No. 782,789. PATENTED FEB. 14, 1905.

P. N. MOORE.

FRICTION SPRING DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED SEPT. 8, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

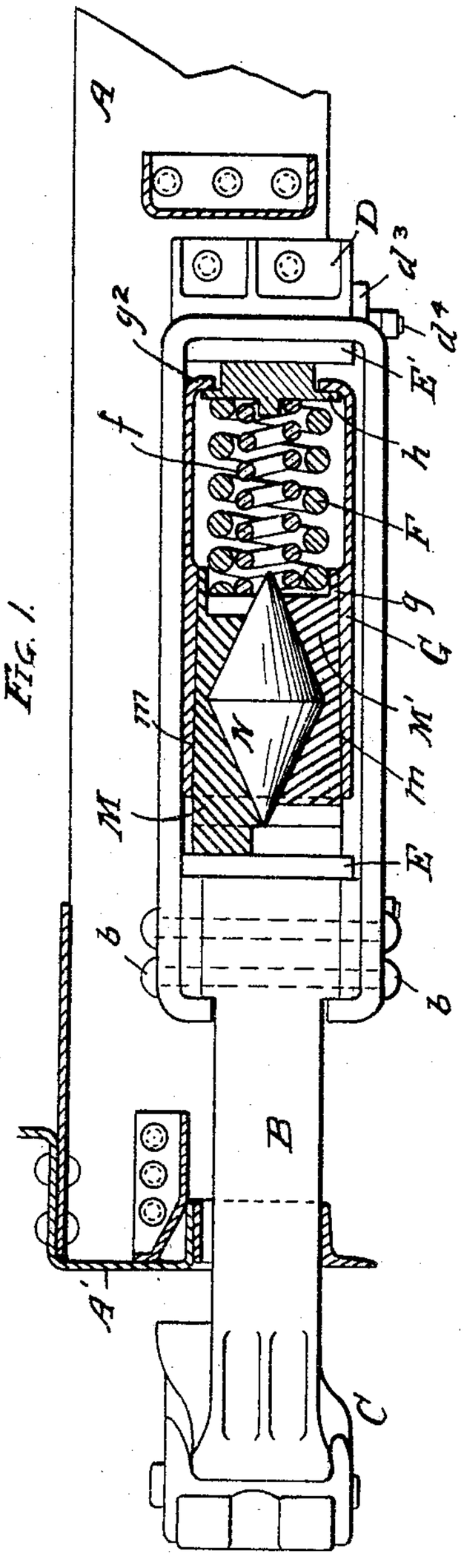
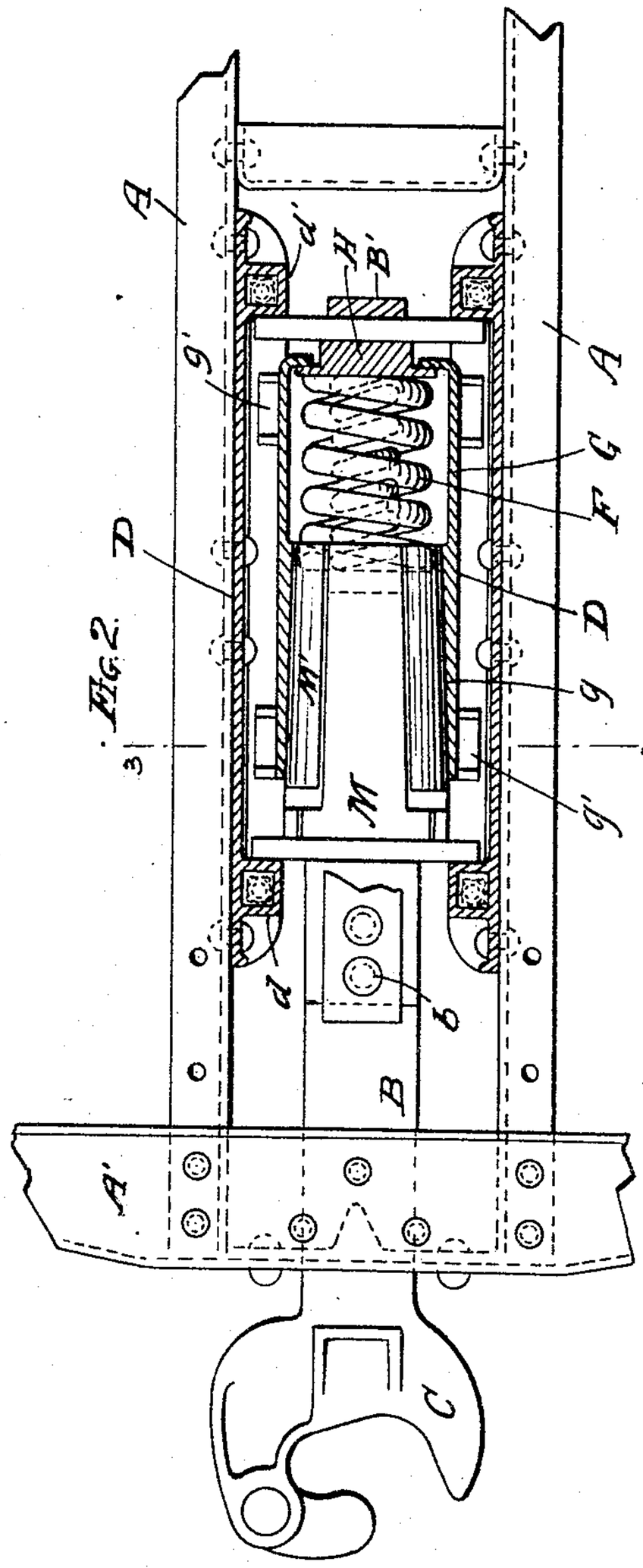


