No. 891,209. PATENTED JUNE 16, 1908.

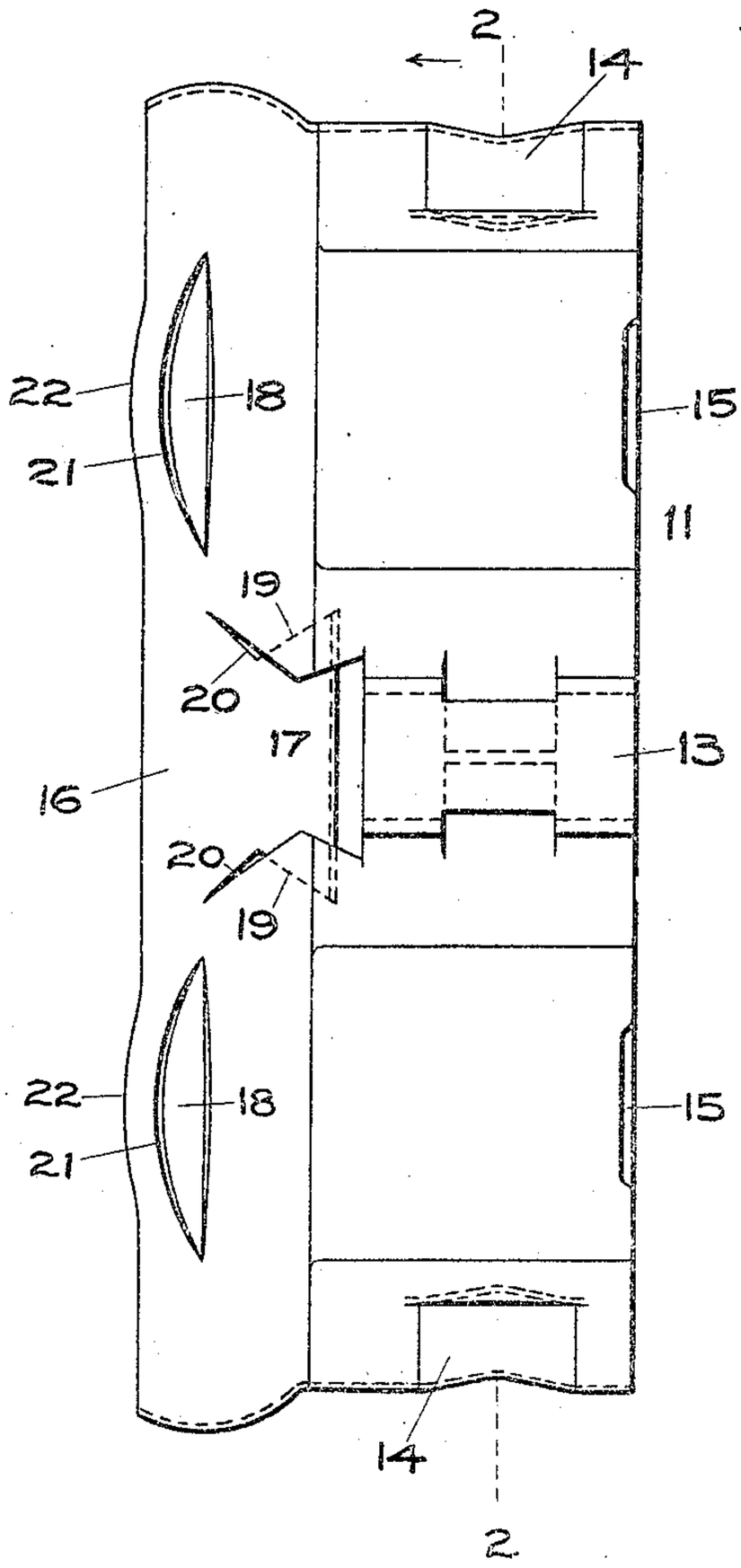
S. A. CRONE.

RAILWAY CAR BRAKE SHOE.

APPLICATION FILED MAR. 28, 1908.

2 SHEETS—SHEET 1.

FIG. 1



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2 SHEETS—SHEET 2.

FIG. 2.

