No. 754,678. PATENTED MAR. 15, 1904.

P. N. MOORE.

FRICTION SPRING DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED NOV. 5, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

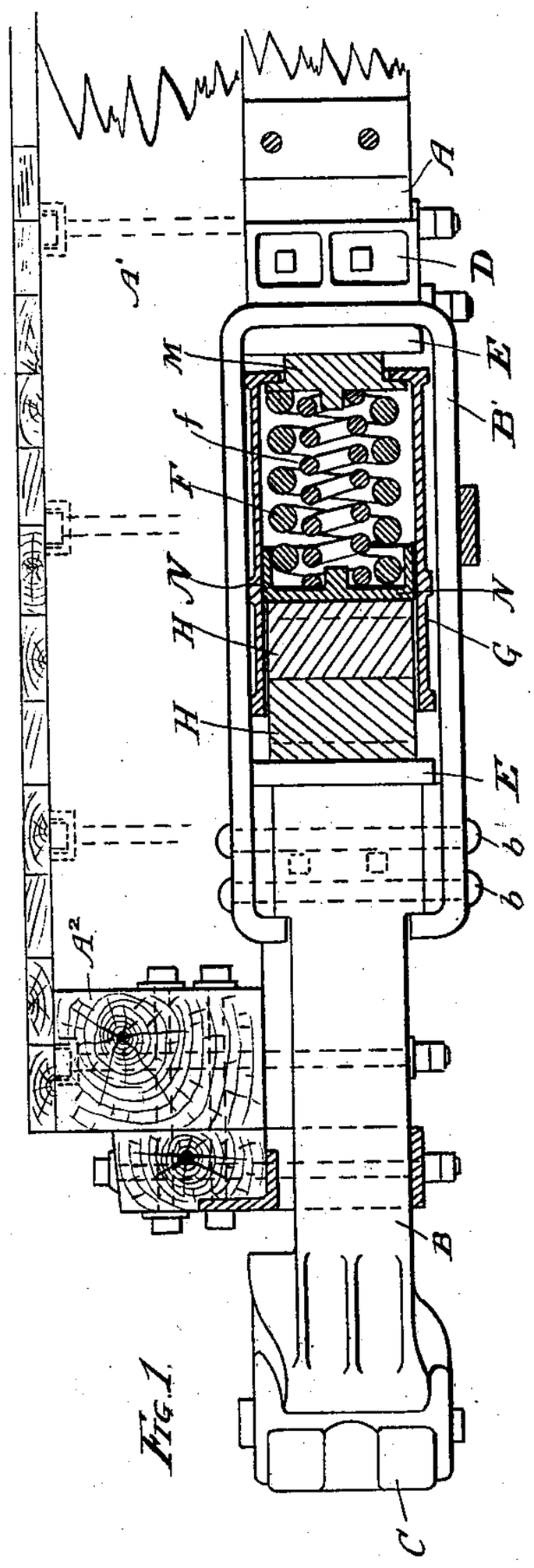

FIG. 1.

