Oct. 11, 1938. D. S. BARROWS 2,132,387

RAILWAY TRUCK

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Fig. 2.

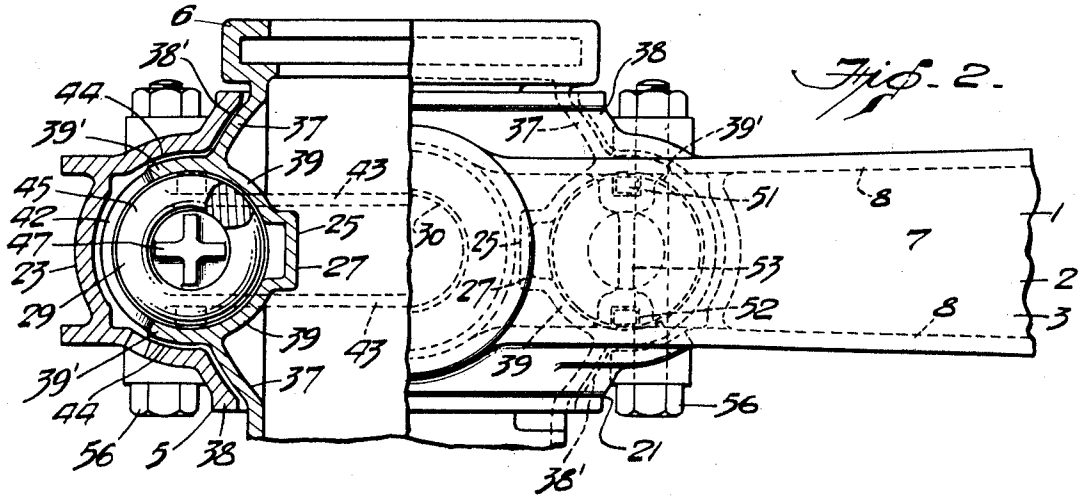
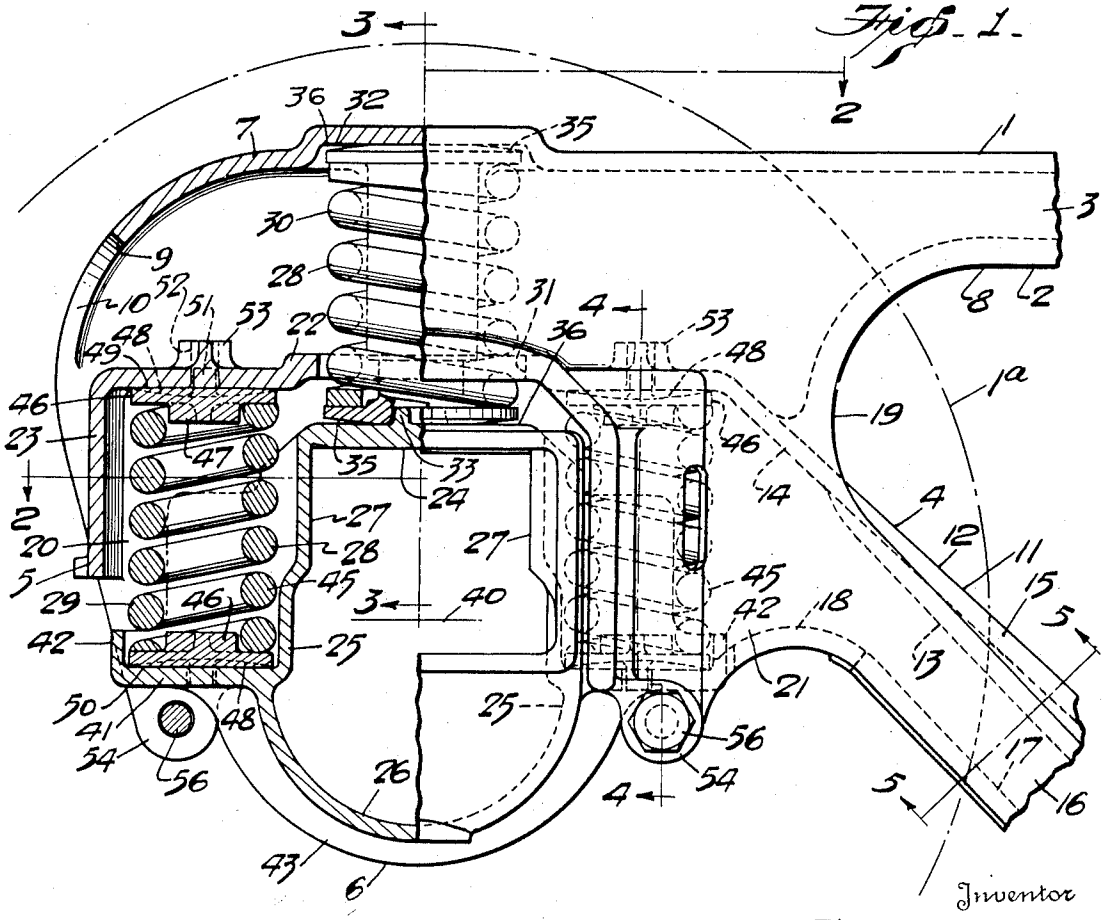


Fig. 1.



