

June 19, 1934.

D. S. BARROWS

1,963,067

DRAFT RIGGING

Filed Sept. 10, 1929

Fig. 1.

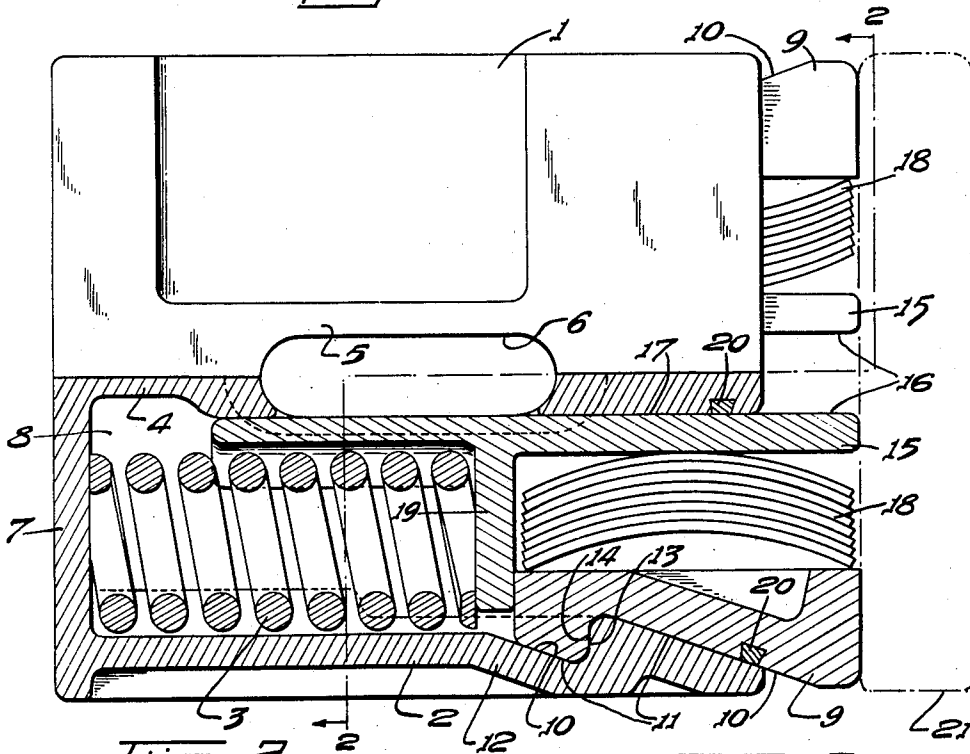


Fig. 2.

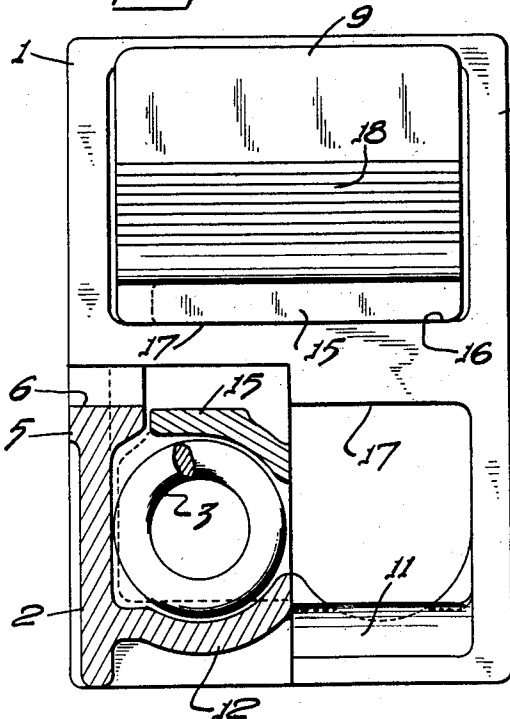
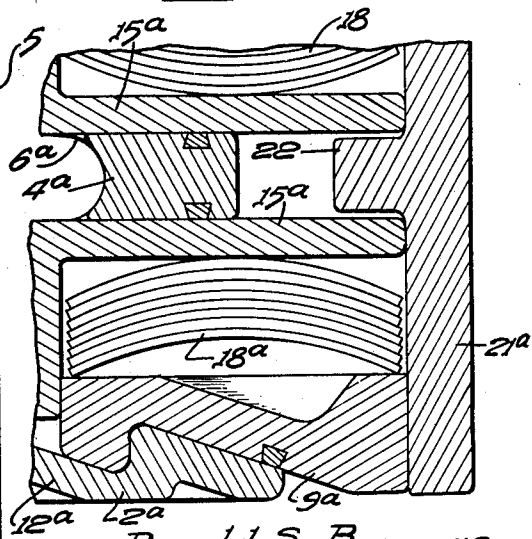


Fig. 3.



