

No. 752,877.

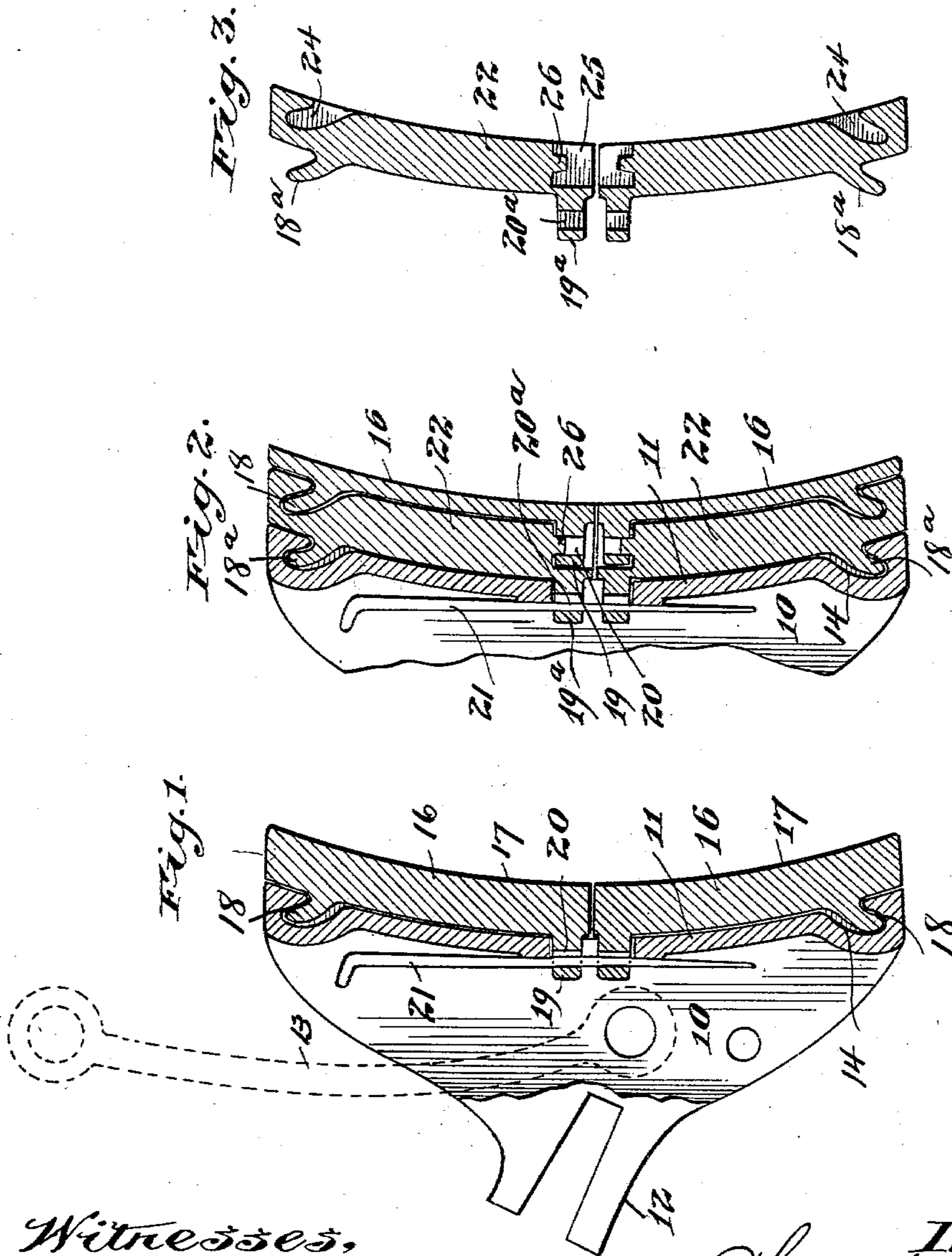
PATENTED FEB. 23, 1904.

C. W. ARMBRUST.  
RAILWAY BRAKE HEAD AND SHOE THEREFOR.

APPLICATION FILED JUNE 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses,  
J. D. Mann,  
S. N. Ford.

Inventor,  
Charles W. Armbrust,  
By *Field, Towle & Lathrop*  
Attys

No. 752,877.

