

Jan. 3, 1956

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2,729,173

FRICTION CONTROLLED RAILWAY TRUCK

Filed June 22, 1950

2 Sheets-Sheet 1

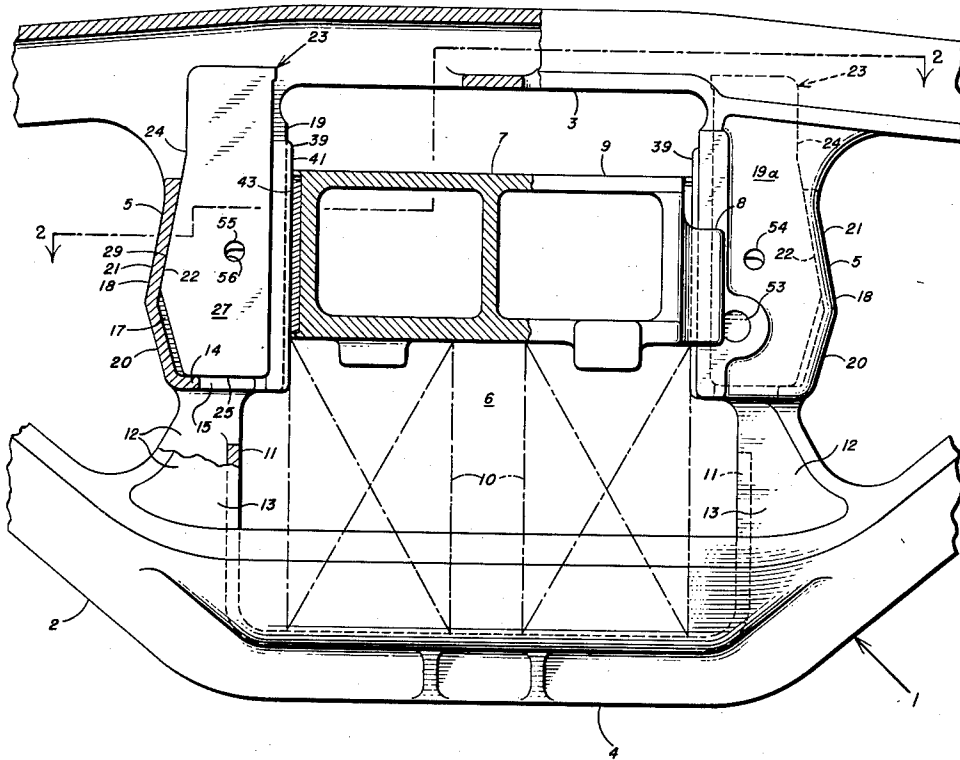


FIG. 1

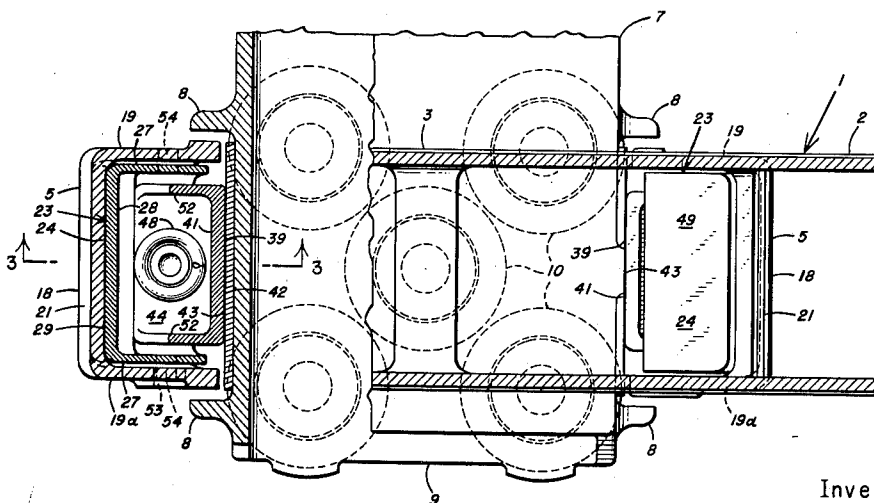


FIG. 2

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2 Sheets-Sheet 2

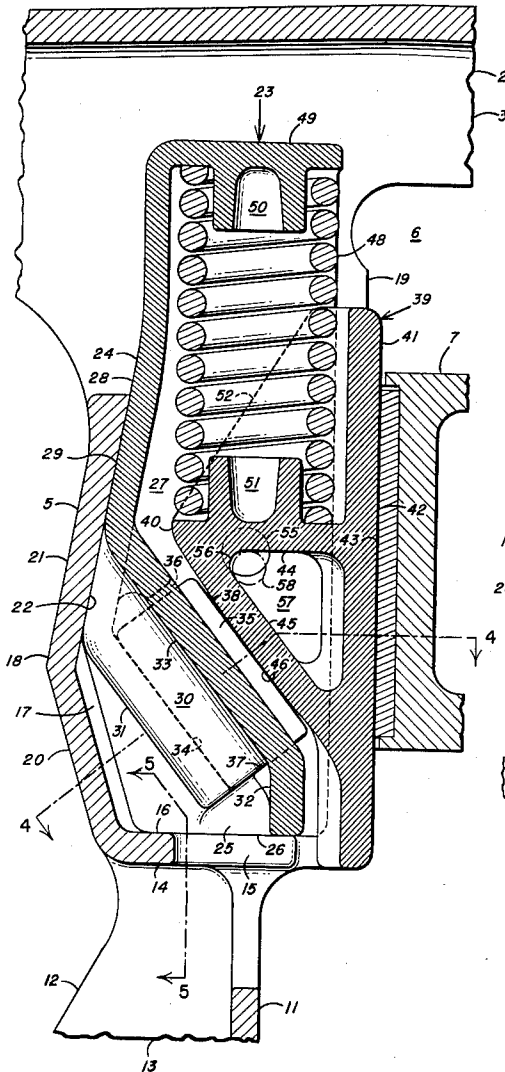


FIG. 3