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1,963,067

DRAFT RIGGING

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Application September 10, 1929, Serial No. 391,593

14 Claims. (Cl. 213—30)

This invention relates to draft rigging, and, more particularly, to spring and friction draft gears especially adapted for use on railway vehicles.

6 The principal object of my invention, generally considered, is to provide friction draft gears or cushioning mechanism especially adapted for railway service and adapted to interchange with Farlow two key twin spring draft gears and associated follower blocks or for supplemental use with other draft gear.

10 Another object of my invention is to provide cushioning mechanism involving an enclosing barrel or casing divided by a longitudinal partition into two compartments with a pair of friction elements in each compartment, one element frictionally engaging the partition, and the other the opposite wall of the compartment with resilient means between said elements for urging them apart, and release springs for effecting release of said mechanism.

15 A further object of my invention is to provide cushioning mechanism for railway vehicles involving friction elements, the frictional capacity of said mechanism being increased by employing not only friction elements engaging side walls thereof, but auxiliary friction elements engaging a partition in said casing with resilient means urging the associated friction elements apart and into frictional engagement with the corresponding walls of the housing.

20 Other objects and advantages of the invention relating to the particular arrangement and construction of the various parts will become apparent as the description proceeds.

25 Referring to the drawing illustrating my invention, the scope whereof is defined by the appended claims:

30 Figure 1 is a partial side elevation and partial longitudinal sectional view of cushioning mechanism embodying my invention.

35 Figure 2 is an end elevation of the mechanism shown in Figure 1 with part thereof shown in transverse section on the line 2—2 thereof, looking in the direction of the arrows, and part shown with the cushioning elements removed from the casing.

40 Figure 3 is a fragmentary longitudinal sectional view corresponding to Figure 1, but showing a modification.

45 Referring to the drawing in detail, like parts being designated by like reference characters, and first considering the embodiment of my invention illustrated in Figures 1 and 2, there is shown a draft gear or cushioning mechanism 1

particularly adapted for use as a friction draft gear for railway vehicles and preferably designed so that it will fit into a draft gear pocket of usual size. In the embodiment shown, it is adapted for use as a substitute for twin spring gear or as supplemental to other friction draft gear, but it is obvious that I do not wish to be limited to this use or the exact construction shown. In the present embodiment, the gear involves a spring barrel or casing 2 adapted to serve not only as a container for resilient means such as the helical release springs 3 shown, but is also preferably provided with a longitudinal partition 4 which is slotted along with the connected side walls 5 and 6 to provide for the reception of a connecting draft key (not shown). In this way the casing or housing 2 functions as a combined casing and front follower when used with Farlow two key draft rigging. Although no coupler engaging lug, as is customary on the standard front follower used with Farlow rigging, is illustrated, it will be clear that, if desired, such a lug may be employed, especially if the mechanism is employed by itself or disposed immediately adjacent the butt of a coupler. Although the single ended mechanism illustrated has a barrel or casing 2 preferably formed with a wall 7 closing the front or one end thereof on which such a coupler engaging lug may be formed, yet I do not wish to be limited to this disclosure.

5 The partition 4, in the embodiment shown, divides the casing into two compartments 8. Although when used with a horizontal yoke and Farlow attachments, these compartments are upper and lower compartments, it will be clear that the gear may be used in other positions, if desired, so that the compartments are not necessarily in the positions described. In each compartment there is preferably positioned a pair of friction elements, one of said elements being a wedge 9 with outer inclined friction surfaces 10 engaging correspondingly inclined surfaces 11 formed on the corresponding side walls 12 of the housing, which walls, in the present embodiment, are upper and lower walls. In order to provide for interlocking between the wedges 9 and the casing 2, the inclined friction surfaces 11 on the casing are preferably formed in two steps with a shoulder 13 connecting said steps, and each wedge 9 is desirably so formed so that a lug 14 is provided thereon for engaging the shoulder 13 and limiting outward movement of the wedge with respect to the housing. The associated friction element or shoe 15 has a friction surface 16 engaging the friction surface 17 on the partition 4. These engaging

friction surfaces are desirably longitudinal or horizontal and may be extended for substantially the full length of the partition 4 to thereby provide a relatively large friction area for greatly increasing the friction capacity of the gear. In order to hold the friction elements 9 and 15 in frictional engagement with the corresponding portions of the casing, resilient means such as curved plate springs 18 are provided between each pair of friction elements 9 and 15.

