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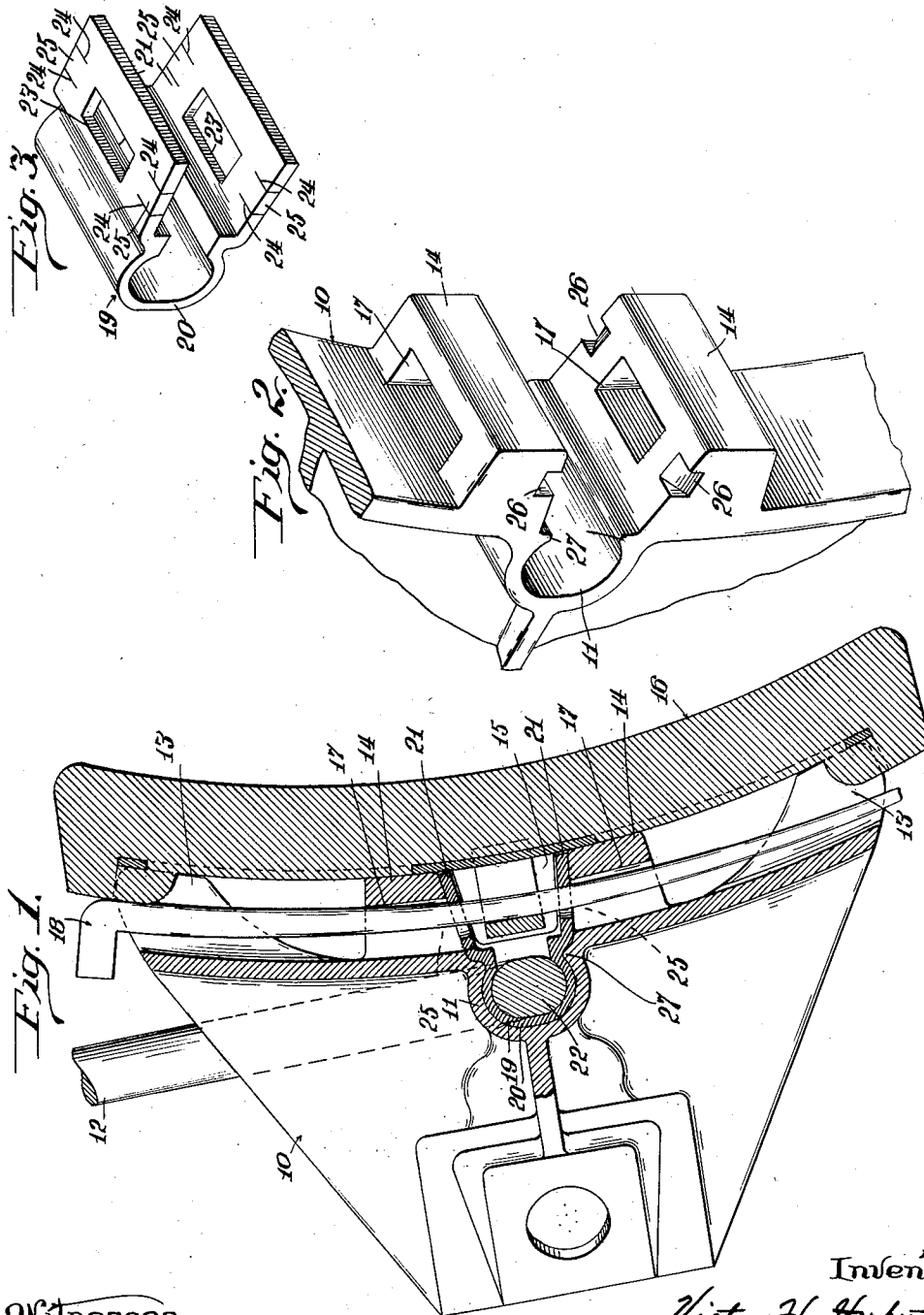
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2,082,002

