July 1, 1924

1,499,353

G. B. DOREY

FRICTION DRAFT RIGGING

Filed Dec. 14, 1921

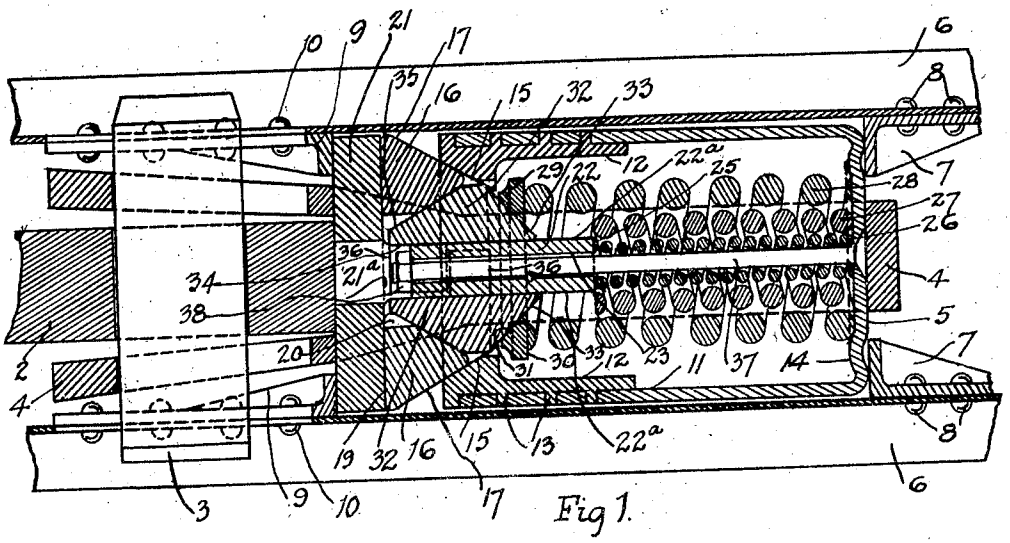


Fig 1.

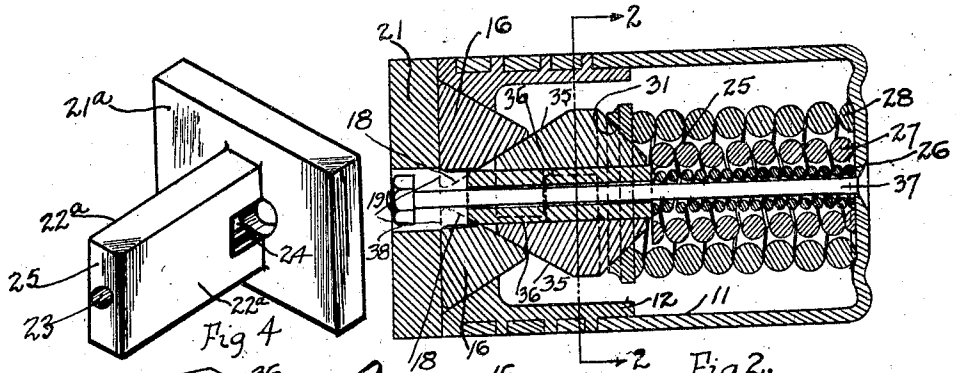


Fig 2.

Fig 4

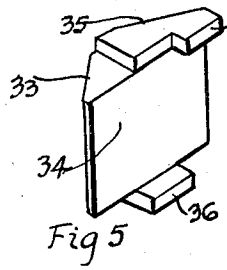


Fig 5

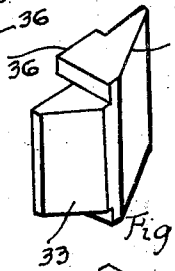


Fig 6

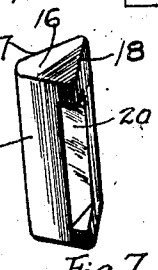


Fig 7

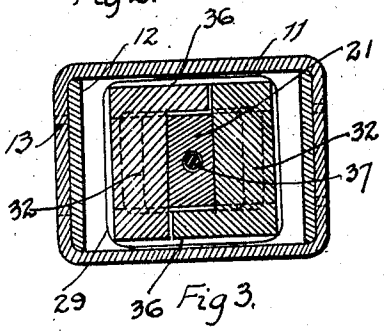


Fig 3.

