G. T. MOORE.

DRAFT RIGGING.

APPLICATION FILED JUNE 17, 1918.

1,320,563.

Patented Nov. 4, 1919.

4 SHEETS—SHEET 2.

Fig. 3.

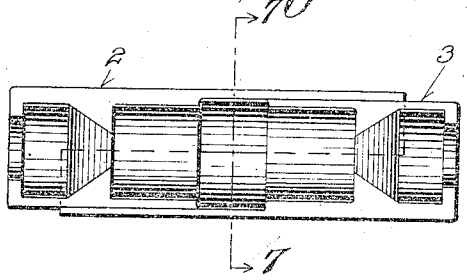


Fig. 4.

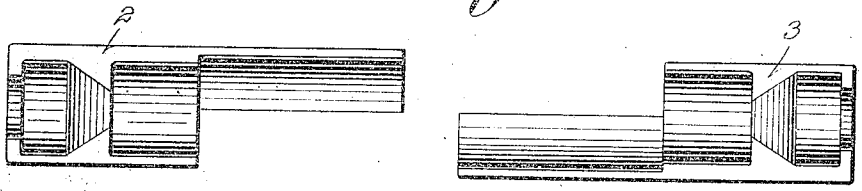


Fig. 6.

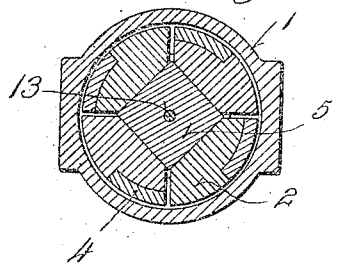


Fig. 5.

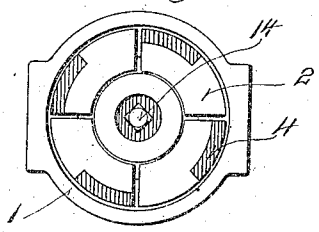
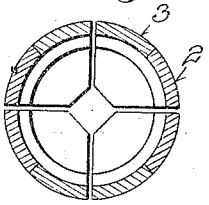


Fig. 7.



WITNESSES:

T. F. Britt

INVENTOR

George T. Moore

BY Geo. S. Young

ATTORNEY

G. T. MOORE.

DRAFT RIGGING.

APPLICATION FILED JUNE 17, 1918.

1,320,563.

Patented Nov. 4, 1919.

4 SHEETS—SHEET 3.

Fig. 8.

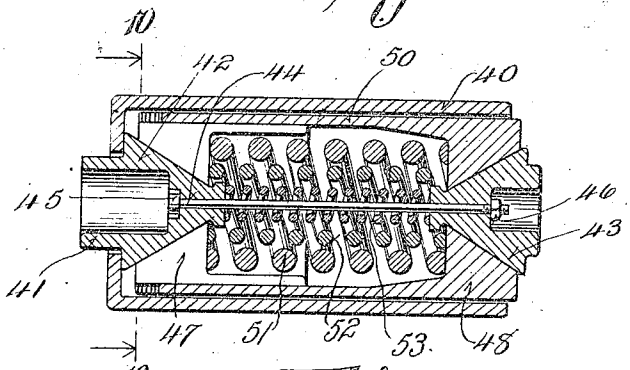


Fig. 9.

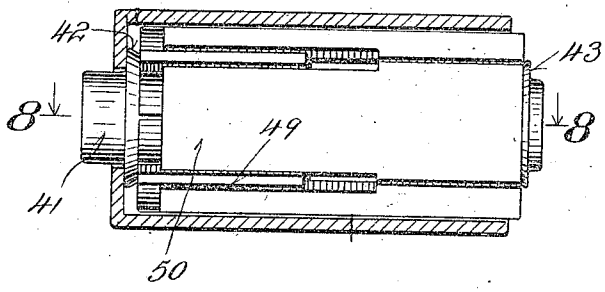
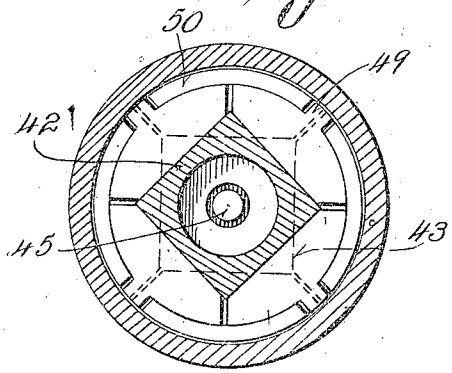


Fig. 10.



