

No. 785,290.

PATENTED MAR. 21, 1905.

P. CARPENTER.
BRAKE SHOE.

APPLICATION FILED MAY 3, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

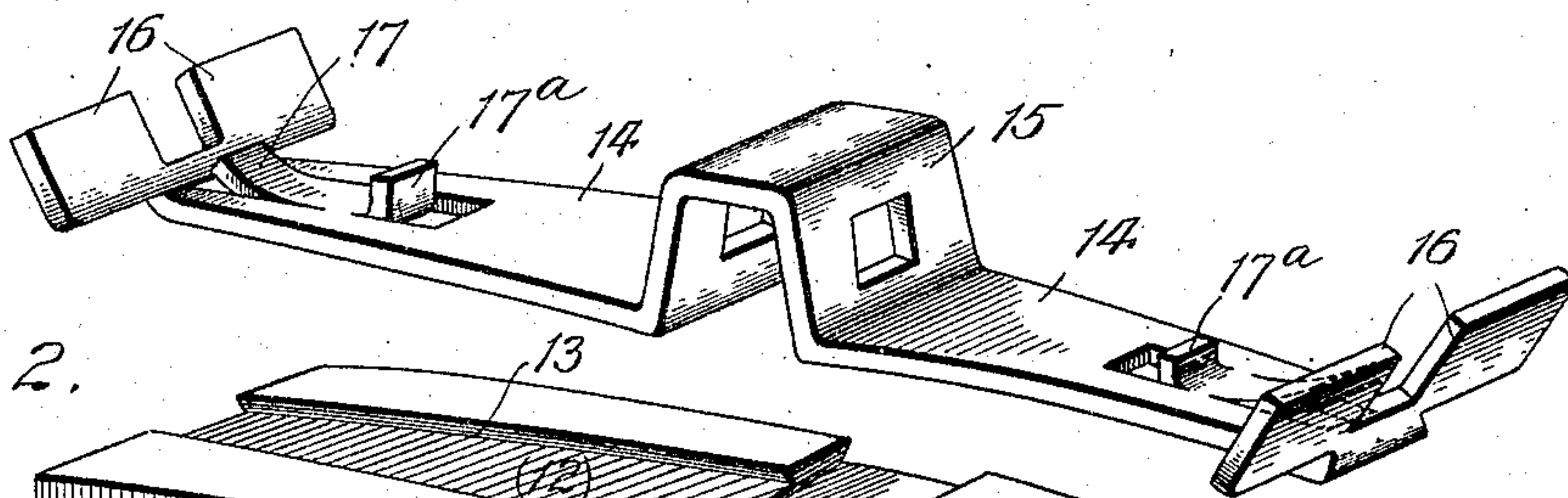


Fig. 2.