FIG. 2.



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2 SHEETS—SHEET 2.

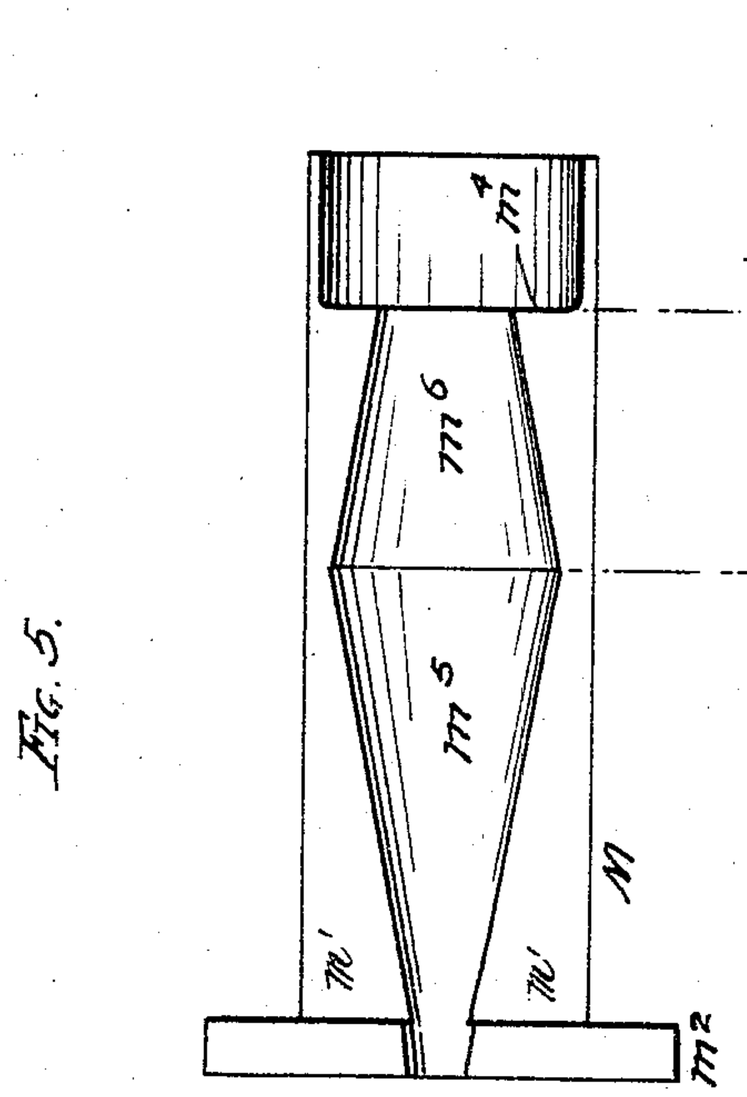

FIG. 5.

