No. 782,791. PATENTED FEB. 14, 1905.

P. N. MOORE.

FRICTION SPRING DRAFT RIGGING.

APPLICATION FILED SEPT. 8, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

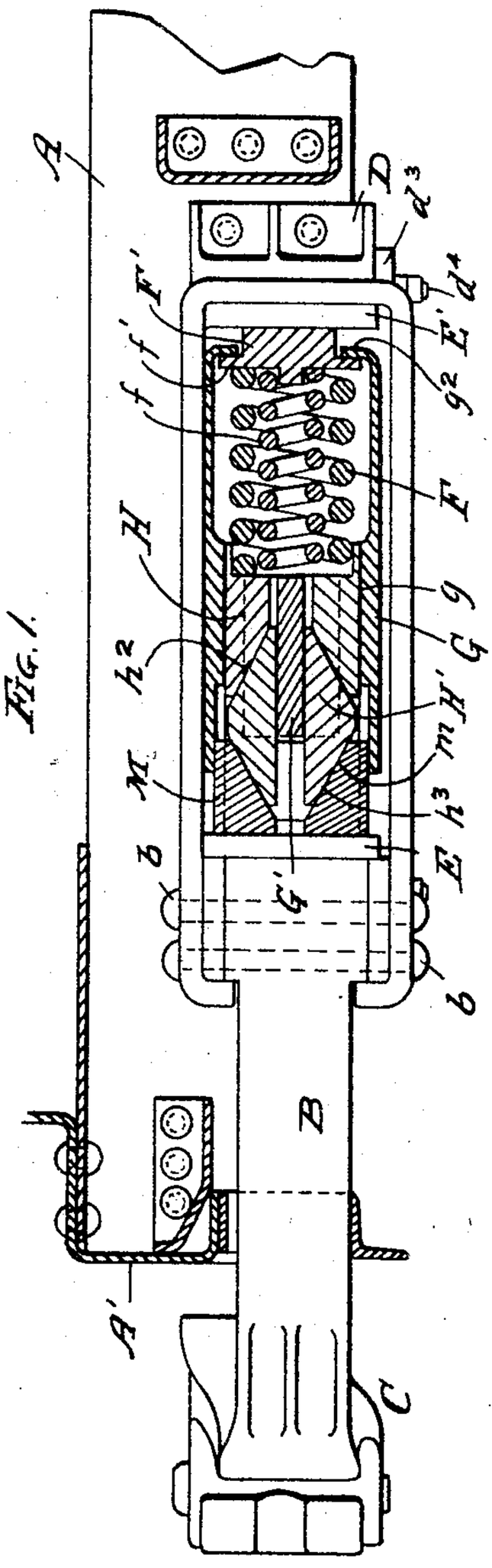
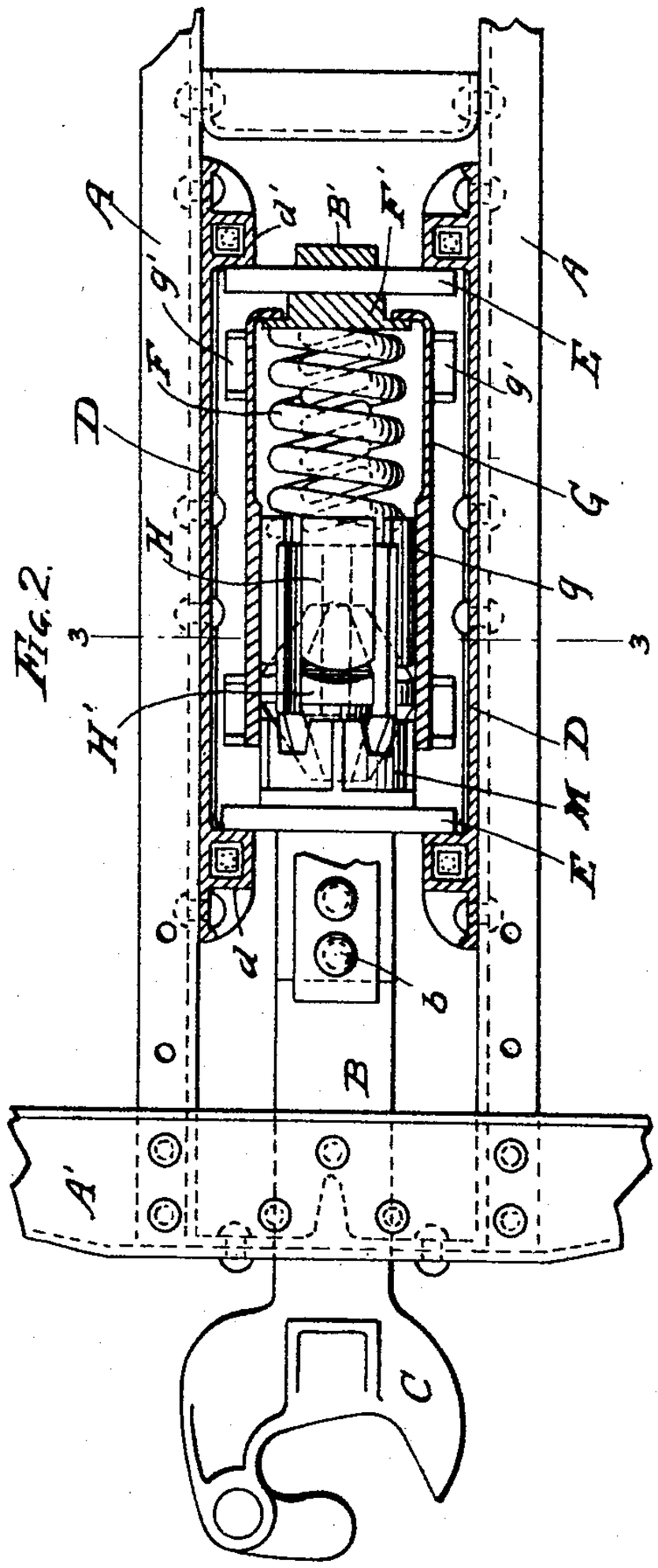


