

S. A. CRONE.
RAILWAY CAR BRAKE.

APPLICATION FILED AUG. 11, 1906. RENEWED JUNE 11, 1906.

2 SHEETS—SHEET 1.

FIG. 1

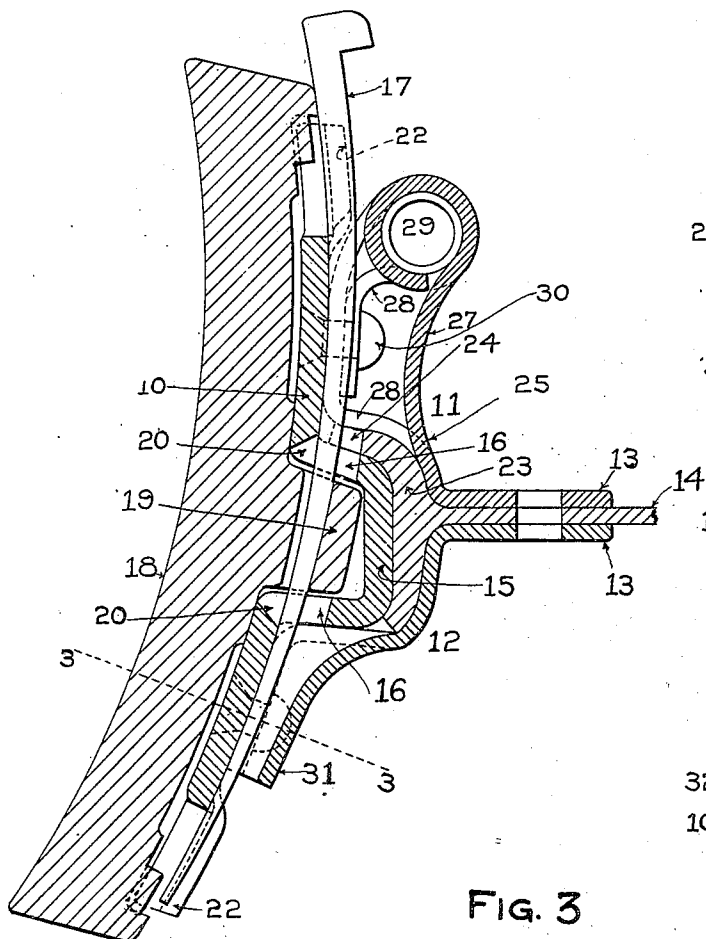


FIG. 2

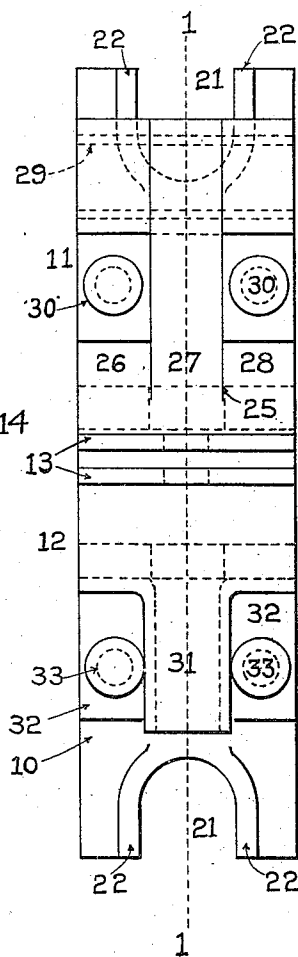
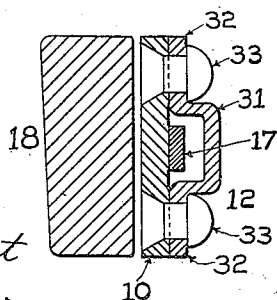


FIG. 3



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No. 938,773.

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2 SHEETS—SHEET 2.

