No. 782,790. PATENTED FEB. 14, 1905.

P. N. MOORE.

FRICTION SPRING DRAFT RIGGING.

APPLICATION FILED SEPT. 8, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

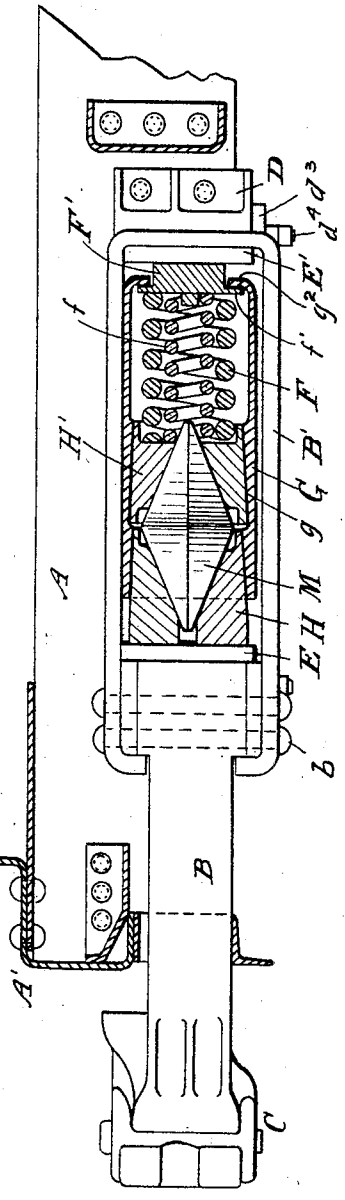
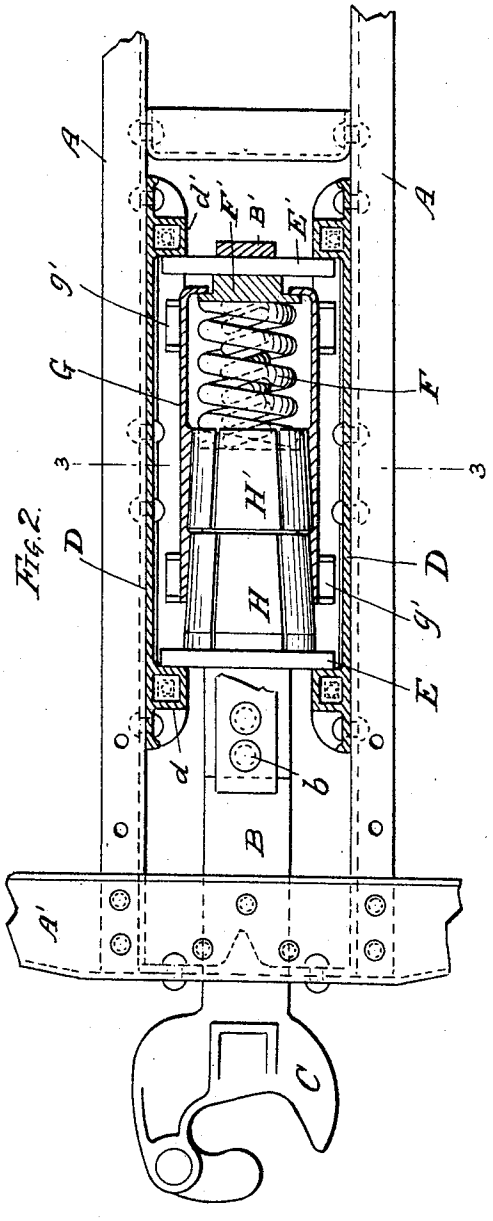


FIG. 2.



WITNESSES:

F. B. Townsend

Wm. Geiger

INVENTOR.

Peter N. Moore

BY Munday, Evarts & Adcock

his ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 6.

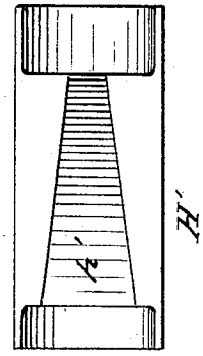


Fig. 5.

