10, 1942. R. B. COTTRELL 2,301,372

SIDE BEARING

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Fig. 1

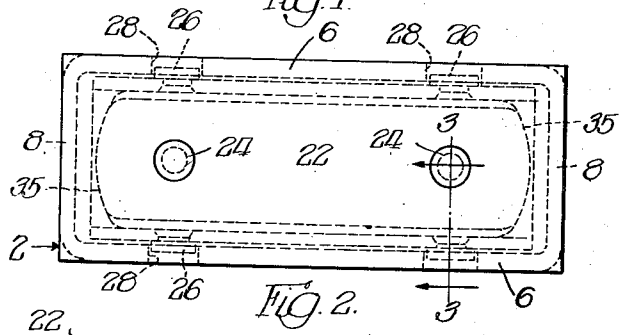


Fig. 2.

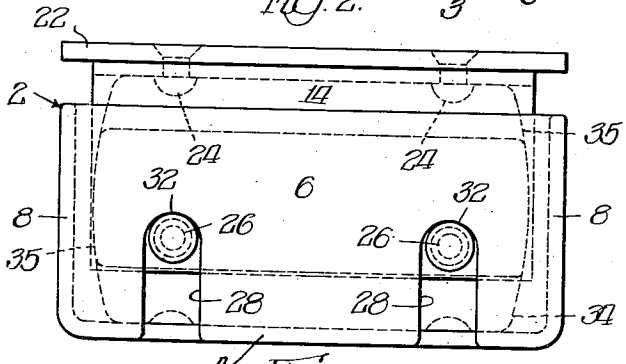


Fig. 7

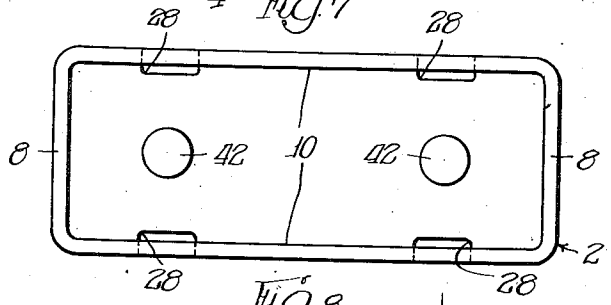


Fig. 8.

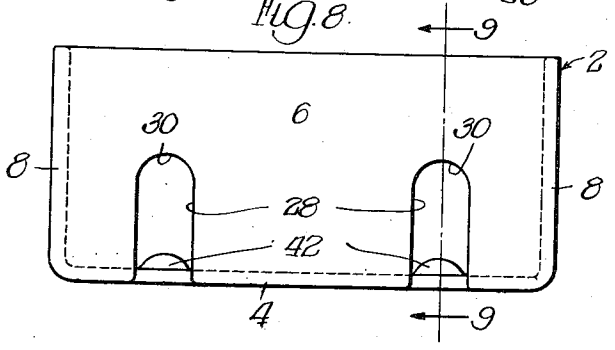


Fig. 3

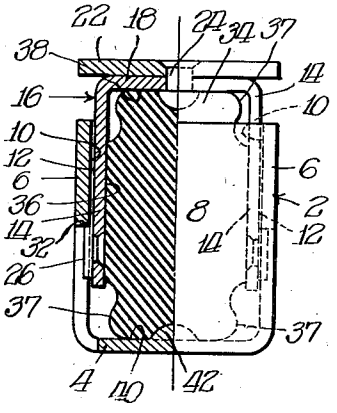
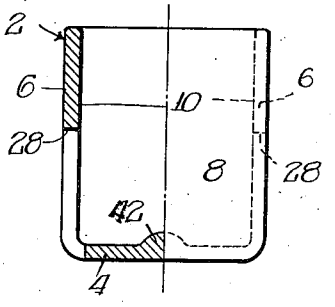


Fig. 9.



INVENTOR.
Robert B. Cottrell,
BY Orin O. B. Garner
ATTORNEY.

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SIDE BEARING

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Fig. 4.

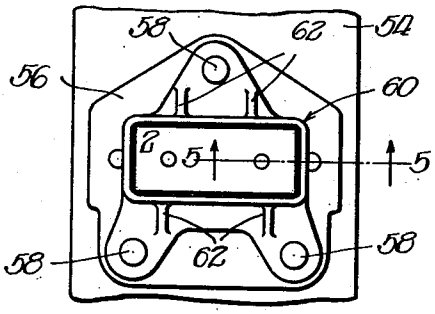


Fig. 5.

