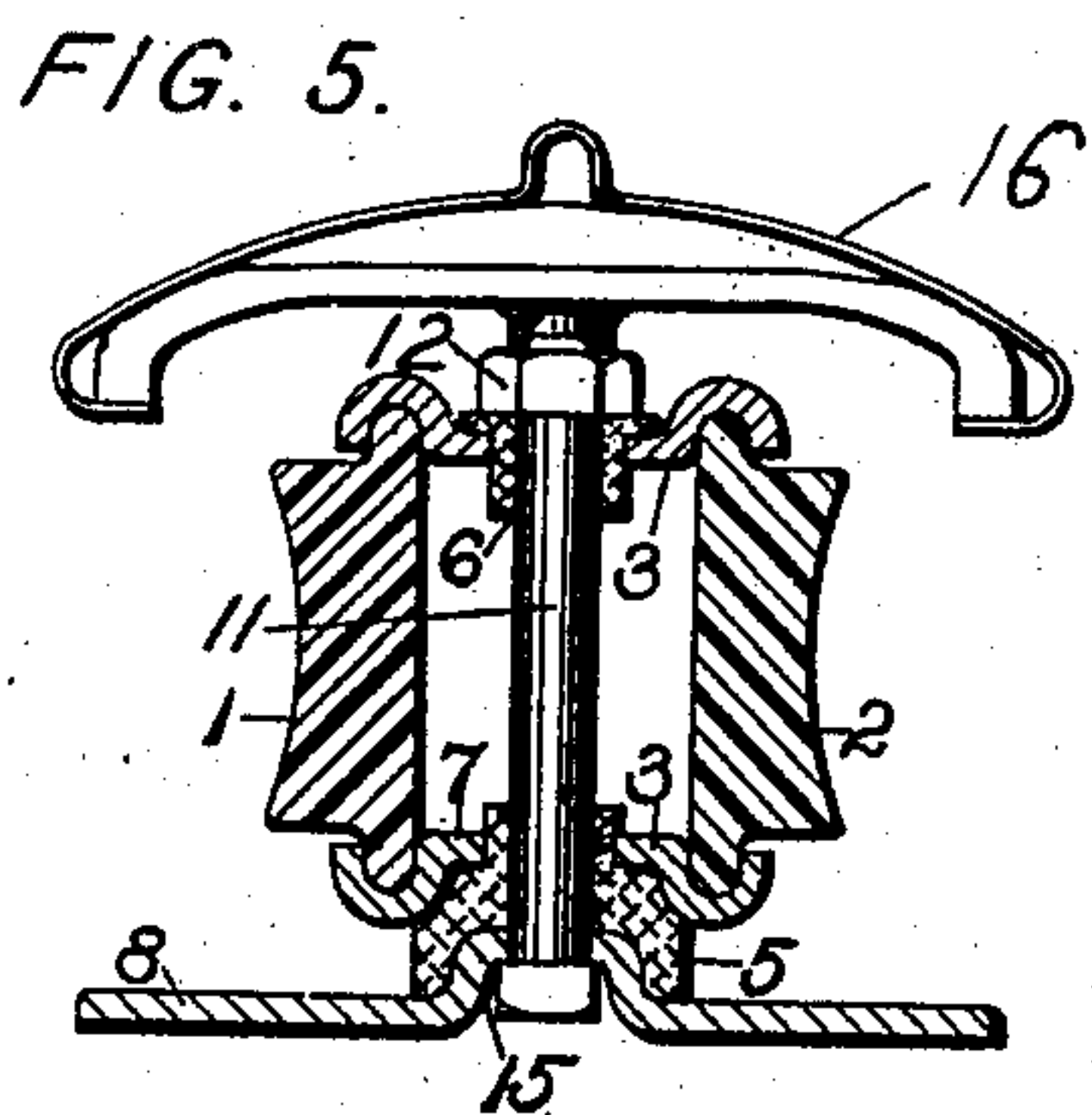
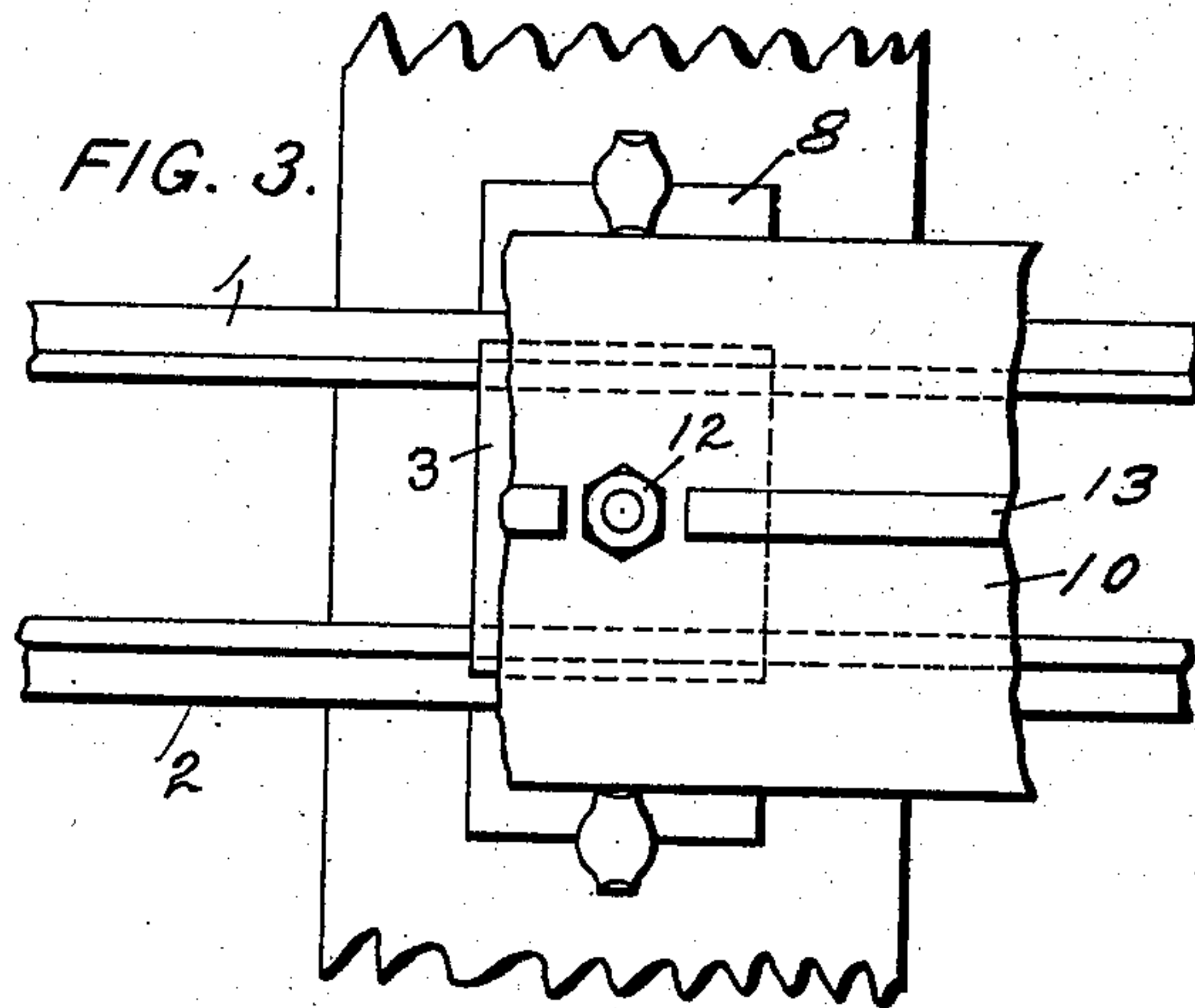
