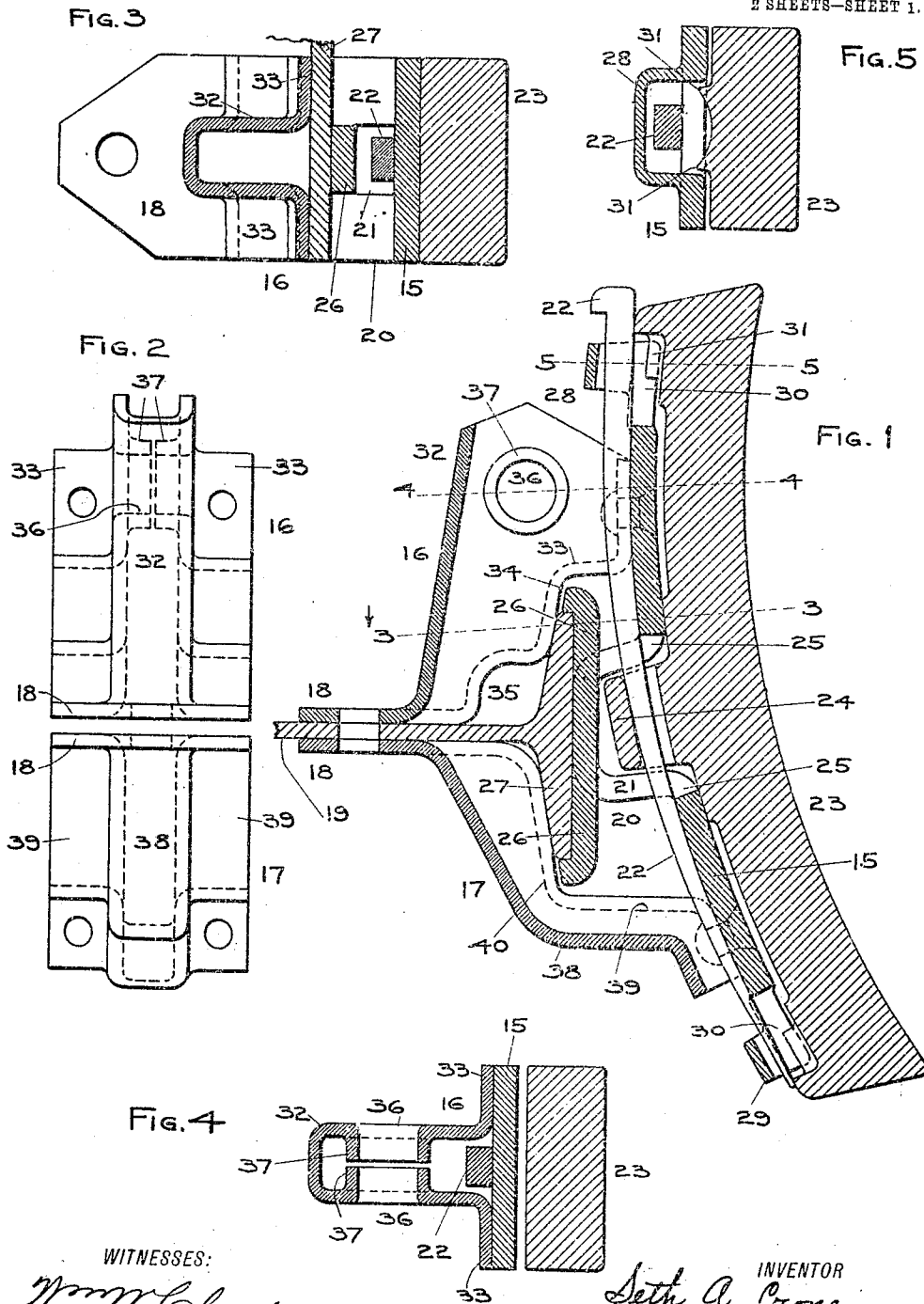


No. 868,908.

PATENTED OCT. 22, 1907.

