Oct. 25, 1960 W. H. BASELT 2,957,434

SNUBBED TRUCK

Filed July 25, 1957

Fig. 1.

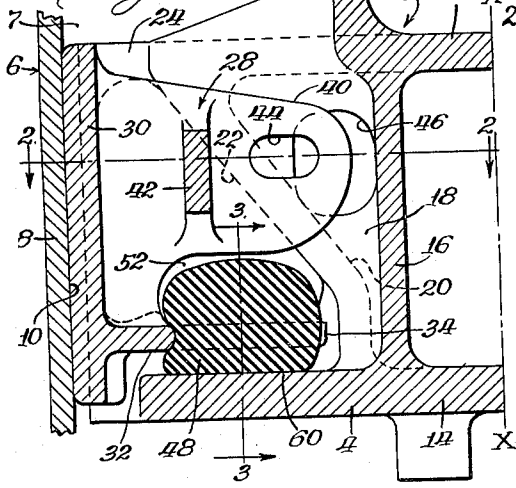


Fig. 2.

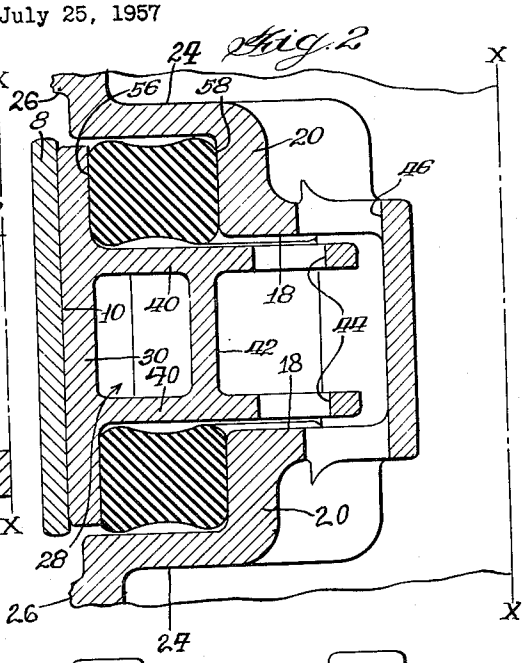
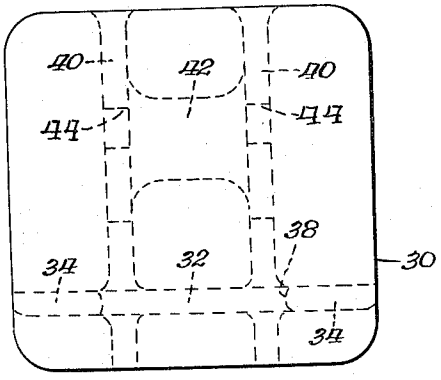


Fig. 4.



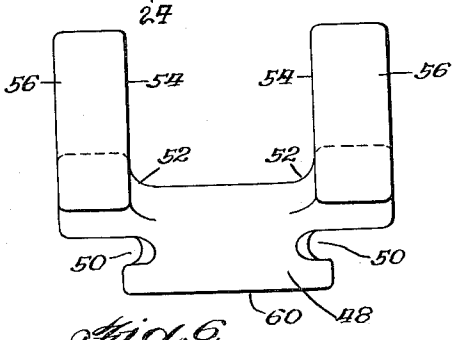


Fig. 6.

Fig. 7.

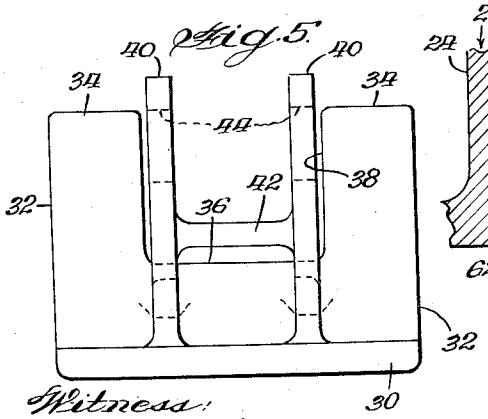


Fig. 5.