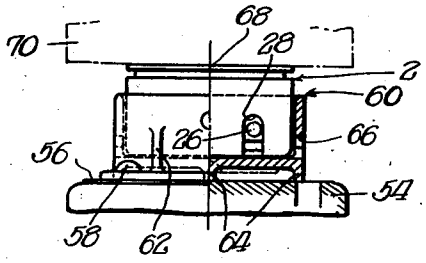


Fig. 6.

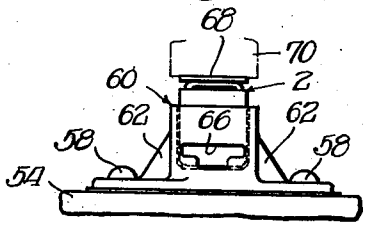


Fig. 10.

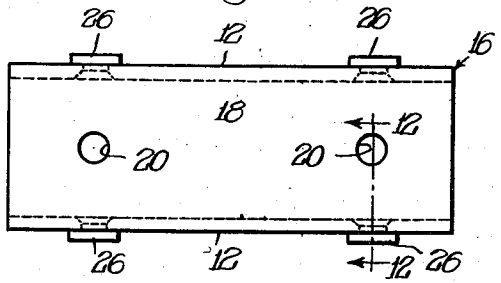


Fig. 11.

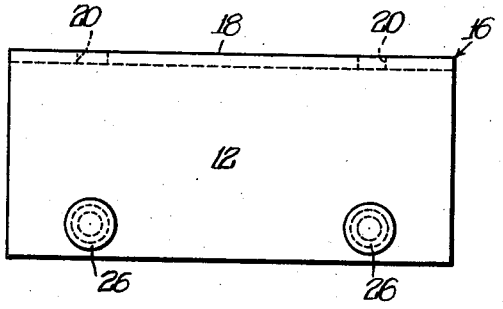


Fig. 12.

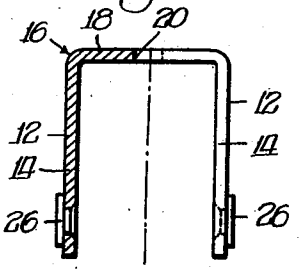


Fig. 13.

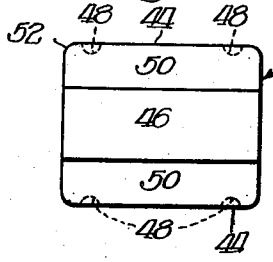


Fig. 14.

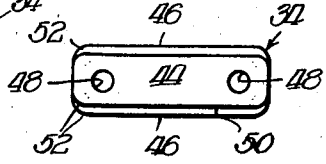
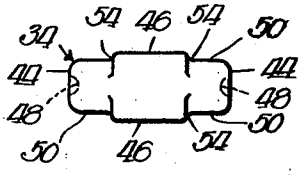


Fig. 15.



INVENTOR.
Robert B. Cottrell,
BY Wm. O. B. Garner
ATTORNEY.

Patented Nov. 10, 1942

2,301,372

UNITED STATES PATENT OFFICE

2,301,372

SIDE BEARING

Robert B. Cottrell, Chicago, Ill., assignor to American Steel Foundries, Chicago, Ill., a corporation of New Jersey

Application October 17, 1939, Serial No. 299,862

5 Claims. (Cl. 308—138)

My invention relates to a side bearing on railway car trucks, and more particularly to a form of such structure which is well adapted for use in a great proportion of railway cars at present in use and likewise suitable for new equipment.

My novel structure incorporates a feature of resilience which is particularly helpful in modern, high speed trains.

My invention comprehends a structure which is adaptable to a variety of conditions on railway cars, and is of such relatively simple form as to facilitate its use under a variety of conditions including a large proportion of the arrangements already in use on a railway car.

A specific object of my invention is to design a railway side bearing having resilience as well as snubbing or absorbing capacity.

A different object of my invention is a design of side bearing which is readily modified to meet a variety of conditions which require varying absorbing capacity.

Yet another object of my invention is a side bearing structure which will readily meet all the requirements of manufacture and service conditions, and at the same time, afford maximum length of life with minimum supervision or repair.

Figure 1 is a top plan view of a side bearing assembly incorporating my invention.

Figure 2 is a side elevation thereof.

Figure 3 is an end view, partly in section, the section being taken in the transverse vertical plane substantially as indicated by the line 3—3 of Figure 1.