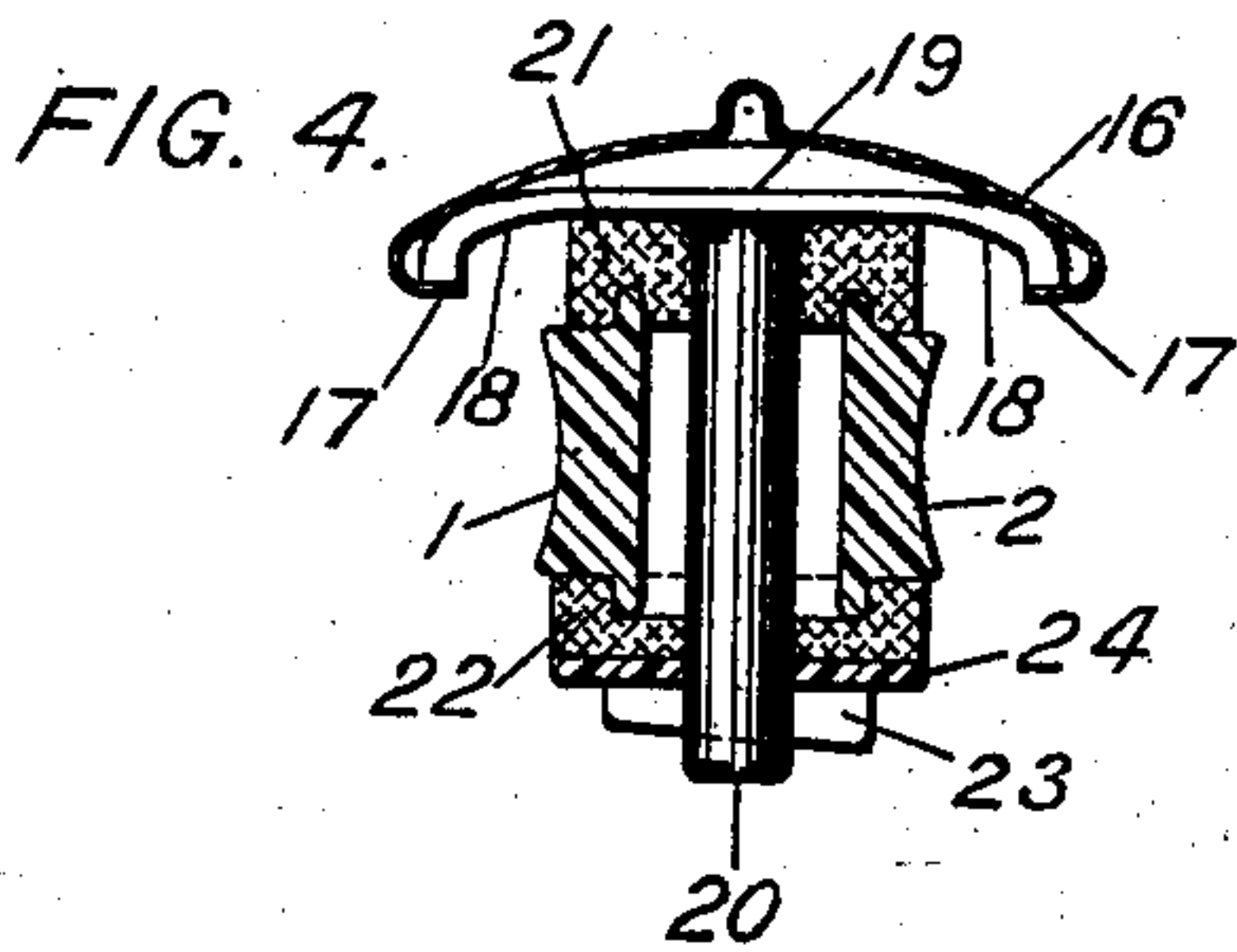