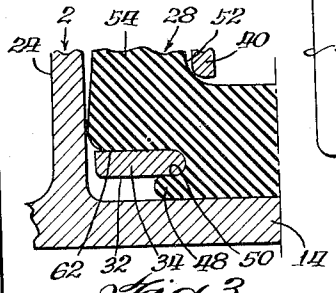
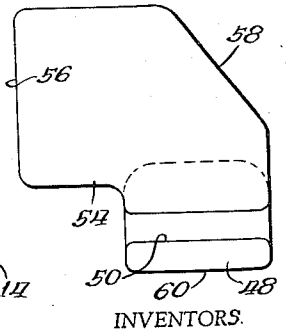


Fig. 3.



INVENTORS.

Walter H. Baselt

By Walter L. Schlegel, Jr.

Atty

Witness:

William V. Emder

United States Patent Office 2,957,434 Patented Oct. 25, 1960

2,957,434

SNUBBED TRUCK

Walter H. Baselt, Flossmoor, Ill., assignor to American Steel Foundries, Chicago, Ill., a corporation of New Jersey

Filed July 25, 1957, Ser. No. 674,190

13 Claims. (Cl. 105—197)

This invention relates to railway freight car trucks and more particularly to a novel snubbed truck which is simple and economical in construction and is capable of withstanding severe use in railway structure without excessive wearing of the bolster structure which carries the snubbing means.

The invention constitutes an improvement over the snubbed truck disclosed in prior art U.S. Patent No. 2,378,414 issued June 19, 1945, to Light. That design of truck has been sold in great numbers to the American railroads and has proved to be very effective and efficient in dampening vertical and horizontal oscillations of the truck bolster. However, it has been discovered that in certain unusual types of service, such as is sometimes encountered in refrigerator cars, the engaged wedged surfaces of the shoes and bolsters sometimes are caused to wear excessively, resulting in short life not only for the shoes but under some conditions for the bolster.

The present invention comprehends a novel friction assembly which may be substituted for the types of friction assemblies that are disclosed in the Light patent to extent the service life of a bolster having wedge surfaces which have become worn as above described. It will be understood, however, that the novel friction assembly may be utilized with a new bolster to afford a snubbed truck in which wear along the bolster wedge surface is substantially eliminated.

Accordingly, a primary object of the invention is to afford a novel three-point engagement between the bolster and a rubber shoe actuating block having two-point engagement with the friction shoe for actuation thereof.

Another object of the invention is to devise a friction assembly such as above described in which the resilient shoe actuating block and friction shoe may be pre-assembled to afford a compact unit which may be applied to and removed from the bolster as a unit thereby facilitating assembly of the truck.

The foregoing and other objects and advantages of the invention will become apparent from a consideration of the following specification and the accompanying drawings wherein:

Figure 1 is a fragmentary vertical sectional view of a freight car truck embodying a preferred form of the invention;

Figure 2 is a sectional view taken substantially in the horizontal plane designated by line 2—2 of Figure 1;

Figure 3 is a sectional view on line 3—3 of Figure 1;

Figure 4 is an elevational view of the friction shoe shown in Figure 1 taken from the face thereof which engages the side frame column;

Figure 5 is a top plan view of the shoe;

Figure 6 is a front elevational view of the resilient shoe actuating block shown in Figures 1 to 3, and

Figure 7 is a side elevational view of the block taken from the right as seen in Figure 6.

Describing the invention in detail and referring first to

Figure 1, it will be seen that the bolster generally designated 2 is of well known design having a bottom surface 4 at each end thereof for resilient support in any conventional manner by a side frame generally designated 6. The side frame comprises a bolster opening or window 7 partly defined in the usual manner by columns 8, one of which is fragmentarily illustrated in Figure 1. Each column may comprise a friction surface 10 which may be integrally formed on the columns 8 or may be formed on a friction plate attached thereto in any convenient manner as by welding.