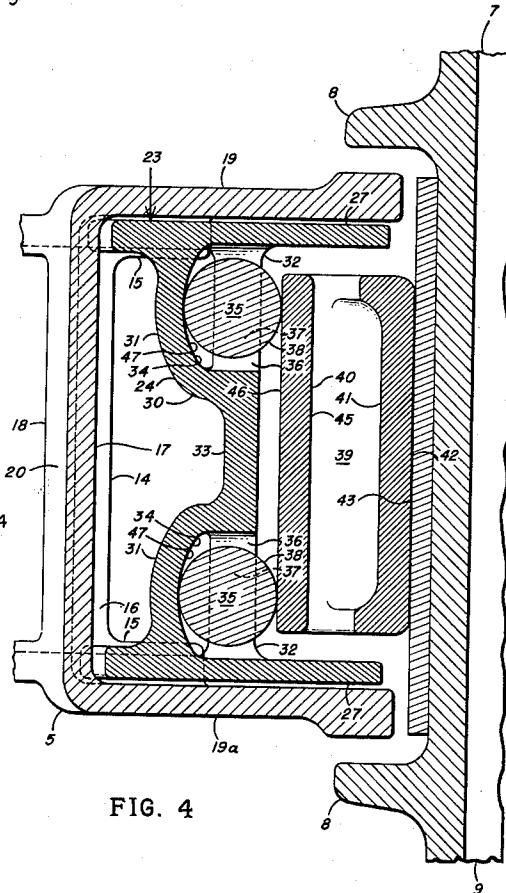


FIG. 4

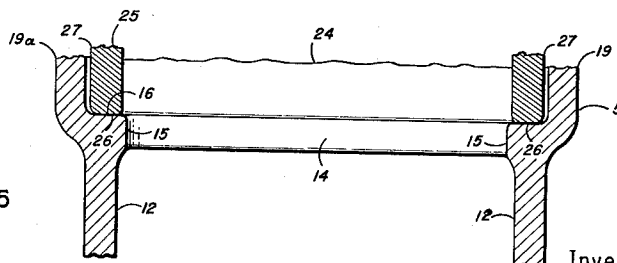


FIG. 5

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2,729,173

FRICION CONTROLLED RAILWAY TRUCK

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21 Claims. (Cl. 105—193)

This invention pertains to a railway truck and more particularly to a friction controlled type thereof.

