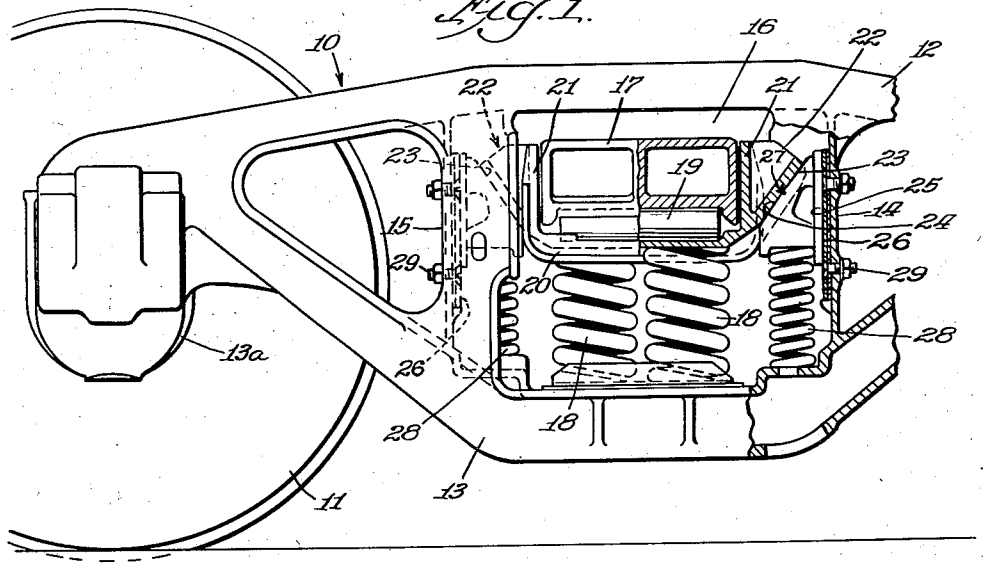
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FRICTION WEDGE FOR RAILWAY CAR TRUCKS

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Fig. 1.



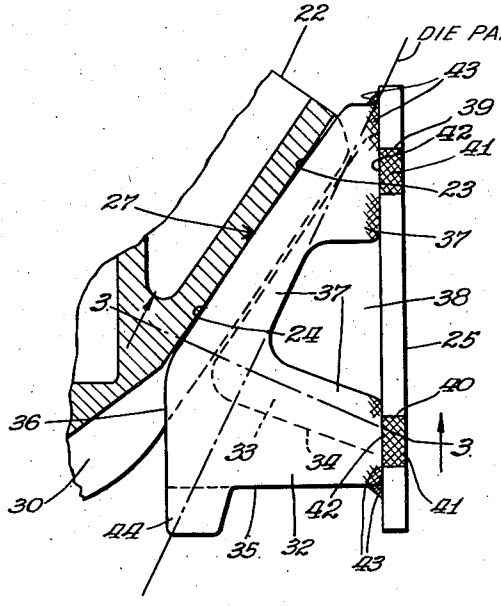
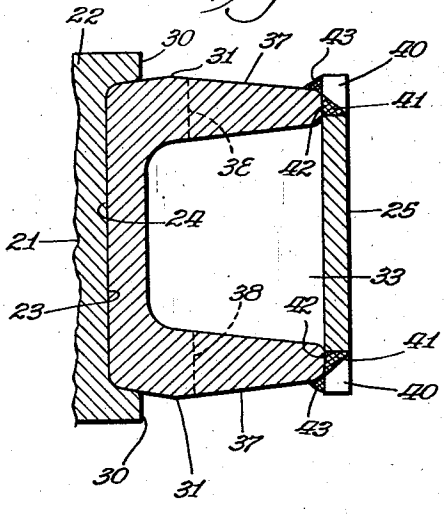


Fig. 2

Fig. 3.