The columns 8, one of which is shown in Figure 1, are preferably vertical as illustrated therein, although they may diverge with respect to each other upwardly or downwardly, as is well known to those skilled in the art, and the surfaces 10 are also preferably parallel to the longitudinal vertical center plane X—X (Figure 2) of the bolster when the latter is in normal perpendicular or squared relationship to its supporting side frames as will be readily understood by those skilled in the art.

The bolster comprises top and bottom webs 12 and 14 and at each side of its vertical center plane X—X comprises a vertical web 16 extending between the webs 12 and 14. The web 16 is defined by a vertical plane parallel to the plane X—X and is connected to spaced webs 18, which are in turn connected to adjacent edges by diagonal webs 20 which afford spring abutments 22 for a purpose hereinafter described. The webs 20 at the remote edges are connected to vertical bolster walls 24 which join conventional gibs 26 fragmentarily shown in Figure 2 and adapted to slidably embrace the adjacent columns 8 for the purpose of interlocking the side frame and bolster and accommodating relative vertical movement therebetween, as is well known in the art.

Only one-half of the bolster structure is illustrated in the drawings inasmuch as the structure is preferably symmetrical about its center plane X—X, although it will be understood that, if desired, only one friction device may be utilized in which arrangement the bolster structure may directly contact the side frame column remote from the friction device. It may also be noted that although the bolster structure is illustrated as a single casting, if desired, a multi-piece structure such as is well known in the art may be utilized within the scope of the invention and the term "bolster" as used in the specification and claims hereof is hereby defined as meaning either a single or multi-part bolster structure.

The friction device is generally designated 28 and comprises a friction shoe having a front wall 30 the front face of which is frictionally engaged with the beforementioned column surface 10 to dampen vertical and horizontal oscillations of the bolster 2. The shoe also comprises a wall or web 32 connected to the rear surface of the wall 30 and extending rearwardly therefrom in spaced relationship to the bottom bolster web 14 as best seen in Figures 1 and 3. The web 32, as best seen in Figure 5, is U-shaped as seen in top plan view and comprises spaced legs 34 interconnected by a segment 36 defining with them a slot 38 through the web 32. The novel friction shoe also comprises spaced wings 40 which are preferably vertical and are connected to the rear face of the friction wall 30 and extend rearwardly therefrom above the slot 38. The wings 40 are preferably interconnected by a reinforcing web 42 and are provided with aligned openings 44 which partially overlap openings 46 of the bolster webs 18 as best seen in Figure 1. The openings 44 and 46 are adapted for the reception of a pin or key to anchor the shoe to the bolster with the friction wall 30 of the shoe spaced from the friction surface 10 of the column during assembly and disassembly of the bolster and side frame.

The novel shoe actuating block may be formed of any flowable resilient material such as natural or synthetic rubber and comprises a foot **48**, the sides of which are formed with grooves or recesses **50** within which the legs **34** of the shoe web **32** are snugly fitted as best seen in Figure 3. The foot **48** is connected at each end thereof by a neck portion **52** to a wing or lug **54** upstanding from the neck portion **52** as best seen in Figure 6 so that the wings **54** are in spaced relationship with respect to each other to receive the shoe wings **40** therebetween. The forward surface of the edge of each wing **54** is provided with an abutment surface **56** engageable, as best seen in Figure 2, with a complementary rearwardly facing abutment surface on the front friction wall **30** of the friction shoe. The rear edge or surface of each wing **54** is provided with a diagonal downwardly sloping abutment surface **58** engageable with a complementary abutment surface **22** of the related bolster web **20**. Thus, the resilient block is under compression between its abutment surface **56** and **58** and between an abutment surface **60** on the bottom of its foot which engages an upwardly facing abutment surface on the bottom bolster web **14**. The resilient block is also compressed at **62** against upwardly facing abutment surfaces of the shoe legs **34**.

