Dec. 8, 1931. F. M. GILLESPEY 1,834,944

SIDE FRAME FOR CAR TRUCKS

Filed Jan. 22, 1931

Fig. 1.

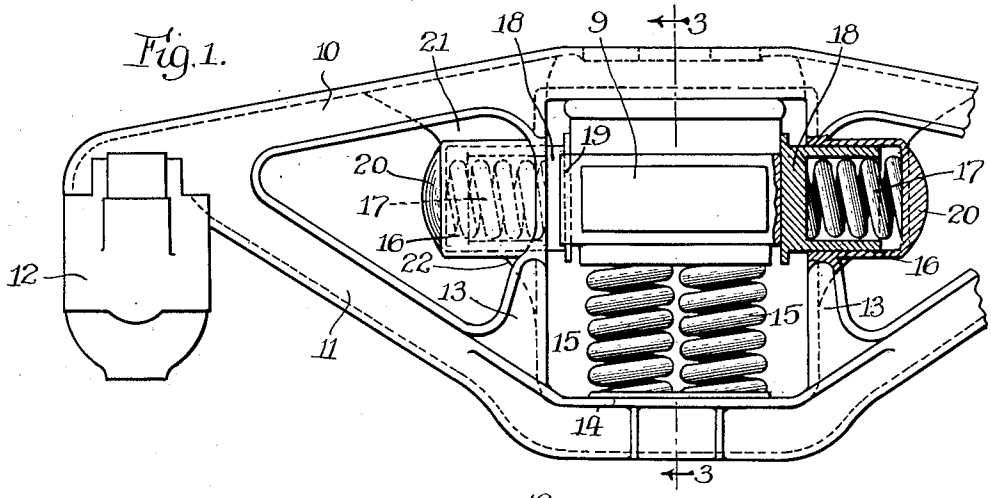


Fig. 2.

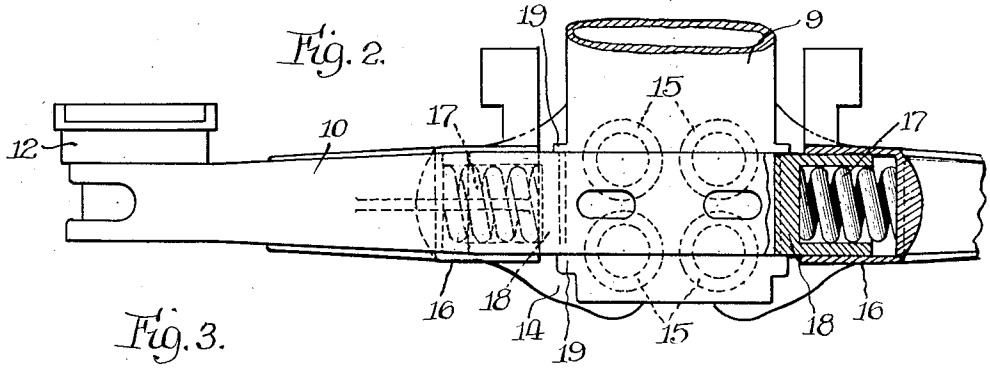


Fig. 3.

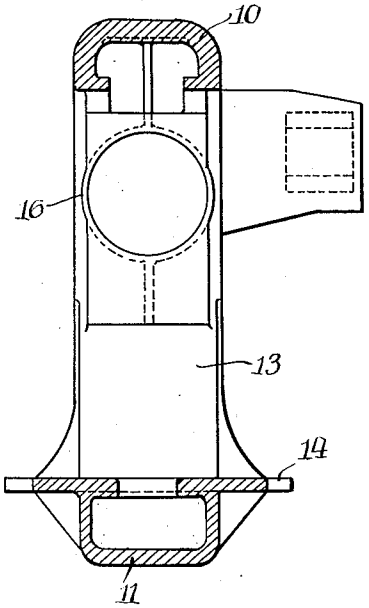


Fig. 4.

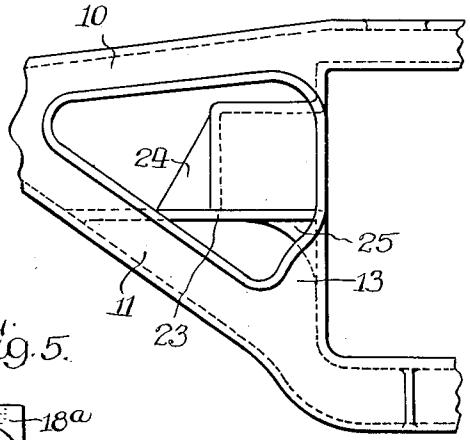
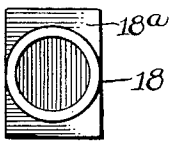


Fig. 5.