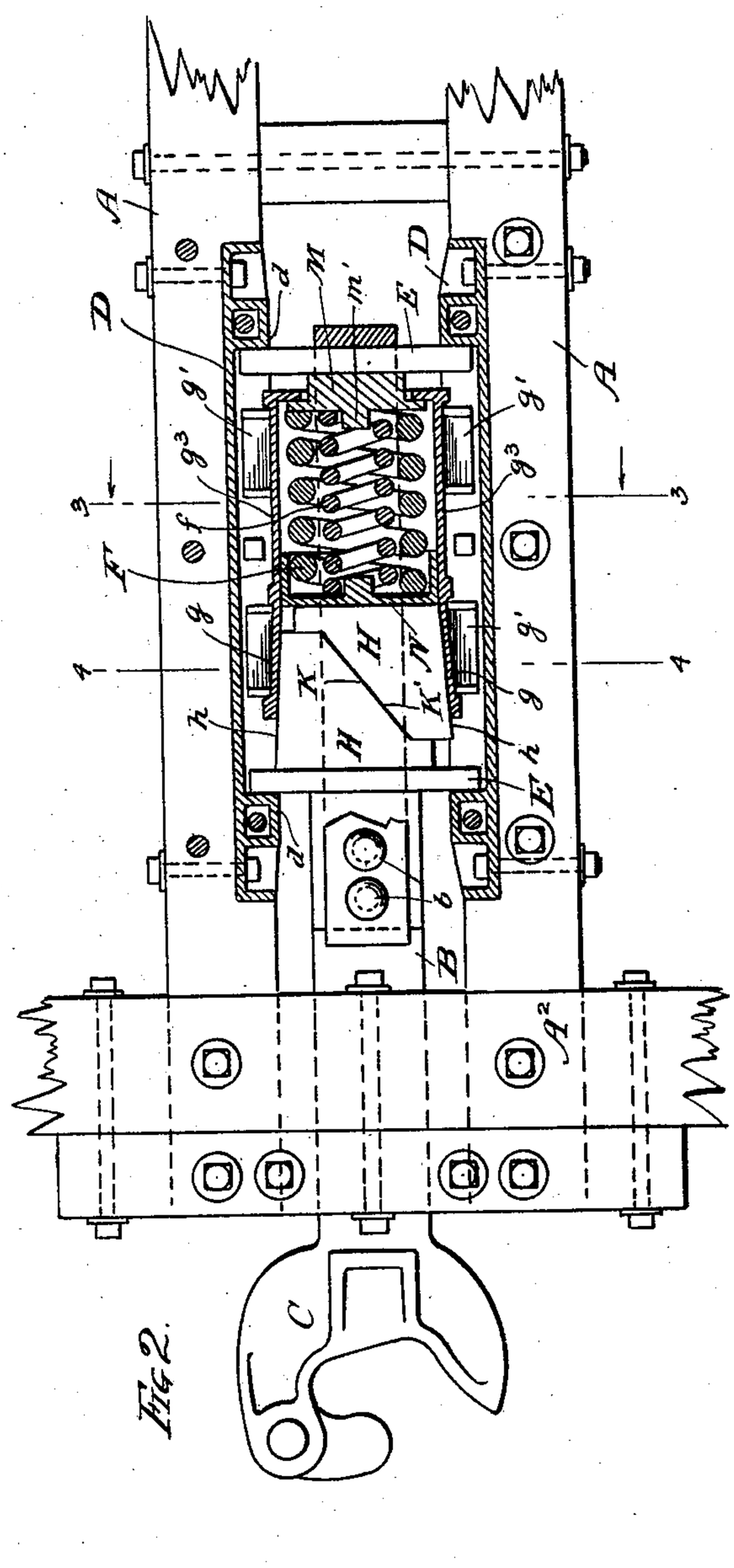

FIG. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

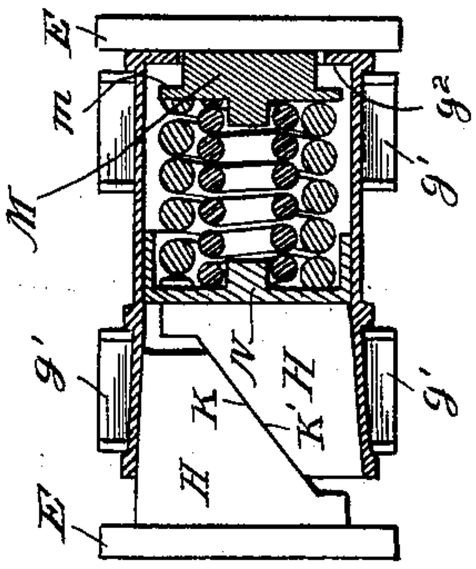

FIG. 7.