BRAKE HEADWEAR RECEIVING ELEMENT

Filed Feb. 1, 1932

2 Sheets-Sheet 1



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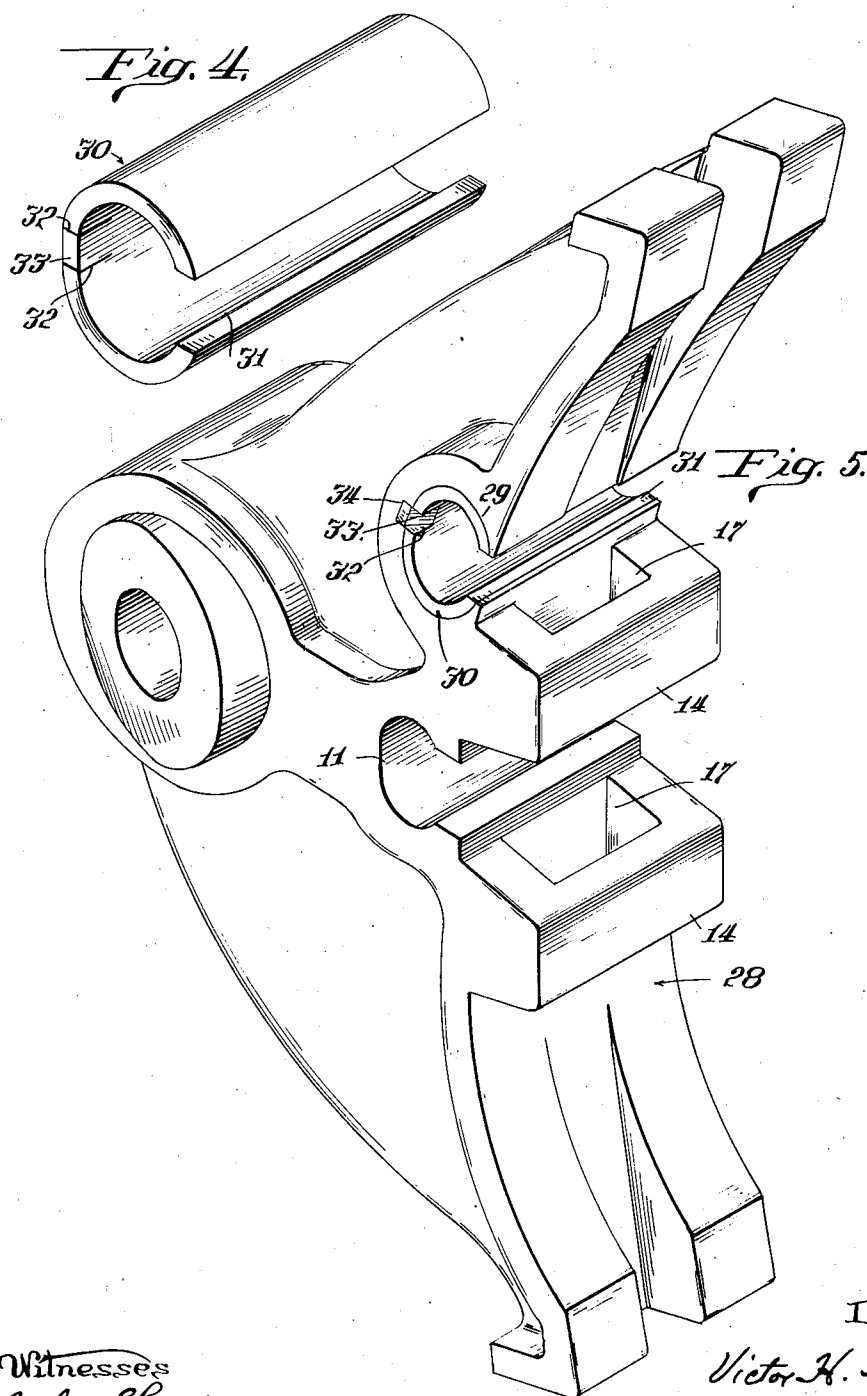
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UNITED STATES PATENT OFFICE

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BRAKEHEAD WEAR RECEIVING ELEMENT

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mesne assignments, to Illinois Railway Equip-
ment Company, a corporation of Illinois

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13 Claims. (Cl. 188—236)

My invention relates to means adapted to be readily applied to the standard type of brake heads at present in use, and has for its object the provision of means whereby wear encountered by the head by reason of its pivotal and therefore vibrating relation with the usual hanger will be taken care of or absorbed by my improved means which is intended to be removably secured in place.