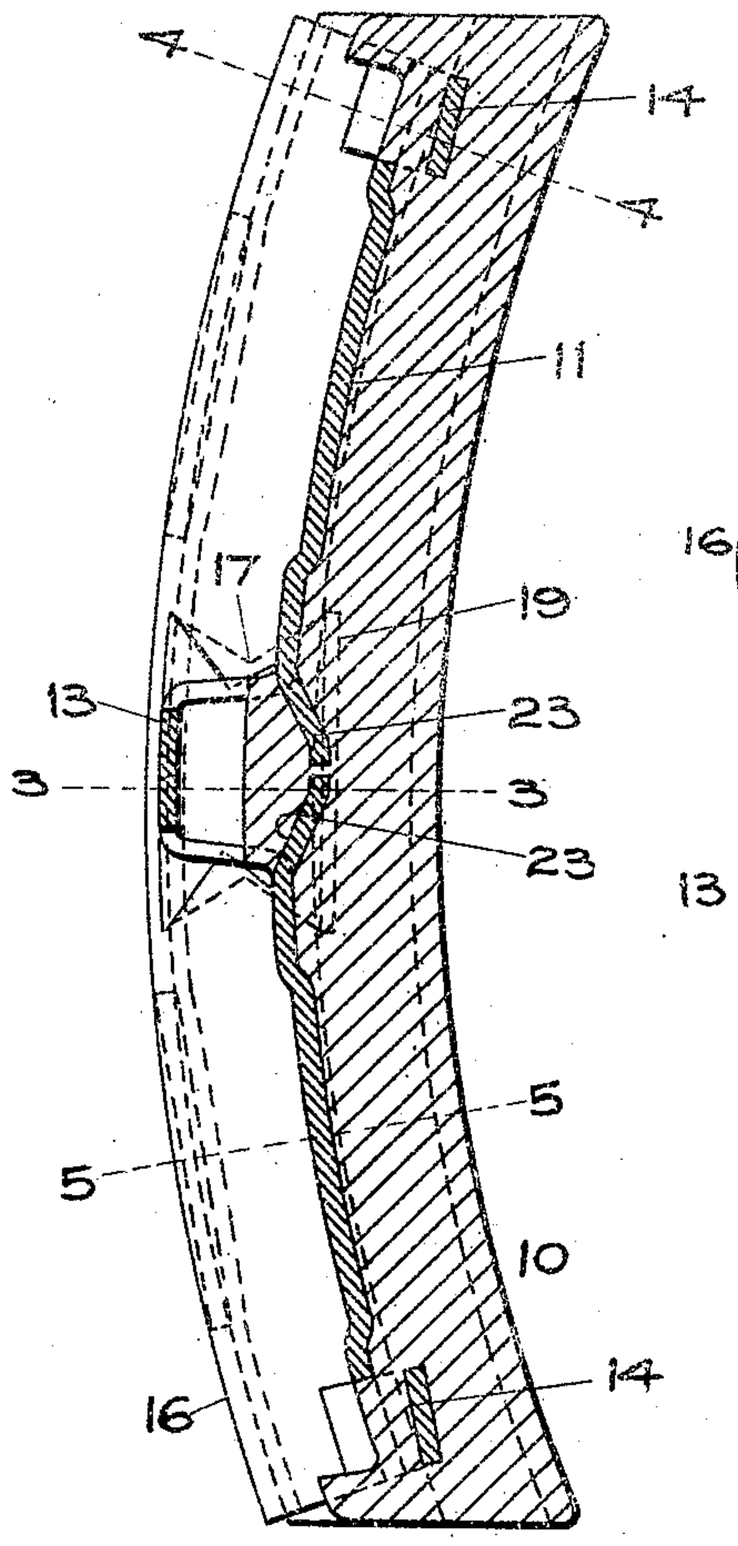
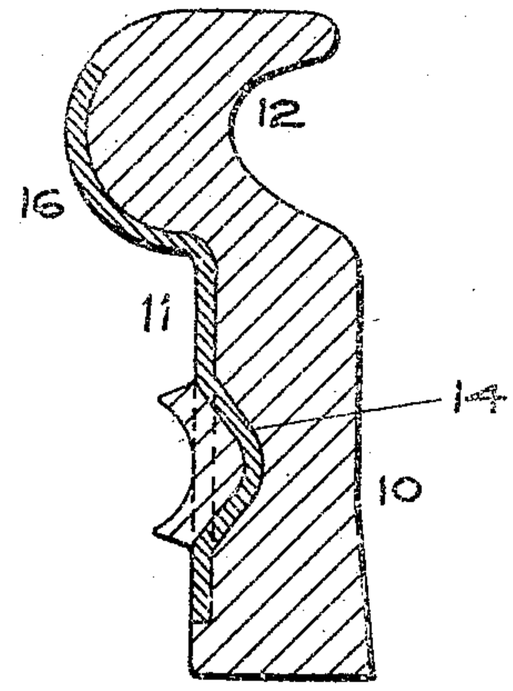


