

No. 785,303.

PATENTED MAR. 21, 1905.

J. D. GALLAGHER.
BRAKE SHOE.

APPLICATION FILED MAY 3, 1904.

2 SHEETS—SHEET 1.

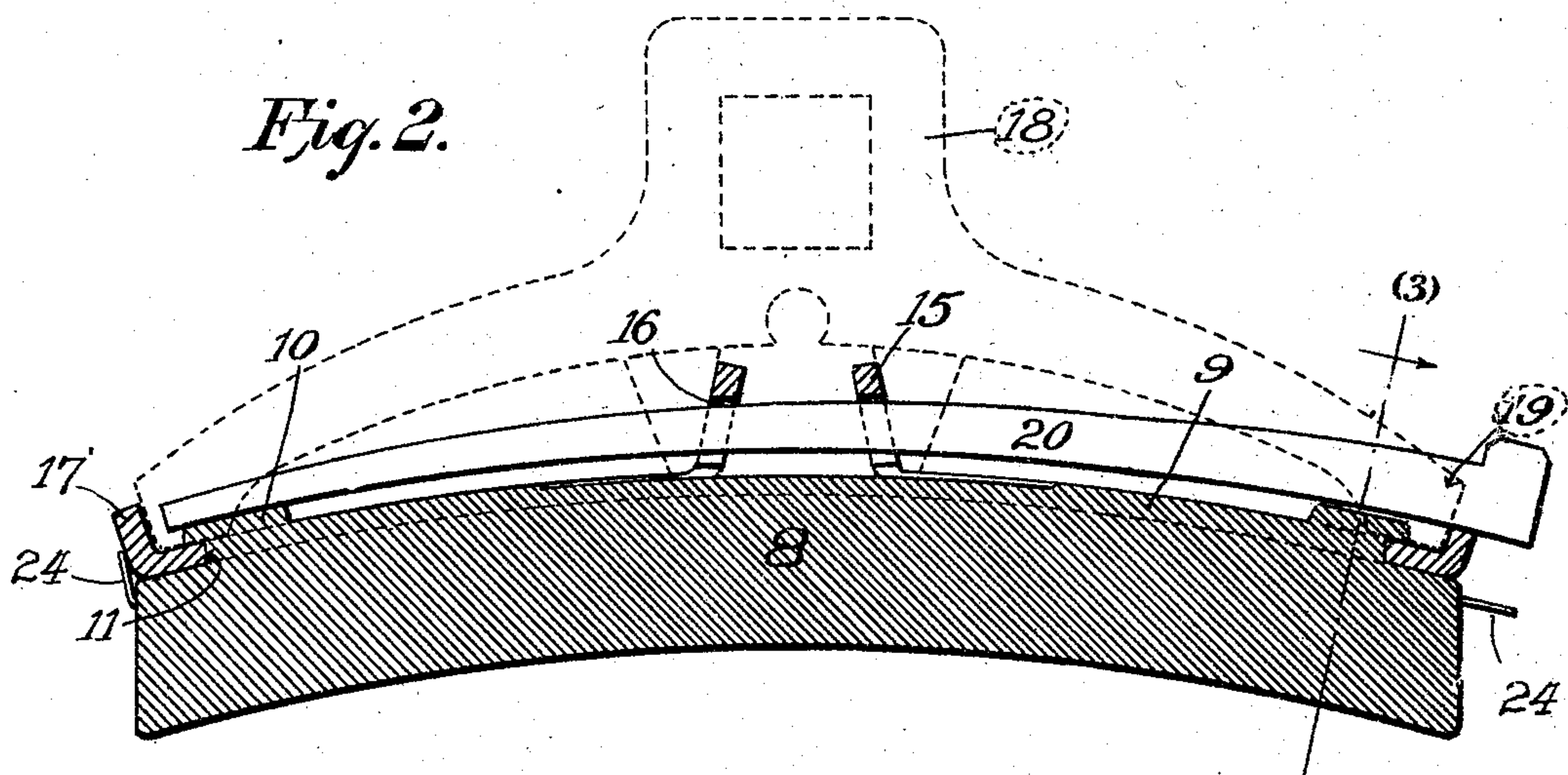