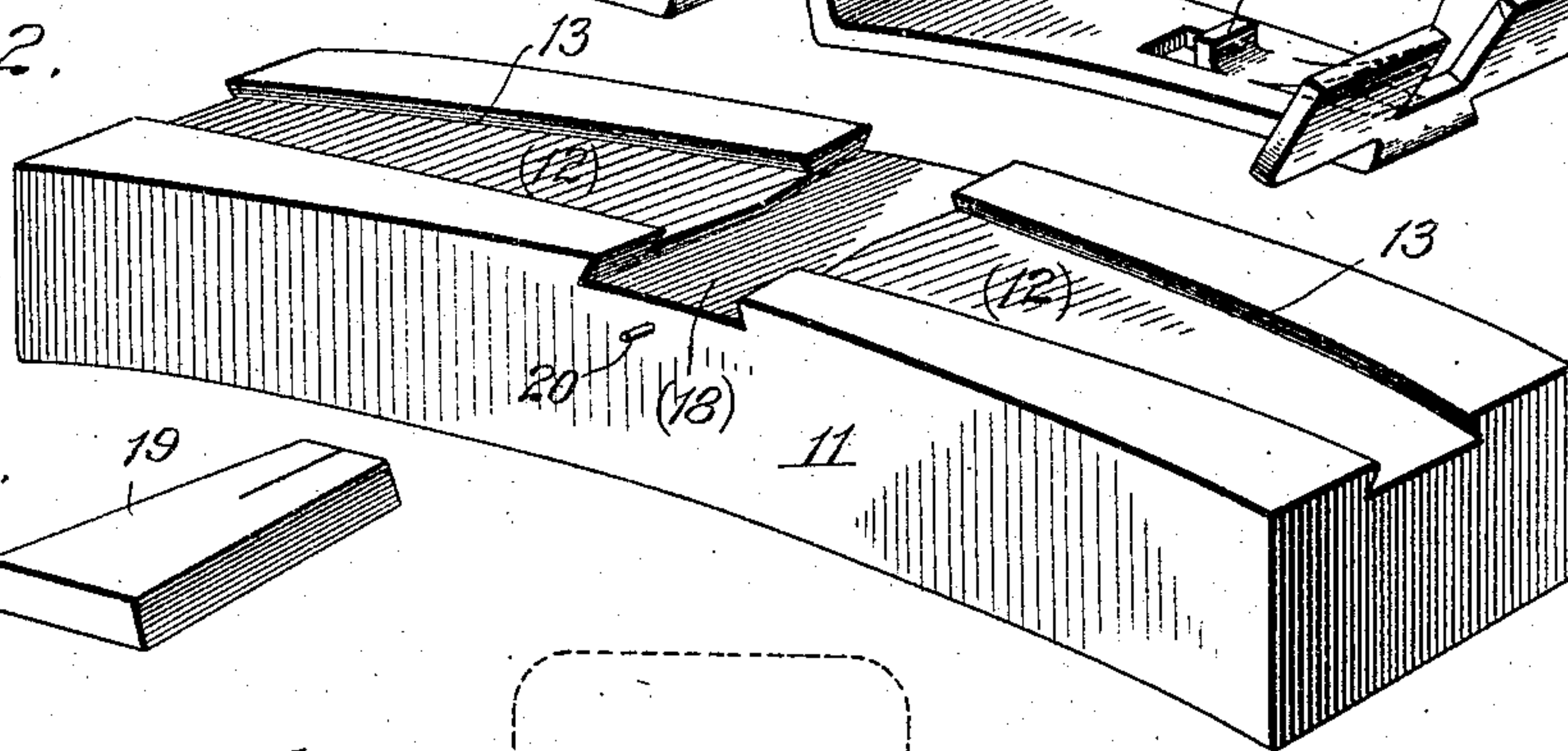


Fig. 3.

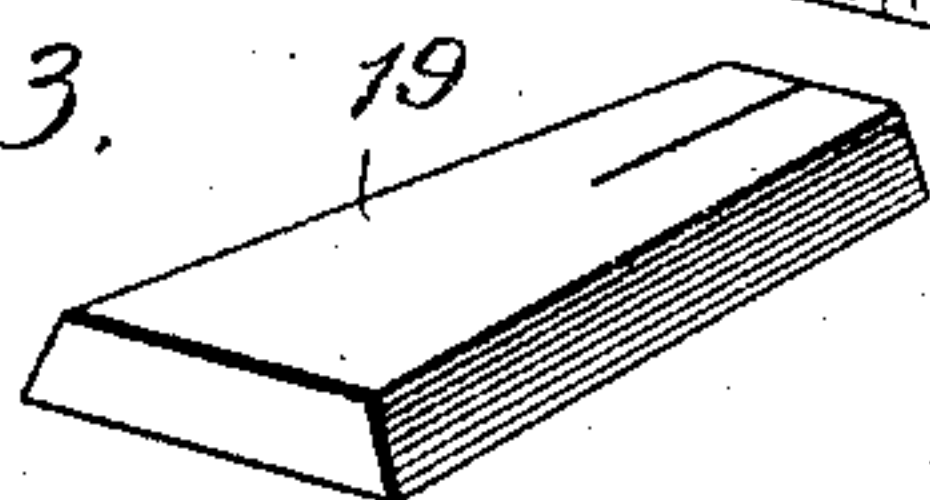


Fig. 4.