Inventor

DONALD S. BARROWS

By Ernest S. Specklin

Attorney

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RAILWAY TRUCK

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Fig. 3.

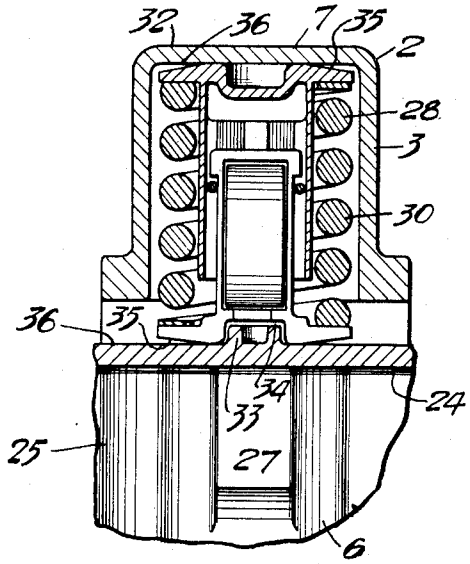


Fig. 4.

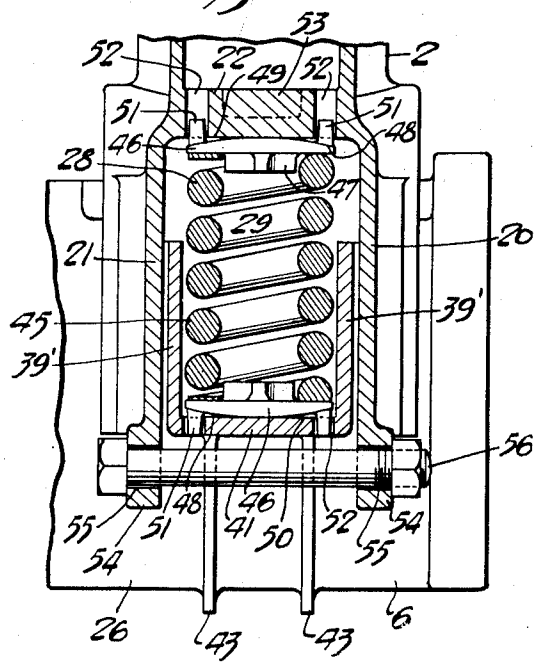
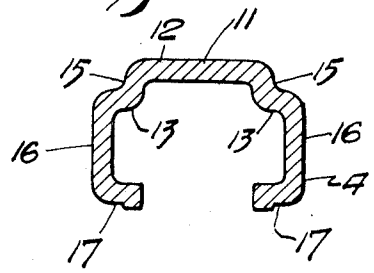


Fig. 5.



Inventor

DONALD S. BARROWS

By Ernest J. Mechlin

Attorney

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2,132,387

UNITED STATES PATENT OFFICE

2,132,387

RAILWAY TRUCK

Donald S. Barrows, Rochester, N. Y., assignor to The Symington-Gould Corporation, Rochester, N. Y., a corporation of Maryland

Application January 20, 1938, Serial No. 185,954

20 Claims. (Cl. 105—224)

This invention relates to railway vehicles and more particularly to the truck portions thereof and the construction of the side frames, journal boxes and associated parts.

The invention herein disclosed and claimed is a modification of the railway truck, and particularly the side frame, journal box and spring means therefor, illustrated and described in my copending application Serial No. 10,706, filed March 12, 1935.

One of the objects of the instant invention is to improve the construction and the arrangement of the various instrumentalities forming a railway truck, and particularly that of the side frames, journal boxes and associated spring means wherein provision is made for resiliently supporting the side frame on the journal box through interposed resilient means for vertical movement of the side frame with respect to the journal box, provision also being made for horizontal angling or pivotal movement of the journal boxes with respect to the side frame.

Another object of the instant invention is to construct and arrange the intimately associated parts of a railway truck so as to provide for a substantially anti-frictional or rolling movement between the side frame and journal box and the interposed spring means whereby each journal box may be free to pivot or rotate horizontally within certain predetermined limits about an axis corresponding with the vertical intersection of the longitudinal and transverse vertical planes of the corresponding journal box.