WITNESSES:

T. F. Britt

INVENTOR

George T. Moore

BY

ATTORNEY

G. T. MOORE.

DRAFT RIGGING.

APPLICATION FILED JUNE 17, 1918.

1,320,563.

Patented Nov. 4, 1919.

4 SHEETS—SHEET 4.

Fig. 11.

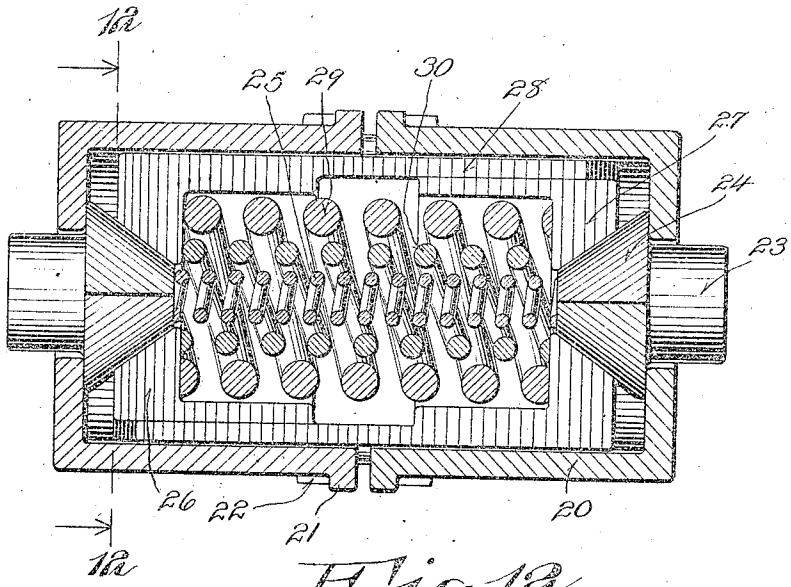
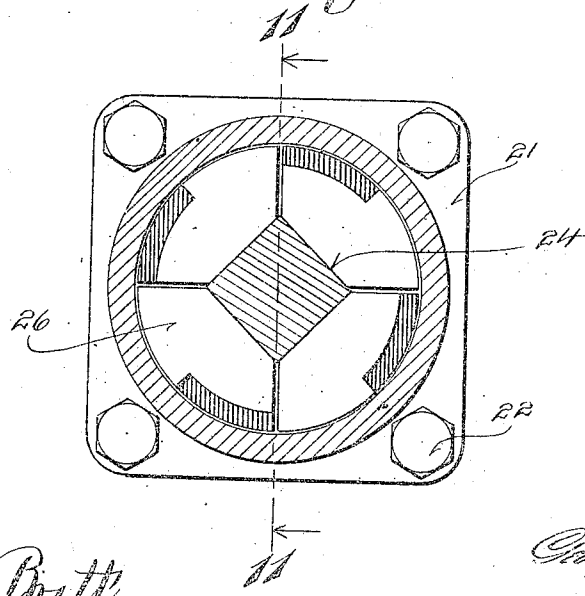


Fig. 12.



WITNESSES:

J. P. Britt

INVENTOR

George T. Moore

BY

Geo. S. Young

ATTORNEY

G. T. MOORE.

DRAFT RIGGING.

APPLICATION FILED JUNE 17, 1918.

1,320,563.

Patented Nov. 4, 1919.