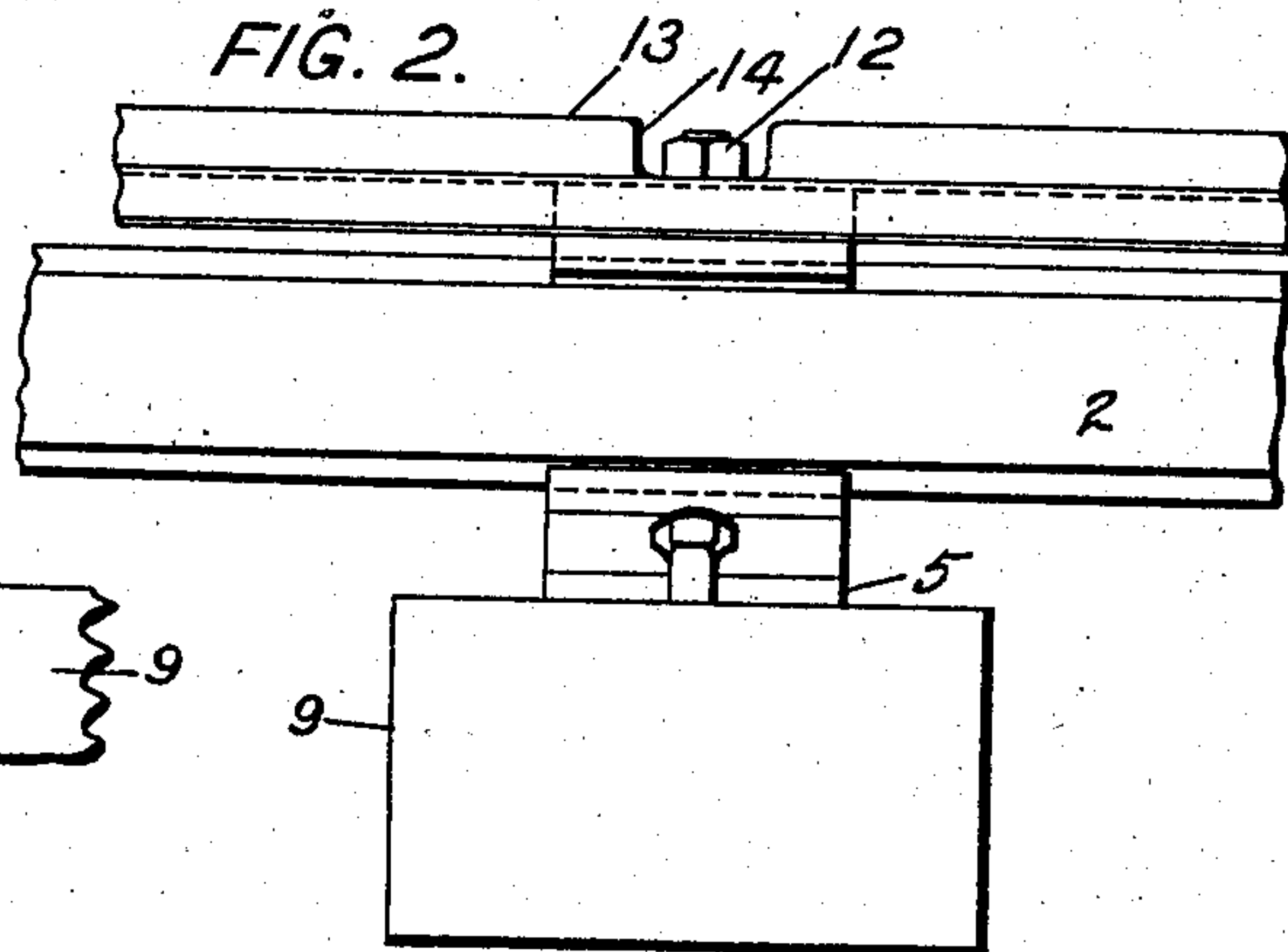
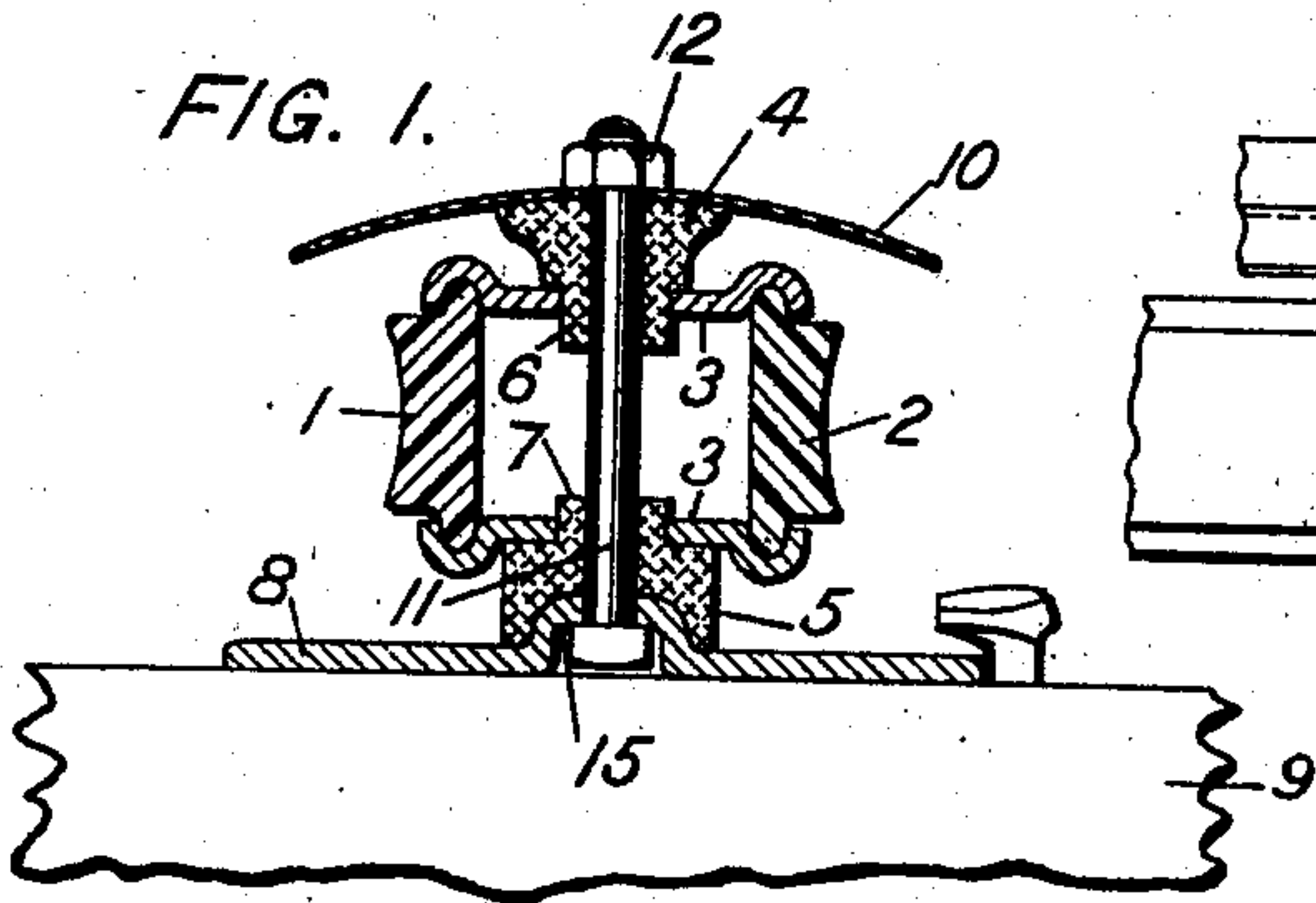