A further object of the instant invention is the provision, in a railway truck, of spring means interposed between an associated side frame and journal box, said spring means being provided with end surfaces adapted to roll on associated bearing surfaces on said side frame and journal box, and the further provision of interlocking means on the spring means and intimately associated structures so as to retain the spring means in operative position.

These and numerous other objects will become apparent from the following description of the exemplified form of the instant invention which is illustrated in the accompanying drawings.

By considering the drawings generally it will be observed that:

Figure 1 is a side elevational view of a fragmentary portion of a railway truck which embodies a form of the present invention, a portion of the truck being illustrated in vertical section for the purpose of more clearly illustrating the invention.

Figure 2 is a plan view taken along the lines 2—2 of Figure 1 and looking in the direction of the arrows, a portion thereof being shown in horizontal section.

Figure 3 is a vertical sectional view taken along the lines 3—3 of Figure 1 and looking in the direction of the arrows.

Figure 4 is a vertical sectional view taken along the lines 4—4 of Figure 1 and looking in the direction of the arrows.

Figure 5 is a sectional view taken along the lines 5—5 of Figure 1 and looking in the direction of the arrows.

Referring now in detail to the drawings, wherein like numerals indicate like parts, there is disclosed a fragmentary portion of a railway truck 1 which includes a pair of laterally spaced longitudinally extending side frames 2, only an end portion of one being fragmentarily illustrated. Each side frame comprises a compression member 3 which extends longitudinally of the side frame and is spaced above a tension member 4. The compression and tension members are integrally connected intermediate the ends thereof by usual spaced guide columns (not shown) to form a bolster opening therebetween, as will be understood. Each side frame of the truck is provided with downwardly opening pockets or jaws 5 positioned adjacent each end thereof to accommodate or partially house a separable journal box 6.

The compression member includes a transversely disposed and longitudinally extending web 7 which has, adjacent the lateral edges thereof, downwardly extending spaced flanges 8. The web 7 preferably extends to a position overlying the pockets or jaws 5 to terminate in a bifurcated portion 9 which forms spaced inwardly directed flanges 10 merging with the end edges of the flanges 8.

The tension member 4 has intermediate portions 11 thereof diagonally disposed in an upward direction toward the compression member and in an outward direction toward the corresponding end of the side frame. Each of the diagonal portions 11 includes a supplementary web 12 which is angularly disposed to an underlying main web 13 throughout a major portion of the length thereof. The supplementary and main webs merge adjacent the outer and upper extremity of the intermediate portions 11 to form a common or plane web 14. The supplementary and main webs are integrally united by triangularly shaped laterally spaced flanges 15 which decrease in height as they approach the web juncture, to finally merge with the web 14.

The main web 13 has, depending from the lateral edges thereof, spaced vertical flanges 16 which have the free ends thereof directed inwardly of the side frame to form re-entrant flanges 17. The re-entrant flanges are joined throughout a portion of their length by a lower arcuate reinforcing web 18 which is positioned adjacent the upper extremity of each portion 11 and underlies the web 14 in spaced relation thereto.

The compression member flanges 8 and the tension member flanges 17 are integrally joined intermediate the ends of the side frame, as at 19, and continue outwardly toward the end of the side frame as inner and outer walls 20 and 21, respectively, of the journal box receiving pockets or jaws 5. The plane web 14 of the tension member outwardly of the flange juncture 19 is directed in a substantially horizontal plane to form spring bearing portions 22 which define the upper extremity of the pockets or jaws 5. The extreme outer portion of the pockets 5 is defined by an arcuate web 23 which is desirably a downward continuation of the spring bearing portion 22 and also forms a housing for an associated spring means. The spring bearing portion 22 and the arcuate web 23 extend between and integrally connect the inner and outer walls of jaws 5.

The journal box 6, positioned in each journal box receiving pocket or jaw 5, preferably includes a top or roof 24 having the side edges thereof provided with downwardly extending vertical side walls 25 which have the lower ends thereof directed inwardly of the journal box to form a bottom or receptacle 26 for the journal lubricating medium. The upper portion of each side wall is convoluted or embossed inwardly of the journal box, as at 27, to form journal bearing and wedge retaining means, the latter of which are not illustrated.

It has been found desirable, in certain types of railway trucks, to interpose various types of resilient means between each journal box and the corresponding end portion of the sides frame so as to impart a desirable degree of flexibility to the truck structure as well as to dampen or cushion impacts which, during the service of a railway truck, are transmitted to the supporting wheels 1a as a result of the said wheels traveling or passing over rail joints or irregularities in the rails. In order to accomplish this result in the instant invention, there is provided, between each journal box and the overlying portion of the side frame, a nest of spring means, generally designated by the numeral 28.