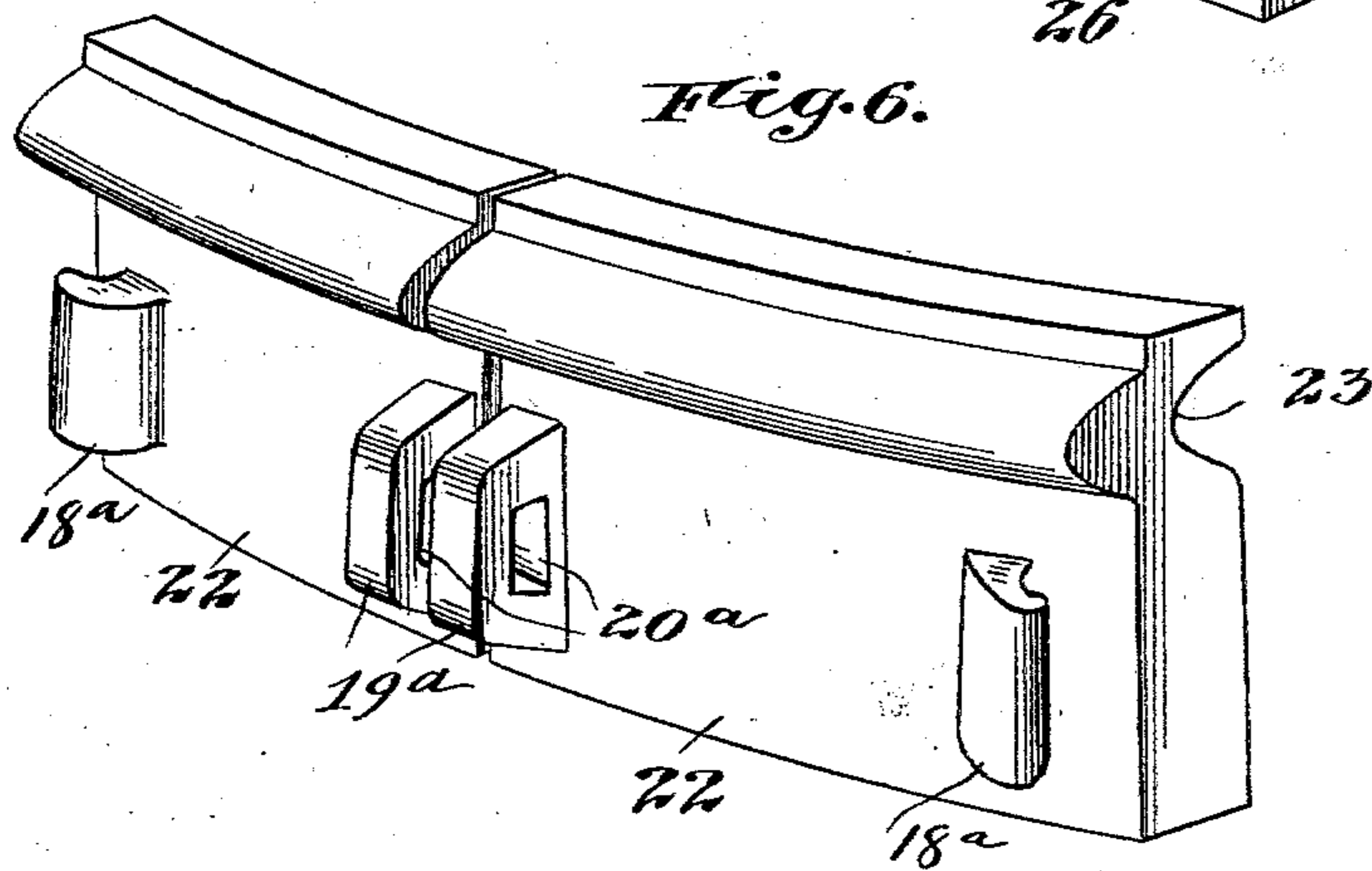
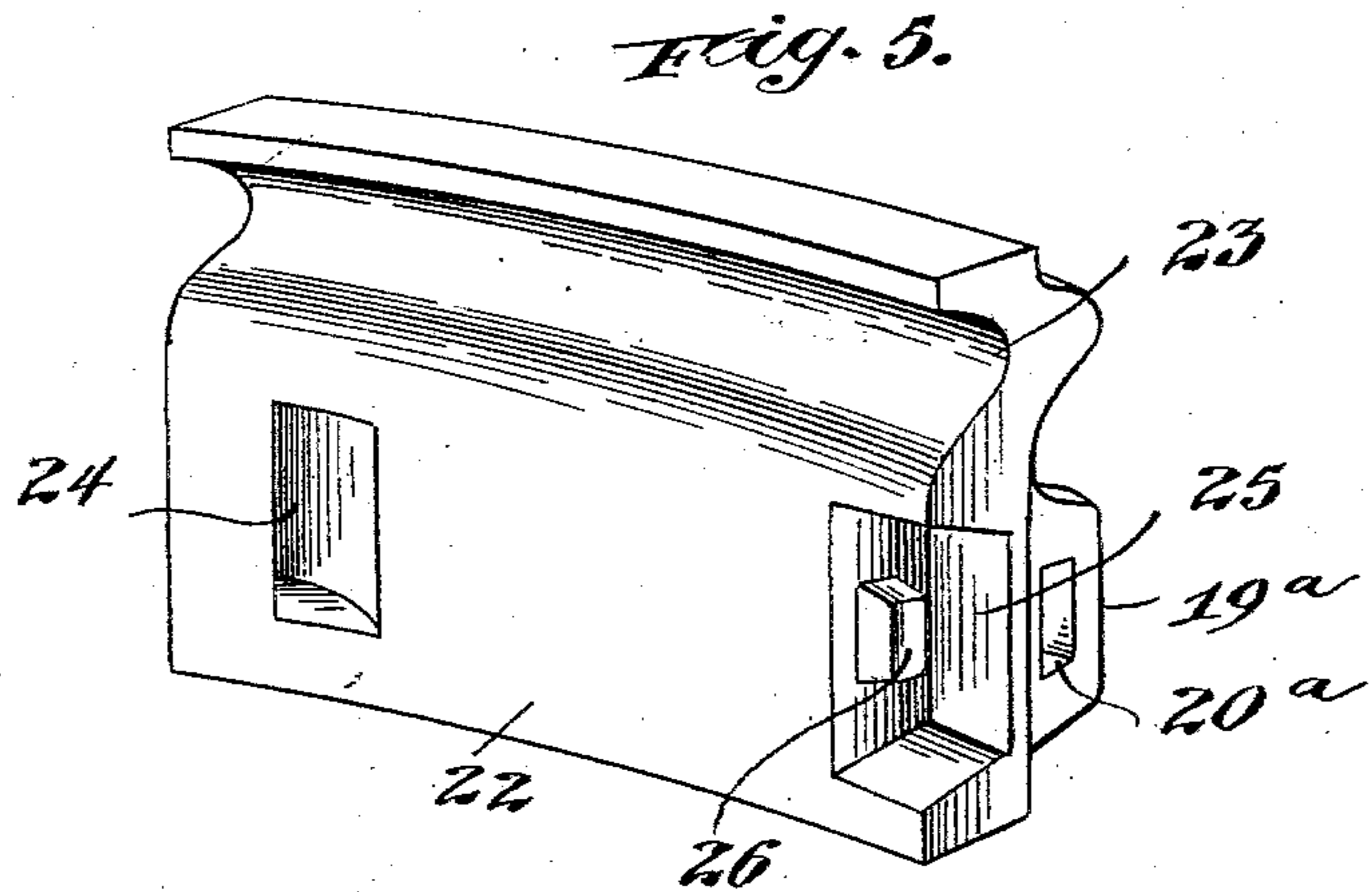