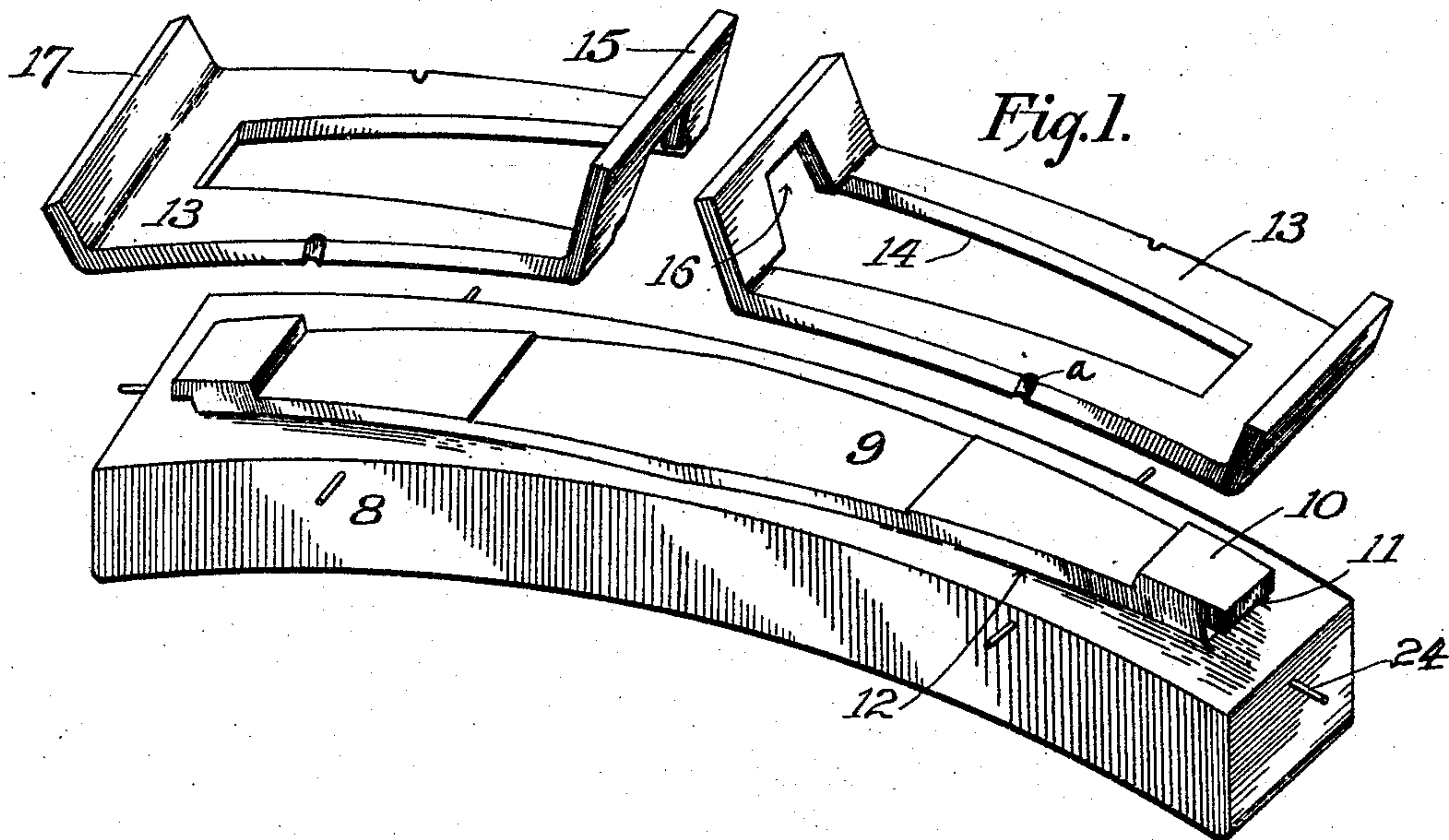
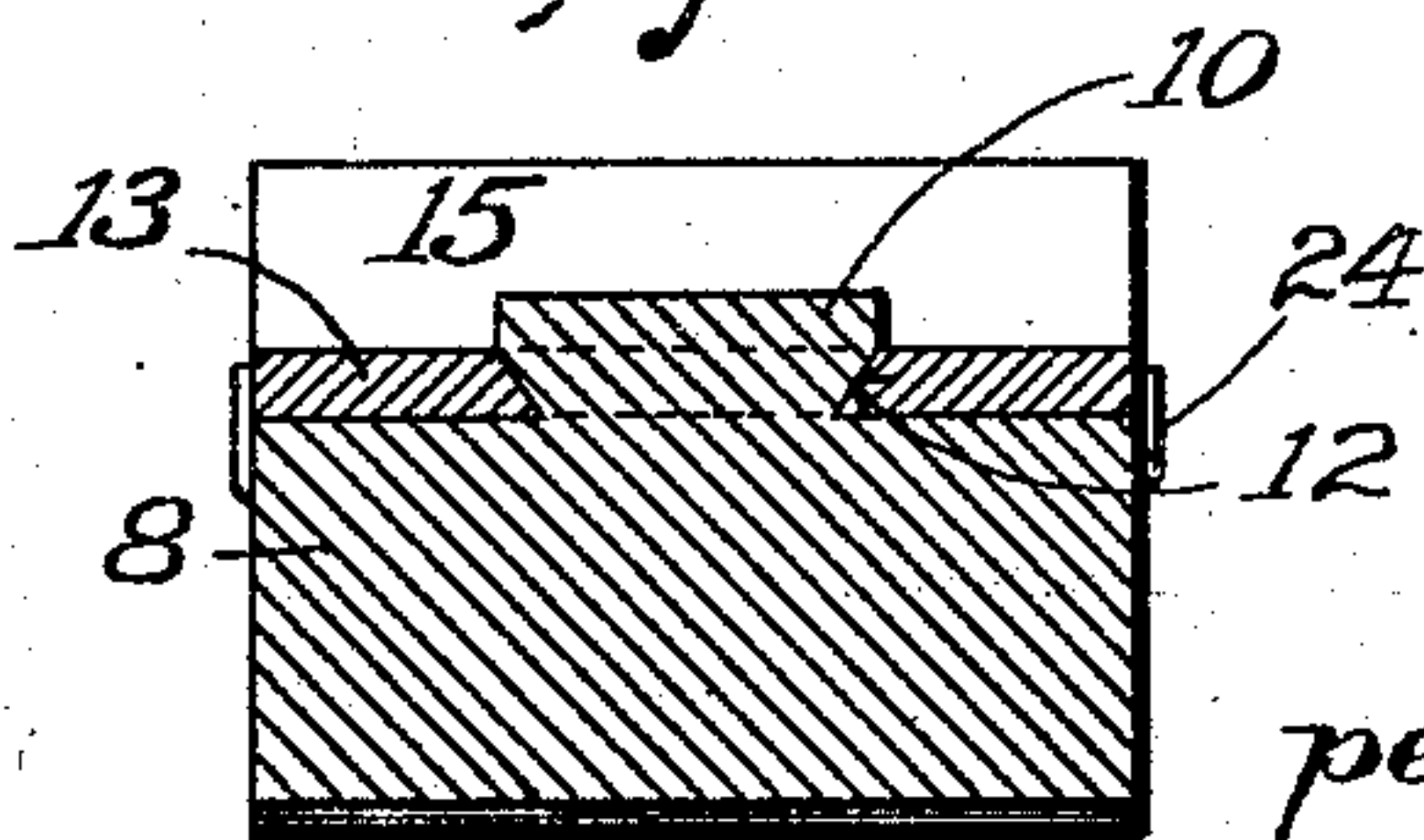