FIG. 4.



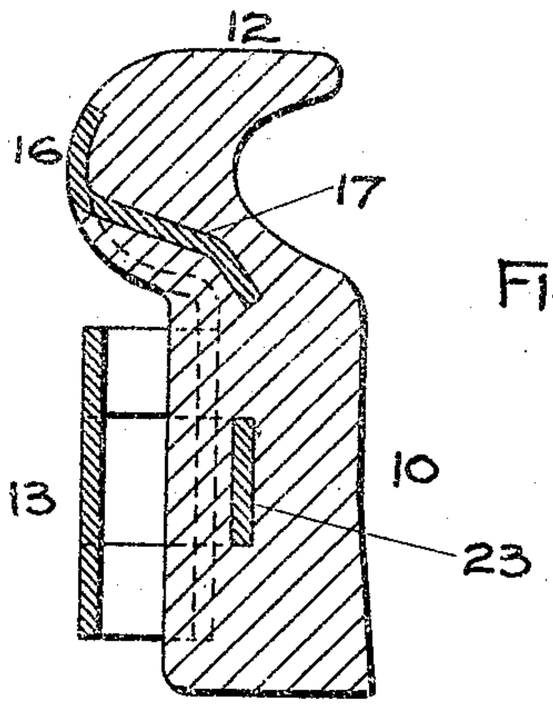
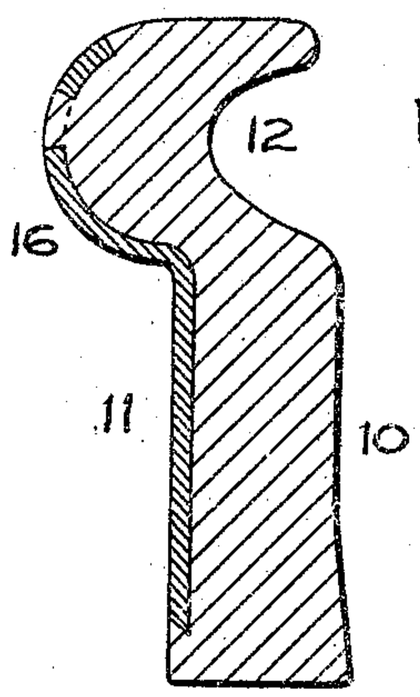


FIG. 3

FIG. 5.



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SETH A. CRONE, OF NEW YORK, N. Y.

RAILWAY-CAR BRAKE-SHOE.

No. 891,209. Specification of Letters Patent. Patented June 16, 1908.

Application filed March 28, 1908. Serial No. 423,814.

To all whom it may concern:

Be it known that I, SETH A. CRONE, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Railway-Car Brake-Shoes, of which the following is a specification.

The invention relates to improvements in brake-shoes; and it consists in the novel features hereinafter described, and particularly pointed out in the claims.

The brake-shoe of my invention comprises a cast metal body adapted to engage the tread and flange of a car wheel and a steel or forged metal back plate, the two parts being permanently connected together by the casting of the metal of the body upon portions of the metal of the back.