4 SHEETS—SHEET 1.

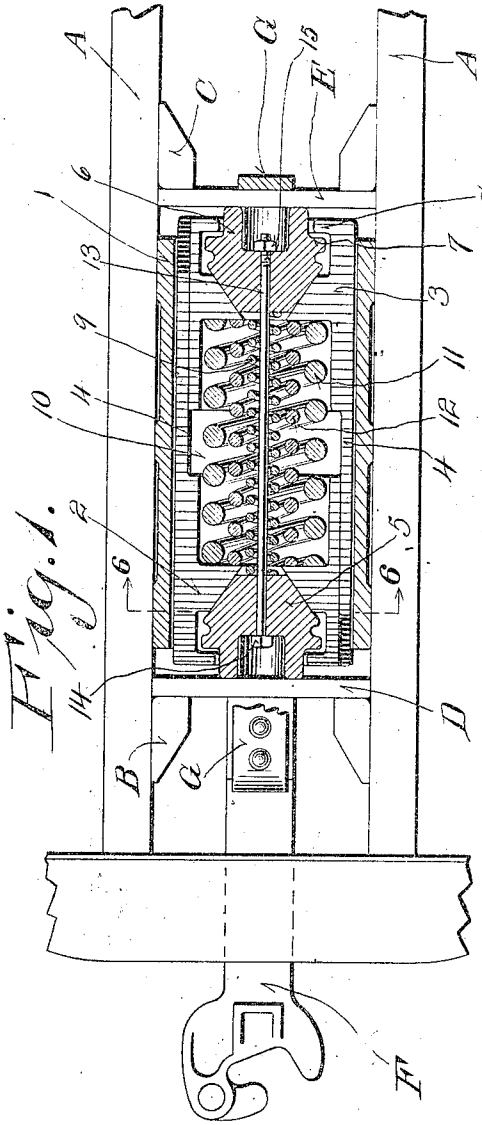


Fig. 1.

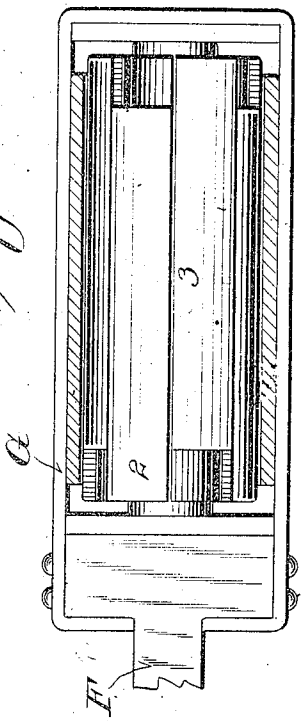


Fig. 2.

WITNESSES:

J. P. Britt

INVENTOR

George T. Moore

BY George Stevens

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE T. MOORE, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO WILLIAM F. HOFFMAN, OF CHICAGO, ILLINOIS.

DRAFT-RIGGING.

1,320,563. Specification of Letters Patent. Patented Nov. 4, 1919.

Application filed June 17, 1918. Serial No. 240,420.

To all whom it may concern:

Be it known that I, GEORGE T. MOORE, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Draft-Rigging; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to new and useful improvements in draft and buffing rigging and is designed for use in connection with the draw-bars of railway trains and in various other arts.

This rigging is of the usual combination friction and spring resistance type, the particular object of the present invention being to provide a double acting device of this character which will have a very extensive friction surface. In other words the rigging includes an elongated friction shell with which friction elements engage substantially throughout the length thereof when either a pull or a pushing strain is exerted.

An additional object is to provide a double acting device of this character having spaced wedge members which, when acted upon by strain will move toward each other, but immediately upon the discontinuance of the exertion of the force of such strain, will move apart to their normal position.

A further object is to provide a device of this character having two spaced sets of friction elements with means for normally holding these sets of elements apart.

With these and other objects and advantages in view the invention resides in the novel features of construction, combination and arrangement of parts which will be hereinafter more particularly described and claimed.

In the accompanying drawings Figure 1 represents a plan view of one end portion of the running gear of a railway car having my invention applied to the draw-bar thereof, said invention being shown in longitudinal section.

Fig. 2 is a plan view partly in section of the invention illustrated in Fig. 1.

Fig. 3 is an elevational view of a pair of friction elements showing the friction fingers thereof in overlapping relation with the main parts of the elements.

Fig. 4 is a similar view with a pair of said elements arranged in dissembled position.

Fig. 5 is an end view of the form of the invention depicted in Figs. 1 and 2.

Fig. 6 is a transverse sectional view taken on the plane of the line 6—6 of Fig. 1.

Fig. 7 is a similar view on the plane of the line 7—7 of Fig. 3.

Fig. 8 is a longitudinal sectional view through a modified form of my invention, such section being taken on the plane of the line 8—8 of Fig. 9.

Fig. 9 is a view of the form of my invention illustrated in Fig. 8, the friction shell being in longitudinal section and the friction elements and associated parts being in plan.

Fig. 10 is an enlarged transverse sectional view on the plane of the line 10—10 of Fig. 8.

Fig. 11 represents a longitudinal sectional view of a third modification of the invention, said section being taken on the plane of the line 11—11 of Fig. 12, and

Fig. 12 is a transverse sectional view on the plane of the line 12—12 of Fig. 11.