Fig. 3.



Witnesses;
Cyril C. Brick.
F. W. H. Clay

Inventor,
J. D. Gallagher.
per Paul Synnestvedt
Atty.

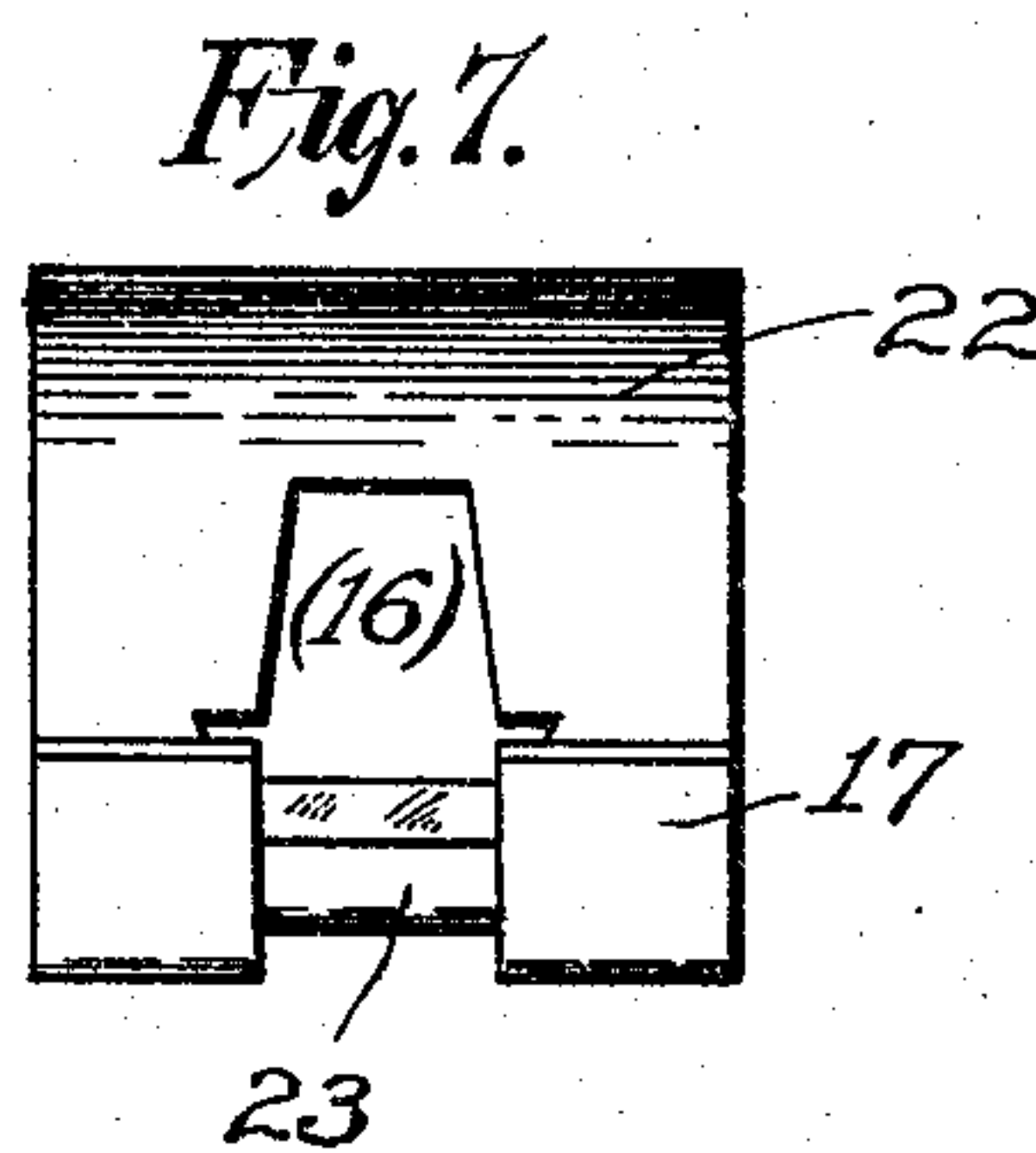
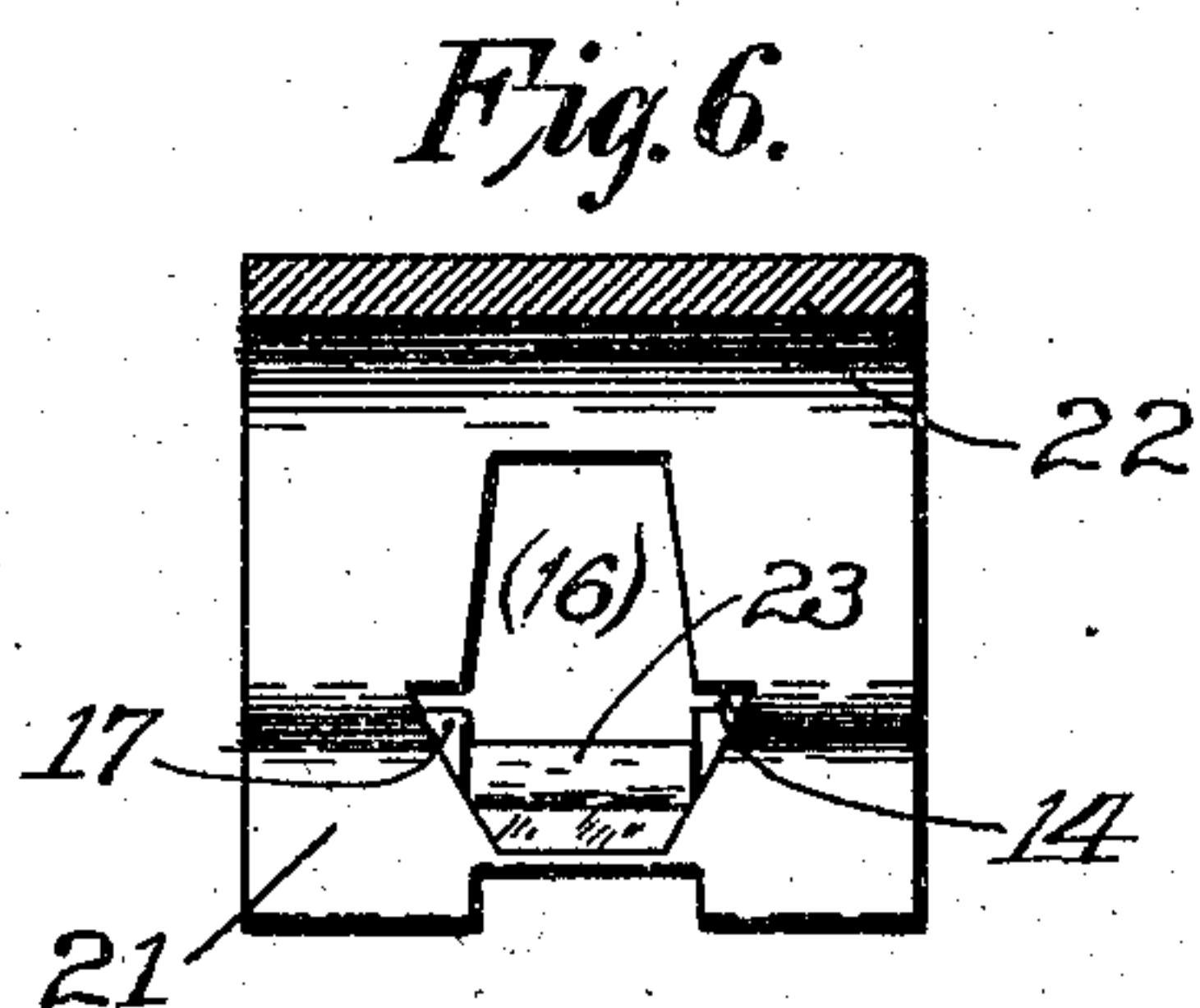
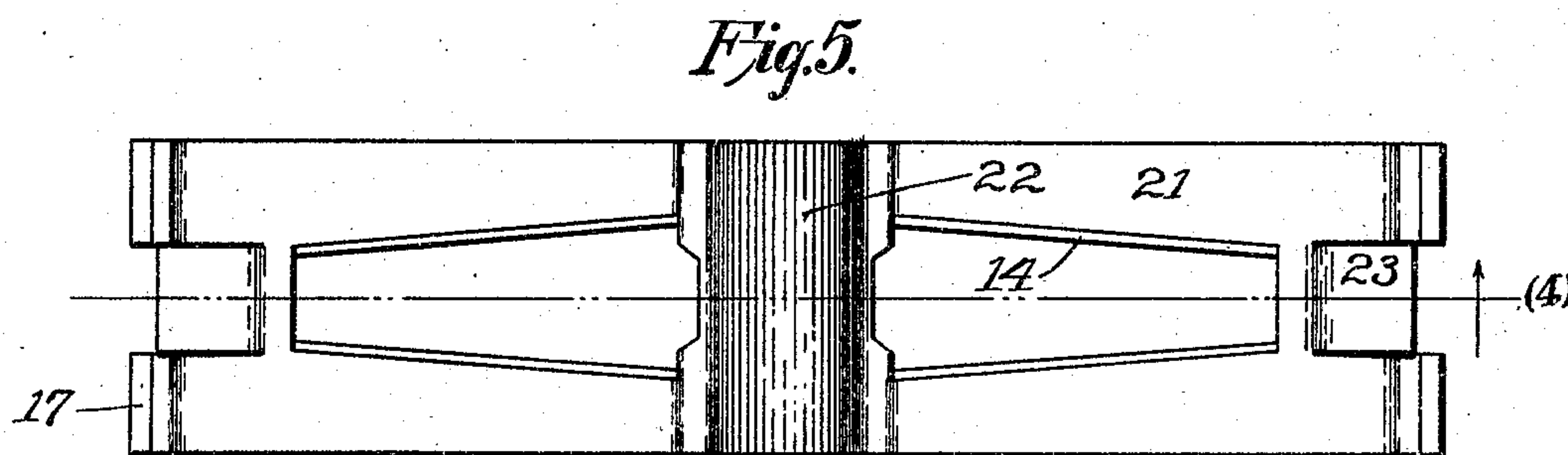