Brake-shoes consisting of a cast metal body and a steel or forged metal back are well known, and my invention pertains more particularly to a novel construction of the back plate and a novel union of the cast metal body thereto, particularly along the flange portion of said body intended to engage the flange of the wheel, whereby a durable, safe and efficient structure is produced.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a detached outer or back elevation of the forged metal back of my brake-shoe, said back being shown in its completed form and condition and the cast metal body being omitted therefrom for clearness of illustration; Fig. 2 is a vertical section through the complete brake-shoe on the dotted line 2—2 of Fig. 1, the cast metal body being shown in position: Fig. 3 is a transverse section of the same on the dotted line 3—3 of Fig. 2; Fig. 4 is a like section of the same on the dotted line 4—4 of Fig. 2, and Fig. 5 is a like section of the same on the dotted line 5—5 of Fig. 2.

In the drawings, 10 designates the body portion of the shoe, and 11 the plate back, said body portion being of cast metal and having at one vertical edge the integral recessed flange 12 adapted to engage the rim of a car wheel, as usual. The plate back 11 is of steel or forged metal and it and the body 10 are rigidly united by the casting of the cast metal body upon portions of the forged metal back. The body 10 is in one integral casting and the back 11 in one integral plate extending nearly the entire length and width of said body. The back 11 is formed at its transverse central portion with a box-loop or key-lug 13, at its end portions with inwardly extending transverse loops 14, at one edge intermediate the box loop 13 and loops 14 with beveled sections 15 and at its other edge portion with an outwardly curved or arched flange 16 extending the entire length of the back and engaging the back of the flange 12 of the body 10.

The novel features of my invention pertain more particularly to the means provided for efficiently securing the flange 16 of the back to the flange 12 of the body, the box-loop or key-lug 13 and inwardly extending transverse loops 14 being fully shown and described in Letters Patent No. 854,985 granted May 28, 1907 to Seth A. Crone.

The flange 16 is formed, at about its transverse middle portion, with an inwardly projected tongue 17 and above and below said tongue with vertically elongated slits 18 whose walls are preferably spread one from the other so as to widen the slits at their middle portions to receive the cast metal.

While I do not limit the invention to the special formation of the tongue 17, I do regard the said tongue, when of the character shown and described herein, as particularly efficacious in securing the back 11 and body 10 together. Neither do I confine the invention to the special outline presented of the slits 18, but when they are of the special form and construction shown and described herein they receive portions of the metal of the flange 12 and firmly unite the flange 16 thereto. The tongue 17 and spread-slits 18 are formed when the plate from which the back 11 is formed is in its flat condition, said tongue being of dove-tail outline at its free end portion 19 and united with the outer portions of the flange 16 by an outwardly diverging section 20 (Fig. 1), said tongue thus being connected with the flange 16 by a substantial extent of metal and creating at its upper and lower edges an angular formation at the contiguous portions of the parts 19, 20 to receive and form a lock with the cast metal. The plate is cut on three connected lines to form the tongue 17 at a time when, as above described, the plate is in its flat condition, and thereafter said plate at its transverse central portion is bent outwardly to form the box-loop or key-lug 13,

this resulting in the drawing together, to some extent, of the opening left by the cutting and depression of the tongue 17, whereby the upper and lower edges of said opening are, as shown in Fig. 1, drawn toward each other and the opening becomes less in vertical width than the vertical width of the free end portion 19 of the said tongue, said portion 19 being, as shown in Fig. 1, of greater vertical width than the opening from which it was cut after said opening has its upper and lower side edges drawn toward each other by the operation of forming the box loop 13.

The cast metal covers the inwardly projected tongue 17 and not only forms a lock above and at the edges of said tongue, but extends above the same and between the upper and lower inner end portion of the tongue and the inner surfaces of the back plate where the latter has been drawn inwardly at the upper and lower edges of the opening from which the tongue was cut. The tongue 17 therefore while being integral with and cut from an interior portion of the back plate, extends laterally below integral surfaces of said plate and creates a lock of novel character. In the construction of the back plate 11 I therefore prefer to cut the tongue 17 when the metal is flat, depressing the tongue from the slit surrounding its three edges, and then, in the formation of the box loop 13, draw to some extent the upper and lower edges of the opening from which the tongue was cut toward each other, thereby leaving the upper and lower edge portions of the tongue extended upwardly and downwardly beyond the edge portions of said opening.