The spring means of the present embodiment comprises a pair of helical spring units 29, each spaced on either side of the journal box adjacent the corresponding side wall, and a friction unit 30 superimposed on the journal box roof. The particular friction spring unit 30 illustrated is of the type described and claimed in my and Emil H. Blattner's pending application, Serial No. 113,495, filed November 30, 1936. It will, of course, be fully appreciated that it is not the present intention to limit the invention to this particular type of spring unit, as it may be found desirable at times to substitute a different form or type of resilient means for the friction type illustrated. The friction spring unit, which is interposed between the roof 24 of the journal box and web 7 of the side frame extends through a suitable aperture 31 in the spring bearing portion 22, the aperture being made sufficiently large so as to provide adequate clearance about the unit and thereby permit a free unrestricted movement of the unit with respect to the side frame. The friction spring unit is preferably retained in operable position by providing an upwardly extending relief or downwardly opening pocket 32 in the compression member web 7 for the reception of the upper extremity of the friction unit, while the journal box roof has an upstanding boss 33 which extends into a suitable recess 34 in the lower extremity of the unit. The pocket 32, friction spring unit 30, aperture 31 and boss 33 are all positioned on the intersection of the longitudinal and transverse vertical planes of the journal box, which will hereinafter be referred to as the vertical axis of the journal box.

In order to incorporate a further degree of flexibility in the railway truck the structure is arranged to permit the journal box to angle horizontally with respect to the side frame through a predetermined arc and within certain limits. As a result of this angular movement of the journal box it is further desired to decrease the frictional forces between the side frame and journal box and the interposed friction spring unit. To attain this desired feature the end bearing portions of the friction spring unit are provided with frusto-conical surfaces 35 which bear against plane horizontal surfaces 36 on the journal box roof and compression member pocket, respectively. It will be noted that, by so forming the end bearing portions of the friction spring unit so as to slope inwardly of the unit from a position adjacent the longitudinal center thereof toward the peripheral edges, a minimum bearing area is provided between the journal box and side frame and the friction spring unit. This decrement of frictional forces will allow a free horizontal angling movement of the journal box without the necessity of first overcoming a great amount of frictional resistance which would be created were the end bearing surfaces of the friction spring unit plane surfaces. It will be appreciated that any forces which tend to rotate the journal box in a horizontal direction originate in the wheel and journal which in turn transmits the forces to the journal box through the journal bearing and wedge. If the frictional resistance at the friction spring unit bearing areas is an appreciable amount, the journal will wear the bearing corset-shaped or frusto-conical and thereby materially decrease the efficiency of the journal bearing.

In order to provide suitable bearing areas between the journal box and associated jaws upon any deviation of the journal box in a horizontal direction from a true right angle relationship with respect to the side frame, the inner and outer portions 37 of the journal box side walls are desirably bulged outwardly of the journal box to form cylindrical convex portions which are preferably coaxial with the vertical axis of the journal box. The inner and outer walls of the jaws or pockets have their free edges directed outwardly of the side frame to form journal box embracing flanges 38. The flanges 38 are provided with inwardly facing cylindrical concave surfaces 38' which are juxtapositioned and coaxial with the corresponding convex portions of the journal box. It will, therefore, be observed that by the particular disposition of the coacting convex and concave cylindrical portions, the journal box will be free to angle horizontally or pivot about its vertical axis.

The journal box side walls intermediate the bulged portion 37 are desirably cylindrically concave, as at 39, about the vertical or longitudinal

axis of each associated helical spring unit 29 and integrally join the inner extremities of the convex portions 37. Spaced cylindrical flanges 39', forming continuations of and preferably coaxial with the intermediate portions 39, extend outwardly of the side walls to form therewith outwardly opening receptacles or housings for the associated helical spring units.

Extending outwardly of the journal box side walls in a plane below the roof 24 and adjacent the horizontal plane of the journal, the latter of which is indicated by the diagrammatic line 40, are substantially horizontal shelves 41 which are preferably circular in form. The shelves 41 are integrally joined to the intermediate wall portion 39 and flanges 39' adjacent their lower extremities to form helical spring unit seats and define the lower portion of the housing. The outer peripheral edges of the shelves are provided with upstanding arcuate flanges 42 which reinforce the shelves and connect the free extremities of the flanges 39'. Spaced reinforcing flanges 43 depend from the bottom portion 26 of the journal box and extend outwardly thereof to underlie the shelves 41. The inner and outer walls of each jaw are provided with inwardly facing cylindrical concave surfaces 44 which are preferably coaxial with the helical spring unit and adapted to be engaged by the flanges 39'. The clearance provided between the concave surfaces 44 and the cylindrical flanges 39' is determinative of the amount or degree in which the journal box will angle horizontally with respect to the side frame.