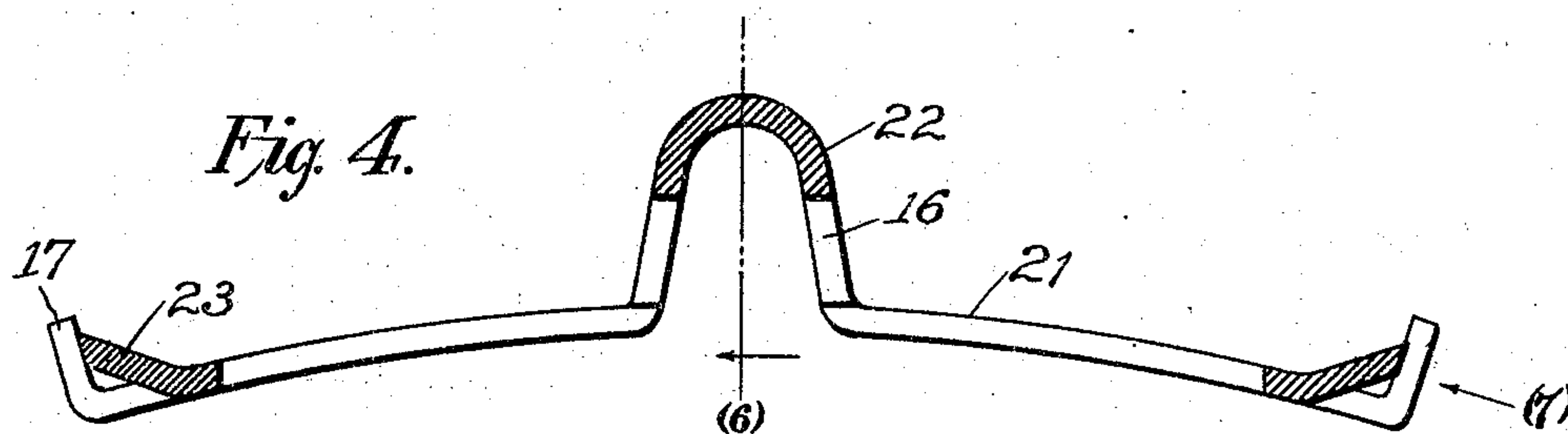
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2 SHEETS—SHEET 2.