FIG. 5

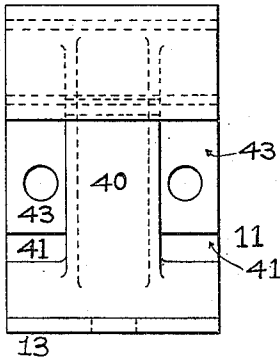


FIG. 6

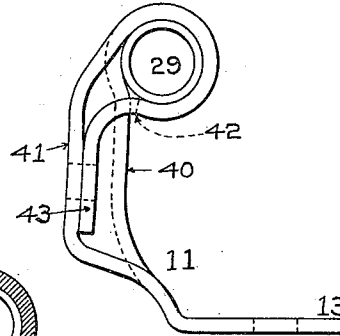


FIG. 4

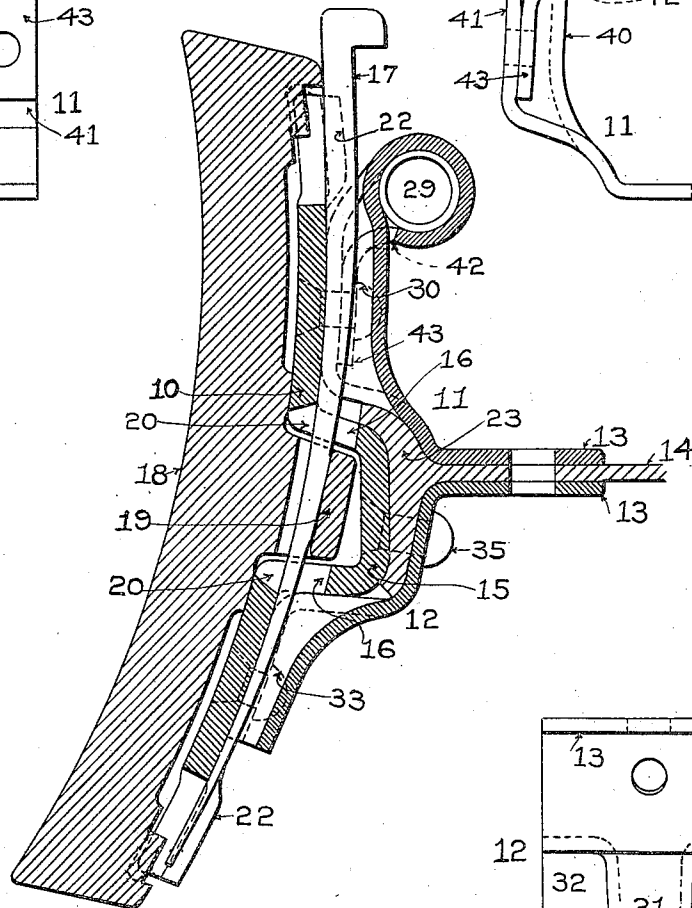
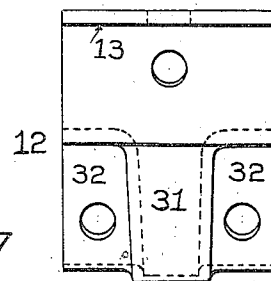


FIG. 7



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RAILWAY-CAR BRAKE.

No. 838,773.

Specification of Letters Patent.

Patented Dec. 18, 1906.

Application filed August 11, 1905. Renewed June 11, 1906. Serial No. 321,203.

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 Brakes, of which the following is a specification.

The invention relates to improvements in railway-car brakes; and it 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 guideway 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 an edge view of same looking at the right-hand side of Fig. 1 with the brake beam and shoe omitted. Fig. 3 is a transverse section of same on the dotted line 3 3 of Fig. 1. Fig. 4 is a view corresponding with Fig. 1, but illustrating a modification of a portion of my invention. Fig. 5 is a detached outer face view of the upper back section of the head. Fig. 6 is a detached side view of same, and Fig. 7 is a detached outer face view of the lower back section of the head.

Referring to Figs. 1, 2, and 3, the brake-shoe head there shown comprises a forged-metal face-plate 10 and a back comprising the upper and lower forged-metal sections numbered 11 12, respectively, whose adjacent portions at about the center of the head are formed into flanges or jaws 13 to engage

the brake-beam 14, by which the heads are carried.