Thus, the resilient shoe actuating block not only urges the friction shoe wall **30** into tight frictional engagement with the column surface **10**, but also substantially eliminates metal-to-metal wear between the friction shoe and the bolster. In this connection as best seen in Figure 3 lateral movement of the bolster (that is from right to left as seen in that figure) relative to the friction shoe is limited by engagement of the bolster web **24** with the wing **54** of the block. Relative vertical movement between the bolster and shoe is cushioned by the wing **54** and the foot **48** of the block. Also all angular movement of the bolster about a horizontal and vertical axis is cushioned by the resilient shoe actuating block as will be readily understood by an examination of Figures 1 to 3.

Thus, it will be understood that the invention comprehends a novel friction device including a friction shoe and resilient actuating block which substantially eliminates metal-to-metal contact between the bolster and shoe and which may be pre-assembled for each assembly and disassembly with respect to the bolster. The novel friction unit may be releasably keyed or anchored to the bolster with the shoe actuating block sufficiently compressed to maintain the friction surface of the shoe out of pressured engagement with the friction surface **10** of the column during assembly and disassembly of the bolster and friction unit with respect to the side frame. It will be understood also that the novel friction unit may be used either with worn or new bolsters and may be utilized at both sides of a bolster to frictionally engage respective columns on the side frame or may be used at one side of the bolster to frictionally engage one column of the side frame and to urge the opposite side of the bolster (or a wear plate secured thereto) against the opposed column of the side frame.

The novel friction unit also has resilient controls for vertical and horizontal movement of the bolster relative to the shoe as well as angling movement of the bolster on vertical and horizontal axes relative to the shoe. By means of the novel arrangement, major oscillations of the bolster, both vertical and horizontal, are frictionally controlled and minor vertical and horizontal oscillations of the bolster as well as angling movement thereof are resiliently controlled by the resilient shoe actuating block, the hysteretic qualities of which afford internal friction to dampen such angling bolster movements.

It should be noted that the terms "bolster" and "friction shoe carrier" may be used synonymously in the appended claims in order to more fully describe and protect the inventions heretofore described.

I claim:

1. In a railway car truck, a side frame comprising a column, a bolster spring-supported from the side frame adjacent said column, said bolster comprising spaced sloping spring abutments and comprising a bottom wall with another spring abutment facing the space between the first-mentioned abutments, a friction shoe comprising a front wall in frictional engagement with the column and comprising spaced wings extending rearwardly from said wall between said first-mentioned abutments, said shoe comprising a web projected rearwardly from its front wall and having a slot aligned with said wings; a resilient shoe actuating block having a foot seated against the abutment of said bottom wall and having lugs connected by neck portions to opposite sides of the foot, each of said lugs engaging the front shoe wall and the sloping abutments aligned therewith.

2. A railway car truck according to claim 1 wherein, at least one of the wings is provided with an opening at least partially aligned with an opening of the bolster to receive key means for holding the front wall out of pressured engagement with the column.

3. A railway car truck comprising a side frame having a column partially defining a bolster opening, a bolster spring-supported by said frame, a friction surface on said column, a friction shoe engaged with said friction surface, and a mass of flowable resilient material having a three-point support on the bolster and compressed directly against the shoe for actuation thereof, said mass supporting said shoe from said bolster, thereby excluding all sliding engagements of the shoe, other than with said friction surface.

4. A railway car truck comprising a side frame having a column with a friction surface, a bolster movable horizontally and vertically adjacent said surface, spaced downwardly facing spring abutments on the bolster, spaced upwardly facing spring abutments on the shoe in vertical alignment with respective bolster abutments, an upwardly facing abutment on the bolster aligned with the space between the spaced bolster abutments and the space between the spaced shoe abutments, spaced inwardly facing spring abutments on the shoe in horizontal alignment with respective spaced abutments of the bolster, and a mass of flowable resilient material compressed by and between all of said abutments.

