Sept. 15, 1942. R. B. COTTRELL 2,295,551

RIDE CONTROL UNIT

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Fig. 1.

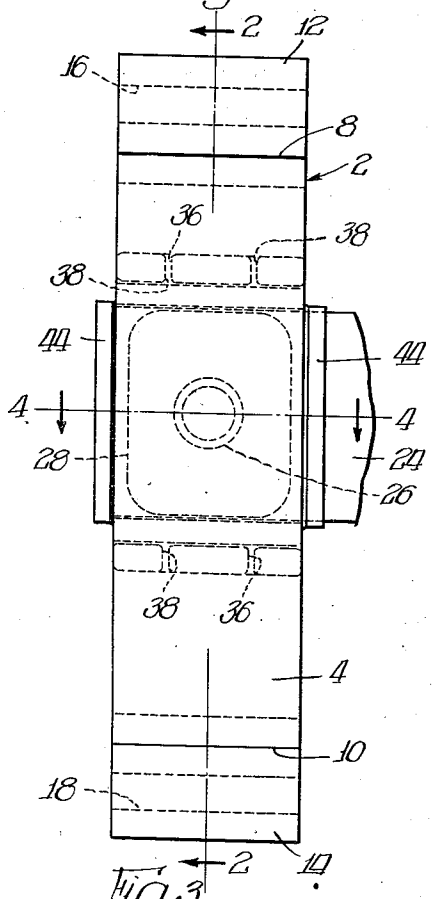


Fig. 2.

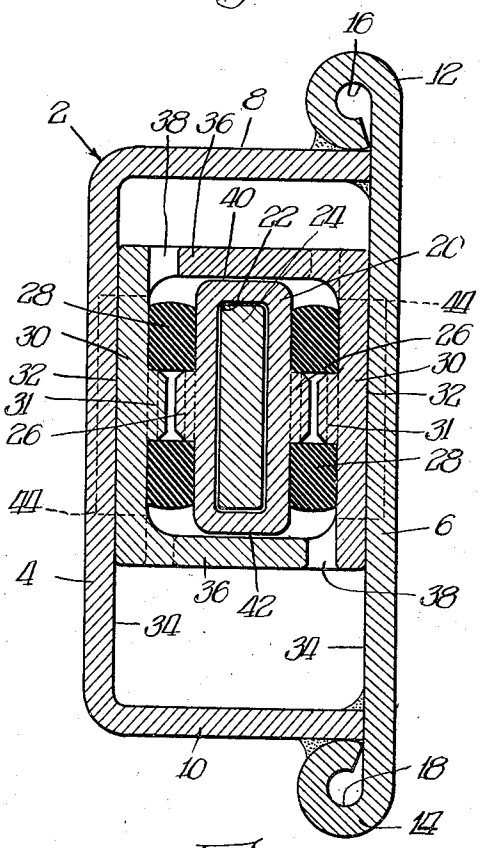


Fig. 3.

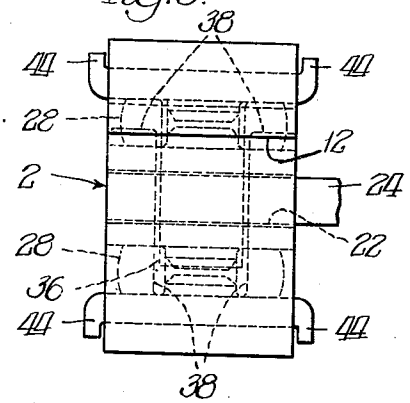
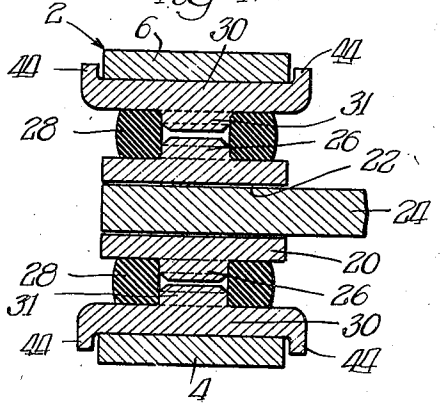


Fig. 4.



INVENTOR.
Robert B. Cottrell,
BY Owen O. B. Garner
Atty.