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UNITED STATES PATENT OFFICE

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SIDE FRAME FOR CAR TRUCKS

Application filed January 22, 1931. Serial No. 510,392.

The invention relates generally to railway car trucks and more particularly to a side frame for such trucks.

The primary object of the invention is to provide a new and improved side frame having means for cushioning the ends of the bolster against impact longitudinally of the car and which is adapted to replace side frames now in use with standard bolsters.

Another object is to provide an improved side frame of this character which is an integral casting having reinforced means cast integrally therewith for supporting the cushioning means and in which the cushioning means is unaffected by vertical movement of the bolster relative to the side frame.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a fragmentary side elevation partially in section of a car truck having a side frame embodying the features of the invention.

Fig. 2 is a fragmentary plan view thereof.

Fig. 3 is a vertical section of the side frame taken along the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary side elevation of a modified form of side frame.

Fig. 5 is an end view of a part of the cushioning means.

While I have shown in the drawings and shall herein describe in detail two forms of the invention, it is to be understood that I do not intend to limit the invention to the specific forms disclosed but I aim to cover all forms and all alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In present day railroad operation, the average speed at which trains are operated has been greatly increased over what was formerly the case. This increase has introduced numerous factors requiring attention to prevent cars being out of service, chiefly because of the continual shocks which all parts have to undergo. Under such shocks, it has been found that assembled or fabricated side frames of car trucks, heretofore used in considerable numbers, tend to become disassembled through loosening of nuts and rivets or similar causes.

The present invention aims to do away with the difficulties encountered when fabricated side frames are employed by providing a frame which can replace the former and be used with standard bolsters, and whose principal parts are all cast integrally. The invention provides a frame of this character which offers further resistance to shocks by having means for cushioning the impact of the bolster longitudinally of the frame.

As shown in the drawings, the present embodiment of the invention is an integral structure adapted to support axle journals at its ends and a standard bolster 9 at its mid portion, and made of a single casting. The side frame casting comprises an upper bar 10 and a lower truss bar 11 which are joined at their respective ends and have formed thereon journal boxes 12 to enclose the axle journals. At their mid portions, the bars are bowed apart and are strengthened by a pair of vertical columns or posts 13 which are spaced apart to form an opening adapted to receive the end of the bolster. Both bars and the columns are preferably channel-shaped in cross-section to provide a minimum of weight but a maximum of strength.

Each end of a standard bolster generally has parallel vertical sides and a pair of ribs 19 on each side forming a vertical guide slot adapted to receive a portion of the side frame to prevent relative motion endwise of the bolster. Herein, the bolster 9 is resiliently supported on the truss bar 11 in the opening between the columns 13. To this end (Figs. 1, 2 and 3), the mid portion of the truss bar has at its top a laterally extending flange 14 providing a seat for a plurality of heavy coil springs 15. In the present instance, four such springs are shown. One end of the bolster rests on the springs 15, and upward movement of the bolster relative to the frame is limited by the mid portion of the upper bar 10. Thus, the weight of the bolster and the weight supported thereby are vertically cushioned on the frame.

During operation, it is obvious that starting and stopping and changes of speed of

the car when running will tend to cause an impact of the bolster against the frame columns 13 longitudinally of the car. Under the conditions arising in the present day operation, this impact becomes a factor of considerable moment, and if no provision were made to cushion this impact, the frame would suffer such shocks as would eventually lead to breakage.

In order to cushion the impact of the end of the bolster against the columns 13, a cushioning means is provided which is herein disclosed as comprising housings 16, preferably tubular in form and cast integrally with the frame, compression springs 17 positioned within said housings and guide members 18 having tubular portions which surround the springs and are slidably mounted in the housings, the outer ends of these guide members being preferably closed and provided with flanges or guide portions 18ª adapted to fit in the vertical guide slots formed by the ribs 19 on the bolster. The housings 16 are closed at their inner ends so as to provide abutments for the springs 17. Thus, when the bolster is thrown toward the columns 13, the springs 17 will cushion the impact. Since the outer ends of the members 18 are free to slide vertically on the bolster, the springs 17 are totally unaffected by any relative movement of the bolster.

To provide a strong backing for the springs 17, each housing 16, in the form shown in Figs. 1, 2 and 3, is cast with a heavy thick end as at 20, and reinforcing means are provided extending from the housing to the adjacent portions of the frame, such as the webs 21 and 22 extending from the upper and lower portions of the housing to the upper bar 10 and to the column 13 respectively.

In the modified form of the frame shown in Fig. 4, the reinforcing means are formed so that the stress is transferred to the column and to the truss bar 11. Thus, a laterally extending flange 23 is formed along the bottom of each housing and extends to the adjacent portion of the truss bar and a web 24 extends from the end of the housing to the flange 23. From the bottom of the flange 23, a small web 25 extends to the column.