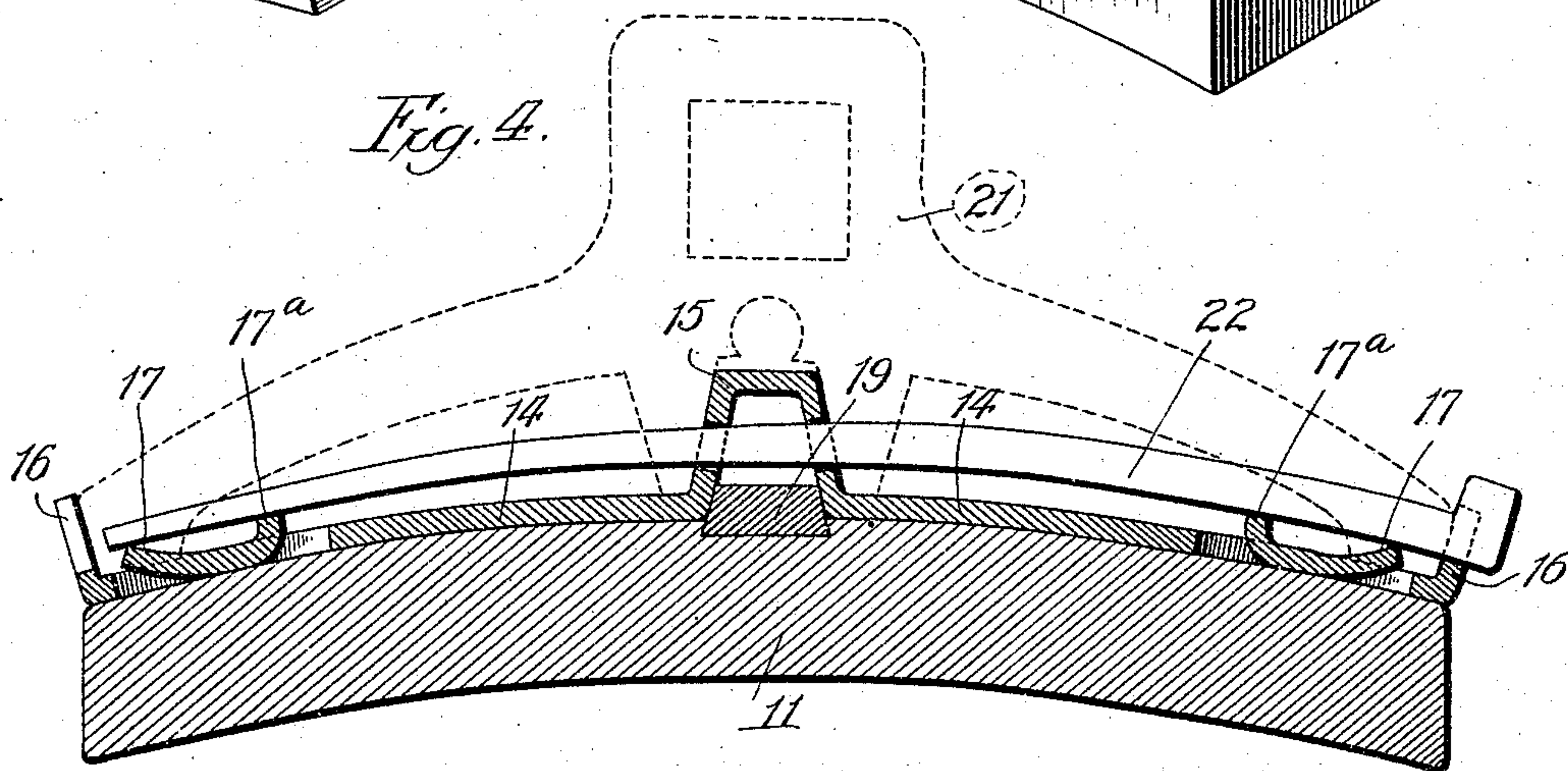
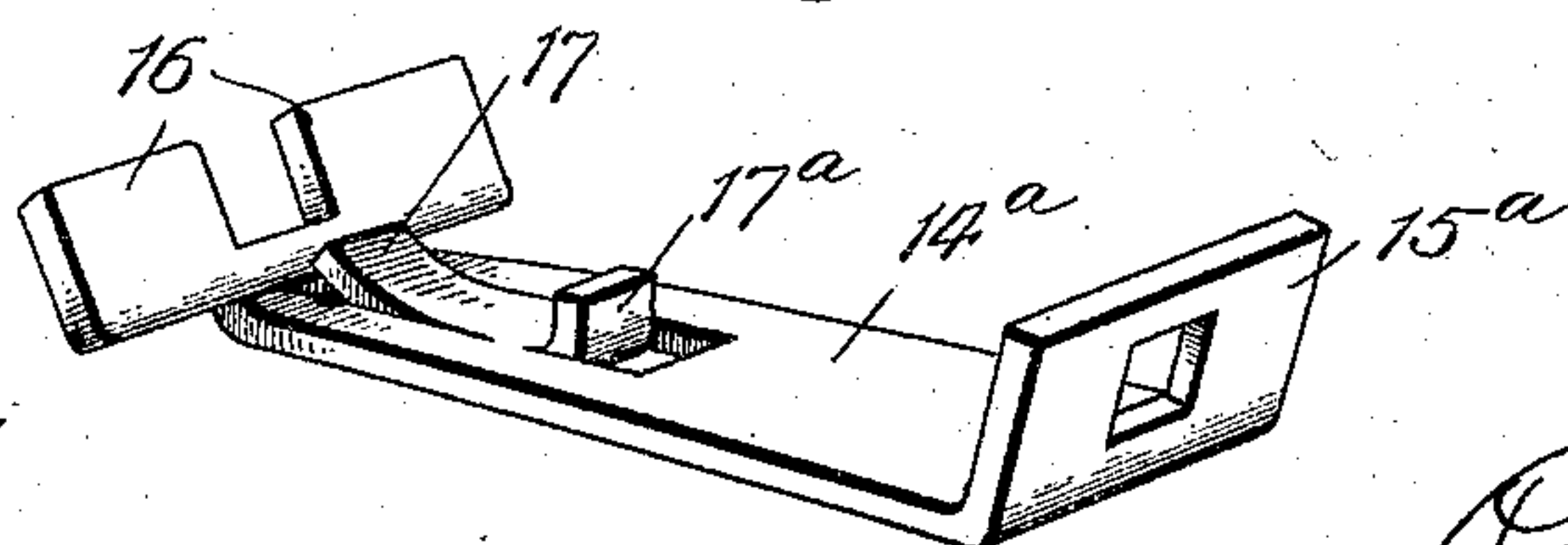