An object of the invention is the provision in a railway truck, of an improved friction unit capable of being inserted between a column of a side frame and a bolster and arranged to snub a vertical movement of the bolster while allowing a relatively free transverse movement of the bolster.

A further object of the invention is to provide, in a railway truck, an improved side frame having a column thereof forming an interlocking medium for a removable snubbing or friction unit with the latter being so arranged and constructed to control frictionally a vertical movement of a bolster and permit a relatively free however limited transverse movement of the bolster.

An added object of the invention is to provide, in a railway truck, an improved friction device removably secured to a side frame column and having one part thereof stationary relative to the side frame and another part thereof arranged to move transversely with a bolster and snub any vertical movement of the bolster.

The above and numerous other objects of the invention will become apparent from the succeeding detailed description considered together with the illustrative form of the invention shown in the accompanying drawings, wherein:

Figure 1 is a partial elevational and partial vertical sectional view of a railway truck embodying the present invention.

Figure 2 is a horizontal sectional view taken along the lines 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is an enlarged central longitudinal vertical sectional view, taken on the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a partly inclined and partly horizontal sectional view taken on the bent line 4—4 of Figure 3, looking in the direction of the arrows.

Figure 5 is a detail vertical sectional view, taken on the line 5—5 of Figure 3, looking in the direction of the arrows.

Referring now in detail to the various figures of the drawings wherein like reference characters refer to like parts the numeral 1 is employed to designate, in a somewhat general manner, a railway car truck embodying the present invention and of a so-called snubbed or controlled type. The truck is comprised of a side frame 2 having a somewhat conventional top or compression member 3 spaced vertically or upwardly from a tension or bottom member 4. These members are tied or joined integrally together adjacent intermediate portions thereof by vertically disposed, horizontally spaced, guide columns 5 to define a bolster or window opening 6 therebetween. For convenience the guide column will be hereinafter referred to as a column and only one quarter of the railway truck will be hereinafter considered in detail since it is clearly understood in the art that a railway truck is made up of two parallel, transversely spaced, side frames extending

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longitudinally of the truck and joined at or adjacent centers thereof by a bolster 7. Accordingly, a detailed description of a quarter of the truck will suffice for a complete understanding of the present invention.

The bolster, functioning as a load carrying member, extends transversely of the truck and is interlocked with the side frame by means of lugs 8 which overlap the columns in transverse spaced relation thereto in order to incorporate a degree of flexibility in the truck by permitting a limited or predetermined lateral or transverse movement of the side frames relative to the bolster. The lugs 8 outstand from an extremity 9 of the bolster which is contained in an upper area of the window opening and is seated on a nest of all coil, bolster supporting springs 10 illustrated diagrammatically. The nest of springs occupies a lower area of the bolster or window opening and is supported, in a removable fashion, by the side frame tension member as is usual in structures of the present type.

As previously indicated, the truck of this application is of the snubbed or friction controlled type and this particular type of truck is prompted by the common knowledge that with the use of a nest of all coil springs for supporting the bolster end these springs will, during certain truck speeds, develop vibrations which will synchronize with external impulses imparted to the truck in service. If unarrested this harmonic spring vibration and external impulses will cause the springs to be periodically driven solid causing sharp blows to be delivered to the bolster supported car body to defeat the entire purpose and intent of resiliently supporting the bolster. In order therefore to disturb otherwise harmonic actions of the nest of bolster supporting springs there is built into this truck, separate and easily removable components which form parts of the truck proper. So as to follow the teachings of this application and enjoy the vast improvement offered thereby, only the columns need be changed, over and apart from otherwise conventional side frames and bolsters.

