

No. 713,689.

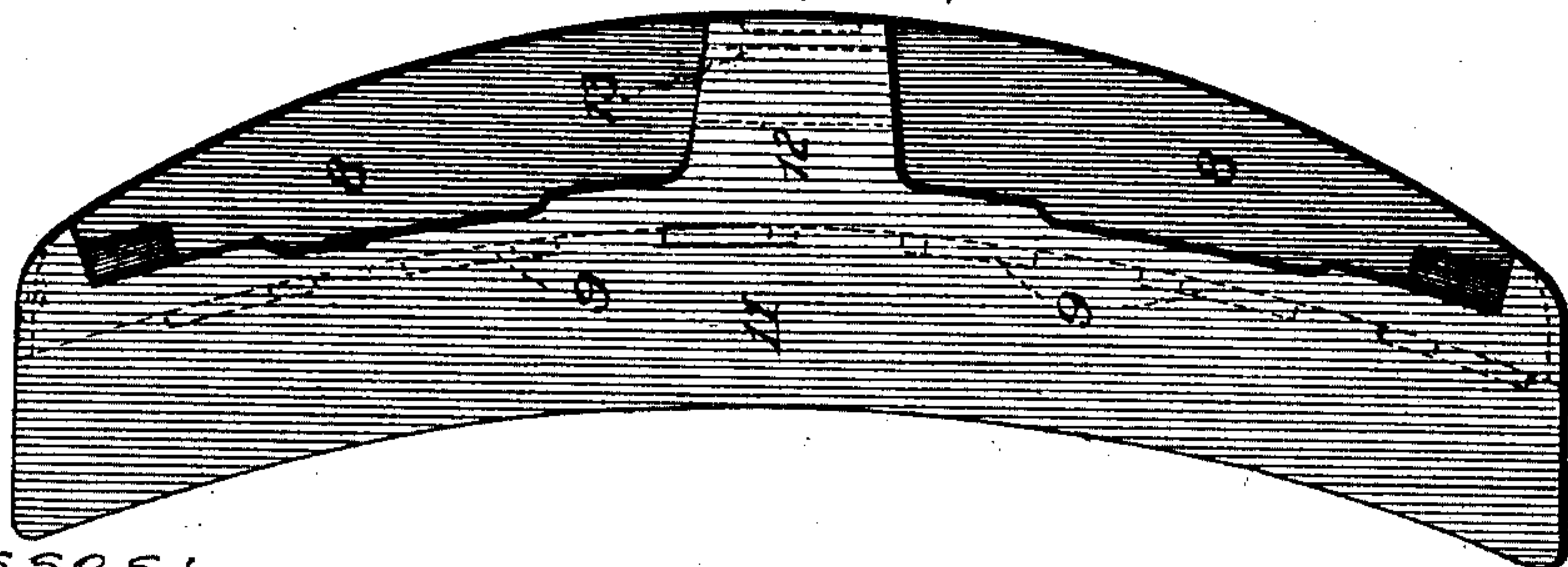
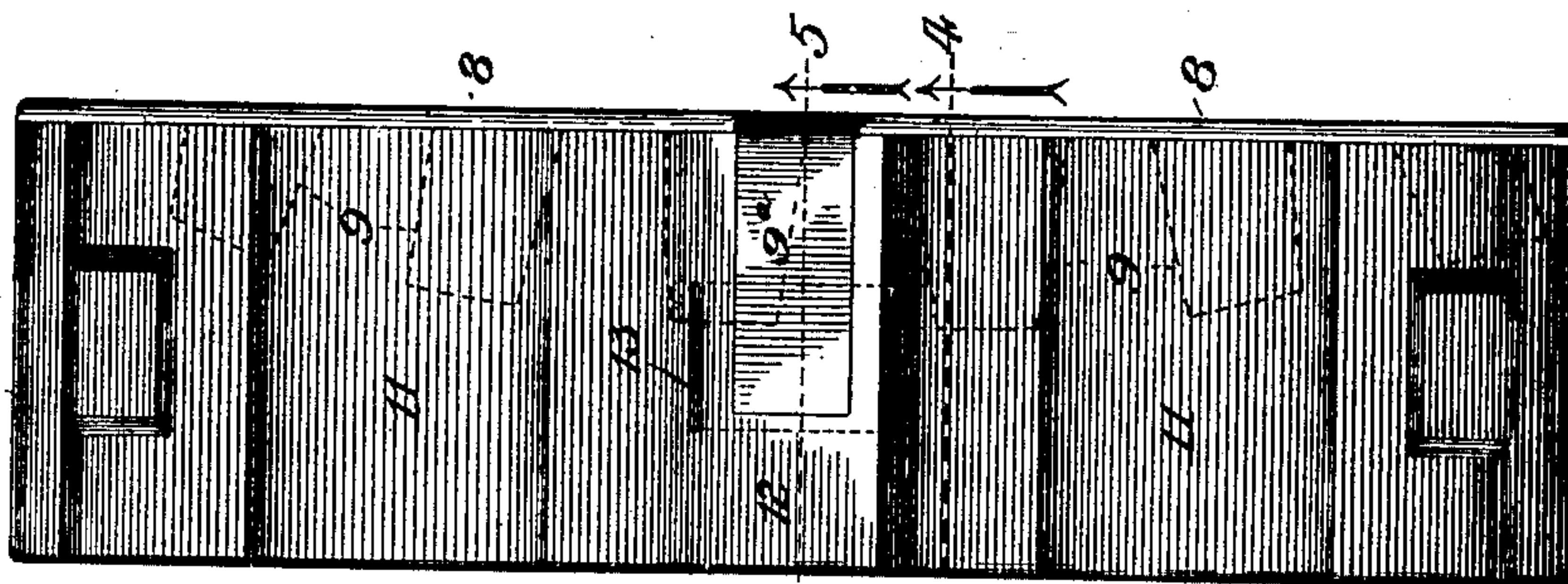