Witnesses;

Cyril C. Erick
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UNITED STATES PATENT OFFICE.

JOSEPH D. GALLAGHER, OF GLENRIDGE, NEW JERSEY.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 785,303, dated March 21, 1905.

Application filed May 3, 1904. Serial No. 206,134.

To all whom it may concern:

Be it known that I, JOSEPH D. GALLAGHER, a citizen of the United States, residing at Glenridge, in the State of New Jersey, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to the wearing blocks or shoes of railway brakes and the like, and particularly to brake shoes which have a ductile binding or retaining back with a cast wearing sole and means for securing the shoe to the brake head. The objects of the invention are, to provide a detachable back and key lug on a cast wearing sole; to provide superior malleable attaching lugs made integrally with the binding back, capable of being removed and used over again when the sole is worn out; to provide a detachable binding steel back which can be applied upon any form of shoe; and to generally improve the structure and efficiency of brake shoes. These objects, and other advantages which will hereinafter appear, I attain by means of the construction illustrated in preferred forms in the accompanying drawings, wherein—

Figure 1 is a perspective view showing separately the three parts of one form of my improved shoe;

Figure 2 is a central longitudinal section of the assembled brake shoe, showing the attaching key in place in the lugs and the brake head indicated by dotted lines;

Figure 3 is a transverse section of the shoe and back taken on line (3) of Figure 2;

Figures 4 and 5 are respectively, a central longitudinal section and a top plan view, of a modified form of the removable back wherein it is all made in one piece;

Figure 6 is a cross-sectional view taken on line (6) in Figure 4, and

Figure 7 is an end elevation taken in the direction indicated in Figure 4 by the arrow (7).

In the making of brake shoes in which the wearing sole is cast or compound and is supplied with a binding back of steel or other malleable metal, it has been customary to embed the steel back in the metal of the sole in the casting. This results in making the back

useless after the shoe is worn out and also deteriorates the quality of the metal of the back during the casting, and has various other disadvantages. It will be seen from Figures 1 to 3 that in my preferred form I have made the brake-shoe 8, (which may be cast, or of any material desired or have inserts or fragments of steel therein, as the case may be), and provided on its back and integrally therewith in the casting, a raised lug 9 extending along almost the entire length and having enlarged ends 10 for seating the end of the brake head, the same being undercut at 11, and the sides of the lug all around being undercut at 12 as shown more clearly in Figure 3.

The back 13 is preferably made of steel plates in the form shown clearly at Figure 1, the back being composed of two parts 13 which have the central cutout portions 14 with edges slanting to co-operate with the undercut groove 12 of the shoe lug 9 and provided at the ends with upturned lugs 17 to confine the brake head and at the middle being formed with two upturned lugs 15 which have notches 16 cut out therein for the reception of the brake shoe key 20, as shown more clearly in Figure 2. It will be observed that the lug 9 is wide at the middle and narrow at the ends, and the openings 14 in the backing 13 are correspondingly of the same shape, so that when the two parts 13 are driven together toward the center they are wedged in place upon the lug 9 and the undercut portion 11 of the seat 10 engages the end of the opening 14, thus securing the back thoroughly in place along its entire length. When the shoe is put in place in the head it will be observed that the wedge-shaped notch in the head which receives the two lugs 15, presses them together toward the center and holds them tightly in position while the lug retains a resilient contact with the notch in the head, and tightens the two portions of the back firmly in place when the pin 20 is driven home. It will be noted that in the action of the shoe upon the wheel the pressure of the body part 8 in either direction will more firmly wedge the lug 9 upon the steel back, and the attachment of the head to the shoe is resilient throughout so that rattling and looseness are avoided.