S. A. CRONE.
RAILWAY CAR BRAKE.
APPLICATION FILED NOV. 26, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Wm. M. Clouser
Arthur Marion

INVENTOR

Seth A. Crone

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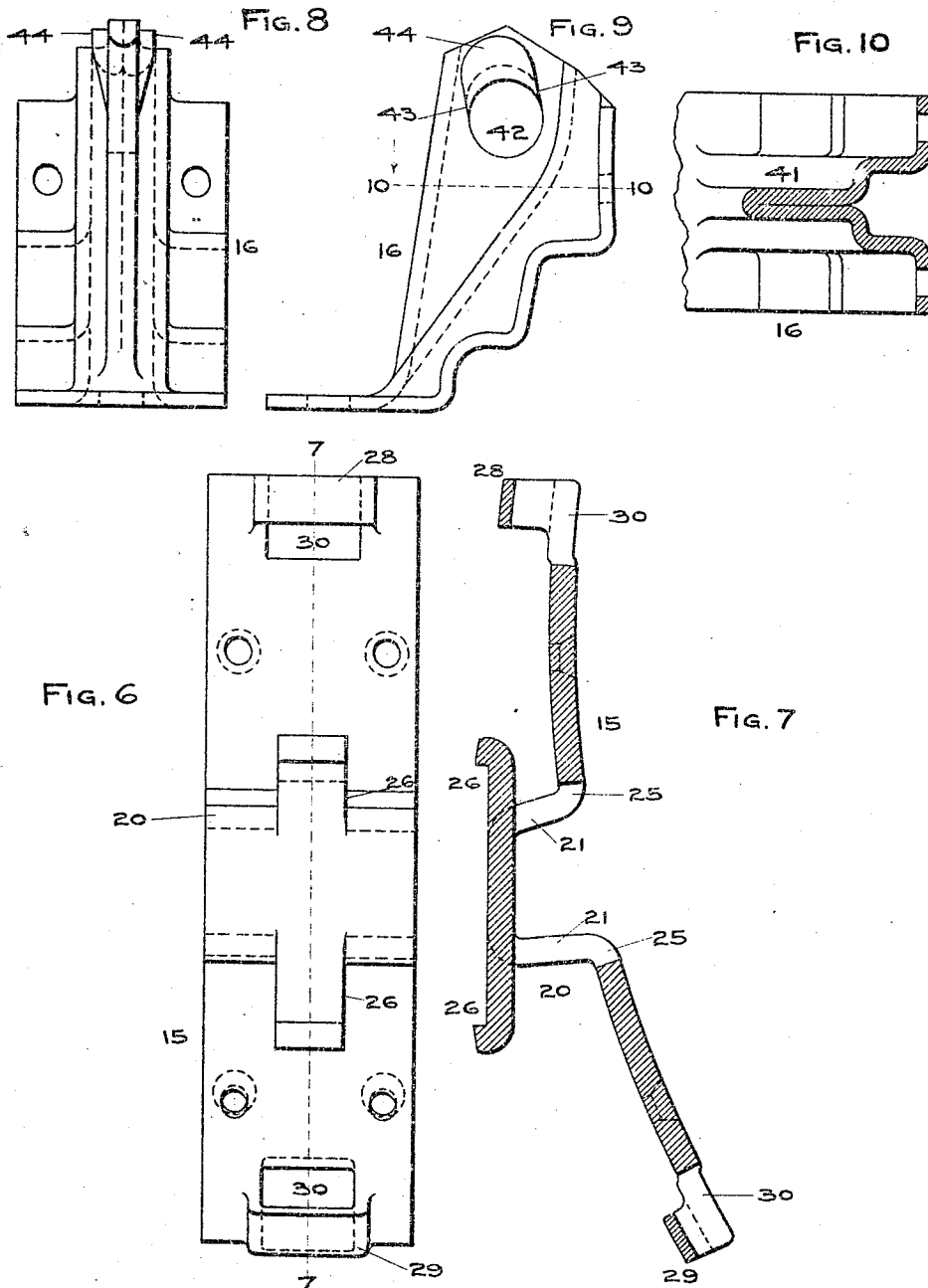
Chas. C. Hill
ATTORNEY

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UNITED STATES PATENT OFFICE.

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

RAILWAY-CAR BRAKE.

No. 868,908.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed November 26, 1906. Serial No. 345,093.

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, in the county of New York and State of New York, have invented certain new and useful Improvements in Railway-Car Brakes, of which the following is a specification.

The invention relates to improvements in railway car-brakes, and consists in the novel brake-shoe head hereinafter described and particularly pointed out in the claims.

The object of the invention is to provide a highly efficient, durable and safe brake-shoe head capable of economical manufacture, and to this end, in the preferred construction, I construct the head of forged metal and in three separate pieces secured together and forming between them a guide-way for the key by which the shoe may be connected with said head. The brake shoe head comprises a forged metal face plate in one integral piece and a back composed of two pieces riveted to said face plate and forming at their meeting portions suitable jaws or flanges for connection with the brake beams.