The forged-metal face-plate 10 is of substantially uniform width from end to end and is formed at about its transverse middle portion with a box-loop 15, containing at its upper and lower ends the slots 16 for the key 17, the latter being of standard construction and utilized for securing the brake-shoe 18 to the head, said shoe 18 being formed with a lug 19, entering the aforesaid box-loop 15 and having a vertical opening in line with the slots 16, whereby the key 17 is enabled to have a bearing against the face of the plate 10 above and below the loop 15 and against the lug 19. The slots 16 are not merely vertical slots, but extend laterally, as at 20, out to the shoe 18, whereby a given extent of the key 17 is free between the wall of the lug 19, which engages it, and the inner surfaces of the plate 10, with which said key is in engagement, and the key is enabled to have a slight yielding action outwardly with the shoe 18, this being due to the fact that a given portion of the key immediately above and below the lug 19 is free from the surrounding parts. The upper and lower ends of the plate 10 are recessed, as at 21, to receive the usual upper and lower lugs on standard brake-shoes, and at the sides of these recesses 21 said plate is formed with the integral vertical flanges 22, which strengthen the plate and allow clearance for the ends of the key 17, which lies between said flanges.

The beam 14 may be of any usual character; but I prefer to employ an I-beam and to conform the flange 23 of said beam to the surface of the box-loop 15, as shown in Fig. 1, the upper portion of said flange extending inwardly upon the upper side of said box-loop and being recessed at 24, so as not to interfere with the passage of the key 17 along its receiving-keyway. The fact that the upper portion of the flange 23 extends upon the upper side of the box-loop 15 enables the brake-beam to obtain support from the brake-head and also results in the production of a very compact, symmetrical, and durable head.

The upper section 11 of the back is in one integral piece of forged metal, which, commencing at the point 25, is slit upwardly to form three sections 26 27 28, the middle section 27 extending upwardly and at its end being coiled to form an eye, as shown in Fig. 1, within which may be placed a ferrule or sleeve 29 to receive the usual brake-shoe

hanger. The sections 26 28, starting from the point 25, extend closely along the upper portion of the beam-flange 23 and thence along the inner surface of the upper portion of the face-plate 10 and then coil around the sleeve 29 and are folded back upon themselves, where they are secured by rivets 30, which pass through the two thicknesses of the said sections 26 28 and through the face-plate 10, whereby the upper end portion of the back section 11 has its parts brought together and said face-plate is firmly secured. The sleeve 29 in length equals the width of the upper back section 11, and hence when the end portions of the sections 26 27 28 are coiled around said sleeve the latter becomes inclosed and increases the strength of the upper portion of the back section 11 and serves to direct any strain of the hangers against all of said sections 26 27 28. Between the facing edges of the sections 26 28 is formed the upper portion of the keyway for the key 17, said edges forming the side walls of said keyway.

The lower back section 12 is in one integral piece of forged metal, pressed into shape, and at its upper portion closely engages the brake-beam 14, below which said section 12 is formed with the vertical box 31 and side flanges 32, said box 31 constituting the lower portion of the keyway and creating angular flanges, which increase the strength of the section 12. The flanges 32 at opposite sides of the rivets 30 are secured by rivets 33 to the face-plate 10, whereby the lower portion of said face-plate becomes securely fastened to the lower section 12 of the back of the head. When the two sections 11 12 of the back are secured to the beam 14 through the flanges or jaws 13, it will be obvious that all parts of the head are very securely fastened together.

The formation of the face-plate 10 in a separate piece from the back of the head enables me with great ease to form the entire brake-shoe head from forged metal and without expensive and tedious operations. The riveting of the face-plate 10 to the upper and lower sections of the back at each side of the vertical center of the head and above and below the box-loop 15 increases the strength and durability of the head. The face-plate 10 extends above and below the back sections 11 12, and it is beyond said ends that said plate 10 is formed with the flanges 22, which strengthen the end portions of said plate at points where they receive the ends of the brake-shoe 18. The formation of the flange 23 of the brake-beam to fit the box-loop 15 enables the brake-beam to become shouldered upon said box-loop and to aid in preventing distortion of said face-plate adjacent to said loop.