Referring particularly to Figs. 1 to 7 inclusive, which illustrate one form of my invention, it will be seen that the same includes a friction shell or casing 1 mounted between the usual center sills A of the frame of a railway car, and that the combined friction and spring resisting means is located therein. The friction shell 1 is further positioned between spaced front and rear stops B and C respectively which extend inwardly from the sills A. As is customary in the application of devices of this character, front and rear follower plates D and E respectively are adapted to coöperate with their corresponding stops B and C, and the draw-bar F is connected with the follower plates by means of a draw-bar extension in the form of a strap or yoke G. Inasmuch as this is a customary way of mounting rigging such as that contemplated by my invention, the several forms of the latter as illustrated in Figs. 8 to 12 are not applied to any specified mechanism.

The operating parts of the invention inclosed within the friction shell 1, the opposite ends of which are open so that the same can move therethrough, comprise two spaced sets of friction elements 2 and 3, each set

of which includes four identically shaped elements. These elements are so constructed that when assembled in operative position their periphery forms a circle whereby effective coöperation may be had with the inner surface or friction face of the shell 1.

Also each of the friction elements has a laterally extending friction finger 4 of such length that when the two sets of elements 2 and 3 are spaced a considerable distance apart, they will overlap the opposite corresponding element of the other set. That is to say the fingers are of less width than the elements from which they extend so that when assembled they interlock as clearly indicated in Figs. 2 and 5 to 7. Each of the fingers is substantially the length of the friction shell 1 so that when the sets of elements 2 and 3 are expanded a maximum contact will be had between the friction face of the shell 1 and said fingers.

Expansion of the sets of friction elements 2 and 3 is procured by the movement of a pair of wedge members 5 and 6 respectively, the outer ends of which contact with the follower plates D and E. Each of the wedge members has inwardly extending cam faces which correspond with similar faces on each of the several friction elements forming the sets 2 and 3 whereby when said members are moved toward each other, the latter will be expanded. The small ends of the wedge members are positioned inwardly or toward each other and their outer ends are shouldered as at 7, such shoulders being adapted to abut an inwardly extending flange 8 on each of the wedge members.

An expansile coil spring 9 having its opposite ends engaged with said wedge members 5 and 6 is located within the cavity 10 formed between the two sets of friction elements 2 and 3 by the fingers 4 thereof. Also disposed in this cavity 10 are a pair of expansile coil springs 11 and 12, both of which surround the first mentioned spring 9, the spring 11 being considerably heavier and of greater diameter than the other spring 12. Said springs 11 and 12 bear against the ends of the cavity formed by the sets 2 and 3 and normally urge the latter away from each other. Excessive outward movement of the wedge members by the spring 9 is prevented by a bolt 13 that extends longitudinally through the friction shell, said wedge members being slidably mounted on the opposite ends thereof. Said wedge members are thus free to move inwardly toward each other, but the head 14 of the bolt 13 and a nut 15 on the opposite end limit outward movement.

It is believed that the operation of this form of my invention is readily obvious from examination of Fig. 1, but briefly it may be set forth as follows: Assuming that the car on which the invention is mounted is to be coupled through the draw-bar F to a second car, it will be noted that when the latter strikes the draw-bar the same is forced inwardly and the follower plate E positioned in contact with the rear stops C. When this occurs continued movement of the draw-bar in the same direction shifts the wedge member 5 inwardly toward the other wedge member to thus expand the set of friction elements 2 and engage their fingers 4 with the friction shell 1, the friction elements 2 being simultaneously moved in the same direction to compress the springs 11 and 12. Thus the increase in tension of these springs moves the friction elements 3 inwardly and against the wedge member 6, which is held stationary by the follower plate E. The set 3 of the friction elements is also caused to expand because of the fact that the friction fingers 4 thereof are overlapped with the corresponding friction elements of the set 2. Therefore when a push is applied to the draw-bar a force is quickly exerted for the purpose of retarding and stopping the movement thereof. When said draw-bar is moved in an opposite direction the operations of the part of the invention just described will be reversed.

Unlike the form of the invention just described which has its movable parts located in an open ended friction shell and retained in assembled relation by the bolt 13, the modification illustrated in Figs. 11 and 12 includes a two-part casing or friction shell 20, the same being split transversely. Coupling flanges 21 are formed at the abutting or adjacent edges of the two parts of the shell whereby the latter may be secured together by bolts 22. Each opposite end of the shell has a central opening through which the boss 23 of a wedge member 24 extends. The bosses are adapted to be engaged by the follower plates D and E or by any other parts of the mechanism with which the invention is associated.