G. L. FOWLER.
ELECTRIC RAILWAY.

APPLICATION FILED JULY 18, 1900.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

John O. Temple
Chas. Seeger

George L. Fowler INVENTOR
BY
Kenyon & Kenyon ATTORNEYS

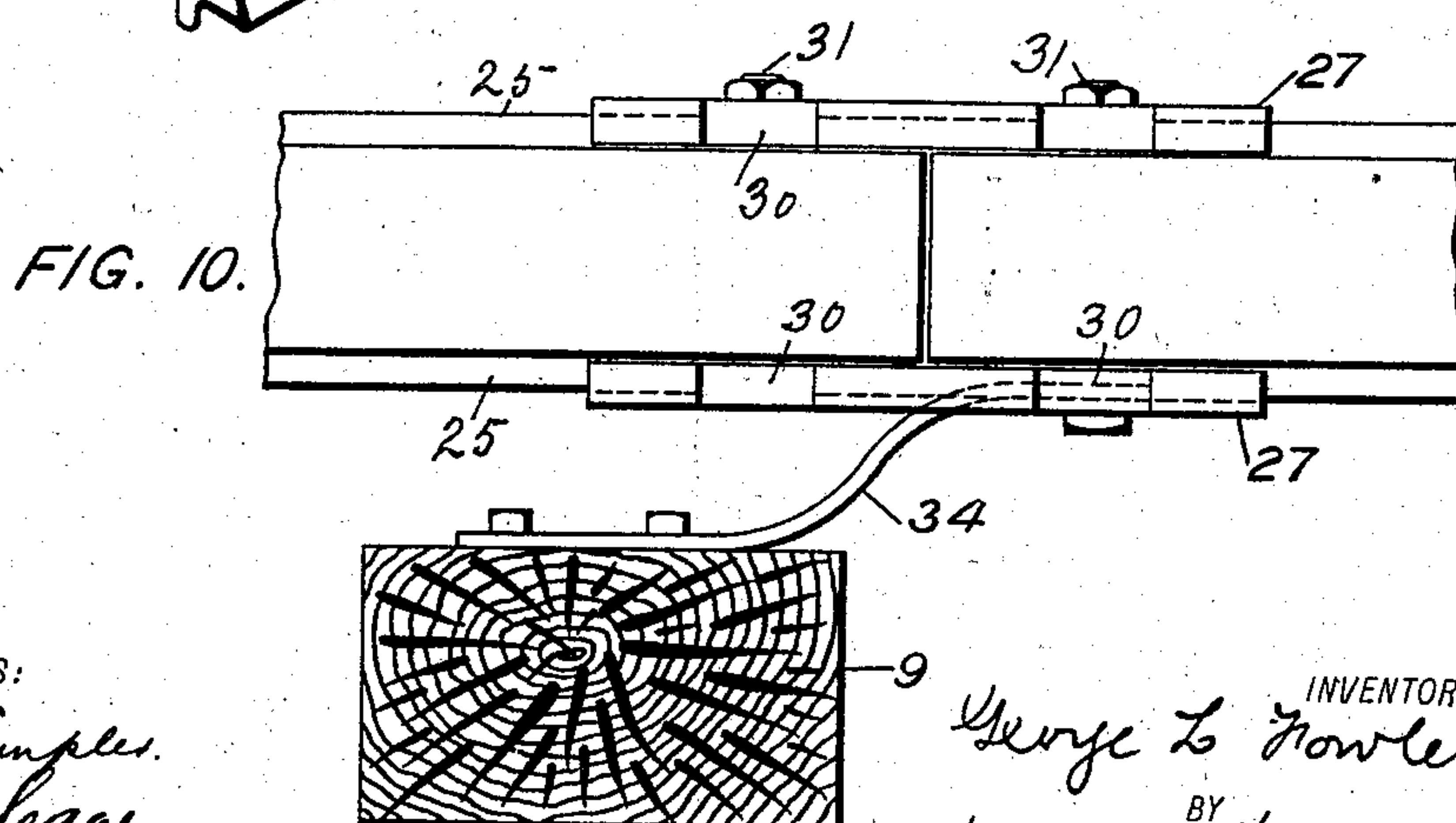