The invention also contemplates means whereby the wear on the lugs of the head resulting from the lapping relation with the fastening lug of the shoe and resulting from the constant vibrating action encountered during car operation will be eliminated and such wear, if any, entirely taken up by my easily replaceable means.

Another object of my invention is to provide means whereby the shoe locking key will be held in binding contact with said means and frictional contact between the key and the head-lugs, which are composed of softer metal, will be prevented, with the result that a longer lived brake-head is obtained.

A further object of the invention is to provide means of a uniform character that it may be reversed in its application to the brake head, should occasion require.

The above enumerated objects, as well as other objects that will be apparent from the embodiments of the invention hereinafter described, will be more fully comprehended from the following detailed description of the drawings, wherein:

Figure 1 is a sectional elevation of a brake head and shoe with a portion of a hanger; the head being provided with my improved wear receiving element also shown in section.

Figure 2 is a perspective view of a portion of the shoe receiving face and hanger receiving socket of a brake head, with my improved element omitted.

Figure 3 is a perspective view of my improved wear receiving element.

Figure 4 is a perspective view of a modification of my invention.

Figure 5 is a perspective view of a brake head showing the form of element disclosed in Figure 4 applied for a three-quarter hung head.

The accepted A. R. A. brake heads for present day equipment for cars are usually of the center hung type similar to that illustrated in Figure 1 and for purposes of exemplification I have shown my invention in Figure 1 applied to such type, wherein the head 10 is provided adjacent its forward face and substantially centrally between the top and bottom ends of the head with a hanger

receiving socket at 11 adapted to receive the lower free end of the usual hanger, a portion whereof is shown at 12. The lower ends of the hangers (whether of the later continuous link type or of the U-type) are usually elongated in vertical cross-section, as shown in Figure 1, so as to have a major dimension somewhat greater than the size of the throat or opening from the forward face of the head into the hanger receiving socket 11, in order that the lower end of the hanger, when in proper suspended position, cannot move out of the socket 11.

The brake head is provided at top and bottom with the usual shoe engaging toes, as at 13, 13, and on its forward face intermediate of the top and bottom with the usual apertured or vertically slotted lugs 14, 14. These lugs are spaced apart vertically on the front face of the head, with their opposing faces sloping away from each other toward the front, as shown in Figure 1, to receive the lug 15, on the rear face of the shoe 16, therebetween; the shoe lug 15 likewise being usually tapered as shown to substantially match the sloping faces of the head lugs 14, 14.

The shoe lug 15 has a vertical slot or opening therethrough intended to substantially match or register with the vertical slots or openings 17 in the head lugs 14, 14, in order to receive the usual shoe locking key 18.

The brake head is of cast metal construction and the hanger receiving sockets and spacings between the lugs are made with more or less tolerance in order that easy application and free movement of the hanger may be had and so that the interengaging or lapping relation of the shoe lug with the head lugs may be readily obtained.

As a result of this condition, the hanger receiving sockets of brake heads (which are of softer material than the hangers) readily become worn by the constant swinging and oscillatory movements between head and hanger and as a consequence permit the heads to move out of efficient brake applying position.

Furthermore, due to the weight of the shoes and the fact that they involve harder metal than that of which the heads are made, the constant vibration of the shoes during car operation and brake application very quickly produces excessive wear on the head lugs and particularly of the upper face of the lower head lug 14, with the result that the utility of the head is destroyed and replacement of the entire head required or the formation and welding on of new lugs on the head made necessary, requiring the car to be taken out of service during such operation.