Figure 4 is a fragmentary top plan view of a railway car truck member with my novel form of side bearing in position thereon;

Figure 5 is a view in side elevation thereof, partly in section, the section being taken substantially in the vertical plane indicated by the line 5—5 of Figure 4; and

Figure 6 is an end elevation of the structure shown in Figures 4 and 5.

Figure 7 is a top plan view of my novel form of side bearing outer casing;

Figure 8 is a side elevation thereof, and Figure 9 is an end view, half in section, the section being taken substantially in the transverse vertical plane as indicated by the line 9—9 of Figure 8.

Figure 10 is a top plan view of my novel form of inner casing;

Figure 11 is a side elevation thereof; and

Figure 12 is an end view, partly in section, the section being taken in the plane indicated by the line 12—12 of Figure 10.

Figure 13 is a side elevation of my novel form of resilient member;

Figure 14 is a plan view thereof; and

Figure 15 is an end view.

Describing my novel structure in greater detail, it may be noted that it comprises an outer casing 2, generally rectangular in form, having the base 4, the side walls 6, 6 and end walls 8, 8 integrally formed therewith, thus providing a housing of substantially box-like form with an open top. On the inner face of the side walls 6, 6 are afforded fricton surfaces as at 10, 10 for engagement with the outer friction surfaces 12, 12 of the side walls 14, 14 of the inner casing 16, said inner casing being formed as a channel-like structure telescoped within the outer casing 2 with the top wall 18 perforated at 20, 20 (Figure 10) for convenience in securing the wear plate 22 as by means of rivets 24, 24.

On the side walls at spaced points may be riveted the flat, circular, disk-like lugs 26, 26, said lugs serving as retaining means to interlock the inner casing 16 within the outer casing 2 when the parts are assembled as best seen in the assembly views of Figures 2 and 3. Each side wall 6 of the outer casing 2 has a plurality of vertical slots 28, 28 (Figure 8) extending upwardly from the bottom thereof and accommodating the before mentioned lugs 26, 26. The upper edge of each slot 28 is arcuate as indicated at 30 being formed on a radius somewhat greater than that of each lug 26, thus forming a suitable seat for said lug when the device is in normal expanded position and free of loading as best seen at 32 in the sectional view of Figure 3.

Within the housing thus formed by telescoping the inner casing 16 within the outer casing 2 may be seated my novel resilient member 34 of a form and detail more particularly described hereafter, said resilient member being compressed within said housing with large bearing areas against the side walls 14, 14 of the inner casing as best seen at 36 (Figure 3); also large bearing areas at the top and bottom thereof as at 38 against the top wall 18 of the inner casing and as at 40 against the bottom wall of the outer casing. The said resilient member 34 is positioned with respect to said top and bottom walls by means of lugs 42, 42 on said bottom wall and by means of the heads of the rivets 24 with respect to said top wall.

In assembly, the resilient member 34 is placed between the side walls 14, 14 of the inner casing 16 and located centrally by the recesses 48, 48 being positioned on the lugs 24. The side walls

of the inner casing 16 are then compressed until the outer surfaces of the retaining lugs 26, 26 will pass between the inner surfaces 10, 10 of the side walls 6, 6 of the outer casing 2. Pressure is then applied to the plate 22 to close the device, and when the retaining lugs 26, 26 clear the openings 28 they spring outward into these openings thereby locking the two casings together under compression. The bottom surface of the resilient member 34 seats on the bottom 4 of the outer casing 2 and is located by means 48, 48 engaging lugs 42, 42 on the bottom of the outer casing. Further closing of the device causes more vertical compression of the resilient member 34 and results in increased pressure between the side walls 14, 14 of the inner casing and the side walls 6, 6 of the outer casing. After the device is assembled and in its normal expanded position as shown in Figures 1 to 3, the resilient member 34 is considerably bulged at the ends as indicated at 35, 35 and at the lateral edges thereof as indicated at 37, 37, but suitable clearance is still afforded at the ends and sides thereof in order to permit further compression under load.