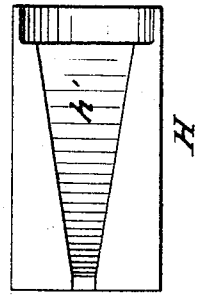


Fig. 7.

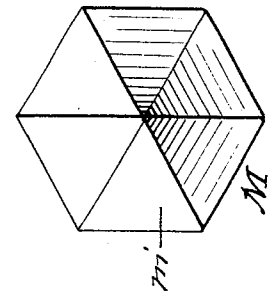


Fig. 3.

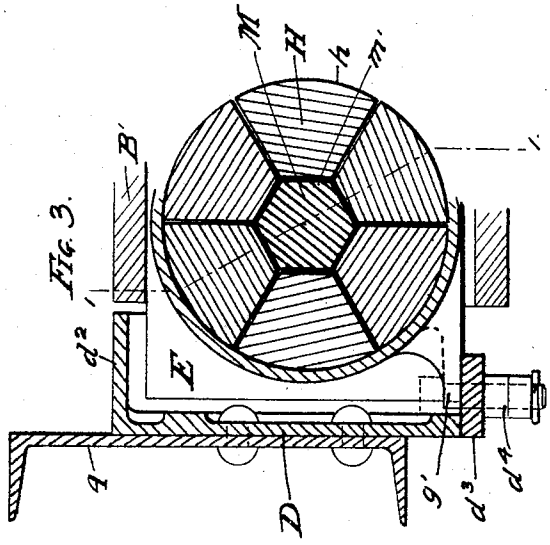
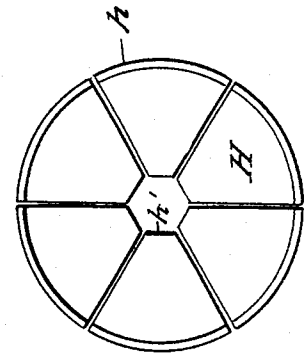


Fig. 4.



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Wm. Geiger

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UNITED STATES PATENT OFFICE.

PETER N. MOORE, OF MILWAUKEE, WISCONSIN.

FRICTION SPRING DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 782,790, dated February 14, 1905.

Application filed September 8, 1904. Serial No. 223,716.

To all whom it may concern:

Be it known that I, PETER N. MOORE, a citizen of the United States, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Friction Spring Draft-Rigging, of which the following is a specification.

My invention relates to improvements in friction spring draft-rigging for railway-cars.

The object of my invention is to provide a friction spring draft-rigging of a simple, strong, efficient, and durable construction adapted to exert a high frictional resistance in connection with a direct-acting spring resistance longitudinally arranged in the line of draft.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists, in connection with a draw-bar, draw-bar extension, stop-castings, followers, and a longitudinally-arranged spring, of a sliding friction-shell having an interior friction-surface, two sets of sliding friction-blocks arranged end to end and having exterior friction-surfaces in sliding frictional engagement with the interior friction-surface of the friction-shell, and a floating double-incline spreader engaging inclined spreader-faces on the friction-blocks and operating to force the friction-blocks into close frictional engagement with the friction-shell under both buffing and pulling movements of the draw-bar.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown or described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a central longitudinal vertical section of a friction spring draft-rigging embodying my invention. Fig. 2 is a horizontal section. Fig. 3 is a partial cross-section on line 3 3 of Fig. 2. Fig. 4 is a rear end view of one set of friction-blocks. Fig. 5 is a detail view of one friction-block of one set. Fig. 6 is a similar view of one friction-block of the other set, and Fig. 7 is an end view of the floating spreader.

In the drawings, A represents the center or draft sills of the car; A′, the front or cross sill; C, the coupler; B, the draw-bar, and B′ the draw-bar extension, the same being preferably in the form of a strap or yoke secured to the draw-bar by bolts or rivets *b*.

D D are the side plates or stop-castings, having front and rear stops *d d′* for the front and rear followers E E′ to abut against and upper and lower guides d^2 d^3 for the followers to reciprocate on or between, the upper guide d^2 being preferably integral with the side plates or stop-castings D, and the lower guide d^3 being preferably in the form of a removable plate secured in place by bolts d^4 to permit the ready insertion and removal of the draft-rigging.