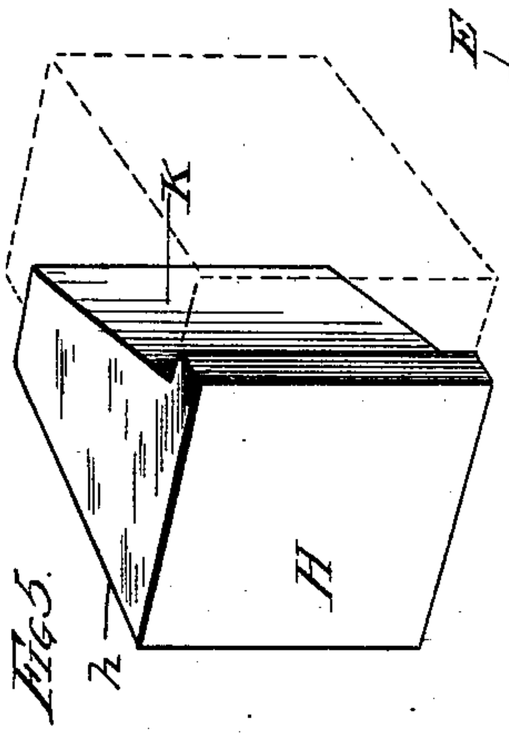

FIG. 5.

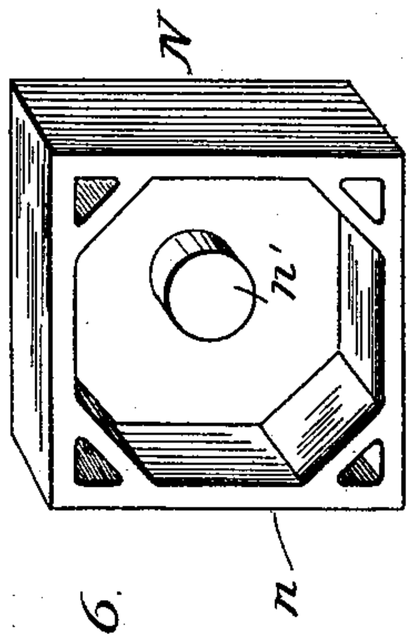

FIG. 6.

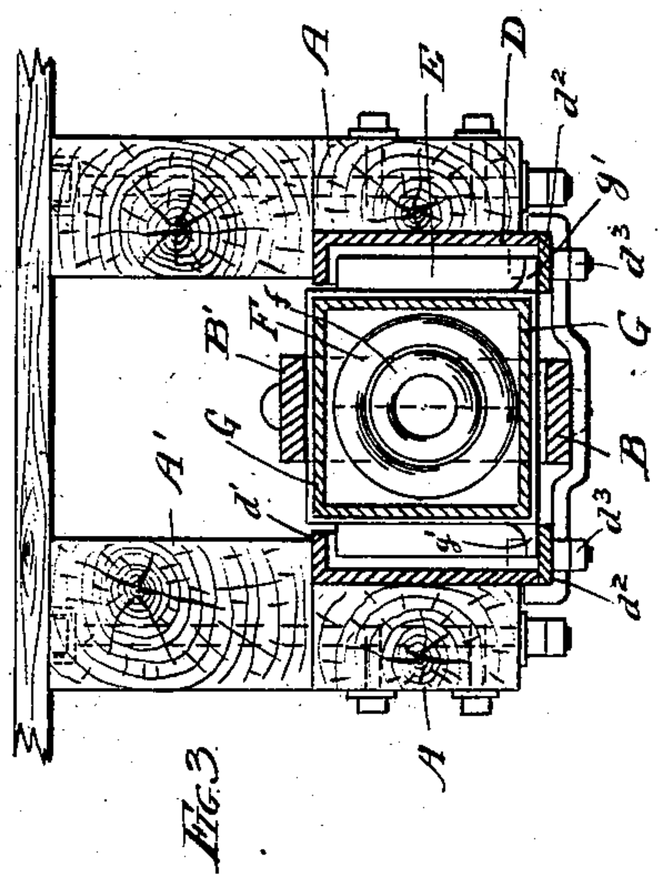

FIG. 3.