INVENTOR.
Charles B. Shaw
BY
Harvey M. Gillespie Atty

Aug. 14, 1951 C. B. SHAW 2,564,346

FRICTION WEDGE FOR RAILWAY CAR TRUCKS

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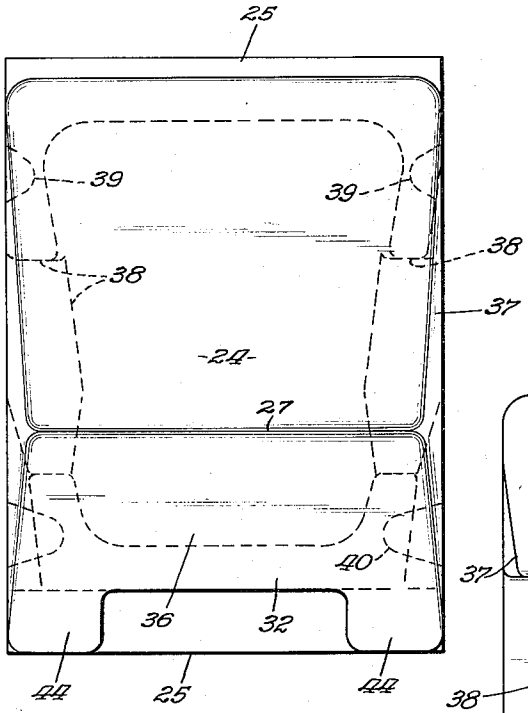


Fig. 4.

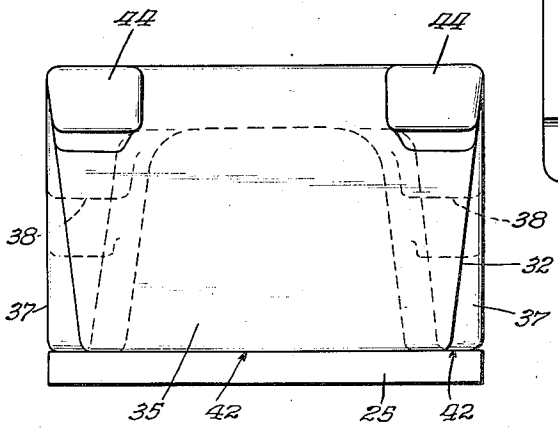


Fig. 5.

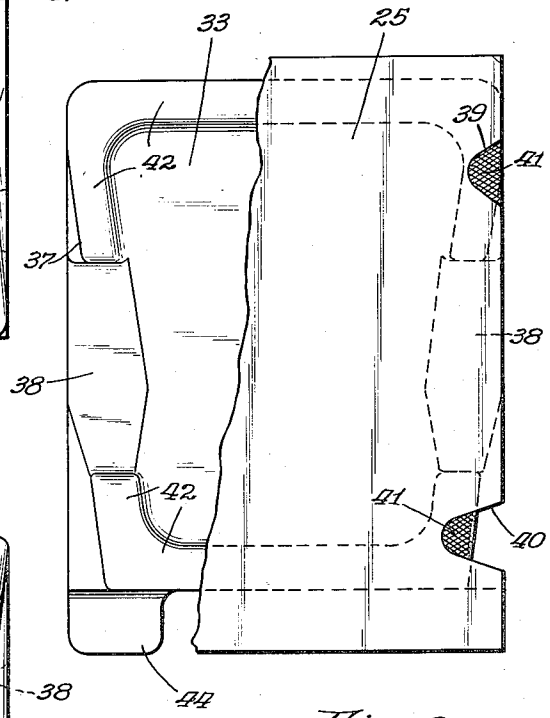


Fig. 6.

INVENTOR.
Charles B. Shaw
BY
Harvey M. Gillespie
Atty.

Patented Aug. 14, 1951 2,564,346

UNITED STATES PATENT OFFICE

2,564,346

FRICTION WEDGE FOR RAILWAY CAR TRUCKS

Charles B. Shaw, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a corporation of New Jersey

Application October 12, 1946, Serial No. 702,963

1 Claim. (Cl. 192—251)

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This invention relates to friction wedges of the class now used in certain types of railway car trucks to damp or retard the vertical movements of the truck bolster or other elements of the truck supported on the springs and thereby avoid excessive compression and rebound of the load supporting springs.