Accordingly, each column may have a lower extremity formed as desired and for purposes of illustration may be comprised of a transverse vertical web 11 having at its transverse edges, inboard and outboard flanges 12 to present a channel shape in horizontal section and a vertically directed post or stanchion 13 growing out of the tension member. The column post extends vertically for a predetermined or illustrated distance where it terminates in a horizontally directed or intermediate shelf, ledge or wall 14 preferably but not necessarily bifurcated as at 15. This shelf or ledge presents an upwardly exposed or directed, horizontally disposed, supporting surface 16, the purpose and function of which will hereinafter be made apparent. For the present purpose it will suffice to state that the surface 16 defines a lower extremity of a pocket, housing or casing 17 which opens upwardly of the side frame toward the compression member and longitudinally of the side frame toward the bolster. Completing the housing or casing and particularly the upper portion of the column is a transverse backup, holding or bearing wall 18 which has its lateral edges merging with laterally spaced, longitudinally and vertically extending substantially parallel inboard and outboard walls 19 and 19a, respectively. From a review of the drawings it will be noted that the bearing, inboard and outboard walls all extend vertically or upwardly from an integral union with the subjacent shelf or ledge to complete the upper extremity of the column and merge with the compression member to form substantially an integral part thereof or a dependent therefrom. The holding or bearing wall is desirably formed of two parts with the lower part 20 directed at an oblique angle relative to the shelf and toward a related extremity of the side frame and an upper

part 21 directed at an oblique or acute angle relative to the shelf and toward the bolster opening. This arrangement, presenting a V-shaped or herringbone design when considered in vertical section, permits the formation of a locking surface 22 carried by the upper portion and facing inwardly and slightly downwardly toward the supporting surface 16 or bolster or bolster opening. Also by disposing the locking surface at an acute angle to the supporting surface the vertical clear opening into the pocket, housing or casing is restricted for the purpose to be hereinafter made apparent.

Removably associated with the pocket, housing or casing is a friction unit 23 interposed between the column and bolster end. Numerous designs of friction units may be applied to the column pocket for accomplishing the function intended, however, it is preferred, at the present writing, to form one part of the friction unit as a wedge 24. This wedge, positioned within the pocket, has a foot 25 provided with a horizontally disposed, downwardly exposed surface 26 which bears directly upon or is supported by the shelf supporting surface. This relationship, therefore, functions as the sole means for mounting the friction unit in a predetermined elevation or preventing a vertical movement of the friction unit relative to the column in a downward direction. The wedge foot is directed upwardly or vertically from the shelf to form transversely spaced side walls 27 positioned slightly inwardly of the pocket from the inboard and outboard walls thereof and the side walls are bridged by a rear or connecting wall 28. The bridging or connecting wall, intermediate the height thereof, presents a sloping, outwardly directed or exposed surface 29 which is coplanar and in intimate contact with the housing locking surface. Accordingly the disposition and relationship of the surfaces 22 and 29 is such that the wedge is restrained against vertical or upward movement relative to the column. With this construction, as will be hereinafter noted, the wedge is enabled to be definitely and positively held to the column to become a removable part thereof and capable of movement therewith in response to service actions or forces.

As previously indicated the side frame executes, during service, a movement transversely of the truck relative to the bolster and this movement is oftentimes called or classified by those skilled in the art to which the invention appertains, as a transverse lateral motion of the bolster. However classified, it is of common knowledge that there exists, in service, a relative transverse or horizontal movement of the bolster and side frame. Various schools of thought have grown up concerning this movement with some of a firm thought that such movement should be free or substantially unrestricted and still others of a firm thought that such movement should be arrested or prevented. This invention follows substantially the teachings of the first theory to such an extent that a limited though slightly restricted relative transverse movement between the side frame and bolster is permitted and prompted by the thought that since the side frame is subjected to lateral impulses some control over such impulse must be exercised without allowing the full magnitude thereto to be transmitted to the bolster and reflected in the car body.