Each of the helical spring units 29, which are interposed between the journal box shelves 41 and the spring means bearing portion 22 of the side frame, desirably includes a helical spring 45 and substantially counterpart caps 46 associated with each end thereof. The spring caps are provided with flanges or lugs 47 outstanding from one side thereof to extend into and adapted to engage the inner surface of the helical spring, thereby preventing each spring and associated caps from shifting laterally with respect to one another and becoming accidentally disconnected.

The frictional forces between the helical spring unit and the engaging portions of the side frame and journal box are substantially eliminated in the present embodiment by forming the outer or bearing portion of the caps as arcuate convex surfaces 48. As will be clearly understood, the arcuate surfaces may be cylindrically formed about a common axis midway between the extremities of the unit 29 or cylindrically formed about an axis spaced on either side of the transverse center of the unit. The instant invention also contemplates the formation of each of the surfaces 48 as frusto-conical, the projected apex of which will coincide with or be positioned in the transverse vertical plane of the journal box. The cap surfaces 48 desirably bear against plane surfaces 49 positioned on the underside of the spring bearing portion 22 and plane surfaces 50 on the upper side of the journal box shelves 41. By thus providing arcuate convex surfaces on the spring caps and plane surfaces on the journal box and side frame the helical spring units will be free to rock or oscillate upon any departure of the journal box in a horizontal direction with respect to the side frame.

The helical spring units are prevented from shifting and thereby retained in a predetermined position by means of studs, teeth or lugs 51 which extend outwardly of the unit and into suitable apertures 52 in the journal box shelves and spring means bearing portion 22. The studs, teeth or lugs 51 of each cap are desirably positioned on the diametric center of the cap adjacent the peripheral edge thereof.

Extending upwardly from the upper surface of the spring means bearing portion 22, positioned oppositely from the helical spring unit seats, are longitudinally spaced reinforcing flanges 53 which extend between and merge into the inner and outer side walls 20 and 21 respectively of each pocket or jaw 5. The apertures 52 also extend through the reinforcing flanges 53, and by reason of this fact the flanges assume an H-shape in plan and thereby add rigidity to the side frame.

Lugs or ears 54, which are spaced laterally of the side frame and depend from the lower free edges of the inner and outer walls of each jaw 5, are provided with aligned apertures 55 which are occupied by transversely extending bolts 56. The bolts 56 are spaced longitudinally of the side frame and underlie the journal box shelves 41 in spaced relation thereto, thereby preventing the accidental separation of the assembled structure.

From the foregoing description, taken in consideration with the accompanying drawings, it will be noted that the instant railway truck comprises a novel form and arrangement of side frame, journal box and resilient means wherein the side frame may move vertically with respect to the journal box and the journal box may angle horizontally or pivot about its vertical axis within a predetermined degree and with respect to the superimposed side frame to incorporate in the railway truck a desired amount of flexibility, with provision for decreasing or substantially eliminating the frictional forces between the side frame and journal box and the interposed spring means.

As merely an exemplary form of the instant invention is illustrated and described, it will be appreciated that numerous alterations in design and changes in construction are anticipated, and that such alterations and changes may be made to the instant structure without departing from within the spirit and scope of the appended claims.

I claim:

1. In a railway truck, in combination, a side frame including a compression member and a tension member being joined to form downwardly opening journal box receiving jaws at the ends of the side frame, said compression and tension members being formed of webs having spaced downwardly ex ending flanges, said tension member web adjacent said jaws being disposed in a substantially horizontal plane in lower spaced relation to said compression member web, downwardly facing spring seats on said compression and tension member webs, apertures in said tension member spring seats, a vertically movable journal box positioned in each jaw and having a roof in lower spaced relation to said compression member spring seat, side walls depending from the side edges of each journal box roof, shelves ex ending outwardly of said side walls forming spring seats in lower spaced relation to said tension member spring seats, apertures in said shelf spring seats, spring means interposed between said compression member spring seat and each journal box roof, said spring means extending through an opening in said tension member web and having frusto-conical end bearing surfaces, helical spring means interposed

between and in bearing relation with said tension member and shelf spring seats, convex bearing surfaces on said helical spring means, and lugs outstanding from said helical spring means and extending into the apertures in the tension member and shelf spring seats for retaining the helical spring means in operable position.