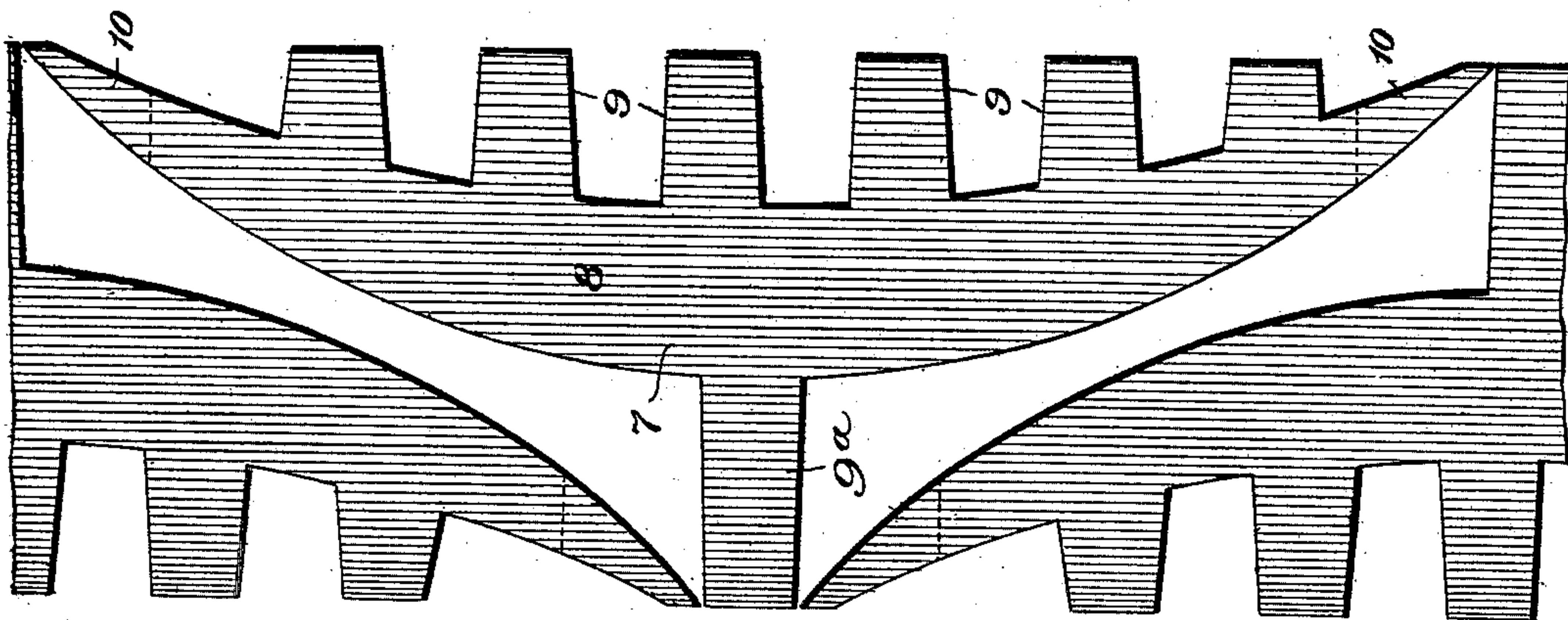
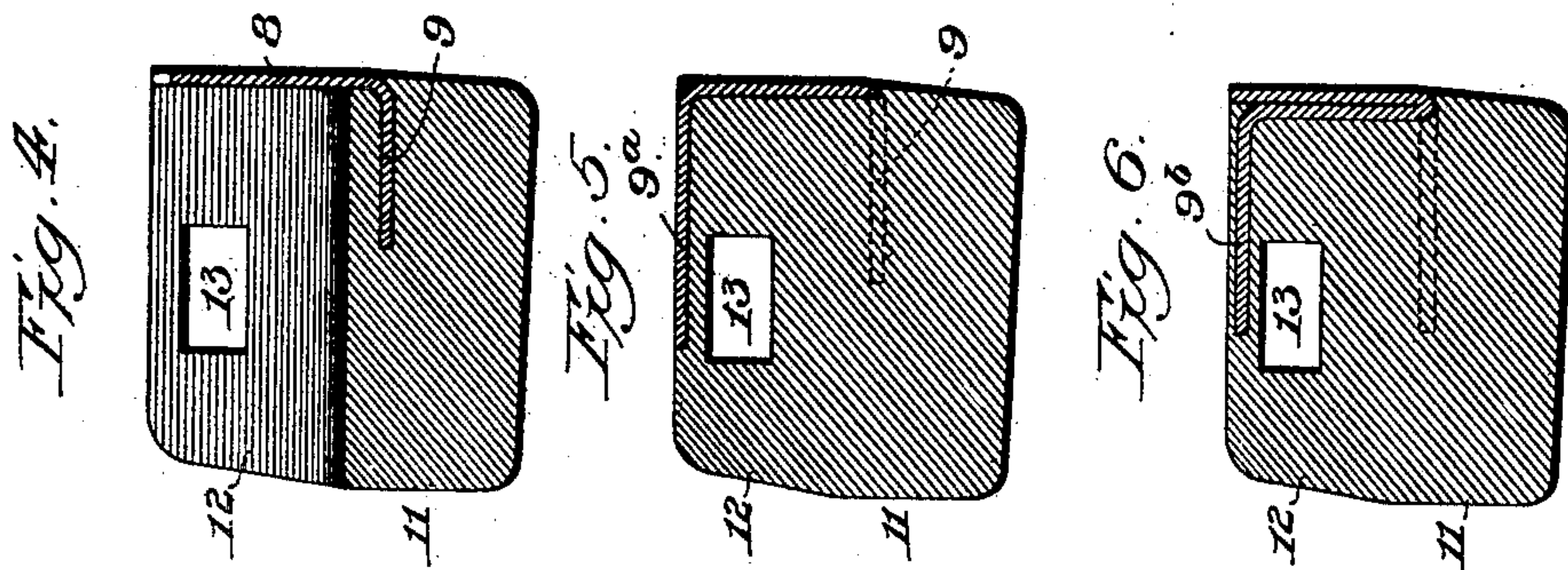
Patented Nov. 18, 1902.