With the above as a background for a more complete understanding of the improvement herein contained, it will be noted that the lower extremity of the bridging or connecting wall of the wedge is bifurcated to present a diagonally disposed cage 30 formed by a platform or base flange 31 and a confining flange 32 spaced therefrom and both joined at a common edge with a related wedge side wall and intermediate the wedge by a tie flange 33 (see particularly Figs. 3 and 4). The cage and necessarily the related flanges are disposed at an oblique or acute angle relative to the column shelf and bolster and therefore may be considered as diagonally arranged longitudinally of the side frame to be declining toward the

bolster or inclining in a direction away from the bolster. The cage, for the purpose of stability and positive action actually presents a pair of transversely spaced or parallel races 34 which accommodate or form receptacles for a pair of rollable, movable, or displaceable means characterized by rolls 35. These rolls may be of any desired conformation but for the present purpose it is preferred that they be formed as illustrated and thus, as true cylindrical bodies each of which has an axis parallel to and disposed to correspond with the disposition of the cage above described. Each roll is positively confined within a race and is arranged to move within a limited restricted area, inboard or outboard in a direction transversely of the truck. The wedge confining flange is apertured as at 36 to allow the rolls to pass therebeyond and this flange also functions as a barrier as at 37 to prevent a diagonal movement of the rolls from illustrated position. This arrangement therefore allows a flight 38 of the rolls to be positioned free of the confining cage.

Interposed between the bolster end and wedge is a shoe or friction element 39 having a somewhat triangular portion 40 positioned substantially entirely within the wedge. Growing out of the triangular portion and for all purposes forming an integral part thereof is a vertically directed plate 41 having an inwardly exposed brushing face 42 also vertically disposed and bearing directly against a vertical, outwardly exposed, rubbing face 43 carried by the bolster end in the window opening of the side frame. Accordingly, when the bolster moves vertically in response to external impulses, frictional forces will be created on the contiguous brushing and rubbing faces to check, control or retard any harmonic actions of the bolster supporting springs. The triangular shoe portion is disposed vertically, intermediate the height of the shoe plate 41 and is comprised of a horizontal spring carrier 44 which extends from its related plate, inwardly of the wedge for a predetermined distance where it merges with a diagonally disposed gusset flange 45. This gusset flange is provided with a crowned, arcuate or convex wedging face 46 arranged to bridge and ride on the subjacent rolls and since this face is directed transversely of the truck and in the same general diagonal direction as the rolls, any vertical or downward load imposed on the shoe will result in a horizontal component to press or urge the shoe against or toward the bolster for the purpose above stated. It may be well to here state that the crowning of the wedging face is introduced in the association of shoe and rolls to accommodate manufacturing tolerances as well as service movements and therefore, insure at all times, a full surface bearing relationship between the rubbing and brushing faces.

It will be noted by referring particularly to Figures 3 and 4 of the drawings, that the shoe is of less horizontal or transverse extent than the inside dimension of the wedge and this construction is followed or preferred so that the shoe, in response to a relative transverse movement of the bolster and side frame, will move also transversely of the side frame, rolling, as is apparent, on the supporting rolls. To assist in offering some resistance to such a transverse movement, a bed 47 of each race is cupped or concavely formed so that, as the shoe is moved transversely from its normal or central position as illustrated, the rolls will move outwardly toward the shoe and this roll action will result in a slight lifting of the shoe from illustrated position.

As previously indicated a load, particularly of a substantial constant nature or magnitude, is to be applied to the shoe for the successful operation of the friction unit. For reasons to be made hereinafter apparent the load imposing means is incorporated in the friction unit and is characterized by a single coil spring 48 centrally disposed within the friction unit considered transversely thereof. It will be appreciated that various other types of load or force imposing means may be substituted for

the illustrated coil spring but the instrumentality employed herein is preferred.