The faces of the wedge members 24 are inclined inwardly and the small ends thereof are positioned toward each other, said ends being engaged by an expansile coil spring 25; this spring urges the wedge members 24 away from each other and into engagement with the ends of the shell. Movement thereof in an outward direction is thus limited.

The cam faces of the wedge members 24 coact with the inclined faces of the several similarly shaped friction elements which when assembled provide two distinct sets 26 and 27, one of the members being engaged with each set. Each of the friction elements carries a laterally extending elongated friction finger 28 of substantially half its width, the fingers of one set of elements being arranged in overlapping position with respect to the other set and alternately with the fingers thereof (see particularly Fig. 12). When the sets of elements 26 and 27 are ex-

panded by the inward movement of the wedge members 24, said fingers 28 are frictionally engaged with the inner surface of the shell 20.

A pair of expansile coil springs 29 and 30 are disposed between the two sets of friction elements and engage therewith to hold the same apart. The operation of this present modification is similar to that of the form previously described.

Figs. 8, 9 and 10 disclose a third modification of my invention, the friction shell or casing 40 in this case being open at one end and closed at the other, the closure wall having a central hole to permit a tubular boss 41 of a wedge member 42 to extend outwardly and externally of the shell. The cooperating wedge member 43 is substantially similar in shape to the first mentioned wedge member 42 and has its small end extending toward the corresponding end of the other. These wedge members slide on a centrally disposed bolt 44, their outward movement with respect to each other being limited by the head 45 of said bolt and a nut 46 threaded on its opposite end.

In this form of the invention, the friction members 47 and 48 which coöperate with the wedge members 42 and 43 respectively are considerably different in design. For instance each of the elements 47 has a central longitudinally extending rib 49 formed on its periphery, whereas the other elements 48 each carry a friction finger 50, each of said fingers as will be seen from Fig. 10 overlap two of the elements 47. The outer surface of these fingers 50 and the similar surface of the ribs 49 form friction faces for coöperation with the interior wall of the friction shell 40. Because of this relationship of the friction elements, the wedge members 42 and 43 are disposed at different angles as indicated in Fig. 10, this being different from the relation of the wedge members used in the other modifications.

Expansile springs 51 and 52 bear against the two sets of friction elements formed by the elements 47 and 48 to normally urge the same apart, outward movement thereof being limited by the bolt 44. Similarly the wedge members 42 and 43 are normally urged part by an expansile coil spring 53, the opposite ends of which engage the inner ends of the members. The general operation of this form of my invention is also identical to that of the other modifications and therefore need not be particularly described.

From the foregoing description taken in connection with the accompanying drawings it will be obvious that a considerable advance has been made in the art relating to draft and buffing rigging by providing a device having a much increased friction surface as well as other improvements.

I claim:

1. In a rigging of the class described, a relatively stationary friction shell comprising a closed end casing split transversely intermediate its ends to form two housing members, each closed end having a central opening, coacting coupling flanges surrounding the housing members at their adjacent edges, and means connecting the flanges, a pair of friction elements disposed one in each housing member and projecting into the other, a wedge member engageable with each of the elements, each of said wedge members having a boss extending through the opening in the adjacent end of the casing, and resilient expansile means between said wedge members.

2. In a rigging of the class described, a relatively stationary friction shell, a pair of friction elements disposed one at each end of the shell, a friction finger formed on the peripheral surface of each of said elements, each of the fingers being extended laterally from its element and toward the other element longitudinally of the shell, said fingers being of less width than the elements, the free end of each finger being slidably engaged with the peripheral surface of the remote element and adjacent the connection of the other finger therewith, whereby to provide a friction surface substantially throughout the length of the shell, a wedge member engaged with each of the elements, and resilient expansile means between said wedge members.

3. In a rigging of the class described, a relatively stationary friction shell, a friction element at one end of the shell, a longitudinally extending rib formed on the peripheral surface of said element, a pair of friction elements at the opposite end of the shell, a friction finger extending from each of said pair of friction elements, the free ends of said fingers being slidably engaged with the peripheral surface of the first mentioned friction element, one of the fingers being on each side of said longitudinal rib, whereby to provide a friction surface substantially throughout the length of the shell, a wedge member engaged with the first mentioned friction element, a second wedge member engaged with the pair of friction elements, and resilient expansile means between said wedge members.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

GEORGE T. MOORE.