2. In a railway truck, in combination, a side frame including a compression and a tension member being joined to form downwardly opening journal box receiving jaws at the ends of the side frame, said compression and tension members being formed of webs having spaced downwardly extending flanges, said tension member web adjacent said jaws being disposed in substantially a horizontal plane in lower spaced relation to said compression member web, downwardly facing spring seats on said compression and tension member webs, flanges upstanding from said tension member web, apertures in said tension member spring seats and upstanding flanges, a vertically movable journal box positioned in each jaw having a roof in lower spaced relation to said compression member spring seat, side walls depending from the side edges of each journal box roof, shelves extending outwardly of said side walls forming spring seats, apertures in said shelf spring seats, an opening in said tension member web, friction spring means interposed between said compression member spring seat and journal box roof, said friction spring means extending through said opening, helical spring means interposed between and in bearing relation with said tension member and shelf spring seats, convex bearing surfaces on said helical spring means, and lugs outstanding from said helical spring means and extending into the apertures in said tension member and shelf spring seats for retaining the helical spring means in operable position.

3. In a railway truck, in combination, a side frame having journal box receiving jaws adjacent each end thereof, a separable journal box positioned in each jaw and adapted to move vertically with respect to said side frame, juxtapositioned coaxial cylindrical surfaces on said journal boxes and jaws whereby said journal boxes may angle horizontally with respect to said side frame, means on each journal box for engagement with said jaws so as to limit the angling movement of said journal boxes, vertically spaced spring seats on said side frame and journal boxes, apertures in said side frame and journal box spring seats, spring means positioned between said spring seats, said spring means including helical springs having caps associated with each end thereof, convex surfaces on said spring caps in bearing relation with said spring seats so as to permit the spring means to oscillate about its longitudinal axis upon departure of said journal boxes from normal right angle relationship with respect to the side frame, and means on said spring caps extending into said seat apertures for retaining said spring means in operable position.

4. In a railway truck, in combination, a side frame having journal box receiving jaws adjacent each end thereof, a separable journal box positioned in each jaw and adapted to move vertically and angle horizontally with respect to said side frame, shelves extending outwardly of said journal boxes, substantially coaxial cylindrical surfaces on each box positioned adjacent said shelves and adapted to engage correspondingly formed surfaces on said jaws so as to permit said horizontal angling, vertically spaced spring seats on said side frame and journal box shelves, aligned apertures in said side frame and shelf spring seats, spring means interposed between said spring seats, said spring means including helical springs having caps associated with each end thereof, means extending outwardly of the spring caps to within the helical springs, convex surfaces on said spring caps in bearing relation with said spring seats so as to permit the spring means to oscillate about its longitudinal axis upon departure of said journal boxes from normal right angle relationship with respect to the side frame, and means on said caps extending into said spring seat apertures for retaining said spring means in operable position.

5. In a railway truck, in combination, a side frame having pedestal jaws defining pockets adjacent each end thereof, a separable journal box positioned in each pocket adapted to move vertically with respect to the side frame, cooperating surfaces on said jaws and journal boxes to allow the journal boxes to angle horizontally with respect to the side frame, vertically spaced seats on said side frame and each journal box, said seats being positioned on the longitudinal axis of the side frame, apertures in all of said spring seats, longitudinally spaced spring means interposed between said side frame and each journal box, said spring means comprising helical springs having caps associated with each end thereof, cylindrically convex surfaces on said spring caps in bearing relation with said spring seats whereby the spring means may oscillate about their longitudinal axes upon any horizontal angling movement of the journal boxes with respect to the side frame, means extending outwardly of said caps and into said apertures for retaining said spring means in operable position, and transversely extending means underlying each journal box to limit the vertical movement between the side frame and journal boxes.

6. In a railway truck, in combination, a side frame having journal box receiving pockets adjacent each end thereof, a separable journal box positioned in each pocket and adapted to move vertically with respect to the side frame, cylindrical convex surfaces on said journal boxes coaxial with and adapted to engage complementary cylindrical concave surfaces on said side frame so as to permit the journal boxes to angle horizontally with respect to the side frame, means on said journal boxes for engagement with said side frame so as to limit the angling movement of said boxes, oppositely disposed seats on said side frame and journal boxes, apertures in all of said spring seats, spring means spaced on either side of said journal boxes and interposed between said side frame and journal boxes, said spring means comprising helical springs having caps associated with each end thereof, cylindrical convex surfaces on said spring caps in bearing relation with said spring seats whereby the spring means may oscillate about their longitudinal axes upon any angular horizontal movement of the journal boxes with respect to the side frame, and means on said spring caps extending into said apertures for retaining said spring means in operable position.