In order to effect release of the gear, the friction elements or shoes 15 are desirably each provided with a transverse web or flange 19 extending outwardly or transversely with its outer end engaging the inner end of the wedge 9 and in turn normally engaged by the outer end of the release springs 3. This construction provides for simultaneous movement of the friction elements 9 and 15, provides abutments for the release springs 3, whereby all friction elements are acted upon by said springs, and closes the inner end of the space receiving the curved plate springs 18, thereby separating the plate and helical springs. On account of the shape of the compartments 8, two helical springs are preferably provided in each compartment, and in order to provide for separating said springs and holding them in the desired position, the walls 12 of said casing that house said release springs are preferably curved to partially surround said springs, as shown most clearly in section in Figure 2, and the extension of the shoe 15 inwardly of the web 19 is preferably correspondingly formed as illustrated. In order to provide for smoothness of operation and avoid sticking, some or all of the friction elements or the friction portions of the casing are provided with lead inserts 20 or other means for effecting this purpose.

Associated with the ends of the friction elements 9 and 15 which normally extend out of the casing 2 is a follower 21 of any usual or desired character. Movement of the follower toward the casing effects closure of the gear and compression of the springs as will be understood. This movement is not only limited by engagement of the follower with the side walls of the casing, but also by engagement thereof with the partition 4.

Referring now to the embodiment of my invention illustrated in Figure 3, a construction is there disclosed which is very similar to that of the first embodiment in that a casing 2^a of similar construction is provided and associated therewith are the wedges 9^a and the friction shoes 15^a respectively associated with the walls 12^a and partition 4^a of the casing. As in the previous embodiment, the partition 4^a is formed with a slot 6^a for the same purpose. The friction elements 9^a and 15^a are, as in the previous embodiment, urged apart by curved plate springs 18^a and release spring means may be employed as in the first embodiment.

Instead of using a plain follower, as in the previous embodiment, I may employ a special follower 21^a with a lug or spacing portion 22 extending between the springs 18^a and/or outer extensions of the shoes 15^a and adapted to engage the partition 4^a and limit compression of the gear. Clearance between the floating walls 15 and lug 22 is desirably provided to allow for wear on the friction surfaces 16 and 17. Except as specifically described, the present embodiment may correspond with the first embodiment.

From the foregoing disclosure, it will be seen that I have devised cushioning mechanism in which the casing or barrel thereof is also adapted

to function as a front follower and receive a connecting draft key. The partition, which is slotted for receiving such a key, not only functions to strengthen the casing, but also to provide additional friction surfaces to increase the frictional capacity of the gear and said partition is preferably extended to approximately the end of the casing to assist the side walls of said casing in limiting closure of the gear. The wedges are desirably provided with shoulders interlocking with corresponding portions on the casing, and the friction shoes interlock with the wedges so that all are limited in their outward movement. In assembling the gear or cushioning mechanism, the shoes are slipped into place over the release springs, the wedges being then placed in position and the plate springs finally inserted between the wedges and shoes when the parts will then be held interlocked, as illustrated.

Although certain preferred embodiments of my invention have been disclosed, it will be understood that I do not wish to be limited to the details, as modifications may be made without departing from the spirit and scope of my invention as defined by the appended claims.

Having now described my invention, I claim:

1. Cushioning mechanism adapted for use with railway draft rigging comprising a casing, a longitudinal partition dividing said casing and providing substantially parallel friction surfaces, one end of said casing being formed with outwardly flaring friction surfaces, wedges engaging said surfaces, resilient means disposed between said wedges, and friction shoes movable with said wedges, disposed between said resilient means and partition, and engaging the friction surfaces thereof.

2. Cushioning mechanism adapted for use with railway draft rigging comprising a casing closed at one end and open at the other, the open end of said casing being provided with outwardly flaring friction surfaces, wedges engaging said surfaces, resilient means disposed between said wedges, friction shoes movable with said wedges and disposed between said resilient means, each of said shoes having an extension engaging the inner end of the associated wedge, and means disposed between, and providing friction surfaces for, said shoes.

3. Cushioning mechanism adapted for use with railway draft rigging comprising a casing, a longitudinal partition dividing said casing into compartments and formed with substantially parallel sides, a wedge in each compartment engaging an outer wall thereof, a friction shoe in each compartment engaging the sides of said partition, and resilient means disposed between each shoe and wedge for holding said members in frictional contact with said casing.