FIG. 2.



WITNESSES:
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2 SHEETS—SHEET 2.

FIG. 4

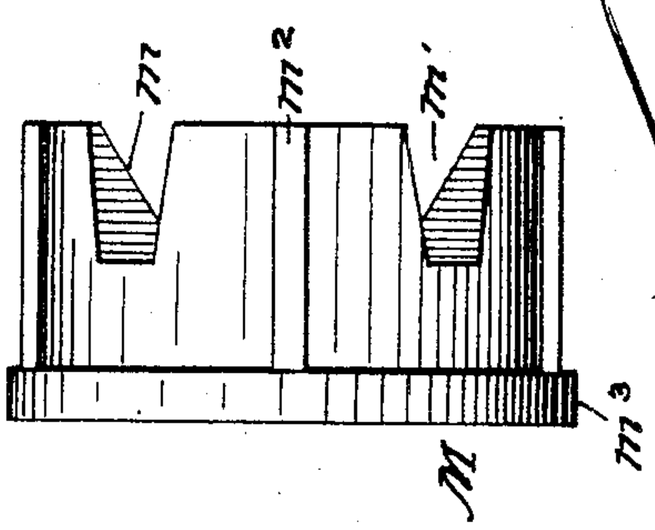


FIG. 6.

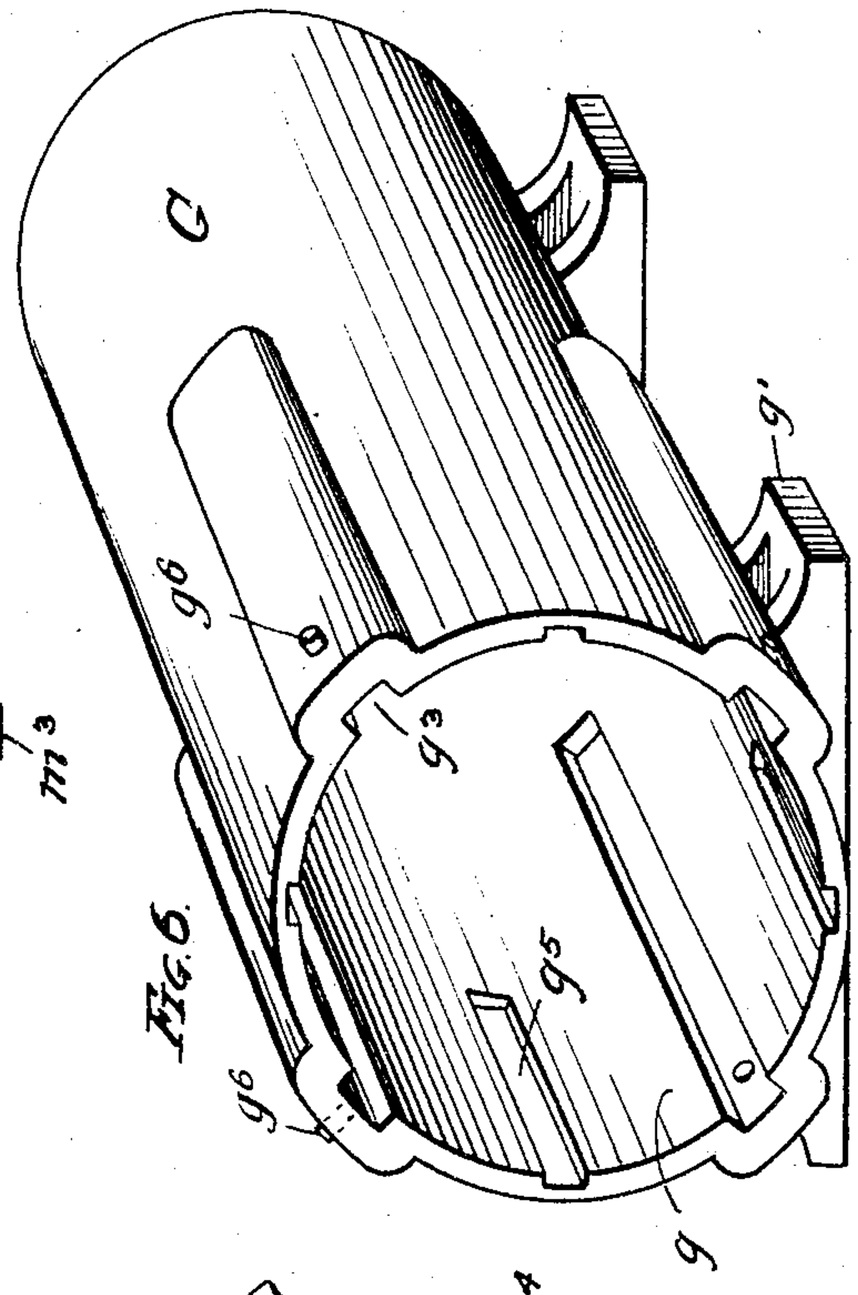


FIG. 3

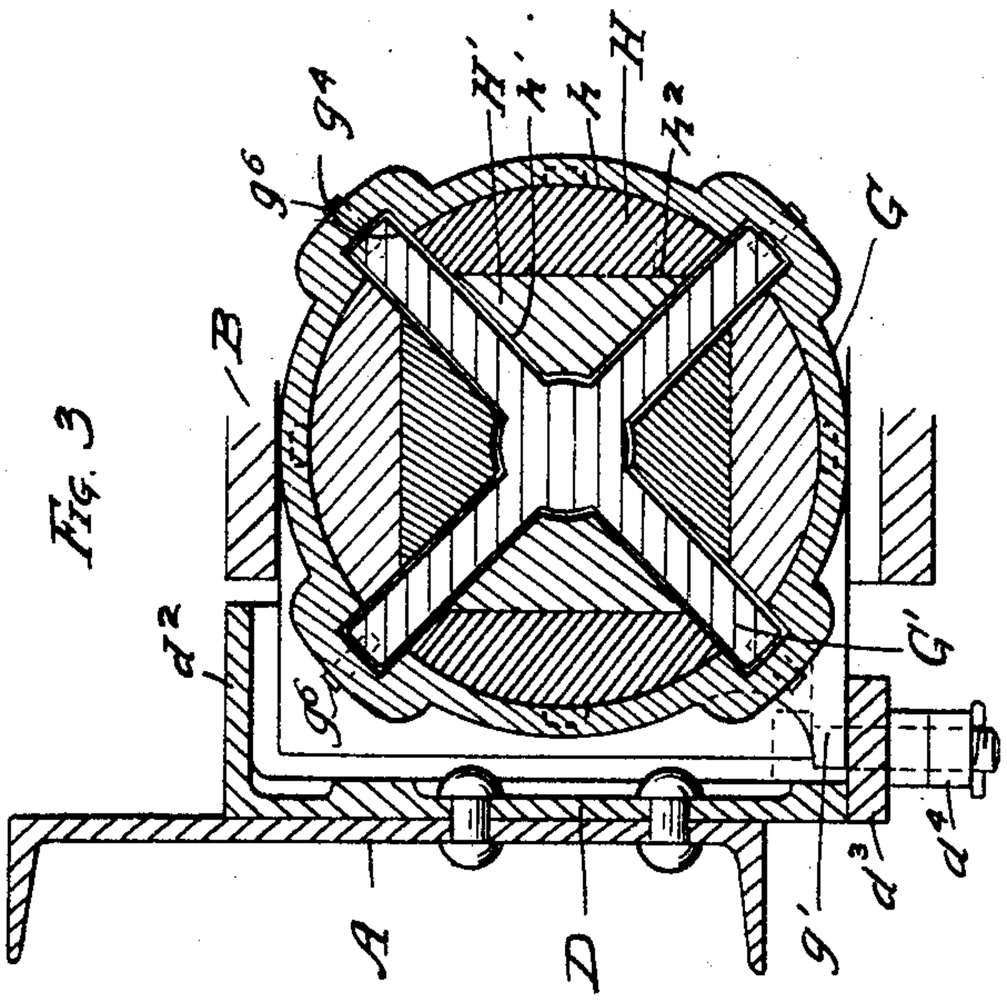
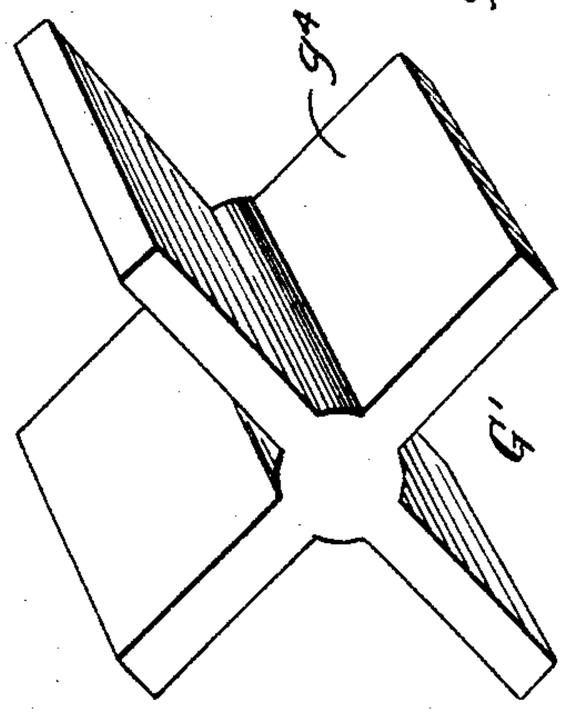


FIG. 5.



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No. 782,791. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

PETER N. MOORE, OF MILWAUKEE, WISCONSIN.

FRICTION SPRING DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 782,791, dated February 14, 1905.

Application filed September 8, 1904. Serial No. 223,717.

To all whom it may concern:

Be it known that I, PETER N. MOORE, a citizen of the United States, residing in the city of 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 very great 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, side plates or stop-castings, followers, and a longitudinally-arranged spring, a sliding friction-shell having an interior friction-surface, an internal friction-slide, preferably in the form of a four-winged spider, and a plurality of sets of sliding friction-blocks having interengaging inclined spreader-faces for forcing one set of said sliding friction-blocks into close frictional engagement with the internal friction-slide or spider and for forcing the other set of sliding friction-blocks outwardly into close frictional engagement with the surrounding friction-shell.

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 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 detail elevation of the wedge-cap. Fig. 5 is a detail perspective view of the internal friction-slide or spider, and Fig. 6 is a detail perspective view of the friction-shell.

In the drawings, A represents the draft or center sills of a car; A′, the front or cross sill; C, the coupler; B, the draw-bar, and B′ the draw-bar extension or strap, 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 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 stop-casting and the lower guide d^3 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 from the car.

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.

F′ is a spring seat-block interposed between the rear end of the spring and the rear follower E′ and having a shoulder or flange *f′* to engage the internal shoulder or flange at the rear end of the friction-shell.