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 central vertical longitudinal section through a brake shoe head constructed in accordance with and embodying my invention, the brake shoe being shown in position thereon and a part of the brake beam being also shown, in section, so as to indicate the relation of the said head to said beam; Fig. 2 is a face view, looking at the left hand side of Fig. 1, of the two pieces or sections comprising the back of the brake-shoe head; Fig. 3 is a transverse section on the dotted line 3—3 of Fig. 1, of the complete brake-shoe head and shoe; Fig. 4 is a transverse section of same on the dotted line 4—4 of Fig. 1; Fig. 5 is a transverse section of same on the dotted line 5—5 of Fig. 1; Fig. 6 is a detached inner face view of the face-plate forming a part of the brake-shoe head; Fig. 7 is a central vertical section of same on the dotted line 7—7 of Fig. 6; Fig. 8 is a detached face view of a modified form of the upper piece or section constituting a part of the back of the brake-shoe head; Fig. 9 is an edge view of same, and Fig. 10 is a transverse section of same on the dotted line 10—10 of Fig. 9.

Referring to Figs. 1 to 7 inclusive, the brake-shoe head shown comprises a forged metal face-plate 15 and a back comprised of the upper and lower forged metal sections numbered 16, 17, respectively, whose adjacent portions at about the center of the head are formed into flanges or jaws 18 to engage the brake-beam 19 by which the heads are carried and which is of usual character.

The forged metal face-plate 15 is of substantially uniform width from end to end and is formed at about its transverse middle portion with a box-loop 20 containing in its upper and lower ends the slots 21 for the key 22, the latter being of standard construction and utilized for securing the brake-shoe 23 to the head, said shoe 23 being formed with a lug 24 entering the aforesaid box-loop 20 and having a vertical opening in line with the slots 21, whereby the key 22 is enabled to have a bearing against the face of the plate 15 above and below the loop 20 and against the lug 24. The slots 21 are preferably not merely vertical slots but extend laterally, as at 25, out to the shoe 23, whereby a given extent of the key 22 is free between the wall of the lug 24 which engages it and the inner surfaces of the plate 15 which it engages, and the key is enabled to have a slight yielding action outwardly with the shoe 23, this being due to the fact that a given portion of the key immediately above and below the lug 24 is free from the surrounding parts.

In forming the vertical slots 21 in the face plate 15 for the key, I do not remove from the plate the metal which occupies the position of the slots, but cut the metal on three sides and press the lips 26 thus formed outwardly from the plate so as to create the slots 21 and afford at the outer end of the box-loop 20 an extended bearing for the flange 27 of the beam 19, one of said lips 26 extending upwardly from the box-loop 20 and the other downwardly therefrom and the outer edges of said lips being turned outwardly to engage the upper and lower edges of said flange, as shown in Fig. 1. The lips 26 at outer end of the box-loop 20 afford a very substantial abutment or bearing for the flange 27 of the beam and extend transversely the full width of said flange, and the outwardly bent ends of said lips by engaging the opposite edges of the beam-flange aid in creating a rigid structure.

At its upper and lower ends the face-plate 15 is provided with integral box-loops 28, 29, respectively, formed by slitting the metal transversely and pressing the thus partly separated portions outwardly, whereby the loops are fashioned and vertical openings or recesses 30 are created whose side-walls engage lugs 31 on the shoe 23. I enlarge the openings 30 by cutting away a portion of the metal plate adjacent to said box-loops 28, 29, as shown. The loops 28, 29 afford housings for the end portions of the key 22 and they tie together the opposite side portions of the face-plate where said plate is properly recessed or slotted, as at 30, to pass upon the lugs 31 and afford freedom for the key, whereby the ends of said face-plate become very rigid and durable. I preferably form the face-plate 15 out of a bar of forged metal, but said plate may in exactly the contour illustrated be formed of cast steel, and therefore I do not

desire to limit my invention, in every instance, to the formation of said plate from forged metal.