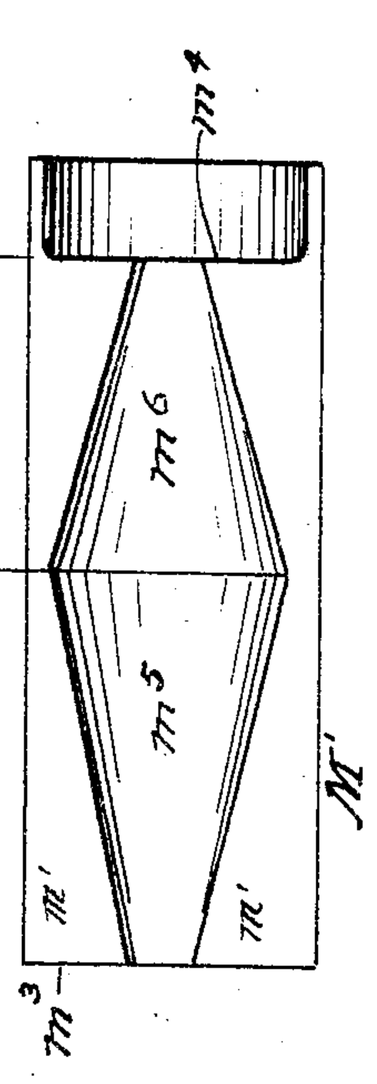

FIG. 6.

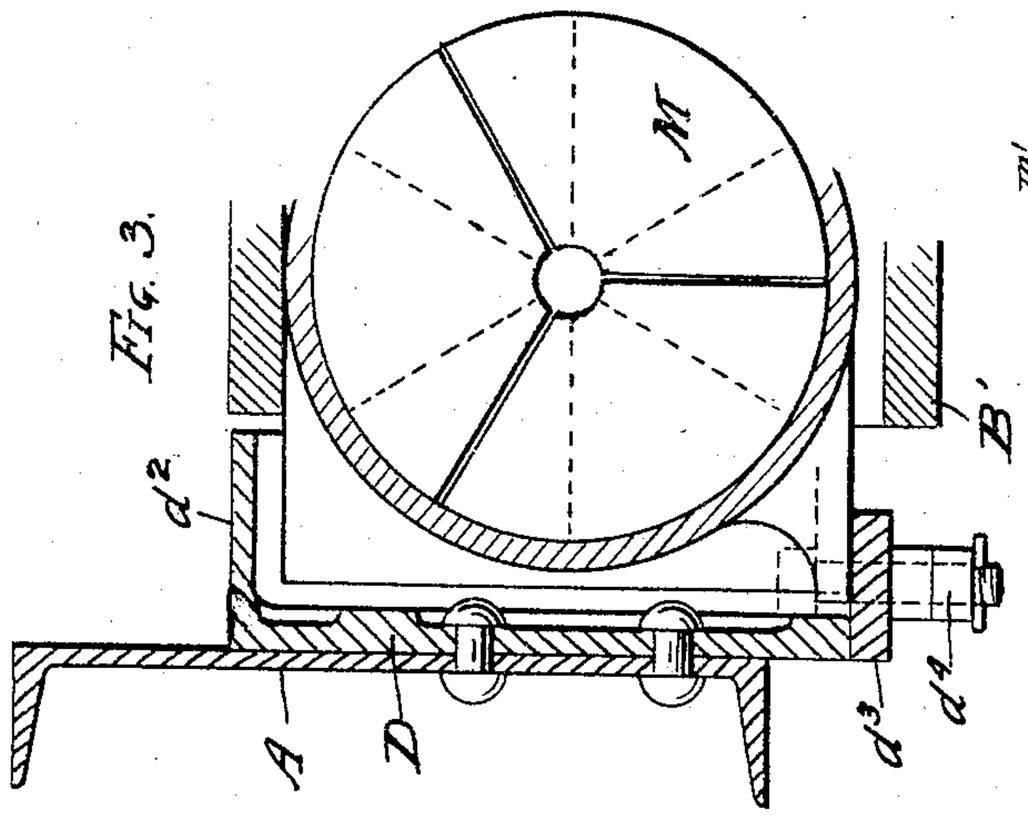

FIG. 3.