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

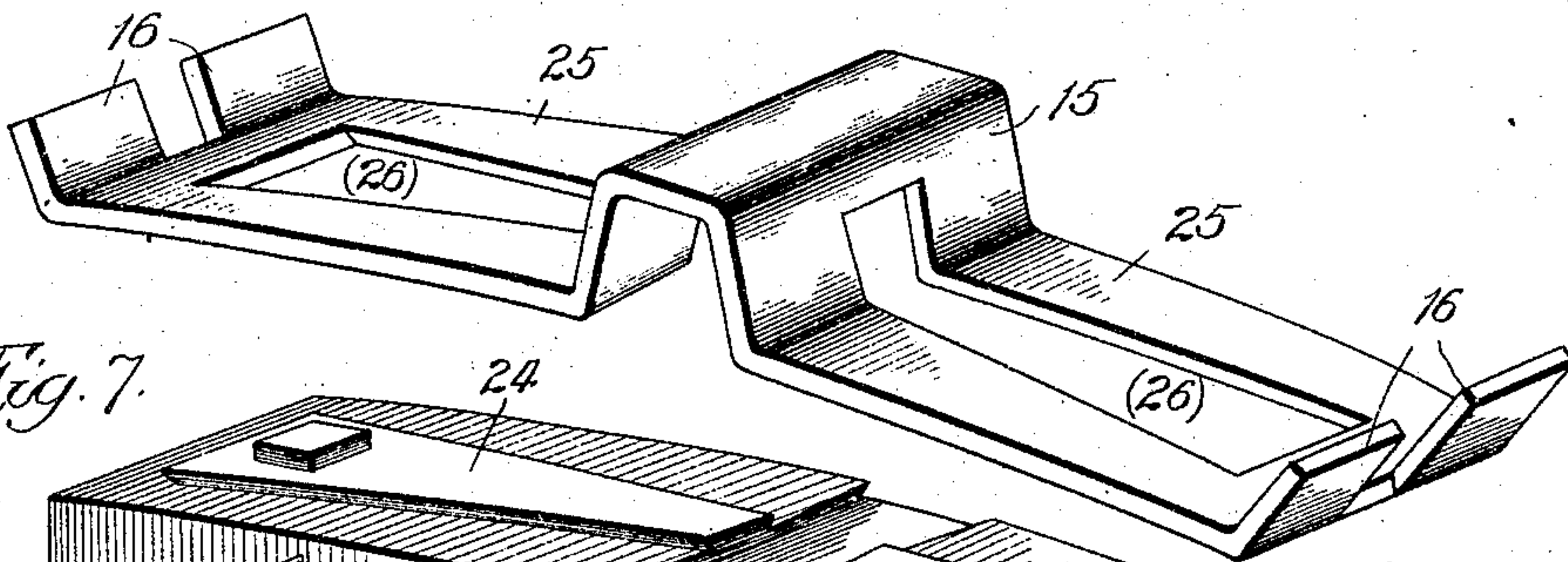


Fig. 7.