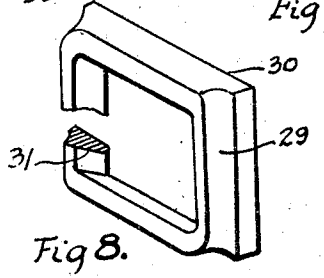


Fig 8.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE BINET DOREY, OF MONTREAL, QUEBEC, CANADA, ASSIGNOR TO WILLIAM H. MINER, OF CHAZY, NEW YORK.

FRICTION DRAFT RIGGING.

Application filed December 14, 1921. Serial No. 522,383.

To all whom it may concern:

Be it known that I, GEORGE BINET DOREY, a subject of the King of Great Britain, and residing in the city of Montreal, Province of Quebec, Dominion of Canada, have invented certain new and useful Improvements in Friction Draft Riggings, and do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in friction draft riggings and is especially related to that type wherein wedge blocks having longitudinal movement as well as transverse movement are used to displace other frictional members a relatively greater distance.

It is an object of the present invention to greatly increase the capacity and shock absorbing power of such gears by providing auxiliary wedging means to insure a more certain wedging action between the various wedging elements.

A further object of the invention resides in providing novel means to cause springs having varying degrees of travel to be compressed in unison.

Another object of the invention is to insure more certain release of the gear after compression by having certain of the parts constituting the frictional portion of the rigging directly resisted by the springs.

A difficulty hitherto experienced with high capacity friction gears has been the bending of members subjected to loading as a column and it is an object of this invention to so dispose the various elements usually subjected to bending stresses that they will work in tension instead of compression.

My invention further consists of certain novelties of design and construction and combination of parts such as will be apparent from the description in this specification and reference to the drawings.

For fuller comprehension of the invention reference must be had to the accompanying drawings wherein like figures indicate like parts.

In the illustrations Figure 1 shows the draft rigging as applied between the sills of a railway car with the parts in the normal release position.

Figure 2 is the same as Figure 1, except that the rigging is shown in the fully compressed position.

Figure 3 is a transverse sectional view taken on line 2—2 of Figure 2.

Figure 4 is a perspective view of the friction follower member.

Figure 5 is a perspective view showing the inner face of one of the shoes.

Figure 6 is a perspective view showing the outer face of one of the shoes.

Figure 7 is a perspective view of one of the wedge block pressure transmitting members.

Figure 8 is a perspective view of the wedge retaining member.

In the drawings 2 represents the drawbar of the coupler connected by means of key 3 to the yoke 4 in the usual manner, the yoke embracing the casing 5 and the whole being located between center sills 6. The rear of the casing abuts against rear stops 7 connected to the center sills by means of rivets 8, front stops 9 are secured to the center sills 6 by means of rivets 10 and constitute abutments for the gear under pulling strains.

The casing 5 as shown on the drawing is preferably rectangular in shape and made of pressed steel and consists of an outer shell 11, the side walls being fitted with inserts 12 which are provided with lugs 13 thereby making a rigid connection with the outer casing. The casing is made with one end closed as at 14 on which the cluster of springs bear. The open end of the casing is formed with oppositely beveled pieces 15 which extend within the casing. Co-operating with surfaces 15 of the casing are two wedge block pressure transmitting members 16 disposed on each side of the longitudinal center of the gear. These wedges are made triangular in shape, each side constituting a friction surface, surface 17 being adapted to register with surface 15 of the casing, the adjacent surface 18 of the wedge co-acting with surface 35 of the friction shoes 32. The other surface of the wedge as at 19 is adapted to register with surface 21ª of the friction follower member 21. A recess is formed in the wedge block pressure trans-

mitting members at 20 for the purpose of straddling the depending portion of the friction member when the gear is compressed.