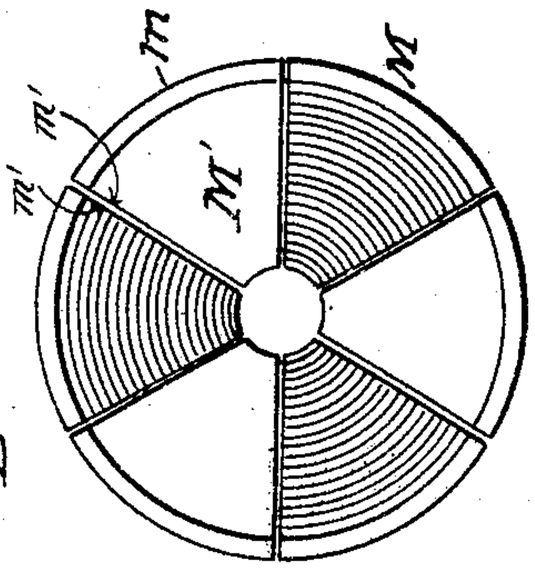

FIG. 4.

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No. 782,789. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

PETER N. MOORE, OF MILWAUKEE, WISCONSIN.

FRICTION SPRING DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 782,789, dated February 14, 1905.

Application filed September 8, 1904. Serial No. 223,715.

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 for Railway-Cars, 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 composed of few parts and 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 the draw-bar, stop-castings, followers, and a longitudinally-arranged spring, of a sliding friction-shell having an internal friction-surface, two sets of sliding friction-blocks having external friction-surfaces in sliding frictional engagement with the internal friction-surface of the friction-shell and also interengaging longitudinal friction sides, so that the longitudinal movement of one set of friction-blocks in respect to the other set produces an additional frictional resistance to that produced between the friction-shell and friction-blocks, one set of friction-blocks abutting at one end against one follower and the other set of friction-blocks bearing at their opposite end against one end of the longitudinally-arranged spring, each friction-block being provided with double inclines and a floating double-cone or double-faced spreader engaging the double inclines on the two sets of friction-blocks, so that the movement of the draw-bar in either direction under pulling or buffing strains will cause the segmental friction-blocks to be outwardly spread against the friction-shell as the friction-blocks and friction-shell are moved longitudinally in respect to each other.

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 the friction-blocks. Fig. 5 is a detail view showing one of the friction-blocks of one set, and Fig. 6 is a similar view showing one of the friction-blocks of the other set.

In the drawings, A represents the draft-timbers or center 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 represented as 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, the same having front and rear stops *d d′* for the followers E E′ to abut against and upper and lower guides d^2 d^3 for the followers to reciprocate in 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 insertion and removal of the removable parts of the draft-rigging.

F is a longitudinally-arranged spring directly behind the draw-bar and in the line of draft, there being also, preferably, a small spring *f* nesting within it.

G is the sliding friction-shell, having an internal friction-surface *g*. The friction-shell G is preferably of cylindrical form and 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^2, which engages the shoulder or flange *h* of the seat-block H, against which the rear end of the spring F abuts and which is interposed between the spring and the rear follower E′ to cause the sliding friction-shell G to be returned to its normal position when the spring F expands. The seat-block H also permits a limited initial compression of the spring F under both pulling and buffing strains, and thus adapts the apparatus to more efficiently cushion light strains.

M and M′ are two sets of segmental friction-blocks, each having an external friction-surface *m* in sliding frictional engagement with the friction-shell G and each also having interengaging longitudinal friction sides *m′ m′*, adapted to produce an additional frictional resistance by the longitudinal sliding movement of one of the sets of friction-blocks M in respect to the other set of friction-blocks, M′. The forward set of friction-blocks M bears against the front follower E, and the other set of friction-blocks, M′, bears against the spring F. The forward set of sliding friction-blocks M, which are engaged by or receive the thrust or pressure of the front follower, are also provided with projecting wings or shoulders m^2, adapted to engage the front ends m^3 of the other set of friction-blocks, M′, and thus cause both sets of friction-blocks to act or move in unison in respect to the friction-shell G after a limited movement of one set of friction-blocks has occurred in respect to the other set of friction-blocks. Each of the friction-blocks M M′ is also provided with a shoulder m^4 at its rear end to bear against or receive the pressure of the spring F. The spring F thus bears equally against all the friction-blocks M M′ after a limited movement of one set of friction-blocks has occurred in respect to the other set of friction-blocks. Each of the friction-blocks M M′ is also provided with double or oppositely-inclined spreader-faces m^5 m^6, which are engaged by the floating double-cone or double-incline faced spreader N. The floating double-acting spreader N, which is preferably of double-cone form, is supported by and between the two sets of friction-blocks M M′, and when either set of blocks M or M′ is moved longitudinally by or with the draw-bar the floating spreader operates to force all the segmental blocks M M′ into close frictional engagement with the surrounding friction-shell G and also to force two sets of friction-blocks into close frictional engagement with each other, thus producing a powerful frictional resistance.