F is a longitudinally-arranged spring directly behind the draw-bar and in the line of draft and bearing at its rear end against a seat-block F′, which is interposed between the spring and the rear follower E′.

G is a sliding friction-shell having an interior friction-surface *g* and preferably of cylindrical form. The friction-shell G is provided with feet or projections *g′* to rest and slide upon the lower guides d^3 of the side plates or stop-castings D. The friction-shell G is also provided at its rear end with an internal shoulder or flange g^3, which engages a shoulder or flange *f′* of the spring-seat block F′. The spring-seat block F′ permits a limited initial compression of the spring F under both pulling and buffing strains and adapts the apparatus to more efficiently cushion light strains or blows.

H is a front set, and H′ a rear set, of sliding segmental friction-blocks inside the friction-shell G and each having an exterior friction-face *h* engaging the interior friction-surface *g* of the shell G. The front set of segmental sliding friction-blocks H bears against the front follower and moves with the draw-bar under buffing strains. The rear set of friction-blocks H′ is arranged at the end of the front set of friction-blocks H and bears against the front end of the spring F. Each of the friction-blocks H H′ is furnished with an inclined spreader-face *h′*.

M is a double inclined floating spreader, preferably of double pyramidal form, supported and surrounded by the two sets of

friction-blocks H H′ and having double incline spreader-faces m' engaging the oppositely-arranged spreader-faces h' h' of the sliding friction-blocks H H′. The interior friction-surface g of the shell G and the exterior friction-faces h of the friction-blocks H H′ are preferably slightly tapering or longitudinally inclined, as the inclination of this friction-surface will increase the frictional resistance.

The operation is as follows: In buffing, the front follower moves with the draw-bar, and thus causes the friction-shell and the friction-blocks to all move with the draw-bar until the spring F receives its initial compression, when the further rearward movement of the friction-shell G is arrested by its rear end engaging the rear follower, which in buffing is held stationary by the rear stops on the side plates D, and then the further rearward movement of the draw-bar causes the friction-blocks H H′, which are now forced into close frictional engagemennt with the friction-shell, to slide in respect to said shell, and thus produce a powerful frictional resistance to cushion the buffing strains or blows. In pulling, the operation is the same but the reverse, the front follower and the friction-blocks being now held stationary against longitudinal movement, while the rear follower moves with the draw-bar, first to initially compress the spring F, and then to move the friction-shell forward with the draw-bar and create a frictional resistance by its engagement with the friction-blocks H H′.

I claim—

1. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, stop-castings, followers and a longitudinally-arranged spring, of a sliding friction-shell and two sets of segmental friction-blocks arranged end to end, and a floating double-inclined spreader supported by and between said sets of friction-blocks, substantially as specified.

2. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, stop-castings, followers and a longitudinally-arranged spring, of a sliding friction-shell and two sets of segmental friction-blocks arranged end to end, and a floating double-inclined spreader supported by and between said sets of friction-blocks, and a spring seat-block interposed between the spring and the rear follower, substantially as specified.

3. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, stop-castings, followers and a longitudinally-arranged spring, of a sliding friction-shell and two sets of segmental friction-blocks arranged end to end, and a floating double-inclined spreader supported by and between said sets of friction-blocks, and a spring seat-block interposed between the spring and the rear follower, said sliding friction-shell having a shoulder engaging said spring seat-block, substantially as specified.

4. In a friction spring draft-rigging, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring and followers, of two sets of sliding segmental friction-blocks arranged end to end and each having an inclined spreader-face and a double-incline spreader having spreader-faces engaging the inclined spreader-faces on said friction-blocks, one set of said friction-blocks bearing against one of the followers and the other against one end of the spring, substantially as specified.

5. In a friction spring draft-rigging, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring and followers, of two sets of sliding, segmental friction-blocks arranged end to end and each having an inclined spreader-face and a double-incline spreader having spreader-faces engaging the inclined spreader-faces on said friction-blocks, one set of said friction-blocks bearing against one of the followers, and the other against one end of the spring, and a spring-seat interposed between one end of the spring and the adjacent follower, substantially as specified.

PETER N. MOORE.

Witnesses:
PEARL ABRAMS,
WILLIAM A. GEIGER.