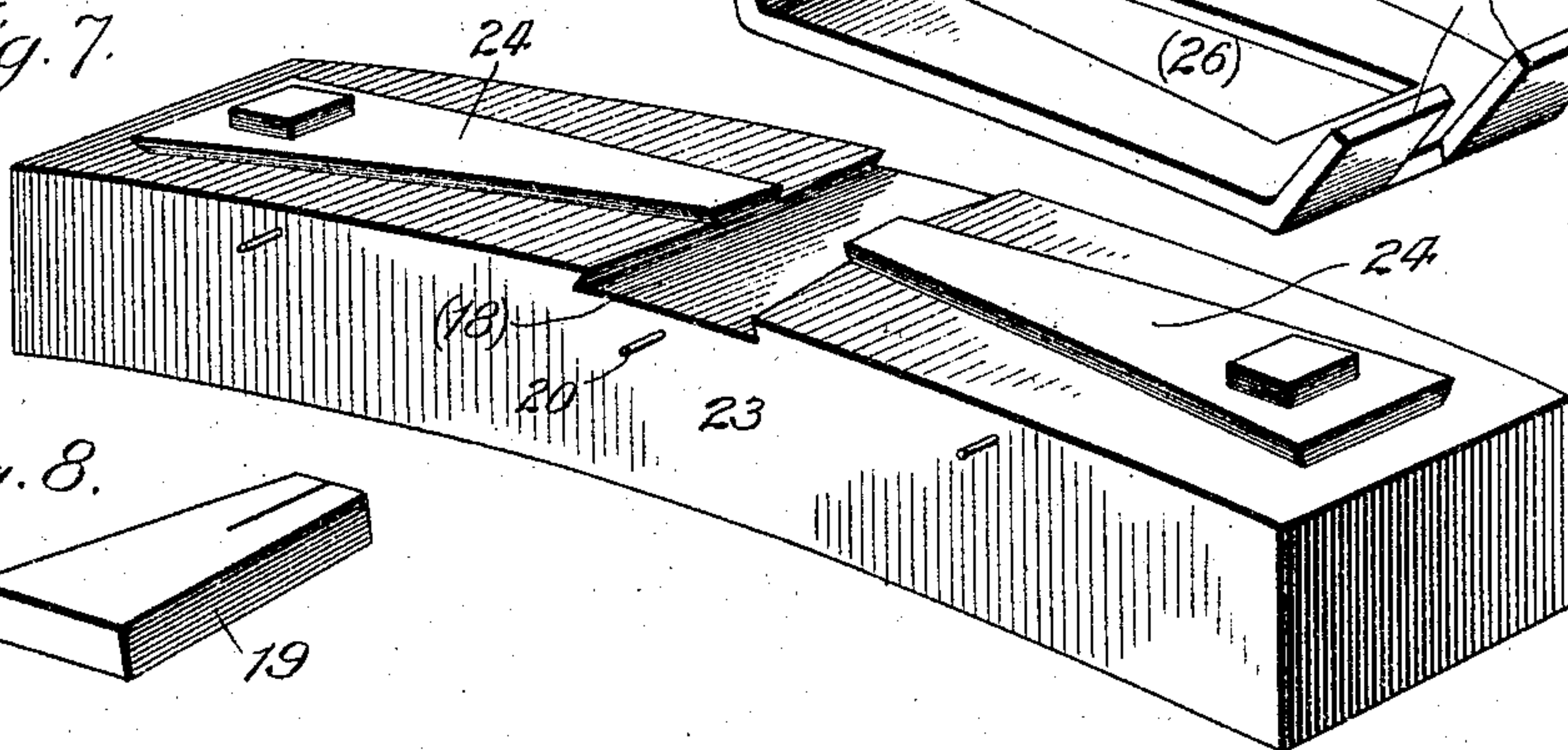


Fig. 8.

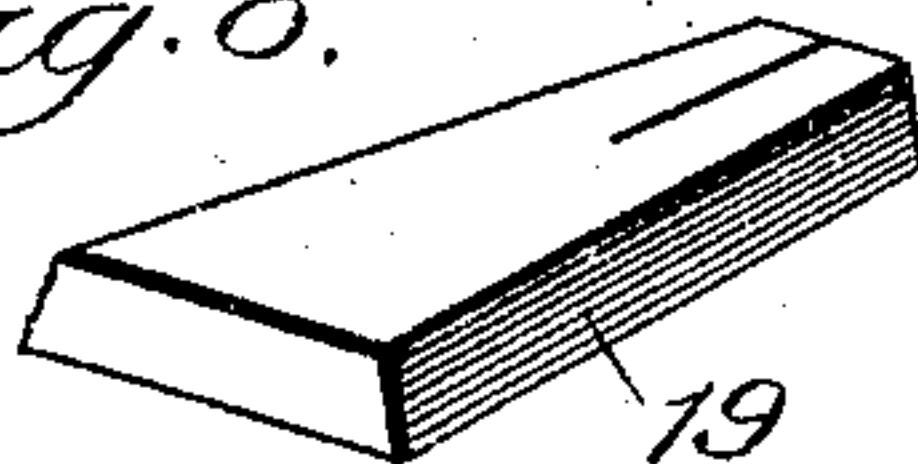


Fig. 9.