7. In a railway truck, in combination, a side frame having journal box receiving pockets adjacent each end thereof, a vertically movable journal box positioned in each of said pockets including a roof portion and spaced side walls, cylindrical concave surfaces in said pockets co-

axial with the vertical axis of the associated journal box, cylindrical convex surfaces on said journal boxes juxtapositioned with respect to said concave surfaces for permitting each journal box to angle horizontally with respect to said side frame, means for limiting the angling movement of said journal boxes, spring means interposed between said side frame and each journal box, frusto-conical end surfaces on said spring means in bearing relation with said side frame and each journal box roof, helical spring means positioned below said spring means and spaced on either side of said journal boxes, each helical spring means including a helical spring having caps associated with each end thereof, convex surfaces on said caps in bearing relation with said side frame and journal boxes so as to permit each helical spring means to oscillate about its longitudinal axis, and means projecting from said caps and into suitable apertures in said side frame and journal boxes for retaining the helical spring means in operable position.

8. In a railway truck, in combination, a side frame having journal box receiving pockets adjacent each end thereof, a vertically movable journal box positioned in each of said pockets and including a roof portion and spaced side walls, cylindrically concave surfaces in said pockets coaxial with the vertical axis of the associated journal box, cylindrically convex surfaces on said journal box coaxial with said concave surfaces whereby each journal box is free to angle horizontally with respect to the side frame, shelves extending outwardly of said journal box side walls adapted to engage the side frame and limit the angular movement of said journal box, friction spring means interposed between said side frame and each journal box roof, frusto-conical end surfaces on said spring means in bearing relation with said side frame and each journal box roof, helical spring means spaced on either side of said journal boxes, each helical spring means including a helical spring having caps associated with each end thereof, cylindrical convex surfaces on said caps in bearing relation with said journal box shelves and side frame so as to permit each helical spring means to oscillate about its longitudinal axis, and lugs projecting from said caps and into suitable apertures in said shelves and side frame for retaining the helical spring means in operable position.

9. A side frame having a compression and a tension member joined adjacent the ends of the side frame to form downwardly opening journal box receiving jaws, said compression member having a web portion extending substantially the full length of the side frame, said tension member having an intermediate web portion diagonally disposed to said compression member web and an end portion substantially horizontal and in lower spaced relation to said compression member web, spring seats on said tension member web adjacent said journal box receiving jaws, a spring seat on said compression member web above said tension member spring seats and transversely disposed apertures in said tension member spring seats adapted to engage upstanding retaining means of an associated spring means.

10. A side frame having a compression member and a tension member joined adjacent the ends of the side frame to form downwardly opening journal box receiving pockets, said compression member having a web portion extending substantially the full length of the side frame, said tension member having an intermediate web portion diagonally disposed to said compression member web and an end portion substantially horizontal and in lower spaced relation to said compression member web, said tension member horizontal portion defining the upper extremity of said pockets, spring seats on said compression and tension member webs adjacent said pockets, reinforcing flanges upstanding from said tension member web being oppositely disposed from said tension member spring seats, and apertures in said tension member web and flanges adapted for the reception of retaining means of an associated spring means.

11. A side frame having a tension and a compression member, each involving a transverse web and laterally spaced flanges extending downwardly from the edges thereof, said compression and tension member flanges merging adjacent each extremity of the side frame to form journal box receiving pockets, a portion of said tension member inwardly of said flange juncture being angularly disposed to said compression member, the tension member web outwardly of said flange juncture being extended in a substantially horizontal plane in lower spaced relation to said compression member web, said horizontal portion having a lower plane surface forming spring means seats, reinforcing flanges upstanding from the upper surface of said tension member web and positioned in the vertical plane of associated spring means, said reinforcing flanges and tension member web being apertured for the reception of a retaining means of an associated spring means.

12. A side frame having a tension and a compression member, each involving a transverse web and laterally spaced flanges extending downwardly from the edges thereof, said compression and tension member flanges merging adjacent each extremity of the side frame to form journal box receiving pockets, a portion of said tension member inwardly of said flange juncture being angularly disposed to said compression member, the tension member web outwardly of said flange juncture being extended in a substantially horizontal plane and defining the upper extremity of said pockets, said horizontal portion having a lower plane surface forming spring means seats, substantially H-shaped reinforcing flanges positioned opposite said spring means seats and upstanding from the upper surface of said tension member web, and apertures extending through said tension member web and reinforcing flanges to form receptacles for retaining means of an associated spring means.

13. A side frame involving a compression member and a tension member joined adjacent each end of the side frame to form downwardly opening journal box receiving jaws, said compression member having a web portion extending substantially the entire length of the side frame, said tension member having a web, an intermediate portion of which is angularly disposed to said compression member web and an end horizontal portion in lower spaced relation to said compression member web, downwardly facing spring seats on said compression and tension member webs adjacent each jaw, inwardly facing cylindrical concave surfaces on said jaws being coaxial with respect to the vertical axis of the associated journal box and adapted to engage correspondingly formed surfaces on said journal box for permitting a horizontal angling movement of the box with respect to the side frame, and apertures in said tension member

spring seats for engaging retaining means of an associated spring means.