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Fig. 5

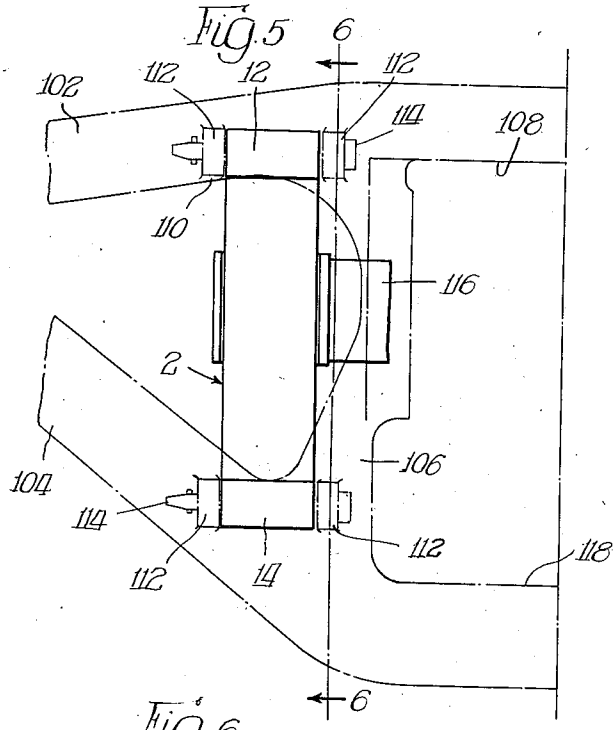


Fig. 8

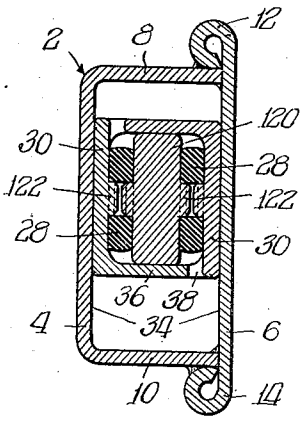


Fig. 6.

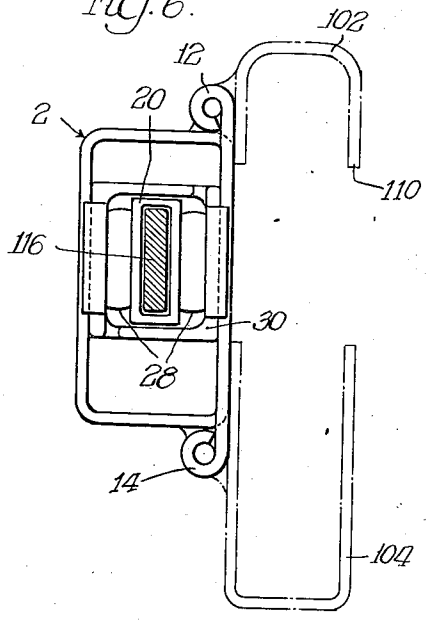
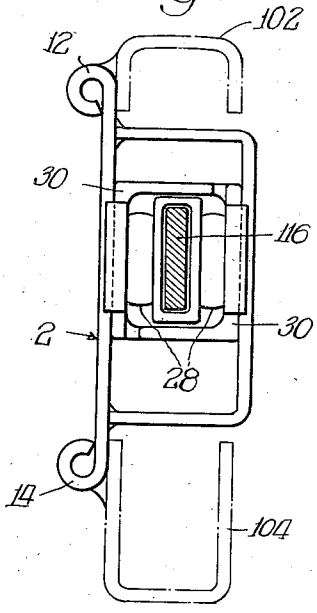


Fig. 7



INVENTOR.
Robert B. Cottrell.
BY Orin B. Garner
Atty.

Patented Sept. 15, 1942

2,295,551

UNITED STATES PATENT OFFICE

2,295,551

RIDE CONTROL UNIT

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

Application December 23, 1940, Serial No. 371,283

21 Claims. (Cl. 188—129)

My invention relates to a novel form of ride control unit particularly designed for application to railway car trucks.

My novel ride control unit is in the nature of a friction absorbing device suitably arranged for convenient application between relatively movable members in a railway car truck.

An object of my invention is to design a ride control unit in which friction surfaces may be conveniently arranged of suitable size for application to various forms of railway equipment and, to that end, I have arranged my device so that it may readily be applied to various types of railway car trucks.

