

Feb. 12, 1946.

R. C. PIERCE

2,394,872

TRUCK

Filed July 19, 1944

2 Sheets-Sheet 1

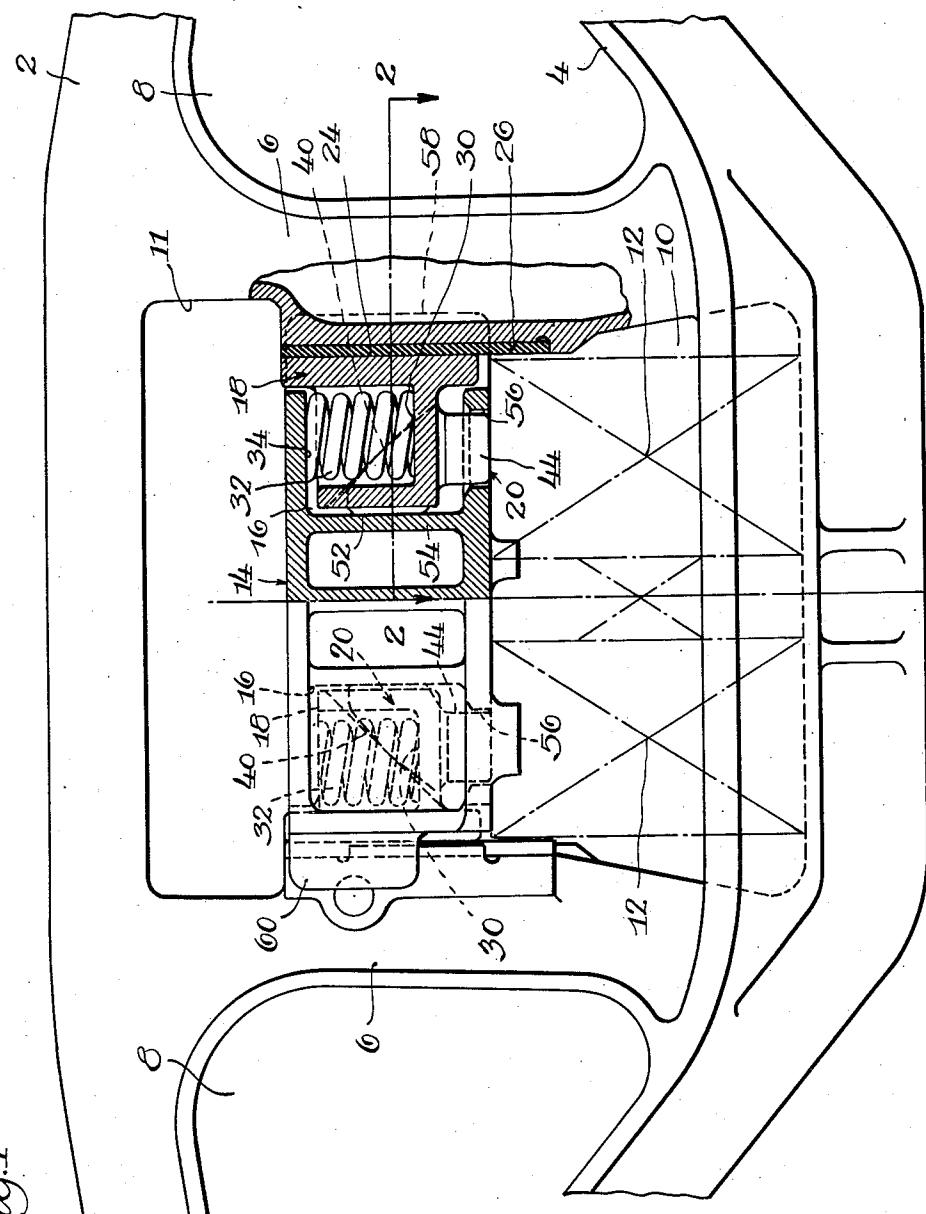


Fig. 1

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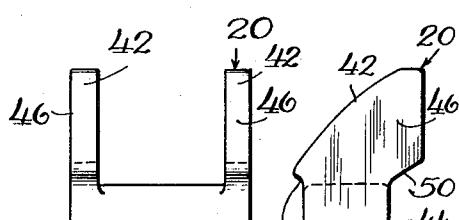
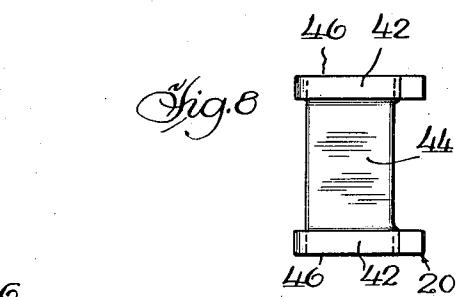
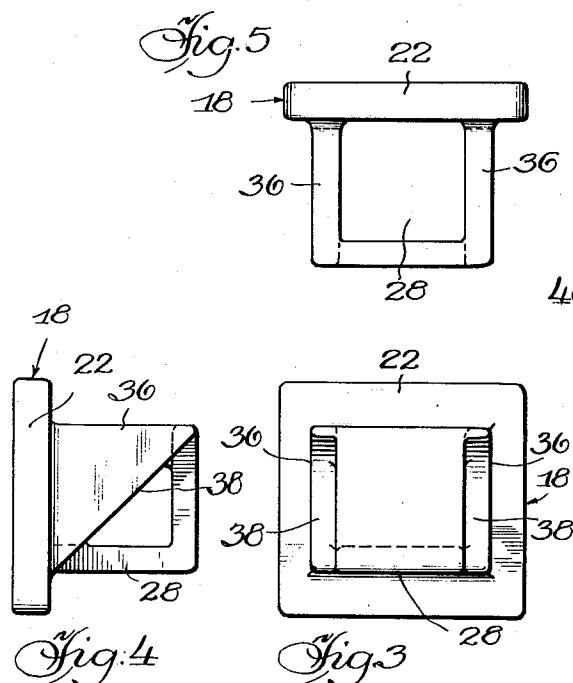
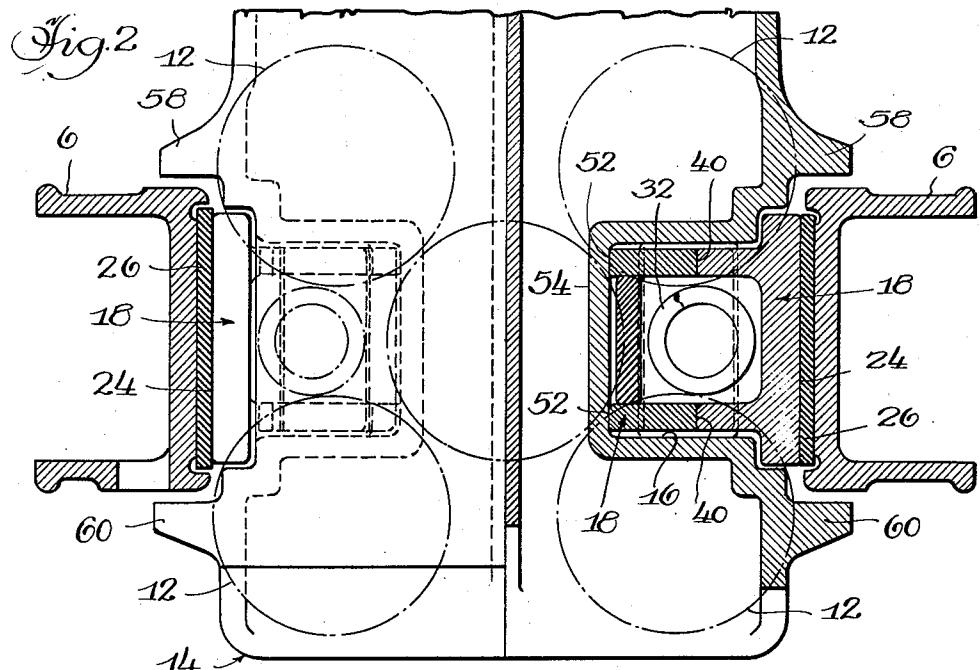
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2 Sheets-Sheet 2



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20 Claims. (Cl. 105—197)

My invention relates to railway car trucks and more particularly to a truck comprising friction means for dampening oscillations of the bolster supporting truck spring group.