My invention contemplates means whereby these difficulties will be entirely eliminated and in its specific embodiment as disclosed in Figure 3 involves a metal member 19 which constitutes the wear receiving element, preferably composed of a single piece of width corresponding with the width of the forward part of the brake head and formed at its rear longitudinal side with the arcuate segmental wall 20 to provide a hanger link receiving channel and having the substantially flat top and bottom forwardly extending walls 21, 21 which are preferably identical and of similar dimensions. These walls or portions 21 are shown preferably somewhat off-set from the edges of the arcuate wall 20 and made slightly flaring to correspond with the sloping faces of the lugs 14, 14 of the head, in order that these portions 21 will extend flush with the opposing faces of both head lugs 14, 14, as shown in Figure 1.

The juncture between the arcuate wall 20 and the top and bottom wall portions 21, 21 are made as shown and described in order that the entrance into the hanger receiving channel will be somewhat less in vertical dimensions than the major axis of the lower end 22 of the hanger 12; the lower end being made oblong in cross-section, as shown, in order that movement of the hanger end out of the socket, after assembly of the parts and the elements are in operative position, is impossible.

It is apparent from the construction that all wear between hanger or link 12 and the brake head 10 is taken by the socket forming portion of my improved means; while all wear on the head lugs 14, resulting from the vibratory action of the shoe 16 and its lug 15 will be absorbed by the flat wall portions or wings 21.

My improved means is preferably made out of heat treated steel, therefore harder than the metal of the head, and hence will greatly resist wear and at the same time will provide a firm relation between shoe and head and eliminate the usual play between these elements.

The top and bottom wall portions or wings 21, 21 are each provided with similar and aligned slots or openings 23 to permit passage of the usual shoe locking key 18 therethrough. The openings 23, in the portions 21, 21, are slightly off-set rearwardly relative to the forward sides of the slots or openings 17 in the head lugs 14, 14, in order to keep the locking key 18 out of contact with the softer metal of the head lugs 14, as shown in Figure 1. This also causes the key, during insertion, to slightly flex rearwardly, causing the shoe to be firmly drawn against the front side of the head and the shoe to be held against wearing play.

In order to prevent possibility of any longitudinal movement of the wear element 19 in the hanger socket of the head, I show the opposite ends of the wing portions 21, 21 provided with spaced apart parallel slits 24, 24, thereby providing the bendable tongues 25; and the opposite ends of the head lugs 14, 14 are provided with the cut-out portions or sockets 26 (see Figure 2) adapted to receive the tongues 25 when the latter are bent, respectively, upwardly and downwardly after my improved wear receiving element 19 has been inserted in place on the head.

In order to accommodate my improved element, the hanger receiving socket 11 in the head is made sufficiently larger to receive the rear arcuate wall 20; and the wing portions 21 are preferably offset as shown and described in order

to correspond with and fit the usual orifice restricting formation of the head at 27 in Figure 2.

In present day railroad car construction, the brake heads are cast metal and hence comparatively soft, while the shoes are comparatively heavy and composed of hard metal, thus causing great wear on the head lugs in a very short time of car operation; while the hangers are of hard steel and therefore also cause rapid wear of the head due to the constant swing and vibration. As a result frequent renewal of the brake head is necessary.

My improved elements are designed to receive all the wear referred to and therefore eliminate the constant annoyance of worn heads and the material expense of renewing the same. With my element formed as shown and described, it is reversible enabling either wing portion 21 to be placed on the lower head lug 14 where most wear is encountered; and it is also apparent that the element may be easily removed and replaced, should occasion require, by simply bending the tongues 25 into alignment with the body of the wing portions 21 (as shown in Figure 3) thereby releasing them from the sockets 26 in the head lugs 14, 14, which will permit the element to be slid lengthwise out of the socket in the head.