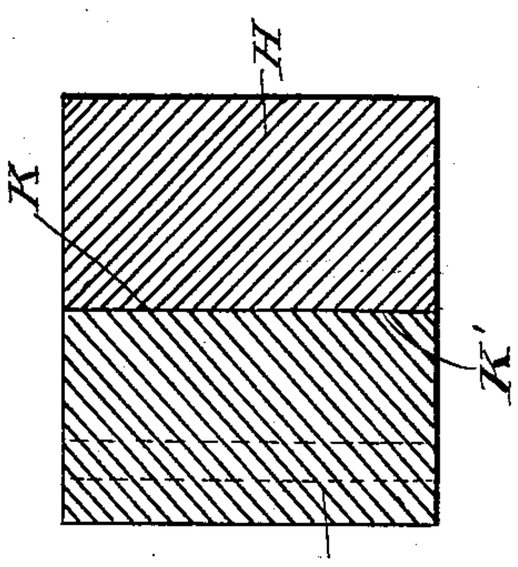

FIG. 4.

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No. 754,678. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

PETER N. MOORE, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO JOHN J. HENNESSEY, OF MILWAUKEE, WISCONSIN, AND WILLIAM H. MINER, OF CHICAGO, ILLINOIS.

FRICTION SPRING DRAFT-RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 754,678, dated March 15, 1904.

Application filed November 5, 1903. Serial No. 179,903. (No model.)

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 friction spring draft-rigging embodying my invention comprises, in coöperative combination, a draw-bar, draw-bar extension, a longitudinally-arranged spring, followers, side plates or stop-castings, a sliding friction-shell having a slightly-tapering friction-surface at one end terminating in a straight portion, and a plurality of sliding friction-blocks inside the case or shell and confined thereby from lateral, transverse, or outward movement and having exterior slightly-tapering friction-surfaces parallel to and in sliding frictional engagement with the exterior friction-surface of the case or shell and provided also with interengaging wedging or inclined operating-faces for causing the sliding friction-surfaces of the shell or case and friction-blocks to frictionally grip or forcibly press against each other when the draw-bar moves in either direction, the slightly-tapering form of the friction-surfaces on the shell and friction-blocks serving to prevent the sliding friction-blocks from wearing or forming a shoulder on the sliding friction-shell at the rear end of the sliding friction-blocks where the tapering portion of the shell terminates or merges into the straight portion thereof.

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 vertical longitudinal section of a friction draft-rigging embodying my invention. Fig. 2 is a horizontal section partly in plan. Fig. 3 is a cross-section on line 3 3 of Fig. 2, and Fig. 4 a cross-section of the sliding friction-blocks on line 4 4 of Fig. 2. Fig. 5 is a perspective view of one of the friction-blocks and showing the other friction-block in dotted lines. Fig. 6 is a detail perspective view of the front seat or cap for the spring, and Fig. 7 is a detail horizontal section showing the parts in a different position from that shown in Figs. 1 and 2.

In the drawings, A represents the draft-timbers, A′ center sills, and A^2 the front or cross sill, these parts being represented of an ordinary wood frame construction.

C is 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 *b*.

D D are the side plates or stop-castings, the same having front and rear stops *d* for the followers E E to butt against and upper and lower guides *d′* and d^2 for the followers to reciprocate in or between, the upper guide *d′* being preferably integral with the side plates or stop-castings D and the lower guide d^2 being preferably in the form of a removable plate, secured in place by bolts d^3 to permit the ready insertion and removal of the movable 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 or case, the same being square or rectangular in cross-section and having interior slightly tapering or flaring friction-surfaces *g* on its two upright sides and terminating in a straight or parallel portion g^3 near the inner ends of the friction-blocks H. The friction-shell G has feet or projections *g′* to rest and slide upon the lower guide d^2 of the side-plates or stop castings D.

H H are coöperating sliding friction-blocks having each an exterior slightly tapering or flaring friction-face *h* on its exterior vertical side parallel to and in sliding frictional engagement with the corresponding interior frictional face *g* of the sliding friction shell