G is a sliding friction-shell having an interior friction-surface *g*, the same being preferably of substantially cylindrical form and provided with feet or projections *g′* to rest and slide upon the lower guide d^3 of the 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 *f′* on the spring seat-block F′.

G′ is an internal friction-slide, preferably in the form of a four-armed or four-winged spider and secured to the shell by pins g^6. The friction-shell G is preferably provided with longitudinal slots g^3, in which the wings or arms of the internal friction-slide G′ fit. The internal friction-slide or spider G′ thus divides the friction-shell G into four chambers or sectors.

H and H′ are two sets of sliding segmental friction-blocks, the set of blocks H having exterior friction-faces *h* engaging the interior friction-faces *g* of the friction-shell G and the inner set of friction-blocks H′ having each friction-faces *h′ h′* engaging the friction-faces g^4 g^4 of the internal friction-slide or spider G′. The friction-blocks H H′ each have interengaging inclined spreader-faces h^2 to cause the outer set of friction-blocks H to be forced

outwardly into close frictional engagement with the surrounding friction-shell and the inner set of friction-blocks H′ to be forced inwardly into close frictional engagement with the internal friction-slide or spider G′ when the draw-bar is moved in either direction under pulling or buffing strains.

M is a wedge-cap furnished with inclined faces *m*, engaging the inclined faces h^3 on the inner set of sliding friction-blocks H′. The wedge-cap M is also provided with slots or notches *m*′ to accommodate the arms or wings of the friction-slide or spider G′, and the wedge-cap M is further provided with longitudinal ribs m^2, which fit in corresponding registering slots g^5 in the friction-shell G to keep the wedge-cap in proper position or register radially with the outer set of friction-blocks H′. The wedge-cap M is also provided with a rim or shoulder m^3, which may engage the end of the friction-shell G, and thus limit the inner movement of the wedge-cap and prevent the spring from being compressed beyond its proper limit.

The operation is as follows: In buffing, the rear follower is held stationary by the rear stops on the side plates D and the front follower moves with the draw-bar, and thus causes first an initial compression of the spring F until the friction-shell G abuts at its rear end against the rear follower, and then the further rearward movement of the draw-bar causes the set of friction-blocks H to frictionally slide against the friction-shell and the other set of friction-blocks, H′, to frictionally engage and slide upon the internal friction-slide or spider G′, thus producing a powerful frictional resistance by reason of the interengaging wedging or spreader faces h^4 on the friction-blocks H H′ and by the interengaging inclined or wedging faces on the wedge-cap M and the friction-blocks H′. In pulling, the operation is the same, but the reverse, the front follower, wedge-cap M, and friction-blocks H H′ being held against longitudinal movement with the draw-bar by the front stops on the side plates D, while the rear follower, friction-shell G, and friction-slide G′ move with the draw-bar after the initial compression of the spring F takes place, when the rear follower engages the rear end of the friction-shell G.

I claim—

1. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, longitudinally-arranged spring, followers and side plates or stop-castings, of a sliding friction-shell having an interior friction-surface, a friction-slide or spider inside said shell dividing the same into compartments, two sets of sliding friction-blocks, one set having exterior friction-faces engaging the interior friction-surface of the shell, and the other set having friction-faces engaging the friction-faces of said internal friction-slide or spider, said friction-blocks having inter-engaging inclined or wedging faces and a wedge-cap having inclined faces engaging the inclined faces on one set of said friction-blocks, substantially as specified.

2. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, longitudinally-arranged spring, followers and side plates or stop-castings, of a sliding friction-shell having an exterior friction-surface, a friction-slide or spider inside said shell dividing the same into compartments, two sets of sliding friction-blocks, one set having exterior friction-faces engaging the interior friction-surface of the shell, and the other set having friction-faces engaging the friction-faces of said internal friction-slide or spider, said friction-blocks having interengaging inclined or wedging faces and a wedge-cap having inclined faces engaging the inclined faces on one set of said friction-blocks, said friction-shell having longitudinal slots to receive the wings or arms of said internal friction-slide or spider, substantially as specified.

3. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, longitudinally-arranged spring, followers and side plates or stop-castings, of a sliding friction-shell having an interior friction-surface, a friction-slide or spider inside said shell dividing same into compartments, two sets of sliding friction-blocks, one set having exterior friction-faces engaging the interior friction-surface of the shell, and the other set having friction-faces engaging the friction-faces of said internal friction-slide or spider, said friction-blocks having interengaging inclined or wedging faces and a wedge-cap having inclined faces engaging the inclined faces on one set of said friction-blocks, said wedge-cap having slots or notches to receive the internal friction-slide or spider, substantially as specified.

4. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, longitudinally-arranged spring, followers and side plates or stop-castings, of a sliding friction-shell having an exterior friction-surface, a friction-slide or spider inside said shell dividing the same into compartments, two sets of sliding friction-blocks, one set having exterior friction-faces engaging the interior friction-surface of the shell, and the other set having friction-faces engaging the friction-faces of said internal friction-slide or spider, said friction-blocks having interengaging inclined or wedging faces and a wedge-cap having inclined faces engaging the inclined faces on one set of said friction-blocks, said friction-shell having longitudinal slots to receive the wings or arms of said internal friction-slide or spider, and said wedge-cap having slots or notches to receive said internal friction-slide or spider, substantially as specified.

5. In a friction spring draft-rigging, the combination with the draw-bar, draw-bar extension, longitudinally-arranged spring, followers and side plates or stop-castings, of a sliding friction-shell having an exterior friction-surface, a friction-slide or spider inside said shell dividing the same into compartments, two sets of sliding friction-blocks, one set having exterior friction-faces engaging the interior friction-surface of the shell, and the other set having friction-faces engaging the friction-faces of said internal friction-slide or spider, said friction-blocks having interengaging inclined or wedging faces and a wedge-cap having inclined faces engaging the inclined faces on one set of said friction-blocks, said friction-shell having longitudinal slots to receive the wings or arms of said internal friction-slide or spider, and said wedge-cap having slots or notches to receive said internal friction-slide or spider, said wedge-cap being provided with internal longitudinal ribs, and said friction-shell having longitudinal slots to receive said ribs on said wedge-cap, substantially as specified.

6. In a friction spring draft-rigging, the combination with a longitudinally-arranged spring and followers, of a friction-shell, a friction-slide inside the shell, sliding friction-blocks having interengaging wedging-faces, one set of said friction-blocks having friction-faces engaging the shell, the other set having friction-faces engaging said inside friction-slide, and a wedge-cap engaging one set of said friction-blocks, substantially as specified.

7. In a friction spring draft-rigging, the combination with a longitudinally-arranged spring and followers, of a friction-shell, a friction-slide inside the shell, sliding friction-blocks having interengaging wedging-faces, one set of said friction-blocks having friction-faces engaging the shell, the other set having friction-faces engaging said inside friction-slide, and a wedge-cap engaging one set of said friction-blocks, and a spring seat-block interposed between the spring and one of the followers and having a shoulder engaging a shoulder on the sliding friction-shell, substantially as specified.

8. In a friction spring draft-rigging, the combination with a longitudinally-arranged spring and followers, of a friction-shell, a friction-slide inside the shell, sliding friction-blocks having interengaging wedging-faces, one set of said friction-blocks having friction-faces engaging the shell, the other set having friction-faces engaging said inside friction-slide, and a wedge-cap engaging one set of said friction-blocks, said wedge-cap being provided with longitudinal registering ribs, and said shell having longitudinal slots to receive said ribs, substantially as specified.

9. In a friction spring draft-rigging, the combination with a longitudinally-arranged spring and followers, of a friction-shell, a friction-slide inside the shell, sliding friction-blocks having interengaging wedging-faces, one set of said friction-blocks having friction-faces engaging the shell, the other set having friction-faces engaging the inside friction-slide, and a wedge-cap engaging one set of said friction-blocks, said wedge-cap having slots or notches to receive said internal friction-slide, substantially as specified.

10. In a friction spring draft-rigging, the combination with a longitudinally-arranged spring and followers, of a friction-shell, a friction-slide inside the shell, sliding friction-blocks having interengaging wedging-faces, one set of said friction-blocks having friction-faces engaging the shell, the other set having friction-faces engaging said inside friction-slide, and a wedge-cap engaging one set of said friction-blocks, said friction-shell having longitudinal slots to receive said internal friction-slide, substantially as specified.

PETER N. MOORE.

Witnesses:
PEARL ABRAMS,
WILLIAM A. GEIGER.