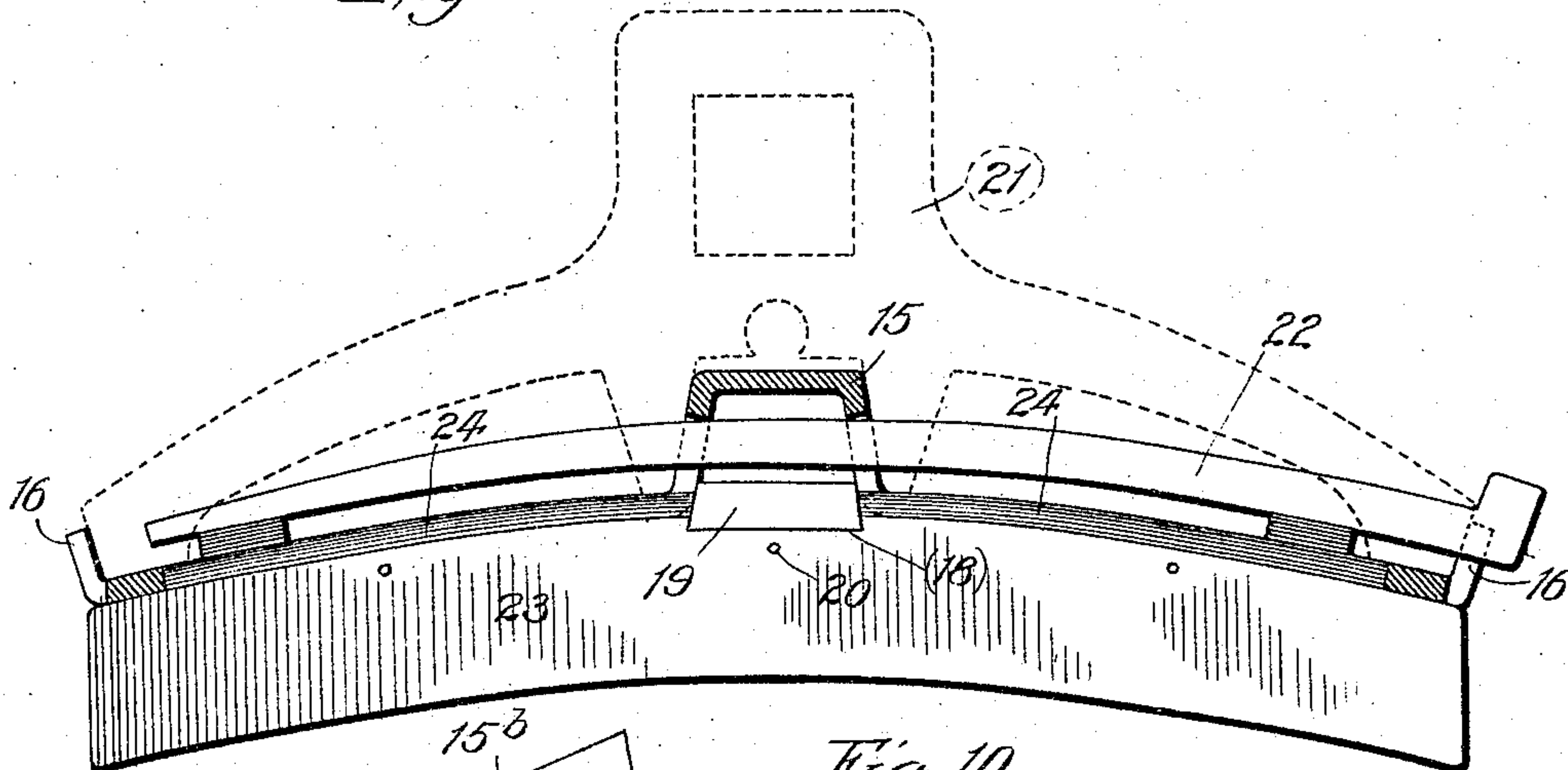
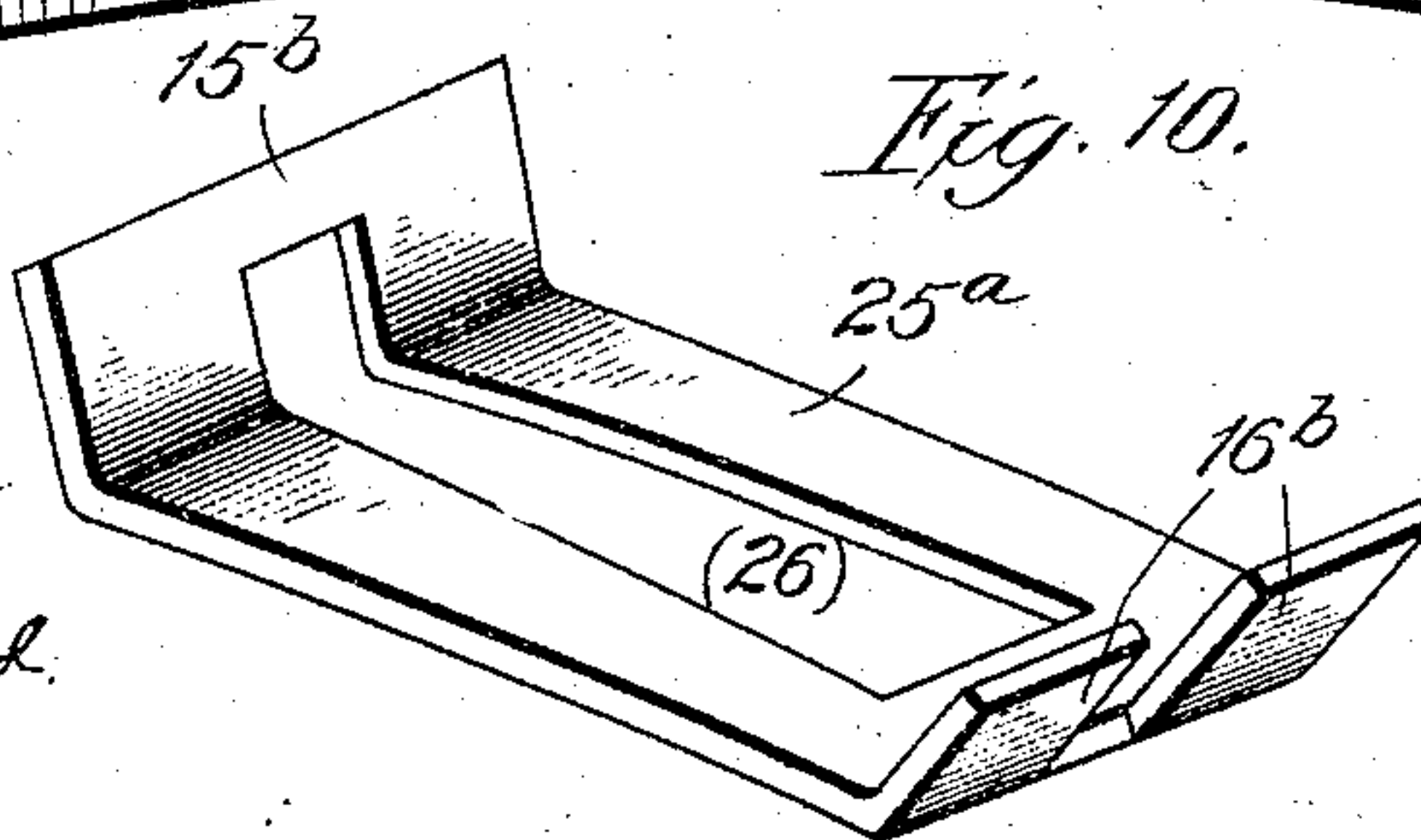