My invention comprises a novel arrangement of friction casing suitably constructed for mounting on a frame member of a railway car truck and a shoe carrier supported in said casing and arranged for connection to a relatively movable frame member.

My invention contemplates an arrangement wherein a control unit casing may be secured to one truck frame member and an actuating bar secured to a relatively movable truck frame member with said actuating bar comprising an end portion on which may be carried friction shoes and resilient means for engagement with friction walls on said housing.

A different object of my invention is to devise a novel control unit such as described comprising a friction casing, a shoe carrier supported therein, and a plurality of friction shoes interlocked with each other and in engagement with said shoe carrier with resilient means under compression between the carrier and the shoes to urge the shoes against the friction casing.

Figure 1 is a view in elevation of my novel form of ride control unit.

Figure 2 is a sectional view in the vertical plane bisecting the device substantially as indicated by the line 2—2 of Figure 1.

Figure 3 is a top plan view of the unit as shown in Figures 1 and 2, and Figure 4 is a sectional view in the horizontal plane bisecting the device substantially as indicated by the line 4—4 of Figure 1.

Figure 5 is a fragmentary side elevation of a railway car truck with my novel control unit applied thereto.

Figure 6 is a sectional view through the truck shown in Figure 5, the section being taken transversely in the vertical plane indicated by the line 6—6 of Figure 5.

Figure 7 is a view comparable to that of Figure 6 but showing an alternate arrangement for mounting the control unit.

Figure 8 is a sectional view through a modification of the device, said view corresponding in general to that of Figure 2 but differing therefrom in that the actuating arm and shoe carrier are formed as a single member.

Describing the control unit in detail, it may be noted that it comprises a friction casing 2 including spaced front and rear walls 4 and 6, said rear wall 6 being extended beyond the top and bottom walls 8 and 10 to form integral lugs 12 and 14 with central openings 16 and 18 serving as convenient means of connection to a frame member. As illustrated, the casing is shown as a built-up structure, the back wall 6 being shown as a plate and the front and top and bottom walls as a separate plate formed to shape and welded to the back plate. This casing may be formed as a cast structure, if desired. Centrally positioned within the casing is a shoe supporting member or carrier 20 of rectangular form having the central slot or opening 22 for reception of an actuating member 24 which may be connected to a frame member which is relatively movable with respect to the firstmentioned frame member to which the casing may be connected. Centrally formed on opposite faces of the shoe carrier 20 are the raised lugs 26, 26 serving as positioning means for the rubber pads or springs 28, 28 which are seated against the opposite faces of the shoe carrier 20 under compression between said carrier and the spaced friction shoes 30, 30, said shoes being formed with central raised spring positioning lugs 31, 31, said shoes being identical in form but reversely positioned with respect to each other. The lugs 26, 26 are spaced opposite the lugs 31, 31, thus affording stop means against overcompression of the pads 28, 28. On the back of each shoe is formed a friction surface having engagement as at 32 with the friction face 34 formed on the inner surface of the casing, said friction faces 34, 34 being shown in parallel relationship. Each shoe is formed at one end with an inwardly extending centrally positioned finger or lug 36 and at the opposite end is formed with spaced inwardly directed lugs 38, 38 between which may be received the center lug or finger 36 of the oppositely positioned shoe. The interengaging lugs or fingers 36 and 38 of the opposite shoes may abut as at 40 and 42 the flat top and bottom surfaces of the shoe carrier 20 so that vertical movement of said carrier is immediately translated to the shoes. Tolerances may necessitate

slight spacing at 40 and 42 between the shoes and the carrier but rattling will be prevented by the rubber springs 28, 28 which are compressed between the shoes and carrier. Each shoe is formed with vertical guide flanges 44, 44 (Figure 4) at opposite edges thereof to maintain said shoes in squared relationship with respect to the side walls of the casing.