In substituting one of the present frames for an old frame, the springs 15 carrying the weight of the bolster and the weight supported thereby rest on the laterally extending flange 14 of the truss bar 11 to support the bolster within the opening between the columns 13. The vertical slots formed on the sides of the bolster by the ribs 19, which were adapted to fit around a portion of the old frame to prevent relative motion endwise of the bolster, with the present frame are adapted to receive the ends 18ª of the spring-pressed members 18. Thus, the bolster is free to move vertically with the flanged ends 18ª sliding on the vertical sides of the bolster between the ribs 19.

It will be apparent from the above description that I have provided a side frame formed of an integral casting and having means for cushioning the ends of the bolster against impact longitudinally of the car and which is adapted for use with standard bolsters. It is also apparent that the frame is strong and will readily withstand the shocks to which it is subjected under present day operating conditions.

I claim as my invention:

1. A side frame for a railway car truck for use with a standard bolster having vertical sides with spaced ribs thereon forming vertical guide slots, said frame comprising, in combination, a pair of journal boxes, an upper bar and a lower truss bar joined at their ends and supporting the journal boxes and bowed apart at their mid portions, a pair of spaced vertical columns extending between said bars adjacent their mid portions and forming with said bars an opening adapted to receive the end of the bolster, said parts all being cast integrally, a laterally extending flange cast integrally with the mid portion of the truss bar, and arranged to receive a plurality of springs to support the bolster, a pair of housings cast integrally with the respective columns, each housing comprising a tubular body closed at one end and opening toward the bolster, coil springs positioned within the housings, a pair of tubular members fitting over the respective springs and slidably guided within the housings, each member having a rectangular guide plate on its outer end slidably fitting within the vertical slot on the side of the bolster, and integrally cast reinforcing webs extending from the housings to the upper bar and to the adjacent column.

2. A side frame for a railway car truck for use with a bolster having ends with parallel sides, said frame comprising, in combination, a pair of journal boxes, an upper bar and a truss bar joined at their ends to support the journal boxes and bowed apart at their mid portions, a pair of spaced vertical columns extending between said bars adjacent their mid portions and forming with said bars an opening adapted to receive the end of the bolster, said parts all being cast integrally, a plurality of springs seated on the mid portion of said truss bar within said opening to cushion the bolster vertically, a pair of housings cast integrally with the respective columns, each housing having a horizontal pocket opening toward the bolster, spring means positioned within the respective pockets and abutting against the vertical sides of the bolster to cushion its movement endwise of the frame without effecting its vertical movement, and integrally

cast reinforcing webs extending from the housings to one of said bars.

3. A side frame for a railway car truck for use with a standard bolster having ends with vertical sides, said frame comprising, in combination, a pair of journal boxes, an upper bar and a lower bar joined at their ends to support the journal boxes and bowed apart at their mid portions, a pair of spaced vertical columns extending between said bars adjacent their mid portions and forming with said bars an opening adapted to receive one end of the bolster, said parts all being cast integrally, spring means on said lower bar to support the bolster, a pair of housings cast integrally with the respective columns, spring means mounted in said housings and bearing against the ends thereof and against the vertical sides of the bolster, and integrally cast webs extending from the outer ends of the housings to the adjacent portions of one of the bars to reinforce the outer ends of said housings against the pressure of said spring means.

4. A side frame for a railway car truck for use with a bolster having ends with parallel sides, said frame comprising, in combination, a pair of journal boxes, an upper bar and a truss bar, a pair of spaced vertical columns extending between said bars adjacent their mid portions and forming with said bars an opening adapted to receive the end of the bolster, said parts all being cast integrally, means to support one end of the bolster within said opening, a pair of housings cast integrally with the respective columns, each housing having a pocket opening toward the bolster, cushioning means positioned within the respective pockets and abutting against the vertical sides of the bolster to cushion its movement endwise of the frame without effecting its vertical movement, and integrally cast reinforcing webs extending from the housings to one of said bars.

5. A side frame for a railway car truck for use with a bolster having ends with parallel sides, said frame comprising, in combination, a pair of journal boxes, an upper bar and a truss bar, a pair of spaced vertical columns extending between said bars adjacent their mid portions and forming with said bars an opening adapted to receive the end of the bolster, said parts all being cast integrally, a plurality of springs seated on the mid portion of said truss bar within said opening to cushion the bolster vertically, a pair of housings cast integrally with the respective columns, each housing having a recess opening toward the bolster, and cushioning means positioned within the respective pockets and abutting against the vertical sides of the bolster to cushion its movement endwise of the frame without effecting its vertical movement, including tubular members slidably mounted in said bores and having guide members on their outer ends for engaging the end of the bolster.

In testimony whereof, I have hereunto affixed my signature.

FRANK M. GILLESPEY.