The follower member 21 is T shaped in form with the leg 22 forming a depending portion extending within the casing. The leg 22 is provided with two friction surfaces 22^a which are preferably parallel and adapted to register with friction surfaces 34 of the shoes 32. Extending longitudinally through the follower member is a hole 23 through which the bolt 37 passes, the hole is enlarged at its upper end as shown at 24 to form a chamber for the nut 38 and in order to enable the nut to be turned. The purpose of this bolt is to bolt the gear together and so place the springs under initial compression and so produce a self contained gear.

The inner end of the follower member as at 25 bears directly on the inner coils of springs consisting of coils 26 and 27. The outer coil of springs 28 bears directly on the wedge retaining member 29 at surface 30. The wedge retaining member is preferably formed of rectangular section and hollowed out for the purpose of receiving the shoes 32 and the walls engaging this member are sloping as at 31 registering with the wedging surface 33 of the shoes 32.

The inner surface 34 of the shoes is preferably made flat and registers with the outer surface 22^a of the follower member 22 and it will therefore be seen that pressure from the outer spring 28 will force the wedge retaining member tightly over the wedge shaped portion of the shoes thereby tending to drive these members with great force against the depending portion of the follower member. This action is further augmented by the wedge shaped portion of the outer ends of the shoes, as constituted by surfaces 35 which registering with surfaces 18 of the wedge blocks 16 cause the shoes to move towards each other, as the shoes are disposed on each side of the longitudinal center of the rigging between the wedging surfaces of blocks 16.

In order to cause the shoes to move in unison they are formed L shaped by means of the projections 36 extending over the column and from the main body of the shoes. These lugs are formed on both the top and the bottom of the shoes but disposed in different planes in order that they may interlock when placed in operative relation, one of such lugs preventing longitudinal relative motion between the shoes in one direction and the other lug preventing relative motion between the shoes in the opposite direction.

The operation of the draft rigging takes place as follows. In draft or buffing strains the follower member 21 is moved towards the casing forcing the wedge block pressure transmitting members 16 inwardly into the casing and by the fact of the beveled walls of the casing also transversely of the same and towards each other. As members 16 move towards each other they displace the friction shoes 32 a greater distance than their own movement due to the squeezing action exerted on these members by the relative approach of surfaces 18 towards the longitudinal center of the gear. The squeezing action referred to has the effect of forcing the shoes tightly against the leg of the follower member 21 and this action is further augmented by the action of the wedge retaining member 29 being forced over the wedge shaped portion of the shoes by the spring 29. It will be observed therefore that the shoes will move a greater distance than the coupler and the follower member and that there will be relative motion between the shoes and the follower member and as the former are travelling at a faster rate of speed than the follower it is evident that the depending portion 22 of this member will be in tension. Resistance to the inward movement of the follower is set up by the two inner springs 26 and 27 which bearing at surface 25 directly oppose inward movement of the follower. When the gear is fully compressed the surface 21^a abuts directly on the casing thereby relieving the frictional mechanism of undue strain.

On release of the parts the inner coils of spring acting on the follower member force it outwardly and at the same time the outer coil spring re-asserts itself and moves the shoes forward on the friction member. As the shoes are being moved forwardly the wedge block pressure transmitting members 16 are also moved in a forward and outward direction thereby bringing back the parts to the normal release position of the gear and in readiness for the next compression stroke.

While I have shown one particular embodiment of my invention it is evident that certain changes and modifications may be made without departing from the spirit and scope of the claims.

What I claim is:

1. A friction draft rigging having a follower, a depending portion fixed relatively thereto and extending therefrom, such depending portion having substantially parallel faces and frictional shoes in engagement therewith and transversely movable wedges acting thereon.

2. A friction draft rigging having a follower with a depending portion fixed relatively thereto and extending therefrom, such depending portion having substantially parallel faces and frictional shoes in engage-

ment therewith and longitudinally and transversely movable wedge elements acting thereon.

3. A friction draft rigging comprising a casing, a follower having a depending portion extending therefrom, such depending portion having substantially parallel faces and frictional shoes in engagement therewith, wedge members in engagement with the casing and adapted to move the shoes transversely and longitudinally.