In Figures 5 and 6 may be shown a method of applying my novel control unit to a railway car truck. As illustrated, a truck frame member in the form of a side frame of truss type is shown with a compression member 102 and a tension member 104 defining with the integral column 106 the bolster opening 108 and the adjacent window opening 110. The tension and compression members adjacent the column are formed with spaced lugs 112, 112 with aligned openings through which may extend securing pins 114, 114, said pins extending through the eyes or openings 16 and 18 of the ears 12 and 14 positioned at the top and bottom of the control unit. Associated with the control unit is the actuating bar 116 which extends transversely past the column 106 and in front of the bolster opening 108 and may be connected in any convenient manner to a load carrying member or bolster (not shown) normally supported in said bolster opening on a spring group (not shown) which may be positioned on the spring seat 118 at the bottom of said bolster opening. As shown in Figure 6, the control unit 2 is illustrated as applied to the outboard face of the side frame but its position may be reversed, if desired, so that the control unit will be mounted within the inboard and outboard planes defining the opposite faces of the frame member as illustrated in Figure 7. In this position of mounting, the actuating bar 116 will extend through the adjacent columns into the bolster opening for connection to the bolster or load carrying member which is supported for relative movement with respect to the side frame.

The modification shown in Figure 8 differs from that shown in Figure 2 only in that the shoe carrier and control bar or actuating means are shown integral as a one-piece structure designated 120. Said actuating bar 120 may be formed with enlarged end portions serving as shoe carriers and on opposite faces of said end portions may be integrally formed the spring positioning means 122, 122. Otherwise, the parts are similar to those shown in Figure 2 and comprise the housing 2 with front and rear walls 4 and 6 and top and bottom walls 8 and 10 on which may be formed the oppositely spaced friction surfaces 34, 34. Supported on the actuating bar or carrier 120 may be the spaced friction shoes 30, 30 identical in form to those described for the previous modification and between each shoe 30 and the actuating bar 120 may be confined a rubber spring 28 in the manner already described.

The manner of connection of my novel control unit between relatively movable frame members may be a matter of convenience. In order to secure effective control of relative movement between two truck members, it is only necessary to connect the actuating member 116 to one of the truck members and to support the casing 2 on the relatively movable truck member. The unit is designed in such form that this connection can conveniently be made in a great number of frame structures and the manner in which this connection between two such relatively movable frame members of a truck may be affected is optional.

It is to be understood that I do not wish to be limited by the exact embodiments of the device shown which are 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. A control unit for connection between relatively movable members of a railway car truck comprising a casing for support from one of said members, and actuating means for connection to the other of said members, said casing having spaced internal friction faces, a shoe carrier, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of said casing, each shoe having vertical guide flanges maintaining said shoe in squared relationship with said casing, resilient pads under compression between said carrier and the respective shoes, and a connection between said carrier and said actuating means.

2. A control unit for connection between relatively movable members of a railway car truck comprising a casing for support from one of said members, and actuating means for connection to the other of said members, said casing having spaced internal friction faces, a shoe carrier, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of said casing, and resilient pads under compression between said carrier and the respective shoes, said actuating means extending into said carrier for operation thereof and being slidably and removably engaged therewith.

3. In a friction absorbing ride control unit, a friction casing comprising spaced friction faces, a shoe carrier supported in said casing, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of the casing, resilient pads under compression between said carrier and said shoes respectively, aligned lugs on said shoes and said carrier affording stop means against lateral movement of said carrier, and means associated with said carrier for actuation thereof, said shoes having interlocking members extending above and below said carrier for abutment therewith and support of said shoes.

4. In a friction absorbing device, a housing comprising spaced parallel friction surfaces, friction shoes in said housing, each of said shoes having a friction face, resilient means urging said faces into engagement with respective surfaces, and a friction shoe carrier clamped by and between said means.

5. In a friction absorbing ride control unit, a friction casing having internal friction faces, a shoe carrier supported therein, friction shoes in abutment with said friction faces at opposite sides of said device, alternately arranged interlacing lugs on said shoes extending on opposite sides of said carrier, resilient means under compression between said carrier and said shoes respectively, actuating means for said carrier, and positioning means on said carrier and said shoes for said resilient means.

6. In a friction absorbing ride control unit, a friction casing comprising spaced friction faces, a shoe carrier supported in said casing, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of the

casing, resilient pads under compression between said carrier and said shoes respectively, and means slidably and removably associated with said carrier for actuation thereof.