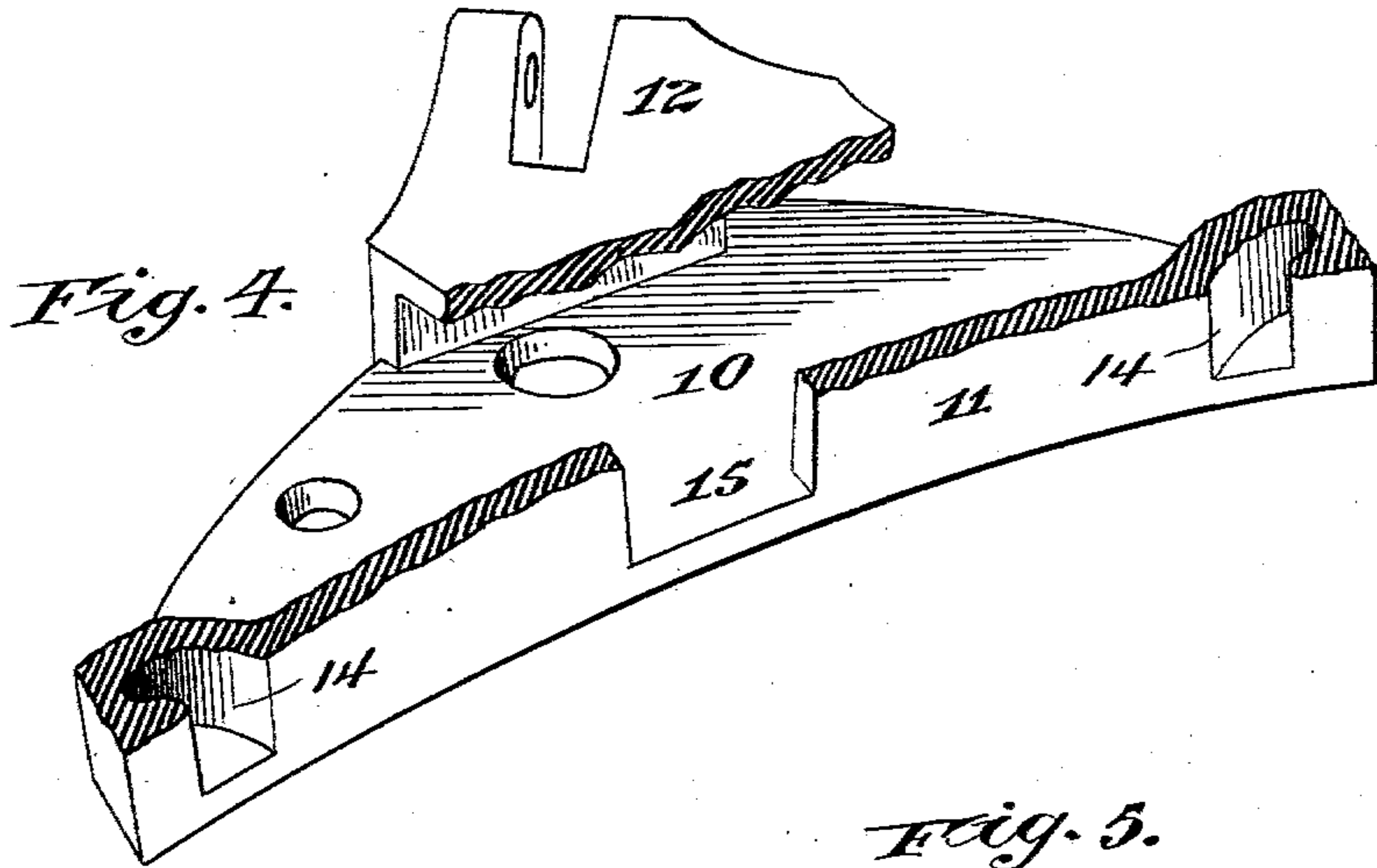
PATENTED FEB. 23, 1904.