These wedges are made of various sizes and shapes for use in different locations, but their general function and character of use are such that certain parts thereof are required to withstand high pressures and other parts thereof are subject to greater wear as a result of friction. The said wedges have been made heretofore in the form of hollow metal castings, usually of low carbon steel, but such castings have not been entirely satisfactory because of the different wear influencing conditions above mentioned.

With the view of overcoming the objections to the cast metal wedges now in general use, it has been heretofore proposed that the castings be heat treated so as to improve their wearing qualities. It has also been proposed to make the castings of a steel alloy adapted to increase their strength. However, these proposals have not been adopted extensively, since they involve increases in the cost of production which are proportionately greater than the increases obtained in the wearing quality of the wedges.

The present invention has as its principal object the provision of an improved friction wedge of the above character, which will overcome the above mentioned and other objections to the cast metal wedges which are now in general use or which have been heretofore proposed. In this connection the invention contemplates the provision of a wedge in which different parts thereof may be made of different metals adapted to withstand the relatively high pressures and lateral thrusts imposed on the body portion of the wedge and to resist the frictional wear imposed on the vertical face thereof.

Another object is to provide a friction wedge member of the above character in which the surface, or surfaces, thereof which are subjected to the greatest frictional wear may be made as separate elements and securely fixed to the body portion.

Another object is to provide a friction wedge of the general character contemplated which include certain novel and improved structural features whereby it may be produced economically by die forging and welding operations.

A further and more specific object of the invention is to provide a friction wedge in which the

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body portion thereof is produced by forging operations and the friction surface of the wedge, which comprises a hardened steel plate, is welded to the forged body portion, or otherwise suitably fixed thereto so that it can be removed and a new plate substituted therefor, when the original plate has been worn sufficiently to warrant replacement.

The invention is illustrated in the accompanying drawing wherein:

Fig. 1 is a fragmentary side view, shown partly in section, of a railway car truck in which friction wedges constructed in accordance with this invention are employed to damp the vertical movements of the truck bolster.

Fig. 2 is an enlarged side view of one of the friction wedge members shown in Fig. 1 and illustrating a fragmentary portion of another truck element associated therewith.

Fig. 3 is a cross section taken on line 3—3 of Fig. 2.

Fig. 4 is a view, in elevation, of the inclined side of the friction wedge.

Fig. 5 is a bottom view of the wedge.

Fig. 6 is a view, in elevation, of the friction face of the wedge.

The improved wedge of the present invention is illustrated herein in connection with a stabilized car truck in which the truck bolster is supported on roller elements with capacity for movement transversely of the truck. This particular form of truck is used merely for convenience of illustration. It should be understood that the wedges constructed in accordance with this invention may be varied in size or shape to make them suitable for use in any location and in connection with any form of truck in which stabilizing wedges are used.

The specific form of truck herein shown is of a well known construction and may be briefly described as comprising a pair of side frames 10, suitably supported on wheels 11. Only one side frame and wheel is shown in the drawing, but it will be understood that a complete truck includes two side frames and four wheels.

In the truck herein shown each side frame includes an upper compression member 12 and a lower tension member 13 which extend from one journal box 13a to another. These side frame members are rigidified near their middle by the provision of a pair of vertical columns 14 and 15. The said columns of each frame are channel shape in cross section and define the side limits of a window 16 through which one end of the truck bolster 17 extends and in which a group of

load supporting springs 18 and other associated devices are mounted. Each end of the bolster 17 is supported on rollers 19 interposed between the bolster and a roller bed casting 20. The said roller bed casting is of known construction and is supported on the said group of load supporting springs. It is provided with upwardly extending side portions 21—21 which embrace and slidably engage the opposite side faces of the bolster 17. The side portions 21—21 of the roller seat casting are also formed with lugs 22 having bearing faces which incline upwardly and outwardly. These lugs extend into the channel portion of the columns 14 and 15 and their inclined faces seat on a pair of the improved wedge members. These wedge members are positioned in the channels of the columns 14 and 15 and include vertical friction face plates 25—25 for bearing against hardened steel wear strips 26—26 secured to the inner faces of the columns. The wedges also include inclined faces 23—24 which are formed at their juncture with a cylindrical crown as indicated at 27 (Figs. 2 and 4) so that the pressure of the lugs 22 on the wedges, will be centralized and thereby uniformally distribute the pressure exerted thereon to the entire area of the vertical friction faces 25 of the wedges. The lower ends of the wedges seat on springs 28 which are compressed by downward movement of the bolster, whereby the spring pressure exerted by springs 28 function in conjunction with the said cylindrical crowns 27 of the wedges to force the frictional surfaces 25—25 of the wedges into engagement with said wear strips 26—26. The wear strips 26—26 are removably secured to the inner faces of the columns by means of bolts 29. The said lugs 22—22 are formed along opposite edges of their inclined faces with depending ribs 30—30, which fit over the opposite side faces 31—31 of the wedges so as to hold them in proper alignment with the said lugs.