In old equipment, the brake heads are sometimes pivotally supported or hung from the socket generally provided in brake heads and located above the center socket 11 of the head 28 to permit of what is known as a three-quarter hung head, thus adapting the heads to old and new equipment alike. The head 28, like in the previously described head, is, of course, also provided with the usual lugs 14, 14, slotted as shown at 17; these slots receiving the usual shoe locking key 18 (shown in Figure 1) after the lug of the shoe has been disposed between the head lugs 14, 14; the shoe lug being likewise slotted for passage of the key 18 through the shoe lug.

As the heads are of softer metal than the hangers and because of the swinging and vibrating movement between the head and hanger, considerable wear on the head results in a comparatively short period of time, and such wear also results in the upper hanger receiving socket 29, when the head is of the three-quarter hung type.

In order to adapt the head for use on such old equipment, namely for cars employing the three-quarter hung style, I provide the modified form of wear receiving element 30 disclosed in Figure 4.

The element 30 consists of hardened metal or steel formed into the substantially cylindrical form shown with the cut-out segment or removed wall section at the forward longitudinal side to provide the hanger introducing opening at 31, namely an opening of vertical dimension less than the major transverse dimension of the lower end of the hanger 12, as shown in Figure 1. That is to say, the opening 31 is of a size just sufficient for introduction of the lower end of the hanger when the latter is swung approximately ninety degrees from its normal position illustrated in Figure 1.

The element 30 is of length corresponding with the thickness of the head at the socket 29 so as to extend from end to end in said socket and thus prevent contact between the hanger and the head.

The element at suitable points, preferably at opposite ends, is provided with the spaced apart

slits 32, 32, extending a suitable distance to provide the tongue portion 33 which, after the element has been properly inserted endwisely into the head socket 29, is to be slightly flexed, by means of a hammer blow, out of the plane of the body portion. Prior to insertion of the element in the head socket the head at corresponding points is provided with grooves or notches as at 34 adapted to receive the flexed tongue portion 33, thereby securely holding the element against movement transversely of the head, while at the same time enabling the element to be easily removed, should occasion require, upon flexing or bending the tongue portion 33 back into the aligned position shown in Figure 4.

By forming the tongue portions as shown in Figures 3 and 4, disposed within the planes of the ends of the elements, economical structures are provided and exposed protruding portions are eliminated, while at the same time effective and easily manipulated fastening means are provided.

It is apparent that the brake head may be provided with both forms of my improved wear receiving element to enable the head to be used on either new or old equipment, that is to permit either the central or three-quarter methods of brake head suspension to be used, while at the same time relieving the head lugs 14, 14 of the frictional and pounding contact with the shoe lug.

As the shoe lug is arranged to come between the head lugs 14, 14, there is no wearing contact with the top face of the uppermost head lug 14, and therefore the form of wear receiving element shown in Figure 4 is not provided with the lug facing or protecting wing portions shown in Figure 3.

As is evident from the structures shown, these wear receiving elements relieve the brake head of the wear heretofore encountered and hence enable the heads to be used practically indefinitely and therefore eliminates maintenance expense; while at the same time my improved elements can be easily applied to the brake heads without necessitating a change in construction; application of the elements requiring no special tools or appliances; and as they are uniform and therefore reversible special skill or care in the application of the elements is not required.

I have shown what I believe to be the simplest and best embodiments of the invention and have described the same in terms employed for purposes of description and not as terms of limitation, as modifications may be made without, however, departing from the spirit of my invention.

What I claim is:

1. A single piece brake head wear receiving element adapted to be removably inserted in the hanger socket of the head and formed along one longitudinal side with an arcuate wall to provide an open ended channel open on one longitudinal side and substantially flat wall portions extending from the perimeters of the open side, said flat wall portions being adapted to lap the opposing faces of the spaced apart slotted lugs on the forward face of the head, said flat wall portions being each provided with a key receiving slot.