C. W. ARMBRUST.  
RAILWAY BRAKE HEAD AND SHOE THEREFOR.

APPLICATION FILED JUNE 13, 1903.

2 SHEETS—SHEET 2.

NO MODEL.



Witnesses,  
J. D. Mann,  
S. H. Pond.

Inventor,  
Charles W. Armbrust,  
By *Offield, Fowler & Lathicum*  
Attys.

# UNITED STATES PATENT OFFICE.

CHARLES W. ARMBRUST, OF CHICAGO, ILLINOIS.

## RAILWAY-BRAKE HEAD AND SHOE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 752,877, dated February 23, 1904.

Application filed June 13, 1903. Serial No. 161,336. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. ARMBRUST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Brake Heads and Shoes Therefor, of which the following is a specification.

My invention relates to improvements in railway-brakes, and has reference more particularly to that part of the brake mechanism which coöperates with the wheel.

In Letters Patent No. 651,435, granted June 12, 1900, to Gardiner W. Chipley there is disclosed and claimed an improvement in brake-shoes, a leading feature of which resides in the transverse division of the shoe into two parts or members capable of acting independently and another feature residing in a construction whereby each divided or two-part shoe member when partially worn out may be associated with a new shoe member in such a way as to completely use up and utilize the former. The brake-shoe constituting the subject-matter of the aforesaid patent is described and intended more particularly as applicable to the wheels of car-trucks. My present invention to a considerable extent embodies and employs the novel features of the said patented device, but modifies the latter in such a way as to render it applicable to the driving-wheels of a locomotive principally through the provision of a novel form and construction of brake-head specially constructed and adapted for coöperation with the type of shoe referred to without the use of the fastening means usually employed to unite the brake-shoes of driving-wheels to their heads. One part or feature of my present invention, therefore, resides in a novel brake-head of a construction adapting it to the application of brake-shoes through the agency of interfitting and interlocking parts without the employment of the usual uniting bolts and nuts, while another part or feature of the invention resides in the combination with such a brake-head of brake-shoe members constructed and operating in substantially the form and on the principle disclosed in the Letters Patent above referred to.