It will be seen on reference to Fig. 1 that the key 17 is engaged at three points, one being by the inner wall of the opening through

the lug 19 of the shoe and the other two being at the inner surfaces of the upper and lower portions of the plate 10, and that given portions of said key above and below the lug 19 are not engaged by said plate, whereby the key at said portions is left free to have a limited yielding action under the strains that may be exerted against it by the lug 19.

The modification shown in Figs. 4, 5, 6, and 7 involves merely a change in the formation of the upper back section 11, and hence the description hereinbefore given with respect to the construction shown in Fig. 1 will apply to the structure shown in Fig. 4, with the exception of that pertaining to the upper back section 11, the features of Fig. 4 corresponding with those of Fig. 1, having been given the same reference-numerals as are present in Fig. 1. The top section 11 (shown in Figs. 4, 5, and 6) is not slit into the three tongues or sections such as shown in Fig. 2, but has its middle portion pressed into box form, as at 40, to form the upper portion of the keyway, while at opposite sides of said box formation 40 said section 11 is formed with the side flanges 41 to engage the inner face of the plate 10. The upper end portion of the section 11 (shown in Figs. 4, 5, and 6) is, without being slit, carried around the sleeve 29 and at the point 42 has a middle section corresponding with the width of the box 40 cut away, leaving the two tail portions 43, which are pressed inwardly along the sides of the box 40 and against the flanges 41. The upper rivets 30 for securing the upper section of the back to the face-plate 10 pass through the tail ends 43 and flanges 41 of the back section and also through the face-plate 10. The modification shown in Figs. 4, 5, and 6 thus consists in a change in the formation of the upper section of the back, whereby the upper portion of the keyway is created by a box formation 40 and the upper portion of the upper back section is carried around the sleeve or ferrule 29 entirely from the inner side of the latter instead of partly around the inner side and partly around the outer side of same. In Fig. 4 I also show an additional rivet 35, connecting the box-loop 15, flange 23, and lower back section 12.

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

1. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and adapted to receive the brake-shoe and its securing-key; substantially as set forth.

2. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-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 keyway; substantially as set forth.

3. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 5 ted in line with said keyway, said plate also having the integral vertical flanges at its end portions; substantially as set forth.

4. A brake-shoe head comprising a forged-metal back and a separate forged-metal face-plate secured thereto at both ends and at each side of the vertical center thereof, a keyway being formed in said back and plate and the latter being adapted to receive the
 10 shoe; substantially as set forth.

5. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 20 ted in line with said keyway, said plate being extended above and below said back and having vertical recesses formed in its end portions; substantially as set forth.

6. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 25 ted in line with said keyway, said plate being extended above and below said back and having vertical recesses formed in its end portions with integral flanges along the vertical edges thereof; substantially as set forth.

7. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 30 ted in line with said keyway, said back being formed with an eye to receive the hanger; substantially as set forth.

8. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 45 ted in line with said keyway, the slots in said box-loop being continued laterally through said face-plate so as to leave a limited length

of the key above and below the shoe-lug free for yielding purposes; substantially as set forth.

9. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 55 ted in line with said keyway, said back having an upper portion curled into eye form and returned against the back and riveted thereto; substantially as set forth.

10. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 60 ted in line with said keyway, said back having its opposite side portions brought against and riveted to said face-plate to form the keyway above and below said box-loop; substantially as set forth.

11. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 75 ted in line with said keyway, said back having its upper opposite side portions extended against said face-plate to form a part of the keyway and thence curled into eye form and then returned against the back and riveted thereto; substantially as set forth.

12. A brake-shoe head comprising a forged-metal back wherein is formed a keyway, and a separate forged-metal face-plate secured thereto and having a box-loop entered in between the end portions of said back and slot-
 80 ted in line with said keyway, combined with the brake-beam having its flange shouldered on said box-loop and secured to said back; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 10th day of August, A. D. 1905.

SETH A. CRONE.

Witnesses:

CHAS. C. GILL,
 ARTHUR MARION.