I have referred to the tongue 17 as being cut from an interior portion of the back plate, because said tongue extends in an inwardly direction from the side edge portion of the plate and does not extend outwardly through said edge, leaving the edge portion of the plate about the outer end of the tongue in its integral condition, which I also consider advantageous. The slits or openings 18 above and below the tongue 17 are also formed when the metal for the back is flat, and these slits 18 are cuts through the metal, none of the latter being removed, and in the finished article become of special character since the outer side walls of the slits are pressed outwardly or spread so as to form concave outlines 21. The outwardly spreading of the side walls of the slits 18 results in the outer edges of the flange 18 adjacent to said slits being moved outwardly on convex lines, as at 22. After the slits 18 have been cut and their walls spread, the flange 16 is arched or curved, as shown in Figs. 1 and 5, to suitably receive the flange 12 of the body 10, and this arching of said flange results in the edges of the slit-openings 18 becoming set on inclined lines so that they operate as beveled surfaces to receive and lock between them portions of the cast metal, the outer edges of said slit openings being wider than the inner edges thereof and the walls of said openings being thereby enabled to effectually tie the cast metal flange 12 to the flange 16 of the back plate.

I do not wish to limit the invention, in every instance, to the formation of the locking openings 18 by first slitting and spreading the metal, as just above described, and then arching the flange 16 so as to form beveled edges at said openings, but prefer said construction because of its efficiency and the fact that none of the material of the back is removed in the formation of said openings.

The body 10 is in one integral casting and the back 11 in one integral plate and said body and back are united together by the cast metal flowing and solidifying upon the transverse loops 14, beveled edges 15, central lips 23, tongue 17 and edges of the slit-openings 18, the flange portion 16 of the back being united with the flange 12 of the body portion 10 more especially by the cast metal which engages the tongue 17 and enters the slit openings 18, but being additionally secured by being integral with the main portion of the back plate and the features referred to for uniting the main portion of the back plate to the main portion of the body 10. The central lips 23 are created in the formation of the box-loop or key-lug 13 and are disclosed in my aforesaid Patent No. 854,985.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having an arched flange for the flange of said body, said back plate in its flange having elongated slits with the metal at the edge of the slits spread in a direction therefrom to create adequate openings to receive and lock with the cast metal.

2. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having elongated slits spread open to receive the cast metal and said flange being arched and walls of said slits being inwardly beveled.

3. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having an arched flange for the flange of said body, said back plate in its flange having an inwardly projected tongue cut from an interior portion of the metal and free at one end.

4. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having an arched flange for the flange of said body, said back plate in its flange having an inwardly pro-

jected tongue cut from an interior portion of the metal and extending vertically upwardly and downwardly beyond the upper and lower edges of the opening from which it was cut.

5. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having an arched flange for the flange of said body, said back plate in its flange having an inwardly projected tongue cut from an interior portion of the metal and extending upwardly and downwardly beyond the upper and lower edges of the opening from which it was cut, and said tongue at its inner free end portion being of dove-tail formation.

6. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having an arched flange for the flange of said body, said back plate in its flange having an inwardly projected tongue cut from an interior portion of the metal and extending upwardly and downwardly beyond the upper and lower edges of the opening from which it was cut, and said tongue at its inner free end portion being of dove-tail formation and connected with the body of the plate by a section having converging upper and lower side edges (20).

7. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having an inwardly projected tongue cut from an interior portion of the metal and above and below said tongue openings having beveled edges receiving the cast metal.

8. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having an inwardly projected tongue cut from an interior portion of the metal and above and below said tongue openings having beveled edges receiving the cast metal, said tongue at its free end extending above and below the opening from which it was cut and depressed.

9. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having a vertical slit with the metal at the outer side thereof spread outwardly whereby an adequate opening is formed receiving the cast metal.

10. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having a vertical slit with the metal at the outer side thereof spread outwardly to form an adequate opening receiving the cast metal, the edges of said opening being beveled inwardly.

11. A brake-shoe comprising a cast body having a flange at one side, and a back plate united to said body and having a flange for the flange of said body, said back plate in its flange having a vertical slit with the metal at the outer side thereof spread outwardly, said flange being arched along the line of said slit whereby the edge of the latter stands on an inward inclination.

Signed at New York city, in the county of New York, and State of New York, this 27th day of March A. D. 1908.

SETH A. CRONE.

Witnesses:

ARTHUR MARION,

CHAS. C. GILL.