The wedge side walls and rear wall merge, adjacent upper extremities thereof, into a top wall 49 having, depending therefrom into the wedge, a spring centering knob 50. Accordingly, an upper extremity of the coil spring bears upwardly or vertically against the wedge top wall and is prevented from becoming dislodged by the knob which extends partially into the friction unit spring. Since this spring is vertically disposed its lower extremity bears upon the shoe spring carrier and is retained in operable position by means of a stud 51 which upstands within the coil spring from the spring carrier in vertical alignment with the wedge knob. The friction unit spring therefore forms a separable part of the friction unit and functions to urge the wedge and shoe apart in opposite directions. Transversely spaced triangular knee braces 52 extend between the spring carrier and its related portion of the plate 41 thereabove to effectively reinforce the upper area of the shoe.

When trucks embodying the present invention have been in service for sometime and it becomes necessary to replace a part or parts of the friction unit due to wear or for any other reason, it is to be noted that the trucks are usually distant from a shop where special tools are available and may be employed. In order to facilitate a removal of the friction unit, the side frame outboard wall 19a is provided with a pinch opening 53 which is encroached upon slightly by a related bolster lug. By introducing a pinch bar (not shown) into this pinch opening the bolster can then, through the necessary lever action, be urged horizontally toward a related column to force the shoe slightly inwardly and upwardly of the wedge from its illustrated normal position. At a location above the pinch opening are aligned apertures 54 in the outboard and inboard walls and those apertures are in horizontal alignment with pin holes 55 formed in the wedge side walls. When the bolster is moved horizontally toward the friction unit to urge the shoe upwardly and inwardly as above explained, an apex 56 of a cored portion 57 of the shoe will expose more of the pin holes and then a pin (shown by dot and dash lines in the sectional portion only in Figure 3 as 58) can be threaded through the outboard aperture 54 and into the pin holes to bridge the side walls of the wedge and hold the shoe in elevated position. The aperture 54 in the inboard wall is present so that a tool (not shown) may be threaded therethrough to push the pin 58 out of wedge-shoe interlocking position when desired.

A following of a similar procedure will also lock the friction unit in the companion column out of contact with the bolster. The bolster can then be jacked upwardly away from its bolster supporting springs and a removal of these last named springs will then allow a lowering of the bolster to the area normally occupied by the bolster supporting springs. This abnormal relationship of parts will then permit a safe and easy removal of the friction units from the columns as locked removable assemblies.

From the above it will be noted that various changes and alterations may be made to the illustrated and described exemplification of the present invention without departing from the spirit of this invention or scope of the appended claims.

I claim:

1. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, a column in said side frame and having a horizontal surface and an inclined surface forming an acute angle therewith, a wedge removably restrained against vertical movement relative to said column by said surfaces, movable means carried by said wedge, a shoe, and spring means acting between said shoe and wedge, said shoe being urged by said spring means into bearing engagement with said

movable means and frictional engagement with said member.

2. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, said side frame having a column carrying a horizontal shelf and an inclined wall presenting an acute angle therebetween, a wedge restrained against vertical movement relative to said column by said shelf and wall, rollable means carried by said wedge, a shoe carried by said rollable means, and spring means acting between said shoe and wedge, said spring means urging said shoe against said rollable means and into frictional engagement with said member.

3. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, said side frame having a column carrying adjacent said member a horizontal shelf and an inclined wall, said shelf and wall including an acute angle therebetween, a wedge restrained against vertical movement relative to said column by said shelf and wall, rollable means within said wedge, shoe means carried by said rollable means, and spring means acting vertically between said wedge and shoe means, said spring means urging said shoe means against said rollable means and into frictional engagement with said member.

4. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, a horizontal shelf and an inclined wall in a column of said side frame, a wedge in said column restrained against vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means carried by said wedge, shoe means carried by said rollable means, and spring means acting against said wedge and shoe means for urging said shoe means into frictional engagement with said member.

5. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, a shelf and an inclined wall in a column of said side frame and arranged at an acute angle to one another, a wedge in said column restrained against vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means carried by said wedge intermediate a height thereof, a shoe carried by said rollable means, and spring means acting oppositely on said wedge and shoe for urging said shoe into frictional engagement with said member.