The upper and lower back sections 16, 17 are each in one integral piece of forged metal pressed into shape, the upper section comprising a central longitudinal box-like part 32 and laterally extending parts or flanges 33, which at their upper ends and at each side of the vertical center of said section are riveted to the face plate 15. The flanges 33 below their upper end portions extend outwardly from the plate 15 and thence turn downwardly, as at 34, (Fig. 1), whereby a recess is created for the upper edge of the beam-flange 27 and said flanges 33 are enabled to engage the outer face of said beam-flange. Adjacent to their lower end the flanges 33 again turn outwardly and thence downwardly to the web of the body-beam 19, thereby forming an eye or loop 35 to receive the usual beam-hanger when it is desired to suspend the beam from a point close to said web and in line with the box-loop 20 of the face-plate 15. After forming the loop 35 the flanges 33 extend outwardly and merge into the upper flange 18 which engages the body-beam. The box-like part 32 of the upper back-section 16 sustains the flanges 33 and its side walls afford a key-way for the key 22 and contain an eye 36 to receive the lower end of a brake-beam hanger. The metal in the sides of the box-like part 32 is not cut out to form the eye 36 but on the contrary is pressed laterally, as denoted at 37, Fig. 4, to form a broader bearing for the hanger than the thickness of said walls could normally afford and to strengthen said sides around said eye 36, this increased strength being more desirable at the upper than at the lower side of said eye. The section 16 as a whole is particularly strong and efficient and is pressed from an integral plate.

The lower back-section 17 also comprises a vertical central box-like part 38 and laterally extending parts or flanges 39, which at their lower ends and at each side of the vertical center of said section are riveted to the face-plate 15. The flanges 39 above their lower end portions extend outwardly from the plate 15 and thence turn upwardly, as at 40, (Fig. 1), whereby a recess is created for the lower portion of the beam-flange 27 and said flanges 39 are enabled to engage the outer face of said beam-flange. Adjacent to their upper end, close to the web of the beam 19, the flanges 39 turn outwardly and extend along said web and finally merge into the lower flange 18 which engages the body-beam. The box-like part 38 of the lower section 17 sustains the flanges 39 and its side-walls, at the lower end of the section, afford a continuation of the key-way for the key 22.

When the upper and lower back sections 16, 17 are in position there is a space left between their upper and lower end portions to receive the box-loop 20 and lips 26, said space being also sufficient to receive between the said box-loop and lips and the adjacent portions of the flanges 33, 39 facing the same, the flange 27 of the body-beam 19, while the web of said beam is held between the flanges or jaws 18, as shown in Fig. 1, and thereby a very rigid and durable connection of the brake-shoe head with the body-beam is afforded.

The modification shown in Figs. 8, 9 and 10 pertains solely to the formation of the upper back-section 16.

In the construction shown in Figs. 1, 2 and 3 the side walls of the box-like part 32 are throughout their extent separated from each other and the eye 36 for the hanger is formed by flanging the metal, as at 37, to provide a bearing of considerable extent for the hanger pin. There are instances, however, in which the elongated bearing around the eye 36 would prove to be inconvenient in receiving the lower end of the commonly used pot-hook or S-shaped hanger, and to meet this condition I provide the construction shown in Figs. 8, 9 and 10 which differs from the construction shown in Fig. 1 in that I press together the side walls of the outer portion of the box-like part 32 to form along the outer vertical center portion of the upper back-section 16 a double wall 41 and in this wall form the eye 42 for the lower end of the hanger. It is important that the metal along the upper portion of the eye 42 should afford a very strong bearing and to secure this result I omit in forming the eye 42, to completely sever the metal therefor but use a punch having a beveled end so that said punch may only sever the metal along the line below the points numbered 43 in Fig. 9, and push the metal out from the hole formed by the punch, thereby creating a lip along the upper side of the hole which lip I thereafter press upwardly against the face of the main sheet of metal, thereby forming a flange 44 at the upper edge of the eye and at the outer side thereof. The eye 42 is primarily formed by punching two holes in the plate before the latter is pressed up into the back-section 16 and forming at each hole the flange 44 as above described, after which when the metal plate is formed into the back-section and the double wall 41 created, the aforesaid holes punched in the plate come together to constitute the eye 42, said eye at such time having at its upper side and at each side of the double wall 41 the flange 44, the upper edge of the eye then having the strength of four thicknesses of the metal plate, as shown in Fig. 8, and affording not only a suitable bearing for the lower end of the hanger but a very durable construction. The eye 42 of Fig. 9 corresponds with that part of the invention connected with the eye 36 of Fig. 1 in that the metal of the plate from which the upper back-section 16 is formed is not cut out, especially at the upper edge of the holes, to form the hanger-eye but is left integral with the plate and pressed laterally so as to increase the strength of the structure about the upper edge of the eye and afford a suitable bearing for the lower end of the hanger.