My invention in a preferred embodiment thereof is illustrated in the accompanying drawings, wherein—

Figure 1 is a central longitudinal section through my improved brake-head and a brake-shoe applied thereto, the shoe shown in said figure having a plain wearing-face and being such a shoe as is designed to be first employed with the brake-head. Fig. 2 is a similar view, partly broken away and showing the brake-head coöperating with the original shoe of Fig. 1 partly worn down and connected to an interposed new shoe. Fig. 3 is a similar view of a new shoe, such as constitutes the intermediate member in Fig. 2, and has its wearing-face recessed to interlock with lugs on the back of the worn shoe and hold the latter in position. Fig. 4 is a detail perspective view, partly broken away, of the brake-head. Fig. 5 is an inner perspective view of one member (half) of the brake-shoe shown in Fig. 3, more fully illustrating the means whereby the worn shoe-section is interlocked therewith; and Fig. 6 is a similar outer perspective view of the complete shoe shown in Fig. 3, more clearly showing the means whereby the same is interlockingly engaged with the outer face of the brake-head.

Referring to the drawings, 10 designates as an entirety the brake-head, which may be a metal casting suitably formed to provide a concave face 11 for the reception of the back of the brake-shoe, a lug 12 for attachment to the end of the brake-beam, and a chamber or housing to receive the lower end of the supporting-link, (indicated by dotted lines at 13 in Fig. 1.)

The characteristics or novel features of my improved brake-head reside in the provision, in connection with the shoe-engaging face thereof, of means for interlockingly connecting the shoe thereto, and in their preferred form these means comprise a pair of oppositely-disposed spur-shaped sockets 14, extending inwardly of the respective ends of the curved face of the head, and a central or intermediate opening 15, formed through said face.

Referring now to the shoe members that are designed and adapted to coöperate with

the head, as above described, 16 designates each of a pair of twin shoe members, each constituting one-half of a complete shoe. These shoe members (shown in Fig. 1) will herein-  
 5 after be designated as the "primary" shoe members, in view of the fact that they are the members originally applied to the brake-head at the beginning of its service, and they are characterized by the provision of plain con-  
 10 cave wearing-surfaces 17, adapted to engage the tread of the wheel, although it is understood that they also have along one margin thereof a longitudinal groove for coöperation with the flange of the wheel, as is usual in the  
 15 brake-shoes of driving-wheels and as illustrated in connection with the shoe members shown in Figs. 5 and 6. The shoe members 16 are also provided on their backs with a spur-shaped lug 18 at their outer ends, adapted  
 20 for coöperation with the recesses 14, and with attaching-lugs 19, each having a keyway 20 at their inner ends for coöperation with the opening 15 of the brake-head. The applica-  
 25 tion of these shoe members to the brake-head is obvious from an inspection of Fig. 1, and they are locked in engaging relation to the latter by means of a pin or key 21, inserted  
 30 point first through the keyways of the lugs and lying against the back of the brake-head. Figs. 3, 5, and 6 illustrate the detail forma-  
 35 tion and construction of what I term the "secondary" shoe members, so called by reason of the fact that when first applied to the brake-head their function is that of a filling between  
 40 the previously-used and worn shoe and the head, while they come into wearing engagement with the wheel only after the previously-used shoe member has been entirely worn down and disappeared. These secondary shoe mem-  
 45 bers, which are designated as an entirety by 22, are, like the shoe members 16, made in corresponding and mating halves, each of which is provided on its back with a spur-lug 18<sup>a</sup>, corresponding in form and function with the  
 50 lug 18; and with an attaching-lug 19<sup>a</sup>, having a keyway 20<sup>a</sup>, corresponding in form and function with the similar parts 19 and 20. The inner or wearing face of each of the mem-  
 55 bers 22, besides having the marginal groove 23, Figs. 5 and 6, for engagement with the flange of the driver, has formed inwardly of its wearing-face at its outer end a spur-shaped recess or socket 24, corresponding in form and dimensions to the recesses 14 of  
 60 the brake-head, while its opposite end is recessed or socketed inwardly of both its wear- ing-face and the plane of its inner end, as shown at 25, and on that wall of the recess or socket which lies transversely of the shoe is a  
 65 projecting lug 26, adapted for coöperation with the keyway 20 or 20<sup>a</sup> of a previously-worn shoe applied thereto, as plainly shown in Fig. 2.