6. In a snubbed railway truck of the type having a side frame and a member movable vertically and transversely relative to said side frame, the combination of, a shelf and an inclined wall in a column of said side frame and arranged at an acute angle to one another, a wedge in said column and held against vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means carried by said wedge and arranged for limited transverse movement relative to said wedge, a shoe carried by said rollable means, and vertically acting spring means between and acting oppositely on said wedge and shoe for urging said shoe against said wedge and into frictional engagement with said member.

7. In a railway truck of the type having a side frame and a bolster arranged for vertical and transverse movement relative to said side frame, the combination of, a horizontally directed shelf and a wall in a column of said side frame arranged at an oblique angle to one another, a wedge in engagement with said shelf and wall, said shelf restraining vertical movement of said wedge in one direction and said wall restraining vertical movement of said wedge in an opposite direction, rollable means carried by said wedge and arranged for limited transverse movement relative to said wedge and column, a shoe carried by said rollable means, and ver-

tically acting spring means between said wedge and shoe for urging said shoe along said rollable means into frictional engagement with said bolster, said shoe being carried by said rollable means and wedged into frictional engagement with said bolster.

8. In a railway truck of the type having a side frame member and a bolster member arranged for relative vertical and transverse movements, the combination of, one of said members having a horizontally directed shelf and a wall arranged at an oblique angle to one another, a wedge restrained against relative vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means carried by and movable transversely of said wedge, shoe means movably supported by said rollable means, and spring means acting vertically on said shoe means and reacting against said wedge for urging said shoe means into frictional engagement with said bolster member.

9. In a railway truck of the type having a side frame member and a bolster member arranged for relative vertical and transverse movements, the combination of, one of said members having a shelf and a wall arranged at an oblique angle to one another, a wedge restrained against relative vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means movable transversely of said truck and carried by said wedge, a shoe interposed between said rollable means and other member, and spring means within said wedge and acting on said shoe for urging said shoe into contact with said rollable means and other member.

10. In a railway truck of the type having a side frame member and a bolster member arranged for relative vertical and transverse movements, the combination of, one of said members having a shelf and a wall arranged at an oblique angle to one another, a wedge stationary relative to said shelf and wall, said wedge being restrained against vertical movement in one direction by said shelf and in an opposite direction by said wall, rollable means in said wedge and arranged for transverse movement relative thereto, a shoe movably carried by said rollable means, and spring means spaced vertically from said rollable means and acting between said wedge and shoe for urging said shoe into frictional engagement with said other member.

11. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a shelf facing vertically and a wall facing substantially horizontally, said shelf and wall forming an oblique angle therebetween, a removable wedge restrained against relative vertical movement by said shelf and wall, rollable means caged in said wedge, a shoe carried by said rollable means and arranged for limited transverse movement thereon, and spring means within and reacting against said wedge and acting against said shoe for urging said shoe into frictional engagement with said bolster said shoe being carried by said rollable means and arranged for limited transverse movement, and being urged into frictional engagement with said bolster.

12. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a horizontally directed surface and an inclined surface forming an oblique angle therebetween, a wedge contacting said surfaces and restrained against any relative vertical movement thereby, rollable means carried by said wedge and having an axis at an oblique angle to said horizontally directed surface, a shoe carried by said rollable means, and spring means interposed between said wedge and shoe for urging said shoe into frictional contact with said bolster.

13. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said

side frame having a substantially horizontal shelf and a wall disposed at an oblique angle thereto, a removable wedge in surface bearing relation with said shelf and wall and restrained thereby against any relative vertical movement, rollable means caged in said wedge and having an axis disposed at an oblique angle to said shelf and wall, a shoe having an inclined face bearing upon said rollable means, and spring means within said wedge and acting against said shoe for urging the latter axially of said rollable means into frictional engagement with said bolster.

14. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a substantially horizontal shelf and a wall disposed at an acute angle thereto, a removable wedge bearing against said shelf and wall restrained thereby against relative vertical movement, rollable means caged in said wedge and having an axis disposed at an acute angle relative to said shelf, a shoe movably carried by said rollable means and having a vertically extending face in frictional contact with said bolster, and spring means within said wedge and urging said shoe axially along said rollable means into said frictional contact with said bolster.

15. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements the combination of, a column of said side frame having a lower horizontal shelf and an upper sloping wall, a wedge restrained against relative downward movement by said shelf and upward movement by said wall, a cage in said wedge, rollable means confined in said cage and having an axis declining toward said bolster, a shoe bearing upon said rollable means and directed thereby into frictional contact with said bolster, and spring means acting against said wedge and shoe for urging said shoe axially of said rollable means into said frictional contact with said bolster.

16. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a shelf exposed upwardly and a wall exposed longitudinally toward said bolster, a removable wedge engaging said shelf and wall and restrained thereby against vertical movement relative to said column, a cage in said wedge and opening toward said bolster, movable means confined in said cage, a shoe having an inclined face bearing upon said movable means and a vertically extending face in frictional contact with said bolster, and spring means for urging said shoe along said movable means into said frictional contact with said bolster.

17. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a shelf at a plane below said bolster and a sloping wall thereabove, a removable wedge held against vertical movement by said shelf and wall relative to said column, a cage in said wedge and opening toward said bolster, said cage being disposed at an angle to said shelf, movable means confined in said cage, a shoe interposed between said wedge and bolster, an inclined face on said shoe bearing upon said movable means, a vertically disposed face on said shoe in frictional contact with said bolster, and spring means spaced above said shelf and acting between said wedge and shoe for urging said shoe into said frictional contact with said bolster.

18. In a railway truck of the type having a side frame and a bolster arranged for relative vertical and transverse movements, the combination of, a column of said side frame having a shelf and a sloping wall thereabove, a removable wedge held against vertical relative movement by said shelf and wall, a cage in said wedge opening toward said bolster and disposed at an oblique angle to said shelf, displaceable means confined in said cage, a shoe interposed between said wedge and bolster, an inclined

face on said shoe bearing upon said displaceable means, a vertically disposed face on said shoe frictionally engaging said bolster, opposed spring seats on said wedge and shoe, and spring means bearing against said spring seats for urging said shoe into said frictional engagement with said bolster.

19. In a friction unit arranged for association with a bolster and side frame column, said column having surfaces disposed at an oblique angle to one another, the combination of, a wedge having surfaces engageable with and disposed at an oblique angle corresponding to the angular disposition of said surfaces of said column, a cage intermediate the height of said wedge, displaceable means confined in said cage, a shoe having a face inclined at an oblique angle to said wedge surfaces and bearing upon said displaceable means, a vertically disposed face arranged to contact frictionally said bolster, and spring means acting oppositely on said wedge and shoe for urging said shoe into said frictional contact with said bolster.

20. In a friction unit arranged for association with a bolster and side frame column, said column having surfaces disposed at an oblique angle to one another, the combination of, a wedge having surfaces engageable with and disposed at an oblique angle corresponding to the angular disposition of said surfaces of said column, displaceable means carried in said wedge and being disposed at an oblique angle to said surfaces, a shoe having a face

bearing upon and substantially parallel with said displaceable means, spring means urging said wedge and shoe in opposite directions, and means on said wedge and shoe enabling said wedge and shoe to be locked together for maintaining said wedge, displaceable means, shoe and spring means in assembled relation.

21. In a friction unit arranged for association with bolster and side frame members, one of said members having surfaces disposed at an oblique angle, the combination of a wedge having surfaces engageable with and disposed at an oblique angle corresponding to the angular disposition of said surfaces of said one member, displaceable means carried by said wedge, a shoe bearing on and wedged by said displaceable means transversely of said wedge, said shoe having a face disposed longitudinally of said wedge and arranged to frictionally contact said other member, and spring means disposed longitudinally of said wedge and acting oppositely on said wedge and shoe for urging said shoe into said frictional engagement with said other member.

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