The general object of my invention is to design a truck of the above type wherein the bolster may be raised and lowered to and from its supporting spring group without frictional resistance.

A specific object of my invention is to provide novel wedge blocks housed within the bolster in wedge engagement with the friction shoes which are urged against the side frame friction surfaces by actuating springs, said blocks having portions extending through complementary slots in the bottom wall of the bolster for support by the bolster supporting springs. By means of this arrangement, as the bolster is elevated from engagement with its supporting springs, the wedge blocks drop within the bolster to relieve pressure on the shoe actuating springs, thereby releasing frictional resistance normally afforded by the shoes to vertical movement of the bolster.

Another object of my invention is to design the various truck parts so as to permit elevation of the bolster in the bolster opening and removal from the top thereof along with the friction shoes and wedge members during a quick wheel change.

In the drawings,

Figure 1 is a fragmentary side elevation of a railway car truck embodying my invention with portions of the structure shown in section.

Figure 2 is a fragmentary top view of the structure shown in Figure 1 with the side frame shown in section through the columns thereof and with the right half of the structure shown in section along the horizontal plane indicated by the line 2—2 of Figure 1.

Figures 3 to 5, inclusive, illustrate one of the friction shoes in detail, Figure 3 being a rear elevation thereof, Figure 4 being a side elevation, taken from the left as seen in Figure 3, and Figure 5 being a top plan view.

Figures 6 to 8, inclusive, illustrate in detail one of my novel wedge blocks, Figure 6 being a side elevation thereof, Figure 7 being a rear elevation, taken from the left as seen in Figure 6, and Figure 8 being a top plan view.

Describing my invention in detail, the side frame comprises compression and tension members 2 and 4 and spaced columns 6, 6 defining therewith spaced window openings 8, 8 and a central bolster opening 10 having a widened upper portion 11 for a purpose hereinafter described in detail. Supported on the tension

member 4 within the bolster opening 10 is a spring group consisting of a plurality of coil springs diagrammatically indicated at 12, 12, said group affording support for the bolster, generally designated 14.

The bolster is a box-section member with a pocket 16 in each side thereof for reception of a friction shoe, generally designated 18, and an associated wedge block, generally designated 20.

One of the identical friction shoes 18, 18 is shown in detail in Figures 3 to 5, wherein it will be seen that the shoe comprises a front or main friction wall 22 in frictional engagement as at 24 (Figures 1 and 2) with a wear plate or liner 26 secured in any convenient manner, as by welding, to the adjacent column 6. Merging with the front wall 22 of the friction shoe is a bottom wall 28 affording a seat as at 30 (Figure 1) for a shoe-actuating spring 32, the upper end of which is compressed as at 34 against the top wall of the bolster. At each side thereof the friction shoe is provided with a wing or ledge 36 with a wedge surface 38 for complementary wedge engagement as at 40 with a crowned wedge surface 42 on the associated wedge block 20.

One of the blocks is shown in detail in Figures 6 to 8, wherein it will be seen that this member is of U shape, as seen in Figure 7, with the bottom web 44 and the spaced upstanding webs 46, 46 formed with the before-mentioned wedge surfaces 42, 42, and it may be noted that the block is formed with shoulders 48 and 50 at the junction of each upstanding web 46 with the bottom web 44, said shoulders serving a purpose herein-after described.