I have illustrated the brake-shoe head as applied to a flanged beam 19 which ordinarily is of I-shape but may be of any of the several shapes used for brake beams. The beam 19 is what is commonly called a structural beam but I desire it to be understood that the brake-shoe head of my invention is also applicable to truss-beams. In every instance the recess formed between the upper and lower sections to receive the inner part of the body-beam should be conformed to the shape of said part so as to, along the portions 34, 40 of the flanges 33, engage the same, and likewise the lips 26 formed from the face-plate 15 should be pressed into a position to engage the body-beam and aid in affording a proper abutment for the same. If the flange 27 of the body beam 19 should, for instance, be in the shape of a bulb, which is a common structural shape, the lips 20 instead

of standing vertically would be pressed further outwardly at their end portions to lap partly around the bulb.

What I claim as my invention and desire to secure by

5 Letters-Patent, is:—

1. A brake-shoe head comprising a back wherein is formed a key-way, and a forged metal face-plate having a box-loop entered in between the end portions of said back and slotted in line with said key-way, said plate in the
10 formation of said slots being slit to form lips which are pressed outwardly to leave said slots and cooperate with said box-loop in forming a bearing for the brake-beam; substantially as set forth.

2. A brake-shoe head comprising a back wherein is formed a key-way, and a forged metal face-plate having a box-loop entered in between the end portions of said back and slotted in line with said key-way, said plate in the
15 formation of said slots being slit to form lips which are pressed outwardly to leave said slots and cooperate with said box-loop in forming a bearing for the brake-beam, and the outer ends of said lips being turned outwardly to lap upon the upper and lower edges of the adjacent part of said beam; substantially as set forth.

3. A brake-shoe head comprising a back wherein is formed a key-way, and a metal face-plate having a box-loop entered in between the end portions of said back and slotted in line with said key-way, said plate at its ends being formed with vertical recesses and integral box-loops spanning said recesses and affording housings for the key;
20 substantially as set forth.

4. A brake-shoe head comprising a back having a recess to receive a part of the body-beam and in which back is formed a key-way, and a metal face-plate adapted to said back and to receive the brake-shoe and its securing means and having integral lips extended therefrom to engage said beam; substantially as set forth.

5. A brake-shoe head comprising a back having a recess to receive a part of the body-beam and in which back is formed a key-way, and a metal face-plate adapted to said back and to receive the brake-shoe and its securing means and having an integral part extended therefrom to lap upon the edge of and engage said beam; substantially
30 as set forth.

6. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a face-plate carried thereby and adapted to receive the brake-shoe and its securing key, said back in its upper portion having opposite walls wherein is formed corresponding holes to constitute the eye for the brake-hanger; substantially as set forth.

7. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a face-plate carried thereby and adapted to receive the brake-shoe and its securing key, said back in its upper portion having opposite walls wherein is formed corresponding holes to constitute the eye for the brake-hanger, and the metal at said holes being displaced laterally to afford increased bearing surfaces and strength; substantially as set forth.

8. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a face-plate carried

thereby and adapted to receive the brake-shoe and its securing key, said back in its upper portion having opposite walls separated from each other wherein is formed corresponding holes to constitute the eye for the brake-hanger; substantially as set forth.

9. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a face-plate carried thereby and adapted to receive the brake-shoe and its securing key, said back in its upper portion having opposite walls separated from each other wherein is formed corresponding holes to constitute the eye for the brake-hanger, and the metal at said holes being displaced laterally and forming in the finished article flanges extending toward each other to afford increased bearing surfaces and strength; substantially as set forth.

10. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a separate metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slotted in line with said key-way, said back being formed in its upper part with an eye to receive the brake-hanger and below said eye and in line with said box-loop forming a brake-hanger eye or loop; substantially as set forth.

11. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a separate metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slotted in line with said key-way, the upper part of said back having a central box-like portion and laterally extending flanges engaging in their upper portion said face-plate and thence extending outwardly therefrom to afford a space for the body-beam and thence curving outwardly and downwardly to form an eye or loop for the hanger and thence merging into the securing flange for connection with said beam; substantially as set forth.

12. A brake-shoe head comprising a forged metal back wherein is formed a key-way, and a separate metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slotted in line with said key-way, the upper section of said back having a central box-like portion and laterally extending flanges engaging at their upper portion said face-plate and thence extending outwardly and downwardly therefrom to afford a space for and to engage the body beam and thence merging into the upper securing flange for connection with said beam, and the lower section of said back having a central box-like portion and laterally extending flanges engaging at their lower portion said face-plate and thence extending outwardly and upwardly therefrom to afford a space for and to engage said beam and thence merging into the lower securing flange for connection with said beam; substantially as set forth.

Signed at New York city, in the county of New York and State of New York this 24th day of November A. D. 1906.

SETH A. CRONE.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.