The particular form of the resilient member 34 is important. It may be noted that the member 34 (Figure 13) is formed with relatively large, flat surfaces 44, 44 at the top and bottom thereof and likewise flat surfaces 46, 46 at the sides thereof. Each of these surfaces affords a relatively large bearing area for abutment of said resilient member against the walls of the enclosing housing. The top and bottom surfaces of the resilient member are afforded positioning means 48, 48 in the form of small recesses for engagement with the before mentioned lugs 42 and the heads of the rivets 24. It will be further observed that the side walls of the resilient member are relieved longitudinally along the top and bottom edges as indicated at 50, 50 above and below the before mentioned bearing areas 46, 46. Furthermore, particular attention is called to the fact that all surfaces of this resilient member merge with adjacent surfaces along smooth radii as seen at 52, 52 along the outer corners thereof and at 54, 54 along the edges of the bearing areas 46, 46. These radii are particularly important inasmuch as their function greatly increases the length of life of the resilient member 34. In other words, such a resilient member when formed with sharp corners or edges tends to split and disintegrate at such sharp edges or corners when it is compressed, and such action causes rapid deterioration of the member and lessens its useful life.

In Figures 4 to 6 inclusive, I have shown my novel form of resilient side bearing as applied to a car truck wherein the tarnsverse load carrying member or bolster 54 may be formed in the usual manner with a side bearing surface 56 upon which may be secured as at 58, 58 the side bearing pocket generally indicated at 60, said pocket being in the form of an integral casting presenting on its upper surface an open box-like structure reinforced at the sides thereof by the ribs 62, 62. The bottom of said casting may be formed with ribs 64, 64 affording a convenient machining surface along their aligned edges. Openings at the end of the box-like structure 60 indicated at 66, 66 permit the insertion of adjusting shims without removing the resilient unit and also allow the escape of water or other extraneous matters which otherwise might accumulate therein. Within the box-like structure 60 may be positioned my novel side bearing generally indicated at 2, 2, the top wear plate of which may afford a seat as at 68 against the body side bearing 70 which may be supported from any convenient member of the car body.

If my novel side bearing is to be applied to old equipment, it may be seated into any side bearing pocket larger than that required by its normal size by application to the side bearing unit of spacers or brackets welded thereto or otherwise conveniently secured. The compact form of my device is such that I am able to develop the required amount of frictional absorption in a structure small enough to be inserted in most side bearing pockets now in use on standard equipment.

It will be readily apparent to those skilled in the art that I may modify the amount of friction absorbing capacity developed in my novel device as requirements dictate within a large range. In other words, I may vary the character of the resilient member 34 to offer a greater or less resistance to its compression between the inner and outer casings and thus develop a greater or less degree of friction as required between the walls thereof.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown which is merely by way of illustration and not limitation as various and other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a friction absorbing side bearing structure, a box-like outer casing, a channel-like inner casing telescoped therewithin in frictional engagement therewith, a resilient member within said casings operable to urge walls thereof into tight engagement, and interlocking means on said casings to limit their relative movement, said resilient member having relatively large, flat surfaces in abutment with the walls of said inner casing and a wall of said outer casing, and relieved areas along top and bottom edges of said member merging with said flat surfaces along smooth radii.

2. In a side bearing device for a railway car, an outer casing having parallel friction walls, a channel-like inner casing having friction surfaces engaging said walls, a resilient member housed within said casings and abutting said inner and outer casings, said resilient member having relatively large, flat surfaces in abutment with the walls of said inner casing and having relieved areas merging with said flat surfaces along smooth radii.

3. In a friction absorbing side bearing device, a box-like outer casing, a channel-like inner casing telescoped therewithin and having frictional engagement therewith, a resilient member housed within said casings and having abutment with the walls on said inner casing and a bottom wall on said outer casing, positioning means on said member engaging means on said casings, and interlocking means on said casings operative to retain said device in assembled relationship.

4. In a friction absorbing side bearing device, a box-like outer casing and a channel-like inner casing telescoped therewithin, each of said casings presenting friction walls for engagement with friction walls on the other casing, a resilient member abutting a top wall and the friction walls on one of said casings and a bottom wall on the other of said casings, positioning means on said member engaging means on said casings, and in-

terlocking means on said casings operative to retain said device in assembled relationship, said interlocking means comprising a plurality of lugs on the friction walls of one casing engaging stop means on the friction walls of the other casing.

5. In a friction absorbing side bearing structure, a box-like outer casing, a channel-like inner casing telescoped therewithin in frictional engagement therewith, a resilient member compressed between said casings and having abutment against the lateral walls of one of said casings and against the top and bottom walls of respective casings and effective to urge said lateral walls into tight engagement with the other of said casings, and interlocking means on said casings to limit their relative movement in one direction.

ROBERT B. COTTRELL.