or case G. The sliding friction-blocks H H are provided with interengaging wedging or inclined operating-faces K K′, the same meeting in a vertical plane and operating to press or force the friction-surfaces *h h* against the friction-surfaces *g g* of the shell G. The front end of the spring F bears against the front follower E through the interposed sliding friction-blocks H H, and the rear end of the spring F bears against the rear follower E through an interposed seat-block M, which projects through the open end of the sliding friction case or shell G and is provided with a shoulder *m*, engaging an interior shoulder g^2 on the shell or case G. A spring seat or cap N, having a flange *n* and central stud *n′*, is preferably interposed between the end of the spring F and the rear sliding friction-block H. The seat-block M is also preferably furnished with a stud or projection *m′* to retain the springs in position. The friction-blocks H H are held from lateral or transverse movement by the surrounding friction shell or case G, and the frictional resistance thus is exerted by and confined to the friction-surfaces *g* and *h* of the friction shell and blocks, and these interengaging friction-surfaces being inside the shell G are protected thereby from dirt, sand, and grit and from variation and uncertainty of action incident thereto.

The slightly-tapering form of the friction-surface of the shell, terminating, as it does, in a straight portion near the rear end of the friction-blocks H H, prevents the backward and forward play of the blocks from wearing and forming a shoulder or unevenness on the friction-shell near the rear end of the blocks and causes the friction-shell to continually wear smooth.

In operation in pulling or buffing the first movement of the draw-bar is cushioned by the direct action of the spring itself until the rear end of the sliding friction-shell and the rear follower engage, when the further movement of the draw-bar causes the sliding friction-shell G and friction-blocks H H to frictionally slide the one in respect to the other, the frictional grip and pressure between the interengaging frictional surfaces *g* and *h* increasing as the spring is more and more compressed.

Owing to the slightly-tapering form of the friction-surfaces *g g* of the sliding friction-shell G, when the friction-blocks H H are moved inward in respect to the shell G the outer block H slips slightly outward in respect to the inner block H to compensate for the slight taper of the friction-surfaces *g g* on the shell; but the separating movement of the blocks H H in respect to each other as the two are forced inward in respect to the shell is very slight or infinitesimal, so to speak, as the wedging operating-faces K K′ of the blocks H H are at a steep angle, while the taper of the surfaces *g g* is very small.

In my invention the wedging or inclined operating-faces K K′ of the friction-blocks H H seat directly on each other, thus dispensing with an intermediate operating device.

I claim—

1. In a friction-gear or draft-rigging for railway-cars, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring, followers, and side plates or stop-castings, of a sliding friction shell or case having an interior slightly-tapering friction-surface terminating in a straight portion, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having exterior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging wedging or inclined operating-faces seating directly on each other for causing the sliding friction-surfaces of the friction shell or case and of said friction-blocks to frictionally grip or forcibly press against each other, substantially as specified.

2. In a friction-gear or draft-rigging for railway-cars, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring, followers, and side plates or stop-castings, of a sliding friction shell or case having an interior slightly-tapering friction-surface terminating in a straight portion, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having exterior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging wedging or inclined operating faces for causing the sliding friction-surfaces of the friction case or shell and of said friction-blocks to frictionally grip or forcibly press against each other, and a seat-block for the spring interposed between one end of the spring and one of the followers to permit a lateral compression of the spring before the follower engages the friction shell or case, substantially as specified.

3. In a friction-gear or draft-rigging for railway-cars, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring, followers, and side plates or stop-castings, of a sliding friction shell or case having an interior slightly-tapering friction-surface terminating in a straight portion, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having exterior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging wedging or inclined operating-faces seating directly on each other for causing the sliding friction-surfaces of the friction shell or case and of said friction-blocks to friction-

ally grip or forcibly press against each other, the interengaging wedging or inclined operating-faces of said friction-blocks being in a vertical plane, substantially as specified.

4. In a friction-gear or draft-rigging for railway-cars, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring, followers, and side plates or stop-castings, of a sliding friction shell or case having an interior slightly-tapering friction-surface terminating in a straight portion, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having exterior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging wedging or inclined operating-faces for causing the sliding friction-surfaces of the friction case or shell and of said friction-blocks to frictionally grip or forcibly press against each other, and a seat-block for the spring interposed between one end of the spring and one of the followers to permit a lateral compression of the spring before the followers engage the friction shell or case, the interengaging wedging or inclined operating-faces of said friction-blocks being in a vertical plane, substantially as specified.

PETER N. MOORE.

Witnesses:
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EDMUND ADCOCK.