Fig. 10.



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UNITED STATES PATENT OFFICE.

PAUL CARPENTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN BRAKE SHOE & FOUNDRY COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 785,290, dated March 21, 1905.

Application filed May 3, 1904. Serial No. 206,136.

To all whom it may concern:

Be it known that I, PAUL CARPENTER, a citizen of the United States, residing at Chicago, in the State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to the separable wearing blocks or shoes used upon railway brakes and the like, and particularly to a style of shoe having a cast body and a separable binding back of steel fixed thereon as shown in the co-pending applications of Joseph D. Gallagher Nos. 206,134 and 206,135, upon which devices the present invention is an improvement. The objects of this invention are, to more thoroughly wedge and secure the malleable back upon the cast shoe, to make the parts more conveniently separable when desired, and to generally improve the structure and efficiency of brake shoes with separable binding backs. These objects and other advantages to hereinafter appear, I attain by means of the construction illustrated in preferred forms in the accompanying drawings, wherein—

Figures 1, 2, and 3, are perspective views of the three parts of the brake shoe made according to my improvements:

Figure 4 is a central longitudinal section of the shoe and the parts assembled, and the attaching key in place, the shoe being shown in connection with a brake head indicated by dotted lines;

Figure 5 is a perspective view of a modification in which the back is made in two pieces;

Figures 6, 7, and 8 are perspective views of the three parts of a modification of the shoe in which the body is provided with an upwardly projecting tongue instead of a groove as in Figure 1;

Figure 9 is a central longitudinal section of the assembled shoe similar to that of Figure 4, and

Figure 10 is a perspective view of a modified form of back made in two pieces.

The essential parts of the brake shoe as shown herein are similar to those set forth in

the Gallagher applications above referred to, save as will herein appear. In those structures however the tongue-and-groove connection between the malleable back and the cast body of the shoe is dependent somewhat upon the key lug being placed in position in the notch of the brake head in order to tighten the back in its place on the shoe body. For this purpose both the tongue and groove in those cases are made with the taper toward the center, whereby the two movable wings of the back are drawn toward the center in order to tighten the back upon the body. In this present device I preferably make the tongue-and-groove connection converging from the center out toward the end so that the tightening takes place by forcing the two wings away from each other outward. And in order to hold them tightly in place I provide a fixing key slightly wedge shaped to spread apart and maintain in place the wings of the back upon the wearing sole. Thus it will be seen in Figure 1 that I have provided a cast shoe body 11 which is provided in the top with a continuous groove 12 having undercut edges 13, and the groove is convergent both ways from the center toward the ends of the shoe. Co-operating with this I provide a malleable steel binding back 14 with the two wings of proper form to co-operate with the groove in the body of the shoe, the same being made of a steel plate bent up in a loop at the center to form the key lug 15 and having at the outer ends upward turned lips 16 to guide the key and provide a support for the brake head after the shoe is assembled as shown in Figure 4. In order to thoroughly tighten the back in its place upon the body, I have provided a cross groove 18 at the middle of the shoe underneath the lug 15, and co-operating with this I provide the fixing key 19 which is driven therein after the back is placed in the groove 12 and forces the wings toward the outer end tightening them between the undercut edges 13 of the body. Thus when the two parts are assembled as shown in Figure 4, it will be understood that the brake shoe key 22 passes through the eyes

of the brake head 21 and of the lug 15, and in the notches shown in the upturned ends 16 of the back. In order to more securely guide the ends of the brake head and also to provide a resilient support for the key 22 I use a pair of co-operating spurs 17 punched up out of the plate as shown. The fixing key 19 having been driven tightly into place this may be retained if desired by any convenient means, such as the pin 20 which is provided in the body 11 of the shoe, or by splitting and spreading the small end of the key in the flared end of its groove. (Figs. 2 and 3.)