The operation is as follows: Under buffing strains or blows the rear follower is held stationary by engagement with the rear stops on the stop-castings, and the front follower moves with the draw-bar, and thus causes the friction-blocks M M′ and friction-shell to move rearwardly with the draw-bar during the initial compression of the spring F until the rear end of the friction-shell G engages the rear follower E′, when the further rearward movement of the draw-bar causes the friction-blocks M M′ to frictionally slide in respect to the friction-shell G, which is now held stationary. The longitudinally-sliding movement of the segmental friction-blocks M in respect to the other set of friction-blocks, M′, also adds to the frictional resistance. In pulling, the operation is the same, but the reverse, the front follower being now held stationary and the rear follower moving with the draw-bar, and thus causing the initial compression of the spring F first to take place and then the friction-shell G to move forward with the draw-bar after its rear end is engaged by the rear follower.

I claim—

1. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar strap or extension, stop-castings, followers and a longitudinally-arranged spring, of a sliding friction-shell having an internal friction-surface, two sets of segmental sliding friction-blocks having external friction-surfaces in sliding frictional engagement with the internal friction-surface of said friction-shell and provided with interengaging longitudinal friction sides, each of said friction-blocks having double inclines, and a floating double-incline-face spreader engaging the double inclines on the two sets of friction-blocks, one set of said friction-blocks bearing against the spring, and the other against one of the followers to cause the floating spreader to force the two sets of friction-blocks into close frictional engagement with each other and into close frictional engagement with the friction-shell under both pulling and buffing strains, 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, two sets of independently-movable segmental sliding friction-blocks each having double-incline spreader-faces, and a double-incline floating spreader, 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, two sets of independently-movable segmental sliding friction-blocks each having double-incline spreader-faces, and a double-incline floating spreader, and a seat-block interposed between one end of the spring and one of the followers, substantially as specified.

4. 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, two sets of independently-movable segmental sliding friction-blocks each having double-incline spreader-faces, and a double-incline floating spreader, and a seat-block interposed between one end of the spring and one of the followers, said friction-shell having a flange or shoulder engaging said seat-block, substantially as specified.

5. In a friction spring draft-rigging, the combination with a draw-bar, draw-bar extension, a pair of followers and a longitudinally-arranged spring, of a sliding friction-shell, sliding segmental friction-blocks inside the

shell and a double-incline floating spreader engaging the inclines on the friction-blocks to force the same into frictional engagement with said shell, substantially as specified.

6. In a friction spring draft-rigging, the combination with a draw-bar, draw-bar extension, a pair of followers and a longitudinally-arranged spring, of a sliding friction-shell, sliding segmental friction-blocks inside the shell and a double-incline floating spreader engaging the inclines on the friction-blocks to force the same into frictional engagement with said shell, a seat-block interposed between one end of the spring and one of the followers, and provided with a shoulder engaging a shoulder on said friction-shell, substantially as specified.

7. In a friction spring draft-rigging, the combination with a sliding friction-shell and a longitudinally-arranged spring inside the shell, of two sets of segmental friction-blocks and a floating double-incline-faced spreader, substantially as specified.

8. In a friction spring draft-rigging, the combination with a sliding friction-shell and a longitudinally-arranged spring inside the shell, of two sets of segmental friction-blocks and a floating double-incline-faced spreader, one set of said friction-blocks bearing against one of the followers and the other set bearing against one end of the spring, substantially as specified.

PETER N. MOORE.

Witnesses:
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PEARL ABRAMS.