W. D. SARGENT.

BRAKE SHOE.

(Application filed Jan. 23, 1902.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

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BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 713,689, dated November 18, 1902.

Application filed January 23, 1902. Serial No. 90,862. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DURHAM SARGENT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Brake-Shoes, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention has particular reference to that type of cast-metal brake-shoe in which a ductile-metal strengthening-piece or back insert is employed, the same being placed in the mold at the time the shoe is cast and the molten metal poured around it, and has for its primary object the provision of such an insert constructed so as to more efficiently stiffen the shoe than do those heretofore known to me, while at the same time requiring but a very small weight of metal in said insert, the metal employed being so disposed as to much more efficiently serve the purposes for which it is used than is the case with the prior art devices.

Another object of my invention is the provision of a shoe of the type specified, in which the small weight of the metal insert which I employ and the particular disposition which I make of the same materially reduces certain difficulties which have been heretofore encountered in the construction of shoes of this class due to the action of the molten metal in the formation of the casting around the ductile-metal stiffening piece or insert, among which difficulties may be mentioned a tendency to start cracks in the cast portion of the shoe by the chilling effect of the insert-plate, taken together with the difference in coefficient of expansion which exists between metals of different kinds and the interference which the steel or ductile-metal stiffening-plate produces in the proper construction of what is known as an "insert-shoe"—that is, one having other pieces embodied therein through the effect said stiffening-piece exerts on the cooling period of the mass of metal. Thus it is obvious that the use of a stiffening piece or plate of ductile metal of light weight will not have as marked an effect on the cooling of the metal of the balance of the shoe as will the use of a stiffening-piece of greater

weight which is wholly embedded in the body of the shoe, such as have heretofore been commonly employed.