7. In a friction absorbing ride control unit, a friction casing having internal friction faces, a shoe carrier supported therein, friction shoes in abutment with said friction faces at opposite sides of said device, interlocking lugs on said shoes engaging opposite sides of said carrier, resilient means under compression between said carrier and said shoes respectively, aligned lugs on said shoes and said carrier affording stop means against excessive lateral movement of said carrier, and means associated with said carrier for actuation thereof.

8. In a friction absorbing ride control unit, a friction casing having internal friction faces, a shoe carrier supported therein, friction shoes in abutment with said friction faces at opposite sides of said device, guiding means on said shoes and said casing, interlocking lugs on said shoes extending on opposite sides of said carrier, resilient means under compression between said carrier and said shoes respectively, and actuating means for said carrier.

9. In a friction absorbing ride control unit, a friction casing comprising spaced friction faces, a shoe carrier supported in said casing, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of the casing, resilient pads under compression between said carrier and said shoes respectively, and aligned lugs on said carrier and said shoes affording positioning means for said pads and stop means against lateral movement of said carrier.

10. In a friction absorbing ride control unit, a casing having spaced parallel friction walls, friction shoes in abutment therewith, interengaging positioning means on said shoes and said walls, alternately arranged interlacing lugs on said shoes, a carrier confined between said lugs, resilient means under compression between said shoes and carrier, and actuating means associated with said carrier.

11. In a friction absorbing ride control unit, a casing having spaced parallel friction walls, friction shoes in abutment therewith, interengaging positioning means on said shoes and said walls, alternately arranged interlacing lugs on said shoes, a carrier confined between said lugs, resilient means under compression between said shoes and carrier, and positioning means on said shoes and carrier for said resilient means.

12. In a friction absorbing ride control unit, a friction casing comprising spaced friction faces, a shoe carrier supported in said casing, friction shoes supported on said carrier in engagement with said friction faces at opposite sides of the casing, resilient pads under compression between said carrier and said shoes respectively, said pads having openings transversely thereof, and stop means on said shoes and said carrier projecting into said openings.

13. In a friction absorbing ride control unit, a casing having spaced parallel friction walls, friction shoes in abutment therewith, interengaging positioning means on said shoes and said walls, alternately interlacing lugs on said shoes, a carrier confined between said lugs, and resilient means under compression between said shoes and carrier.

14. In a ride control unit of friction absorbing type, a casing having spaced friction walls, shoes supported on said walls in frictional engagement therewith, a carrier interposed between said shoes, resilient means under compression between said carrier and the respective shoes, and actuating means slidably engaged with said carrier.

15. In a friction absorbing device, a housing comprising spaced parallel friction surfaces, friction shoes in said housing, each of said shoes having a friction face, a resilient member associated with each shoe and urging the face thereon into engagement with the associated surface, and a friction shoe carrier clamped by and between said members.

16. In a friction absorbing device, a housing comprising oppositely spaced parallel friction walls, a friction shoe engaged with each wall, a resilient member engaged with each shoe, and a friction shoe carrier between said resilient members and connected thereto.

17. In a friction absorbing ride control unit, a housing comprising spaced frictional walls, a shoe carrier in said housing, friction shoes resiliently supported on said carrier and frictionally engaged with said walls, and means for actuating said carrier and slidably associated therewith.

18. In a friction absorbing device, a housing comprising oppositely spaced friction walls, a friction shoe engaged with each wall, a resilient member associated with each shoe, a friction shoe carrier between said resilient members and connected thereto, and actuating means associated with said carrier and operable to rectilinearly move said shoes within said housing.

19. In a friction absorbing device, a housing comprising oppositely spaced flat vertical friction walls, friction shoes in said housing and in engagement with said walls, a resilient member urging each shoe into tight engagement with the associated wall, a friction shoe carrier between said resilient members and connected thereto, and an actuator adapted to move said carrier vertically within said housing.

20. In a friction absorbing device, a housing comprising internal friction surfaces, friction shoes in said housing, a resilient member urging each shoe into tight engagement with an associated surface, and actuating means between said resilient members, connected thereto, and operable to linearly move said shoes within said housing.

21. In a friction absorbing device, a housing comprising spaced parallel friction surfaces, friction shoes in said housing, each of said shoes having a friction face, spaced resilient members urging said faces into engagement with respective surfaces, and actuating means between said members and connected thereto.

ROBERT B. COTTRELL.