In Figure 5 is shown a slight modification in which the back 14^a is made in two parts instead of a single piece as shown in Figure 1, and the construction and the method of assembling is otherwise as before.

In Figures 6 to 10 is shown a modification in which the brake shoe body 23 instead of being provided with a groove upon its back surface an upwardly projecting elongated lug or tongue 24 having undercut edges and opening from the outside and converging from the ends of the shoe towards its center. Co-operating with this the back 25 is made with an open slot 26 having its edges of proper form to co-act with the lug 24, making a firm tongue-and-groove connection between the back and the body, when the two side wings of the back 25 are driven apart by the entry of the fixing key 19 into the groove 18 as heretofore described. The assembled shoe being placed in the brake head 21 as shown in Figure 9, the fixing key 19 being driven into place may be held therein by the pin 20, and the construction is otherwise as heretofore described. In Figure 10 is shown a modification in which the back 25^a is made in two parts which have the upward turned ears 15^b forming the central key lug as heretofore described, and this is assembled with the body having the tongue 24 as in Figure 7, the construction being otherwise as heretofore described.

It will be understood that in the assembling of parts either in the form of Figure 1 or Figure 6, the sides of the central upward turned loop 15 forming the key lug are first brought together so as to allow of the side wings of the back to fit into the groove 12 in the one case or over the tongue 24 in the other case, whereupon the wings are spread away from each other and so held by driving in the fixing key 19 and the parts are thereby firmly assembled. It will be seen that the back engages the body of the shoe throughout practically its entire length, and although firmly fixed in place thereon is easily removable by withdrawing the fixing key 19 and pinching the sides of central loop 15 together. It will be clear, of course, that in case the back is made of two pieces as in Figures 5 and 10, the wings 14^a and 25^a respectively are simply placed in position on the

back and then driven apart and held so by the insertion of the fixing key 19. This may be done either before or after the shoe is put in place in to the brake head, accordingly as desired or not to tighten the back more securely in the brake head. In the making the guide spurs and key rests 17 and 17^a I punch up the metal from both sides to give a better support for the key and afford a double resilient engagement to better prevent shaking loose or accidental displacement of the key.

I do not claim herein the inventions disclosed in the applications above referred to, but having thus described my invention and illustrated its use, what I do claim herein and desire to secure by Letters Patent, is the following:

1. A brake shoe comprising a body portion and a separable back, the two parts respectively being provided with co-operating tongue-and-groove connections, and a wedge for fixing the same in place.

2. A brake shoe having a binding back thereon removably attached by means of co-operating wedge-shaped tongue-and-groove connections, and means for tightening and retaining the tongue in place.

3. The combination with a brake shoe body having on each side a pair of centrally converging engaging surfaces, and a back having its two wings movable with respect to each other, and each provided with a pair of engaging surfaces to co-operate with said surfaces on the body, substantially as described.

4. A brake shoe comprising a body portion and a removable binding back, the body and back on each side of the center engaging each other by inclined tongue-and-grooves, and a wedge for spreading the two sides of the back to engage the body, substantially as described.

5. The combination with a brake shoe body having upon its surface two undercut grooves converging from the center toward the ends, and a steel back having two wedge-shaped wings movable with respect to each other longitudinally of the shoe to engage said grooves, and means for spreading the said two wings.

6. The combination of a shoe body having upon its back a pair of undercut grooves converging from the center toward the ends, and a converging cross groove near the center, and a removable binding back engaging said grooves.

7. The combination with a shoe body having a pair of converging undercut grooves therein, of a removable back comprising a plate with an upturned bent loop at the center and two wedge-shaped side wings adapted to fit the grooves of the shoe body, and a wedge for separating the said two wings, substantially as and for the purpose described.

8. The combination with a steel back hav-

ing an upward bent loop at the center and two wedge-shaped wings, of a body having on each side of the center an outwardly tapering undercut groove, and means for spreading and holding the wings of the back in said grooves.

9. A brake shoe comprising a back and a body attached to each other by an inclined tongue-and-groove connection and a wedge for fixing and retaining the parts together.

10. A brake shoe comprising a back and a body, means for attaching the same, and a separate key engaging therewith for retaining the parts together.

11. A brake shoe back having at each end a pair of spurs punched out of the back to form seats for the key.

12. The combination, with an attaching key, of a shoe back plate having at each end a pair of oppositely inclined spurs punched out of the plate and resiliently engaging the key.

13. The combination with the attaching key for a brake shoe, of a back plate having at each end a pair of equalizing spurs carried by the plate and resiliently engaging the key whereby the key is firmly held in position.

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

PAUL CARPENTER.

Witnesses:

EDWARD C. BURNS,
ALBERT C. HOWARD.