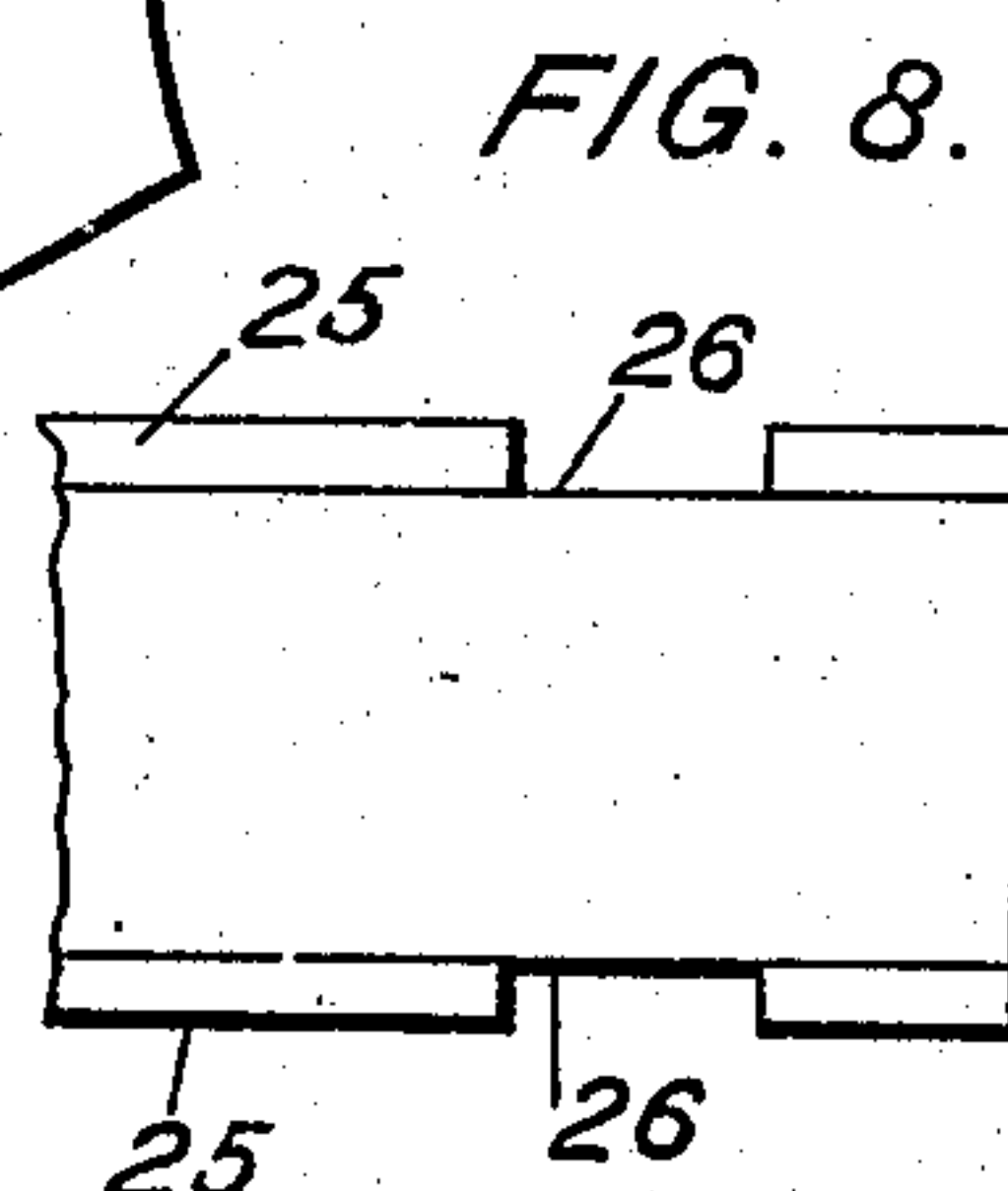
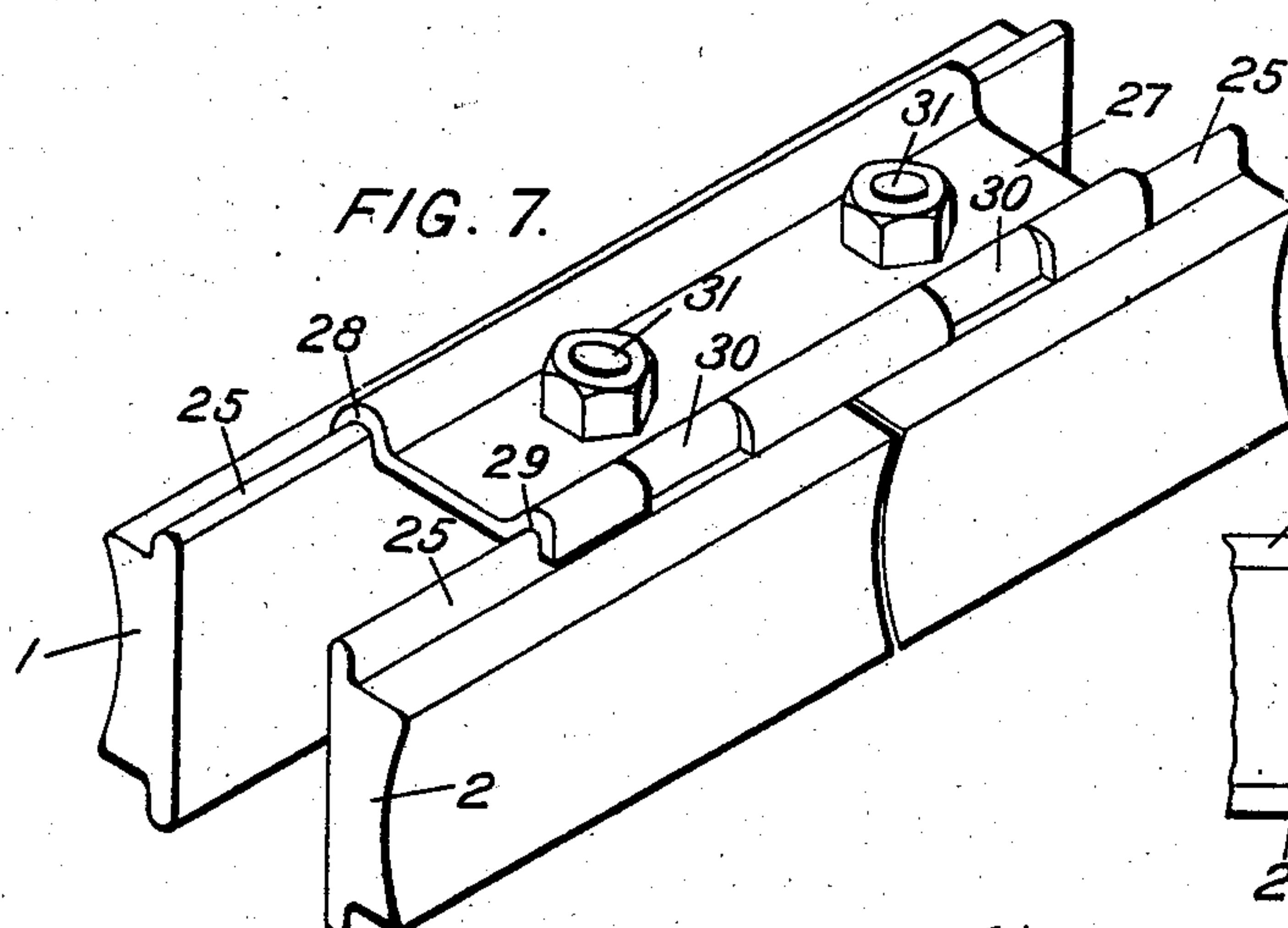
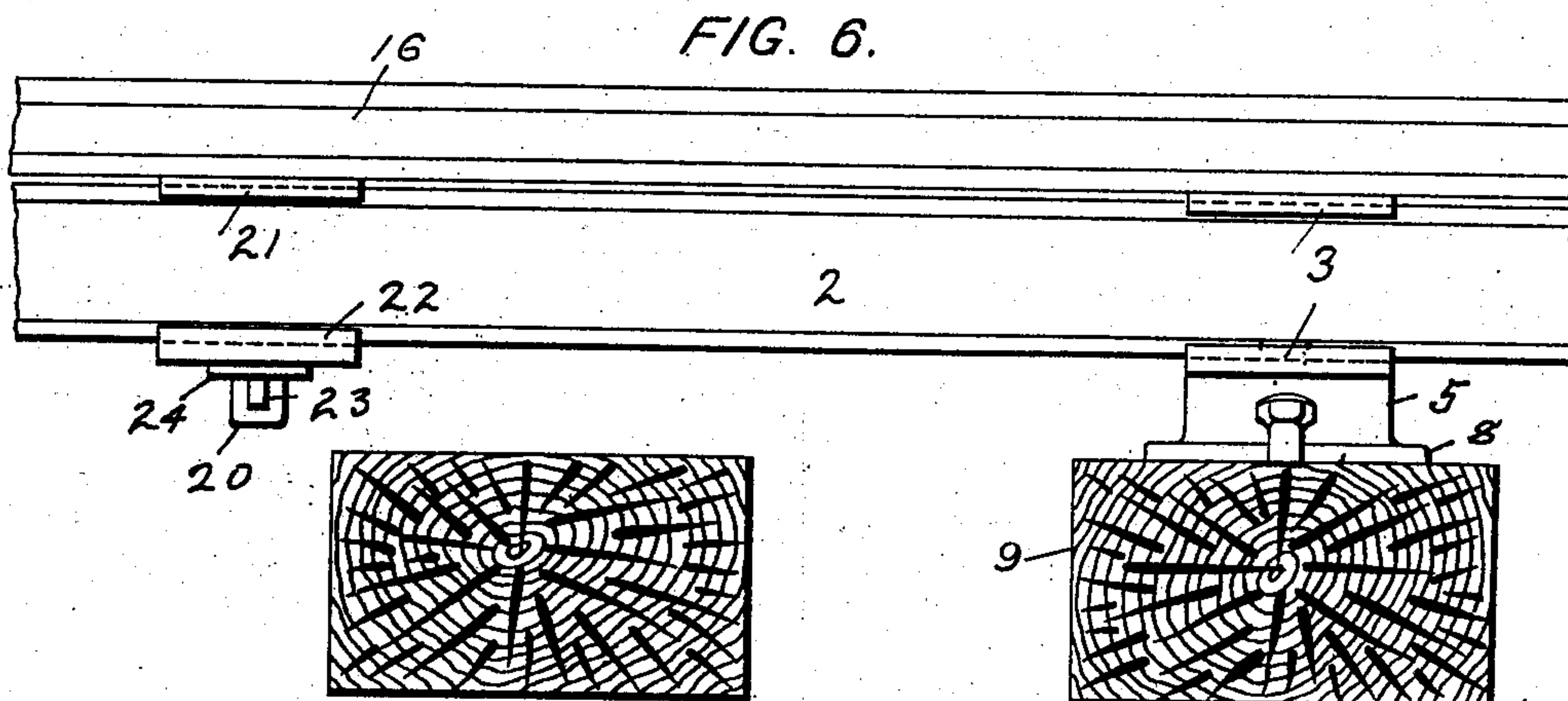
No. 720,684.