In some instances I may prefer to make the back in one piece which while still being detachable, is not dependent upon the presence of the brake head to hold it firmly in place on the shoe. Thus, as will be seen in Figure 4, I provide the back 21 with an upward bent hump at the center, 22, forming the attaching lug, and the two sides thereof being provided with notches 16 as before. The central openings 14 at the two sides are formed as before, and the ends have upwardly bent lugs 17 to engage the seating head 19 of the brake head, and also tongues 23 punched out of the plate and bent upward to give a better and more resilient seating of the brake head upon the shoe. In attaching this form of back to the cast shoe it will be understood that the bend of the central lug 22 is at first made much wider, spreading the two wings of the back, apart so that the openings 14 can go on the lug 9, and then the two parts of the bend 22 are pinched up together so as to draw the wings together and thoroughly wedge the openings 14 upon the lug 9, as will be understood. This drawing toward the center of both wings of the back is increased when the lug 22 is drawn in its place in the wedge-shaped notch in the brake head 18, and it will be understood that when it is desired to remove the back this can be done by spreading the bend 22 to widen it out so as to laterally separate the two wings and relieve the edges of openings 14 from engagement with the undercut sides 12 of the lug 9 on the cast sole.

In both forms of the construction it will be observed that the back is attached directly to the shoe by an integrally cast portion along practically its entire length and at the same time the wearing sole may be worn out completely, when the back may be used over and over; and it will be understood of course that the lug 9 may be formed upon the back of any form of cast shoe desired, and consequently the same back may be used with a great variety of wearing soles. The steel back engages the whole shoe body, but is removable when desired, as in case of accidental breaking of the shoe, and has all the advantages of a binding back fixedly cast into the shoe, while also avoiding injury to the quality of the metal of which the back is composed. The resiliency of the attaching lugs and seats for the ends of the brake head secures a good fit and prevents rattling. For the purpose of retaining the back better in place, before the shoe is put in the head, and especially during transportation, the body may be provided with a series of embedded wire nails or rods 24, which are bent up to engage the back, as shown in Figure

2, or may engage notches *a* in the side, as in Figure 1.

A modification of this invention, in which the body of the shoe has under-cut grooves and the back is made to engage by its outside edges, is shown in my co-pending application No. 206,135.

Having thus described my invention and illustrated its use, what I claim as new, and desire to secure by Letters Patent, is the following:

1. A brake shoe having a detachable binding back engaging with the body of the shoe.
2. A brake shoe having a detachable back made in two parts and forming a binder for the shoe.
3. A brake shoe having a back detachably engaging with the wearing sole and provided with lugs to engage the brake head.
4. A brake shoe comprising a cast body portion and a detachable steel back having thereon integral attaching means for the brake-head.
5. A brake shoe composed of a cast body and a two-part detachable back, the several parts having means for fixing them together.
6. A brake shoe having a detachable binding steel back provided with integral key lugs and end lugs for engaging the brake head, substantially as described.
7. The combination in a brake shoe of a wearing sole having an undercut lug thereon, and a removable malleable metal back engaging said lug along its length and ends, and having integral attaching lugs for engagement of the brake head.
8. A brake shoe body having a tapering undercut lug on its back and a steel binding back attached to the body by wedge-shaped openings engaging said lug, substantially as described.
9. The combination with a brake shoe body having a double wedge-shaped lug on its back, of a steel back provided with wedge-shaped openings to engage said lug and tightened thereon by drawing the two parts toward the center of the shoe, substantially as described.
10. A brake shoe comprising a cast body having a malleable binding back, the body and back engaging each other by a co-operating tongue-and-groove.
11. A brake shoe having a detachable back with resilient lugs thereon.

In testimony whereof I have hereunder signed my name in the presence of the two subscribed witnesses.

JOSEPH D. GALLAGHER.

Witnesses:

PAUL CARPENTER,
EDWARD C. BURNS.