14. A journal box including a roof and side walls, shelves extending outwardly of said side walls in a plane below said roof, upwardly facing spring seats on said shelves, apertures in each of said shelf spring seats for the reception of retaining means of an associated spring means, the intermediate portion of said side walls being concavely curved about the longitudinal axis of said associated spring means, curved flanges extending outwardly of said side walls forming continuations of said intermediate portion and merging with said shelves along the edges thereof, said side wall intermediate portion and flanges forming an outwardly facing cylindrical spring means receptacle, and convex surfaces on said side walls positioned outwardly of the intermediate portion and being coaxial with respect to one another so as to permit the journal box to angle horizontally with respect to an associated side frame.

15. A journal box including a roof and vertical side walls, circular shelves extending outwardly of said side walls, plane surfaces on each of said shelves forming upwardly facing spring seats, spaced apertures in each of said shelves for positioning associated spring means, said side walls having an intermediate portion concavely curved about the longitudinal axis of said corresponding spring means, curved flanges extending outwardly of said side walls forming continuations of said intermediate portions to form cylindrical spring means receptacles, said flanges merging with the peripheral edge of said shelves, and convex surfaces on said side walls positioned outwardly of the intermediate portions and being coaxial with the vertical axis of the journal box so as to permit the journal box to angle horizontally with respect to an associated side frame.

16. A journal box including a roof and spaced vertically disposed side walls, each of said side walls having an intermediate portion concave about the longitudinal axis of an associated spring means, the portion of the side walls outwardly of the intermediate portion being convex about the vertical axis of the journal box so as to permit the journal box to angle horizontally with respect to an associated side frame, shelves extending outwardly of the side wall adjacent the lower extremity of the intermediate concave portion, curved flanges extending outwardly of the side wall forming continuations of said intermediate portion to form therewith cylindrical spring means receptacles, said flanges merging with the peripheral edges of said shelves, upwardly facing spring seats on said shelves, apertures in said spring seats for positioning associated spring means, and reinforcing flanges on the lower portion of said journal box extending beneath said shelves.

17. A journal box including a roof and spaced vertically disposed side walls, an upstanding lug on said roof positioned on the vertical axis of said journal box and adapted to extend within a correspondingly formed recess of a superimposed spring means, each of said side walls having an intermediate portion concave about the longitudinal axis of an associated spring means, a portion of the side wall outwardly of the intermediate portion having surfaces convex about the vertical axis of the journal box so as to permit the journal box to angle horizontally with respect to an associated side frame, curved flanges extending outwardly of said side walls forming continuations of said intermediate portion to form therewith cylindrical spring means receptacles, circular shelves extending outwardly of said side walls adjacent the lower extremity of said intermediate portion and flanges to form spring seats, and apertures in said spring seats for positioning the associated spring means.

18. A side frame having a compression and a tension member joined adjacent the ends of the side frame to form downwardly opening journal box receiving jaws, said compression member having a web portion extending longitudinally of the side frame and overlying each jaw, a substantially horizontal web in lower spaced relation to said compression member web and defining the upper extremity of each of said jaws, spring seats on said horizontal web and compression member web adjacent said journal box receiving jaws, each of said compression member spring seats being positioned between corresponding horizontal web spring seats and apertures in said horizontal web, said apertures being positioned adjacent said spring seats and adapted to receive retaining means of an associated spring means.

19. A side frame having a compression and a tension member joined adjacent the ends thereof to form downwardly opening journal box receiving jaws, said compression member having a web portion extending longitudinally of the side frame, spring seats on said compression member web adjacent each end thereof, a web in lower spaced relation to said compression member web and positioned adjacent each end of the side frame, spring seats on said horizontal web adjacent said journal box receiving jaws, apertures in said horizontal web spring seats adapted to receive retaining means of an associated spring means, and an aperture positioned between said spaced apertures and in said horizontal web for the reception of the associated spring means.

20. A side frame having a compression member and a tension member joined adjacent their ends to form downwardly opening journal box receiving jaws, said compression member having a web portion extending longitudinally of the side frame, longitudinally spaced spring seats on said compression member, a substantially horizontal web in spaced relation to said compression member web and defining the upper extremity of said jaws at each end of the frame, spring seats on said horizontal webs, one end of each horizontal web being directed downwardly to form a pocket for an associated spring means, a reinforcing flange upstanding from said horizontal web in the vertical plane of at least one of said spring seats, and means associated with said webs cooperating with said spring means for retaining the same in position.

DONALD S. BARROWS