2. In combination with a brake head and shoe having lapping lugs slotted to receive a locking key and the head having a hanger receiving socket, a wear receiving element formed with an arcuate wall along one longitudinal side, to provide an open ended channel open at one longitudinal side for introduction of the hanger, and

flat wall portions spaced from each other and extending from the perimeter of the open side of the channel portion, said flat wall portions being adapted to extend intermediate of the opposing faces of the lugs on the head and shoe, said flat wall portions each having a key receiving slot and provided with tongues adapted to engage with the head and prevent longitudinal movement of the element.

3. A brake head wear receiving element formed into substantially U-shape cross-section to provide a brake hanger receiving open sided channel at one longitudinal side of the element, the top and bottom walls adjacent the channel being formed to restrict the open side of the channel, said walls being each provided with a key receiving slot, said element being provided with bendable tongue portions normally disposed within the planes of the ends of the element.

4. A brake head wear receiving element formed into substantially U-shape cross-section to provide a brake hanger receiving channel at one longitudinal side of the element, the walls along the open side of the channel being formed to restrict the open side of the channel, the top and bottom walls flaring toward the open longitudinal side of the element and each provided with a key receiving slot, said walls at opposite ends of the element being slit lengthwise of the element to provide bendable tongues.

5. In combination with a brake head and shoe having lapping lugs slotted to receive a locking key, the head lugs at their ends being notched and the head having a hanger receiving socket, a wear receiving element formed into substantially U-shape to provide a hanger receiving channel at one longitudinal side of the element, said element being insertable in the hanger socket of the head, the top and bottom walls of the element adjacent the channel portion being formed to restrict the open side of the channel, said top and bottom walls having key receiving openings offset rearwardly relative to the forward sides of the slots in the head and shoe lugs, said top and bottom walls being adapted to be interposed between the opposing faces of the head and shoe lugs and having bendable portions lying within the planes of said walls and adapted to form holding relation with the notches in the head lugs.

6. In combination with a brake head having a hanger receiving socket disposed transversely of the head, the side walls of the head at the ends of the socket being provided with notches, a wear receiving element formed to provide a hanger receiving channel open at the ends and at one longitudinal side and arranged to be removably inserted into the head socket, the ends of said element being slit to provide laterally bendable portions adapted to register with said notches and to engage therein and thereby prevent longitudinal movement.

7. A brake head wear receiving element comprising a substantially U-shape single piece wear receiving member adapted to be removably inserted in the shoe lug and hanger receiving socket of a brake head; the spaced apart walls of the element having registering key receiving openings and provided with integral portions constituting means whereby the element is held against movement.

8. A wear receiving element adapted to be inserted in the hanger receiving socket of a brake head, said element being substantially U-shape in cross-section and the closed arcuate longitudinal side constituting the brake hanger receiv-

ing socket, while the two vertically spaced sides are adapted to extend substantially parallel with and intermediate of the spaced apart head-lugs, said sides having key receiving openings.

5 9. A brake head wear receiving element comprising a single piece substantially cylindrical member, adapted to be inserted in the hanger receiving socket in a brake-head and open along one longitudinal side and at its ends and insert-
10 able endwisely into the hanger receiving socket of the brake head, the ends of the member being slit longitudinally to provide laterally bendable tongues whereby longitudinal movement of the element is prevented.

15 10. A brake head formed with a recess for receiving a brake shoe lug and hanger, and a removable bushing secured in said recess for protecting the head from wear by both lug and hanger.

20 11. A brake head formed with a recess for

receiving a brake shoe lug and hanger, and a renewable bushing secured in said recess for protecting the head from wear, said bushing being constructed of material harder than that of the head and both formed with registering apertures
5 for receiving means for connecting a brake shoe to said head.

12. A brake head formed with a recess for receiving a brake shoe lug and hanger, and a renewable bushing in said recess for protecting
10 the head from wear, said head and bushing having registering apertures for receiving the brake shoe key for securing the bushing in place.

13. A bushing adapted to be positioned in a brake-shoe-lug-and-hanger receiving recess in a
15 brake head for protecting said head from wear, said bushing being apertured to receive a brake shoe key for securing said bushing in place.

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