In operation after the primary shoe mem-  
 65 bers 16, applied to the brake-head, as described

and illustrated in Fig. 1, have been worn down—say through one-half or something more than one-half their thickness—the key 21 is withdrawn, the worn members separated from the head, each half of the worn primary  
 70 shoe is applied to and interlocked with the concave face of the corresponding half of the new or secondary shoe 22 independently of the opposite halves of the shoes, and when each half of the combined shoe has been thus assembled  
 75 the two halves of the combined shoe are brought together end to end and secured to the brake-head, as shown in Fig. 2, in the same manner that the primary shoe members 16 were previously secured to the brake-head.  
 80 Subsequent use of the combined shoe thus formed by the combination of a new shoe with a worn shoe results in the final wearing down and complete disappearance of the original  
 85 worn shoe, after which the secondary shoe 22 begins to receive the wear, and when this latter has worn down to approximately one-half its original thickness it is removed, assembled with a new secondary shoe, and the combined shoe again united to the brake-head in the  
 90 manner already described.

So far as the last-described method of use of the brake-shoes themselves is concerned it corresponds with the method of use set forth in the Chipley patent above referred to, with  
 95 this difference, however, that all of the inter-engaging projections or lugs on the back of each shoe are adapted not only to the uniting of a worn and a new shoe with each other, but also effect the conjunction of the new shoe with  
 100 the brake-head.

So far as I am aware my present invention discloses the first existence of a brake-head adapted to interlock with a brake-shoe by means of parts or members which coöperate  
 105 with other interfitting parts or members on a brake-shoe that subsequently serve as the means for uniting the shoe when partially worn with a new interposed shoe. I do not, therefore, limit my invention to the precise forms of in-  
 110 terfitting parts on the brake head and shoes herein shown and described except to the extent that such parts are positively defined in specific claims.

Although I have described my invention as  
 115 embodied in a brake mechanism for the driving-wheels of locomotives, yet it is obvious that the novel features thereof might be employed with advantage in connection with  
 120 brake mechanism for trucks without departing from the principle of the invention.

I claim—

1. The combination with a brake-shoe hav-  
 125 ing a curved face and back formed on arcs of equal radii of curvature, of a brake-head having a shoe-receiving face longitudinally coextensive with the shoe and formed on an arc of the same radius of curvature as the back and front of the shoe, the adjacent surfaces  
 130 of said shoe and head being further provided

with interfitting members serving to hold said adjacent surfaces in intimate contact throughout, substantially as described.

2. A brake-head of the character described, 5 having formed in each end of its concave face a spur-shaped recess or socket and through the center of said face an opening, in combination with a two-part or divided brake-shoe, each part of which has a spur-shaped projection engaging one of said sockets and an attaching-lug passed through said opening, substantially as described. 10

3. A brake-head of the character described, provided in its concave face with recesses, in 15 combination with a brake-shoe provided upon its back with attaching and interlocking lugs adapted to engage said recesses of the head and in its wearing-face with recesses adapted to receive the attaching and interlocking lugs 20 upon the back of another shoe, substantially as described.

4. A brake-head of the character described, provided in its concave face at each end thereof with a spur-shaped recess and centrally 25 thereof with an opening, in combination with a two-part brake-shoe, each member of which

is provided upon its back with a spur-shaped projection engaging a recess of the head and with an apertured attaching-lug passed through said opening, and a key passed through 30 the attaching-lugs at adjacent ends of the brake-shoes, substantially as described.

5. A brake-head of the character described, provided in its concave face at each end thereof with a spur-shaped recess and centrally 35 thereof with an opening, in combination with a two-part brake-shoe, each member of which is provided upon its back with a spur-shaped projection engaging a recess of the head and with an apertured attaching-lug passed 40 through said opening, said members being further provided in their wearing-faces with recesses adapted to engage and interlock with similar projections and lugs on the back of another shoe, and a key passed through the 45 attaching-lugs at adjacent ends of the brake-shoes, substantially as described.

CHARLES W. ARMBRUST.

Witnesses:

SAMUEL N. POND,  
L. F. McCREA.