Referring now to Figures 1 and 2, it will be seen that the webs 46, 46 of each wedge block are slidably engaged at 52, 52 with the rear wall 54 of the associated bolster pocket 16, and the bottom web 44 of the block projects through a complementary slot or opening 56 in the bottom wall of the bolster. Each spring 32, as will be clearly seen from a comparison of Figures 1 and 2, extends between the ledges 36, 36 of the associated friction shoe 18 and between the spaced webs 46, 46 of the associated wedge block 20, said spring thus being partially housed at its lower extremity within both the shoe and the block. It will be clearly understood by those skilled in the art that the spring 32 is operable to actuate the shoe downwardly and outwardly from the bolster pocket 16 against the wedge block surfaces 42, 42 into engagement at 24 with the associated column liner 26, thereby causing the development of friction between the shoe and the liner as the

bolster oscillates on its supporting spring group under normal service conditions. The spring 32 is of substantially less capacity than the springs 12, 12 which thus urge the web 44 of the block 20 flush with respect to the bottom of the bolster thereby fully compressing the spring 32 to its working length.

The bolster is provided at each side thereof with spaced inboard and outboard lugs or gibbs 58 and 60, affording a slideable interlock between the side frame and bolster to maintain the truck in assembled relationship as the bolster oscillates, as above described; and it may be seen in Figure 1 that the outboard gib 60 at each side of the bolster is of less depth than the widened upper portion 11 of the bolster opening, whereby the bolster may be inserted and removed from the top of the bolster opening as hereinafter described.

In assembling my novel truck, the springs 12, 12 are first seated upon the tension member 4. The shoes 18, 18, the wedge blocks 20, 20, and the springs 32, 32 are positioned within the bolster pockets 16, 16 in normal assembled relationship with the bottom webs 44, 44 of the wedge blocks projecting downwardly through the associated slots 56, 56. The bolster is then entered at the top of the bolster opening 10 and is lowered into engagement with the springs 12, 12. However, substantially no friction will be developed at 24 until the bolster seats upon the springs 12, 12 for the reason that the wedge blocks are disposed in their lowermost positions seated upon the bottom wall of the bolster. As the bolster engages the springs 12, 12, it will be clearly seen from a consideration of Figure 2 that one pair of the springs 12, 12 engages the bottom web 44 of each wedge block, forcing it upwardly within the pocket 16, thereby compressing the spring 32 and urging the associated friction shoe 18 downwardly and outwardly into normal frictional engagement at 24 with the adjacent liner 26. When it is desired to remove the bolster during a quick wheel change, it may be elevated and removed from the top of the bolster opening in substantially the reverse of the procedure just described; and it will be understood that as the bolster is lifted from the springs, the wedge blocks drop downwardly to their lowermost position with the shoulders 48 and 50 engaging the bottom wall of the bolster. Thus, the bolster, the shoes and the wedge blocks, as well as the shoe actuating springs 32, 32, may be conveniently assembled or disassembled as a unit with respect to the side frame.

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 railway car truck, a side frame comprising spaced columns and an intervening bolster opening with a widened upper portion, a spring group on said frame in said opening, a bolster supported from said group, a pocket in each side of said bolster, a wedge member in said pocket having a portion extending through a complementary slot in the bottom wall of said bolster and supported by said group, a friction shoe in said pocket having spaced wedge surfaces respectively engaging spaced wedge faces on said member, resilient means compressed between the

top wall of said bolster and said friction shoe, said resilient means extending between said spaced surfaces and between said spaced faces, and inboard and outboard guide lugs on said bolster engageable with each column to afford an interlock therewith, the outboard of said lugs being of less depth than said widened upper portion, whereby said bolster may be elevated in said bolster opening and removed therefrom during a quick wheel change, said portion of said wedge member being downwardly movable through said slot to relieve the pressure on said resilient means as said bolster is elevated from engagement with said group.

5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

2. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening with a widened upper portion, a spring group on said frame in said opening, a bolster supported by said group, a pocket in each side of said bolster, a wedge member in each pocket having a portion projecting through a complementary opening in the bottom wall of said bolster and supported by said group, a friction shoe in each pocket in wedge engagement with the adjacent member and in frictional engagement with friction means on the adjacent column, spring means associated with each shoe for actuation thereof, and guide means on said bolster slidably interlocked with said columns, said guide means being of less depth than said widened upper portion whereby said bolster may be elevated in said bolster opening and removed therefrom during a quick wheel change, each of said wedge members being downwardly movable for a limited distance relative to said bolster as the latter is elevated from engagement with said group, and means on said wedge members engageable with said bolster to limit said relative downward movement.

2. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported from said resilient means, a pocket in each side of said bolster, a wedge member in said pocket vertically movable therein as said bolster is raised and lowered into and out of engagement with said means, said member having a portion extending through a complementary slot in the bottom wall of said bolster and supported by certain of said resilient means, a friction shoe in said pocket having spaced wedge surfaces respectively engaging spaced wedge faces on said member, and resilient means extending between said spaced surfaces and between said spaced faces, said last-mentioned resilient means being engaged with a wall of said bolster and with said shoe for urging the latter into frictional engagement with the adjacent column.

3. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, resilient means on said frame in said opening, a bolster supported from said resilient means, a pocket in each side of said bolster, a wedge member in said pocket vertically movable therein as said bolster is raised and lowered into and out of engagement with said means, said member having a portion extending through a complementary slot in the bottom wall of said bolster and supported by certain of said resilient means, a friction shoe in said pocket frictionally engaging the adjacent column and having spaced wedge surfaces respectively engaging spaced wedge faces on said member, and a substantially vertical spring compressed between said shoe and

the top wall of said bolster, said spring extending between said spaced surfaces and between said spaced faces.

5. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported from said group, a pocket in each side of said bolster, a wedge member in said pocket vertically movable therein as said bolster is raised and lowered into and out of engagement with said group, said member having a portion extending through a complementary slot in the bottom wall of said bolster and supported by said group, a friction shoe in said pocket having spaced wedge surfaces respectively engaging spaced wedge faces on said member, said shoe being in frictional engagement with friction means on the adjacent column, and a resilient member compressed by and between said shoe and a wall of said bolster, said resilient member extending between said spaced surfaces and between said spaced faces.

6. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported by said group, a pocket in each side of said bolster, a wedge member in each pocket having a portion projecting through a complementary opening in the bottom wall of said bolster and supported by said group, a friction shoe in each pocket in wedge engagement with the adjacent member and in frictional engagement with friction means on the adjacent column, and spring means associated with each shoe for actuation thereof, each spring means being housed within the associated shoe and the associated wedge member.

7. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a wedge member in said pocket supported by said group, said bolster and said member having interlocking means formed and arranged for engagement to limit relative downward movement of said member after said bolster has been elevated from said group, a shoe in wedge engagement with said member and in frictional engagement with friction means of the adjacent column, and compressed spring means within said pocket engaging said shoe for actuation thereof, said spring means being partially housed within said shoe and within said member.

8. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported by said group, a pocket in each side of said bolster, a wedge member in each pocket having a portion projecting through a complementary opening in the bottom wall of said bolster and supported by said group, a friction shoe in each pocket in wedge engagement with the adjacent member and in frictional engagement with friction means on the adjacent column, and a substantially vertical coil spring compressed between each shoe and the top wall of said bolster.

9. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a wedge member in said pocket supported by said group, said bolster and said member having interlocking means formed and arranged for engagement after a predetermined upward movement of said bolster as it is elevated from said group, a shoe in wedge engagement with

said member and in frictional engagement with friction means of the adjacent column, and resilient means compressed between the top wall of said bolster and said shoe for actuating the latter.

10. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a wedge member in said pocket supported by said group, said bolster and said member being relatively movable vertically and having interlocking means formed and arranged for engagement to limit said movement after said bolster has been elevated from said group, a shoe in wedge engagement with said member and in frictional engagement with friction means of the adjacent column, and a spring compressed between a wall of said bolster and said shoe for actuation of the latter.

11. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a readily removable wedge member in said pocket comprising spaced wedge faces, a friction shoe having spaced wedge surfaces in complementary engagement with respective faces, said shoe being frictionally engaged with friction means on said column, and spring means compressed between said shoe and a wall of said bolster, said spring means extending between said spaced surfaces and between said spaced faces, said wedge member having means projecting through a complementary slot in the bottom wall of said bolster and bearing against certain springs of said group.

12. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame, a bolster supported by said group, a pocket in each side of said bolster, a wedge member in each pocket having a portion projecting through a complementary opening in the bottom wall of said bolster and supported by said group, a friction shoe in each pocket in wedge engagement with the adjacent member and in frictional engagement with friction means on the adjacent column, and spring means associated with each shoe for actuation thereof.

13. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported by said group, said bolster having pockets in opposite sides thereof, a wedge member in each pocket, a friction shoe in each pocket in wedge engagement with the adjacent wedge member and in frictional engagement with friction means of the adjacent column, and spring means associated with each shoe for actuation thereof, each spring means being housed within the associated shoe and the associated wedge member.

14. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a readily removable wedge block within said pocket interlocked with said bolster, a friction shoe in wedge engagement with said block and in frictional engagement with friction means of said column, and a substantially vertical spring compressed between the top wall of said bolster and said shoe for actuation of the latter, said spring being housed within said shoe and said block.

15. In a railway car truck, a side frame comprising a column having a friction surface, a bolster, a spring group supporting said bolster

from said frame, a pocket in said bolster, a readily removable wedge member in said pocket comprising spaced wedge faces, a friction shoe in frictional engagement with said surface and having spaced wedge surfaces in complementary engagement with respective faces, and spring means compressed between said shoe and a wall of said bolster, said spring means extending between said spaced surfaces and between said spaced faces.

16. In a railway car truck, a side frame comprising spaced columns and an intervening bolster opening, a spring group on said frame in said opening, a bolster supported by said group, pockets in opposite sides of said bolster, a wedge member in each pocket supported by said group, a friction shoe in each pocket in wedge engagement with the adjacent wedge member and in frictional engagement with friction means of the adjacent column, spring means associated with each shoe for actuation thereof, and means for interlocking said members with said bolster while permitting limited relative vertical movement therebetween.

17. In a railway car truck, a side frame comprising a column, a bolster, a spring group supporting said bolster from said frame, a pocket in said bolster, a separable wedge block within said pocket, a friction shoe in wedge engagement with said block and in frictional engagement with friction means of said column, and spring means compressed against a wall of said bolster and against said shoe for actuation thereof, said spring means being housed within both said shoe and said block.

18. In a railway car truck, a side frame comprising spaced columns and a bolster opening therebetween, resilient means on said frame, a bolster supported by said means, and a friction device associated with at least one of said columns, said device comprising a wedge member supported by said means, a friction shoe in wedge engagement with said member and in frictional

engagement with friction means on the adjacent column, and spring means compressed between a wall of said bolster and said shoe for actuating the latter, and means for interlocking said bolster and said member, said interlocking means permitting limited relative vertical movement between said bolster and said member.

19. In a railway car truck, a side frame comprising spaced columns, spring means supported by said frame, a bolster supported by said means between said columns, and friction devices associated with respective columns, each of said devices comprising a wedge member supported by said spring means, a friction shoe in wedge engagement with said member and in frictional engagement with the adjacent column, and a substantially vertical resilient member compressed between abutment means on said bolster and said shoe for urging the latter against the associated column, and means for interlocking said bolster and said wedge members, said last-mentioned means permitting limited relative vertical movement between said bolster and said wedge members, whereby the pressure on each resilient member is relieved as said bolster is elevated from said spring means.

20. In a railway car truck, a supporting member, spring means supported thereby, a member supported by said spring means, and a friction device comprising wedge means supported by said spring means, friction means in wedge engagement with said wedge means and frictionally engaging said supporting member, and resilient means compressed between said supported member and said friction means for actuation of the latter, and means for interlocking said wedge means with said supported member while permitting limited relative vertical movement therebetween, whereby the pressure on said resilient means is relieved as said supported member is elevated from said spring means.

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