Another object of my present invention is the provision of a shoe having a stiffening piece or plate therein made of ductile metal, such as steel, which, while it will by the disposition of said metal to a greater extent strengthen and stiffen the shoe, will at the same time not present so much of a bearing-surface to the molten metal, tending to chill the latter, as has been the case in the prior art constructions.

Another object of my invention is the provision of a ductile-metal insert for a brake-shoe constructed with a bent-up flange adapted to impart longitudinal stiffness or strength to such insert-piece.

The above, as well as such other objects as may hereinafter appear, I attain by means of a construction which I have illustrated in preferred form in the accompanying drawings, in which—

Figure 1 is a side elevation of a shoe embodying my improvements. Fig. 2 is a rear view thereof. Fig. 3 is a view showing the insert or stiffening pieces in course of manufacture. Fig. 4 is a transverse section on the line 4 of Fig. 2. Fig. 5 is a transverse section on the line 5 of Fig. 2, and Fig. 6 illustrates a suggested modification of my improvement.

In carrying out my invention I first make some insert pieces or plates of ductile metal, which are preferably stamped from a sheet of steel, as indicated in Fig. 3, the general shape being substantially as is shown at 7 in said figure and resembling somewhat the construction of a comb having a back portion 8 and a plurality of projecting teeth 9 thereon. The teeth 9 are preferably made of just sufficient width and spaced just sufficiently far apart to permit of the introduction between them of the corresponding teeth of an adjacent piece, (not shown,) which can thus be made out of the sheet metal with a minimum loss in the way of waste material. The part 8 of the strengthening-piece 7 is next bent into the shape indicated in Figs. 1 and 2—that is, so that it stands in a plane at right angles

to the teeth 9, with the ends 10 turned in the same direction as the teeth 9—that is, toward the center of the shoe when the strengthening-piece is placed in the mold, as it now is preparatory to the pouring of the molten metal, which forms the body 11 of the shoe. The metal in being poured flows around the teeth 9 and the end piece 10, as clearly shown in the drawings, leaving the upstanding flange 8, as shown, which being disposed at the side of the shoe and longitudinally thereof serves to impart to the shoe a large degree of longitudinal stiffness with a minimum weight of material and without in any wise interfering with the insertion of the brake-shoe key or the placing of the shoe in the brake-shoe head in the usual manner. The metal lug 12 of the shoe has the usual keyhole 13 passing through the same, and adjacent to such keyhole is the projection 9^a, embedded in the lug, so as to not only more intimately secure the strengthening-piece and the flange 8 thereof to the shoe, but also by means of the said strengthening-piece and the projection 9^a help to tie the lug to the body of the shoe. The projection 9^a is stamped out of the sheet metal, as shown in Fig. 3, but might, if desired, be formed of one or more of the teeth 9, bent in a manner shown in Fig. 6, in which is indicated such a projecting piece, (marked 9^b,) arranged to be bent from the same plane as the plane of the teeth 9 and of sufficient length to project over or partially around the keyhole 13.

From the above it will be evident that by the use of the improvement described a shoe of this character can be made which will require but a light weight of strengthening-piece and which will at the same time have great strength because of the stiffening-flange 8 and which will even, although worn very thin, still present a stiff bearing against the wheel throughout the length of the face of the shoe.

Having thus described my invention, what

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

1. A brake-shoe of cast metal having a strengthening-piece, portions of which are embedded in the cast metal and another portion of which extends backward laterally from the face of the shoe forming an external stiffening-flange, substantially as described.

2. A brake-shoe comprising a cast-metal body and a ductile-metal strengthening-piece partly embedded in the body and having a stiffening-flange extending backward, laterally to the face of the shoe, whereby the shoe may wear thin without wear on the said flange.

3. A brake-shoe comprising a cast-metal body, an attaching-lug, a strengthening-piece having a stiffening-flange thereon, and a projection formed of said strengthening-piece embedded in said attaching-lug, substantially as described.

4. A brake-shoe comprising a cast-metal body, and a ductile-metal strengthening-piece having a backward-outstanding flange extending longitudinally of the shoe, substantially as described.

5. A brake-shoe comprising a cast-metal body, and a ductile-metal strengthening-piece having a backward-outstanding flange extending longitudinally of the shoe and at one side thereof, substantially as described.

6. A brake-shoe comprising a cast-metal body and a stiffening-piece therefor having a backward-extending upright flange and fingers projecting laterally therefrom and embedded in the cast body.

7. A brake-shoe comprising a cast-metal body, and a strengthening-piece therefor having projecting fingers embedded in said body, and an outstanding stiffening-flange, substantially as described.

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