PATENTED FEB. 17, 1903.

G. L. FOWLER.
ELECTRIC RAILWAY.
APPLICATION FILED JULY 18, 1900.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE L. FOWLER, OF NEW YORK, N. Y., ASSIGNOR TO THE CENTRAL ELECTRIC CONSTRUCTION COMPANY, A CORPORATION OF WEST VIRGINIA.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 720,684, dated February 17, 1903.

Application filed July 18, 1900. Serial No. 23,985. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. FOWLER, a citizen of the United States, and a resident of the city, county, and State of New York, have
5 invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to electric railways, and more particularly to that type of electric
10 railways in which the conductor or conductors provided to supply motive power are located at or near the surface of the roadway structure.

My invention has for an object to provide
15 for such conductor or "third rail," as it is sometimes called, a simple and efficient cover or shield which will protect the conductor from the elements and prevent accidental contact therewith by external objects and at
20 the same time permit ready access thereto by suitable contact devices.

Other objects of my invention are to provide a construction such that when the conductor is arranged beneath the moving parts
25 of the trains the exposed parts of the conductor are not liable to be displaced or injured by the catching thereon of objects projecting from the cars or being dragged thereby over the roadway; also, to provide an improved construction of conductor of the double-contact type; also, to provide improved
30 insulating-supports for the conductor and for the shield, and to otherwise improve and simplify and render more practical the construction of electric railways of the type referred to.

My invention consists in the novel features of construction and combinations of parts herein described.

40 The accompanying drawings, which are referred to herein and form a part hereof, illustrate, by way of example, several embodiments of my invention and serve, in connection with the description herein, to explain
45 the principles of my invention and the best mode contemplated by me of applying those parts.

Of the drawings, Figure 1 is a cross-section through the conductor and shield and one of
50 the supports therefor. Fig. 2 is a side elevation of the conductor and shield and one of

the supports therefor. Fig. 3 is a plan view of the same. Fig. 4 is a cross-section illustrating a support for the shield which is independent of the support for the conductor. 55
Fig. 5 is a cross-section illustrating the form of support for the conductor which is used when the independent shield-support is employed. Fig. 6 is a side elevation illustrating the arrangement of the independent sup- 60
ports. Fig. 7 is a perspective view illustrating the means for securing the rail-sections forming the conductor together. Fig. 8 is a side elevation of an end of a conductor-rail. Fig. 9 is a cross-section illustrating a modification of the means for securing the conductor-rails together, and Fig. 10 is a side elevation illustrating the means for anchoring the conductor to the roadway structure. 65

Like reference-numerals refer to like parts. 70

My invention is particularly adapted to that type of conductor or third rail which is located between the track-rails of the roadway and is provided with a pair of oppositely-arranged contact-surfaces adapted to cooperate with a double-contact device—such as
75 that shown, for example, in the patent granted to B. C. Seaton, dated August 30, 1898, Serial No. 610,092. As shown, this conductor comprises a pair of separated conductor-rails 1 80
and 2 of suitable material and cross-section. These rails are supported between and firmly secured together by pairs of plates 3, arranged at suitable intervals along the roadway. These plates are clamped between pairs of 85
insulating-blocks 4 and 5, which are provided with suitable bosses 6 and 7, adapted to engage central perforations in the plates 3. The lower block 5 rests upon a base-plate 8, which is suitably secured to a sleeper 9 of the 90
roadway structure. In order to protect the conductor from the weather and from accidental contact, a shield 10 is provided. The shield 10 is preferably made of suitable sheet metal and is extended outwardly at each side 95
of the conductor and is curved slightly in a downward direction from the center on both sides, so that the outer edge forms a dripping edge from which moisture will drip clear of the conductor-rails. This shield may be 100
carried directly by the insulating-blocks 4, as shown in Figs. 1, 2, and 3, and in that con-

struction the parts are clamped and secured together by bolt 11, the head of which engages the under side of the plate 8 and the threaded end of which projects above the shield 10, where it is provided with a nut 12. In order to prevent the upper end of the bolt and the nut 12 from being engaged by objects projecting from or being dragged by the trains, the shield 10 when made of sheet metal is provided with a central longitudinal rib 13, which is provided with suitable recesses 14 to receive the nuts 12. By reason of this construction it will be seen that the shield presents a substantially continuous and unbroken upper surface not liable to be injured by objects projecting from the trains or to cause injury to such objects. The plate 8 is preferably provided with a raised or embossed portion 15 to receive the head of the bolt 11, the insulating-block 5 being in that case provided with a recess to receive such embossed portion, substantially as shown.

A preferable construction of the shield and the support therefor is shown in Figs. 4, 5, and 6. In this construction the shield is supported and secured in place by means which engage its under surface only, the shield being to this end provided on its under surface with suitable locking projections. When the shield 16 is formed of metal, its outer longitudinal edges are turned inwardly, as shown, so as to form on the under surface thereof a pair of inwardly-disposed locking projections 17. The shield is supported and securely held in place by means of the outwardly-extending arms 18 of a T-shaped support 19, the vertical stem 20 of which is passed through and pivotally mounted in a pair of insulating-blocks 21 22, which engage opposite sides of the conductor-rails 1 and 2. The support 19 after being turned into locking engagement with the ribs or projection 17 is secured in position by a pin or wedge 23, which is driven through an opening in the lower end of the stem 20, and thus acts to secure the shield in place and to firmly clamp the insulating-blocks 21 22 between the arms 18 of the support and a plate or washer 24, which is located between the pin 23 and the insulating-block 22. The shield 16 rests on the upper surfaces of the supports 19.

When the form of shield and support therefor last described is used, bolt 11 of the conductor-support is not extended through to the top of the shield as illustrated in Fig. 1, but is only extended through the insulating-block 4 as illustrated in Fig. 5. By this construction it will be seen that the shield 16 may be provided with a perfectly continuous and unbroken upper surface.

In Figs. 7 and 8 is illustrated the means by which the conductor-rails and the sections thereof are secured together. The rails are provided with oppositely-arranged flanges 25, which flanges are provided near the ends of the rails with recesses 26. The joints of the conductor-rails are alternately arranged or

broken with respect to each other, as indicated in Fig. 7, and at each joint the rails are secured together by fish-plates 27, substantially as shown. The fish-plates are provided along one edge with a continuous groove 28, adapted to engage the continuous flange 25 of one rail, and along the opposite edge with a groove 29, adapted to engage the flanges 25 at the ends of the sections of the other rail. The edge of the plate 27 in which the groove 29 is formed is provided with suitable depressed portions 30 of the proper dimensions and properly located to engage the recesses 26 in the flanges 25 of the meeting ends of the rail-sections. The fish-plates are arranged above and below the rails, as indicated in Fig. 10, and are clamped together by suitable bolts 31. By this construction the conductor-rails are firmly secured together and the sections thereof are prevented from longitudinal displacement with relation to each other.