5. A railway car truck comprising a side frame having a column with a friction surface, a bolster movable vertically and horizontally adjacent said surface, a friction shoe slidably engaging said surface, and a mass of flowable resilient material interposed directly between and engaging the bolster and the friction shoe and arranged to permit slidable engagement of the shoe only on said column friction surface, said arrangement resisting vertical and horizontal bolster oscillation as well as angling of the bolster on vertical and horizontal axes relative to the shoe.

6. A railway car truck comprising a side frame having a column friction surface with a bolster movable vertically adjacent said surface, a friction shoe engaged with said surface, said bolster housing said shoe and a mass of flowable resilient material comprising spaced lugs, two triangular abutment surfaces on said material compressed against surfaces of the shoe and bolster, respectively, said mass comprising a foot connected to said lugs and bearing against the bolster.

7. A friction assembly comprising a shoe with a front wall having a front friction surface, a web connected to said wall and extending rearwardly therefrom, said web being U-shaped as seen in top plan view to define spaced legs, spaced wings connected to said wall and extending rearwardly therefrom in angular relationship to said web, and a resilient flowable mass having portions extending between said spaced legs for abutment with an associated shoe carrier, said mass having portions each extending between one leg and a related wing for compression be-

tween said front wall and associated spring abutments of said carrier.

8. A friction device comprising a member having a friction surface, a friction shoe slidably engaged therewith, a shoe carrier movable adjacent said surface, and flowable resilient means for actuating the shoe, said means being compressed directly between said shoe and said carrier, and floatably supporting said shoe from any frictional engagement with said carrier, said means permitting slidable engagement of the shoe only on said friction surface.

9. A friction device comprising a member with a friction surface, a friction shoe engaged therewith, a shoe carrier movable adjacent said surface, converging spring abutment surfaces on said carrier, converging spring abutment surfaces on said shoe, and a mass of flowable resilient material disposed externally of said shoe abutment surfaces and wedged thereby against said carrier abutment surfaces, said mass comprising the sole direct communication between the shoe and carrier for normal operative positions of said device.

10. A friction device comprising a member with a friction surface, a friction shoe engaging said surface, a friction shoe carrier having a pocket and having abutment surfaces converging inwardly of said pocket, said shoe being received within the pocket and having abutment surfaces converging outwardly of the pocket, and a mass of flowable resilient means compressed by and between all of said abutment surfaces for actuating the shoe.

11. A friction device comprising a member with a friction surface, a friction shoe slidably engaged therewith, a shoe carrier having a pocket receiving part of the shoe, and a mass of flowable resilient material directly abutting said part of the shoe, said mass being received within the pocket and compressed therein to resiliently support the shoe in spaced relationship from the surfaces of the pocket.

12. A railway car truck comprising a side frame having a column with a friction surface, a bolster movable vertically and horizontally adjacent said column, said bolster having a plurality of spring abutments, certain of said abutments facing downwardly and certain of said abutments facing upwardly, a friction shoe engaged with said friction surface, and a mass of flowable resilient material compressed against at least three of said abutments, said mass being compressed directly against the shoe for actuation thereof, said mass maintaining said shoe in spaced relationship with said abutments, whereby, said shoe is engaged only by said friction surface and said mass.

13. A railway car truck comprising a side frame having a column, a bolster movable horizontally and vertically adjacent said column, a friction shoe engaged with said column, said bolster having converging spring abutments, said shoe having a spring abutment, a mass of flowable resilient material compressed directly between the bolster abutments and the shoe abutment in converging relationship to each of the bolster spring abutments, said mass resiliently maintaining the shoe from frictionally abutting said bolster.

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