4. A friction draft rigging comprising a casing, a follower having a depending portion extending therefrom and frictional shoes having parallel faces in engagement therewith, wedge members in engagement with the casing and adapted to move the shoes relatively to the follower.

5. A friction draft rigging comprising a casing, a follower having a depending portion extending therefrom and presenting walls, friction shoes in engagement with the said walls and wedge pressure transmitting members engageable with the follower and adapted to move transversely and inwardly upon relative approach of said follower and casing and adapted to displace the shoes relatively to the follower.

6. A friction draft rigging comprising a casing, a follower, pressure transmitting members operatively associated with the casing and adapted to move longitudinally and transversely and friction elements opposing the movement thereof, the said elements comprising friction shoes in engagement with walls extending from the follower, wedging means for holding the shoes in engagement therewith and moving the same relatively thereto and spring means for maintaining the parts in operative relation.

7. A friction draft rigging comprising a follower, a casing presenting oppositely beveled walls, wedge blocks in engagement therewith, friction shoes adapted to be displaced by the wedge blocks, the said shoes being formed with exterior wedge shaped surfaces at both their outer and inner ends; the outer ends of such shoes having the wedge shaped portion re-acting against the casing through the medium of wedge blocks and the other end of such shoes re-acting against an integral movable member; the said shoes being formed with interior parallel walls and having an extension from the follower adapted to have reciprocatory motion therebetween.

8. A friction draft rigging comprising a casing having beveled walls wedge blocks in engagement with the said beveled walls, friction members adapted to be displaced by the said wedge blocks, a follower acting on the wedge blocks and spring means directly resisting movement of the follower and spring means directly resisting movement of the friction members.

9. A friction draft rigging having a follower, wedge blocks, friction shoes having parallel faces, a member extending from the follower and being adapted to have reciprocatory motion between the parallel faces of the friction shoes and spring means directly resisting movement of the follower and spring means directly resisting movement of the shoes.

10. In a friction draft rigging the combination with a drawbar of a plurality of springs, a member in engagement with certain of the springs and travelling at drawbar speed, frictional members in engagement with the aforesaid member and travelling at a greater speed than the drawbar and resisted by the other springs.

11. In a friction draft rigging the combination with a drawbar of inner and outer springs, a member resisted by the inner springs and adapted to travel at drawbar speed, frictional members in engagement with the said member and travelling at a greater speed than the drawbar and resisted by the outer spring.

12. In a friction draft rigging, a casing, a tensional member and movable shoes sliding thereon, the said shoes having one end thereof formed wedge shaped and engaging movable wedge blocks co-operating with the casing to force the said shoes against the tensional member and also inwardly into the casing; the other end of the shoes being also wedge shaped and engaged by a similarly wedge shaped movable member formed to resist outward movement of the shoes and adapted to force the same into engagement with the said tensional member and spring means adapted to maintain the wedge shaped member over the shoes and resist inward movement of the said shoes and movable member.

13. A friction draft rigging having a casing, friction shoes, a friction member and transversely and longitudinally movable wedge blocks co-operating with the casing to displace the friction shoes relatively to the friction member, means for maintaining the friction shoes in engagement with the said member and a spring for resisting movement of the parts; the said member being under tensional strain during such displacement.

14. In a friction shock absorbing mechanism, the combination with a friction shell; of a spring resistance; a follower, the follower having an extension projecting within the shell, the distance between said projection and a side of the shell progressively decreasing inwardly of the shell; and a plurality of friction elements on each side of said projection between it and the corresponding adjacent shell friction surface and cooperable with the follower, its projection and the shell.

15. In a friction shock absorbing mechanism, the combination with a friction shell having opposed friction surfaces on the interior thereof converged inwardly of the shell; of a spring resistance; an outer follower having a centrally disposed arm extending between said shell friction surfaces; and a pair of wedge-friction-shoes on each side of said arm and cooperable with the latter, the follower proper and the corresponding shell friction surfaces.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

GEORGE BINET DOREY.

Witnesses:
R. R. GORDON,
EDGAR G. DOLBY.