Where it is desired, the conductor-rails 1 and 2 may be insulated from each other and used to convey the current both to and from the cars. In Fig. 9 a suitable construction for insulating the conductor-rails from each other is shown. As here shown, a pair of insulating-blocks 32 are arranged between one edge of the fish-plates 33 and one of the conductors. Similar blocks would of course be placed between one edge of the clamping-plates 3 and one of the conductors.

The conductor as a whole may be prevented from creeping with relation to the roadway structure by means of suitable anchors 34, as illustrated in Fig. 10. These anchors are preferably secured at one end to the conductor by one of the bolts 33, which clamp the fish-plates 27 to the rails, the other end of the anchor being secured to the sleeper 9 of the roadway.

I do not wish to limit myself to the precise construction shown and described herein or to the precise construction by which my invention is carried into effect, as many changes other than those indicated may be made therein without departing from the principles thereof.

While in many of its features my invention is limited to conductors of the double-contact type, it is in some of its features applicable to other forms of conductors, and so far as these features of the invention are concerned I do not wish to limit myself to a conductor of the double-contact type.

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

1. In an electric railway, the combination with a continuous conductor having oppositely-arranged contact-surfaces, of a shield having a substantially continuous and unbroken upper surface, said shield being constructed entirely of sheet metal and extending over said conductor and insulated therefrom.

2. In an electric railway the combination

with a continuous conductor having oppositely-arranged contact-surfaces, of a series of insulating-supports therefor, a shield having a substantially continuous and unbroken upper surface, said shield being constructed entirely of sheet metal and extending over said conductor and insulated therefrom.

3. In an electric railway the combination with a continuous conductor having oppositely-arranged contact-surfaces, of a series of insulating-supports therefor, a shield constructed entirely of sheet metal and having a substantially continuous and unbroken upper surface extending over said conductor, and a series of insulating-supports for said shield.

4. In an electric railway the combination with a continuous conductor having oppositely-arranged contact-surfaces, of a series of insulating-supports therefor, a shield constructed entirely of sheet metal and having a substantially continuous and unbroken upper surface extending over said conductor, and a series of independent supports for said shield carried by said conductor.

5. In an electric railway the combination with the track-rails of a continuous conductor arranged between said track-rails and having oppositely-disposed contact-surfaces, and a shield having a substantially continuous and unbroken upper surface, said shield being constructed entirely of sheet metal and extending over said conductor and insulated therefrom.

6. In an electric railway the combination with a continuous conductor comprising a pair of contact-rails rigidly secured together with their contact-surfaces oppositely arranged and facing outwardly, of a shield constructed entirely of sheet metal and having a substantially continuous and unbroken upper surface, said shield extending over said conductor and insulated therefrom.

7. In an electric railway the combination with a continuous conductor comprising a pair of contact-rails rigidly secured together with their contact-surfaces oppositely arranged and facing outwardly, of a series of insulating-supports for said conductor and a shield constructed entirely of sheet metal and having a substantially continuous and unbroken upper surface, said shield extending over said conductor and insulated therefrom.

8. In a third rail for electric railways the combination with a continuous conductor comprising a pair of contact-rails rigidly secured together with their contact-surfaces oppositely arranged and facing outwardly, of a series of insulating-supports for said conductor, and a shield constructed entirely of sheet metal and having a continuous and unbroken upper surface, said shield extending over said conductor and insulated therefrom.

9. In a third rail for electric railways the combination with the track-rails of a continuous conductor arranged between said rails and having oppositely-disposed contact-sur-

faces, of a series of insulating-supports therefor, a shield constructed entirely of sheet metal and having a substantially continuous and unbroken upper surface extending over said conductor and a series of insulating-supports between said shield and said conductor.

10. In an electric railway the combination with a conductor, of a continuous shield therefor having a substantially continuous and unbroken upper surface, a series of supports for said shield, and means for securing the shield in place upon said supports, said securing means being constructed to engage only the under side of said shield.

11. In an electric railway the combination with a conductor, of a continuous shield therefor composed of sheet metal having inwardly-turned longitudinal portions, a series of supports for said shield, and means for securing said shield in place upon said supports, said securing means being constructed to engage said inwardly-turned portions.

12. In an electric railway the combination with a conductor of a continuous shield therefor composed of sheet metal having inwardly-turned longitudinal edges and a series of supports for said shield having pivotally-mounted members adapted to engage said inwardly-turned edges.

13. In an electric railway the combination with a conductor of a continuous shield therefor composed of sheet metal having a substantially continuous and unbroken upper surface and inwardly-turned longitudinal edges, and a series of insulating-supports for said shield having pivotally-mounted members adapted to engage said inwardly-turned edges.

14. In an electric railway the combination with a conductor, of a continuous shield therefor composed of sheet metal having inwardly-turned longitudinal edges, and a series of insulating-supports for said shield carried by said conductor and having pivotally-mounted members adapted to engage said inwardly-turned edges.

15. In an electric railway a conducting device consisting of a pair of continuous conductor-rails arranged side by side and each made up of rail-sections, means for securing said conductor-rails and the sections thereof in place including a fish-plate constructed to engage said conductor-rails and suitable recesses near the ends of the sections thereof, and means for securing said fish-plate in place.

16. In an electric railway a conducting device consisting of a pair of continuous conductor-rails arranged side by side and each made up of rail-sections, means for rigidly securing the said conductor-rails and the sections thereof in place including a pair of fish-plates constructed to engage said conductor-rails and suitable recesses near the ends of the sections thereof, and means for clamping said fish-plates in place.

17. In an electric railway in combination with the roadway structure thereof, of a con-

ducting device consisting of a pair of continuous conductor-rails arranged side by side and each made up of rail-sections, means for rigidly securing said conductor and the sections
5 thereof in place including a fish-plate constructed to engage said conductor-rails and suitable recesses near the ends of the sections thereof, means for securing said fish-plate in place, and means connected to said fish-plate

for anchoring said conducting device to the roadway structure.

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

GEORGE L. FOWLER.

Witnesses:

EDWIN SEGER,

J. H. FREEMAN.