4. Cushioning mechanism adapted for use with railway draft rigging comprising a casing, a partition dividing said casing into two transversely disposed compartments, a pair of friction elements in each compartment, one of said elements engaging the outer wall of said compartment, and the other the partition, means extending from one of said elements to the other for causing them to move as a unit, and resilient means disposed between said friction elements for urging them away from each other into engagement with said casing.

5. Cushioning mechanism adapted for use with railway draft rigging comprising a casing, a longitudinal partition dividing said casing into two compartments, opposite side walls of said casing

at one end being formed with flaring friction surfaces, a wedge in each compartment engaging said surfaces and formed with lugs adjacent their inner ends engaging corresponding shoulders on said casing to limit outward movement of said wedges, a friction shoe in each compartment, an extension from said shoe engaging the inner end of the associated wedge to limit outward movement of said shoe, and resilient means disposed between each wedge and its associated shoe for holding them in frictional engagement with the corresponding portions of the casing.

6. Cushioning mechanism adapted for use with railway draft rigging comprising a casing, a longitudinal partition dividing said casing into two compartments, a wedge and associated shoe in each compartment, one of said members engaging the partition and the other engaging the opposite wall of the corresponding compartment, means extending from one of said members to the other for interlocking the parts for simultaneous movement in and out of said casing, curved plate springs disposed between each set of members for holding them in frictional engagement with the corresponding parts of the casing, and a release spring for urging said members outwardly of said casing.

7. Cushioning mechanism comprising a casing, one end of which is formed with inclined friction surfaces, friction wedges engaging said surfaces, resilient means engaging said wedges to hold them in engagement with said surfaces, friction shoes disposed between said resilient means and formed with flanges engaging the inner ends of said wedges, and means disposed between said shoes providing friction surfaces in engagement therewith.

8. Cushioning mechanism comprising a casing open at one end, said open end being provided with outwardly flaring portions, wedge means normally disposed in engagement with said portions, resilient means disposed between said wedge means, and friction shoes holding said resilient means and formed with lateral extensions normally engaging said wedge means, and means disposed between and spacing said shoes.

9. A casing for cushioning mechanism comprising side walls formed with inclined outwardly flaring friction surfaces, and an intermediate wall provided with flat substantially parallel friction surfaces for increasing the capacity of said mechanism.

10. A casing for cushioning mechanism comprising a pair of opposite side walls formed with outwardly diverging friction surfaces, and an integral flat partition wall disposed therebetween, and providing auxiliary parallel friction surfaces, the other side walls and said partition wall being slotted for receiving a connecting draft key.

11. Cushioning mechanism adapted for use

with railway draft rigging comprising a casing, a longitudinal partition dividing said casing into compartments, opposite side walls of said casing at one end and on either side of said partition being formed with outwardly diverging friction surfaces, a wedge in each compartment engaging said surfaces and formed with lugs adjacent their inner ends engaging corresponding shoulders on the casing to limit outward movement of said wedges, release spring means disposed in each compartment inwardly of said wedges, intermediate follower means disposed between said wedges and release spring means, two groups of plate springs disposed between said wedges for urging them into engagement with said friction surfaces, a follower engaging the outer ends of said wedges, and a spacing portion on said follower extending inwardly between the groups of plate springs.

12. Cushioning mechanism adapted for use with railway draft rigging comprising a casing with a pair of opposite side walls formed with outwardly diverging friction surfaces and an integral flat partition wall disposed therebetween and providing auxiliary parallel friction surfaces, the other side walls and said partition wall being slotted for receiving a connecting draft key, and spring actuated friction elements engaging said friction surfaces and received in said casing on opposite sides of said partition.

13. Cushioning mechanism comprising a casing with a pair of opposite side walls formed with outwardly diverging friction surfaces, movable friction means engaging said friction surfaces, and an integral flat partition wall disposed therebetween and providing auxiliary parallel friction surfaces, the other side walls and said partition wall being slotted for receiving a connecting draft key, and movable friction means on opposite sides of said partition wall and comprising elements resiliently pressed thereagainst, and resilient means for resisting movement of said movable friction means.

14. Cushioning mechanism adapted for use with railway draft rigging comprising a casing having a pair of opposite side walls formed with outwardly diverging friction surfaces and an integral flat partition wall disposed therebetween and providing auxiliary parallel friction surfaces, the other side walls and said partition wall being slotted for receiving a connecting draft key, said partition wall dividing said casing into laterally spaced compartments, a friction shoe and a wedge in each compartment respectively engaging said flat and diverging surfaces, and resilient means urging said shoes and wedges into engagement with said surfaces and resisting lengthwise movement thereof.

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