The truck constructions including the general shape of the wedge members are well known in the art. The present improvements relate to the special constructions of the wedge whereby a stronger and more durable wedge is provided. To accomplish this result the body portion 32 of the wedge is made as a die forging and the vertical friction face 25 is formed separately, preferably of hardened steel plate, and thereafter welded or otherwise securely fixed to the body 32. The forged body portion of the wedge, because of the character and distribution of the metal therein, is especially suited to withstand the pressures to which it is subjected in service, and the hardened metal wear plate 25 is especially suited to withstand the friction imposed thereon.

The forged metal body 32 is of general wedge shape including an inclined face portion, defined by said faces 23, 24 and 27, a bottom face 35, and side walls 37—37, the outer edges of which define a vertical face portion 42 of the body. The body is formed with a large cavity 33 therein which opens through the vertical face portion 42. The shape of the cavity follows the general external wedge shape of the body and therefore increases in depth transversely of the wedge from the top to the bottom thereof. The bottom wall 34 of the cavity 33 inclines upwardly relative to the bottom face 35 of the wedge and terminates in the region where the inclined face portion 24 thereof joins a vertical lower face 36 of the body so as to provide suitable reinforcement at this location. The vertical side walls 37—37 taper in thickness toward their outer edges to facilitate removal of the forging from the section of the die in which the side walls are formed. Each of the side walls 37—37 are also formed, during the forging operation, with an inwardly extending recess 38—38. These recesses serve to reduce the amount of metal used in the side walls without materially weakening the body of the wedge as a whole, since the portions of each body which are above and below said recesses 38—38 are bridged and firmly secured together by the attachment of the friction face plate 25 to the body.

The friction face plate 25 is preferably made of hardened steel. It is of a size sufficient to extend beyond the top, bottom and sides of the forged metal body as shown in Figs. 2 and 3 of the drawing. The side edges of the plates are preferably parallel and therefore project outwardly from the vertical edges of the side walls 37—37, particularly near the bottom of the body, since the side walls are preferably inclined inwardly toward the bottom of the body as shown best in dotted lines in Figs. 4 and 6 of the drawings. The said vertical edges of the face plate 25 are preferably, but not necessarily, formed with punched recesses 39—39 and 40—40 above and below the recesses 38—38 in the side walls of the body. The lower recesses 40—40 extend inwardly from the edges of the plate a greater distance than the recesses 39—39 to compensate for the inclination of the side walls 37—37 of the forged body. Suitable welds for securing the plate 25 to the body are formed at the several recesses 39—40 and the welding metal 41 is positioned in the recesses to engage the vertical face 42 of the forged body. If desired, welds may be formed as indicated at 43 or at other locations along the edges of the plate 25 either with or without the welds 41.

The bottom of the body is formed with studs 44—44 which function, in connection with the portion of plate 25 which extend below the body, as retainers for the upper ends of the wedge springs 28.

It will also be observed that the improved construction is such that the body may be formed as a die forging and that the friction face plate 25 may be readily removed from the body of the wedge and a new plate applied thereto when the wear of the plate is sufficient to warrant renewal.

While the invention is shown and described herein in connection with certain specific structures, these structures may be varied without departures from the scope of the invention except as to the claim which may be expressly limited to the structures shown.

I claim:

A railway car truck friction wedge comprising a forged metal body formed with vertical and inclined face portions and having a cavity opening through one of said face portions, and a renewable friction plate of hardened steel welded to the body to close said cavity opening.

CHARLES B. SHAW.

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