No. 754,679. 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.

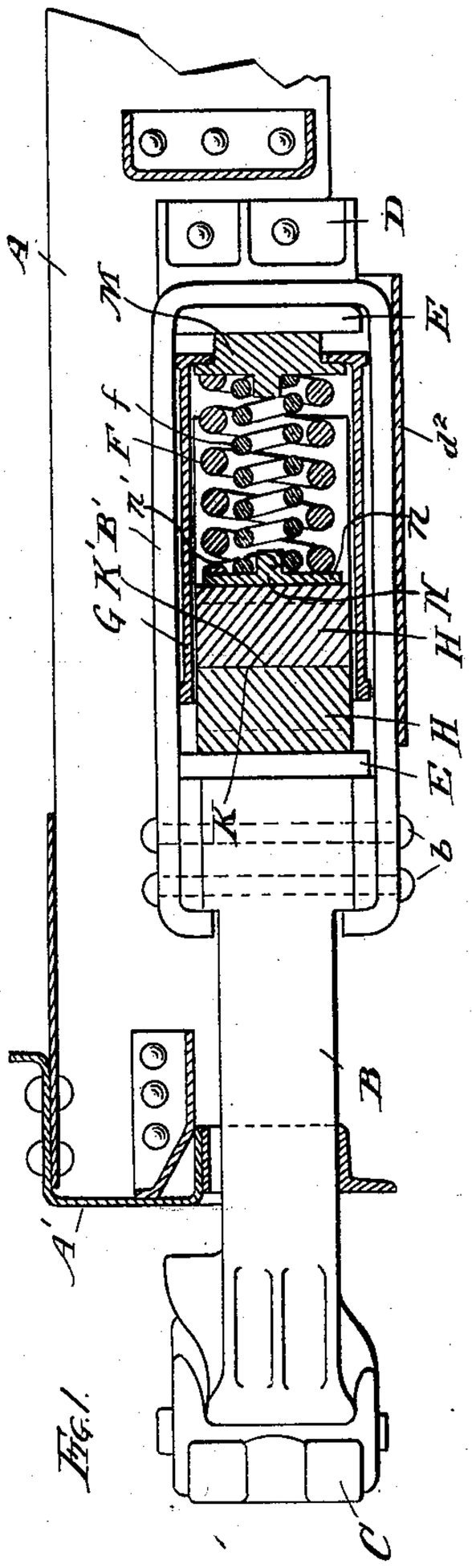

FIG. 1.

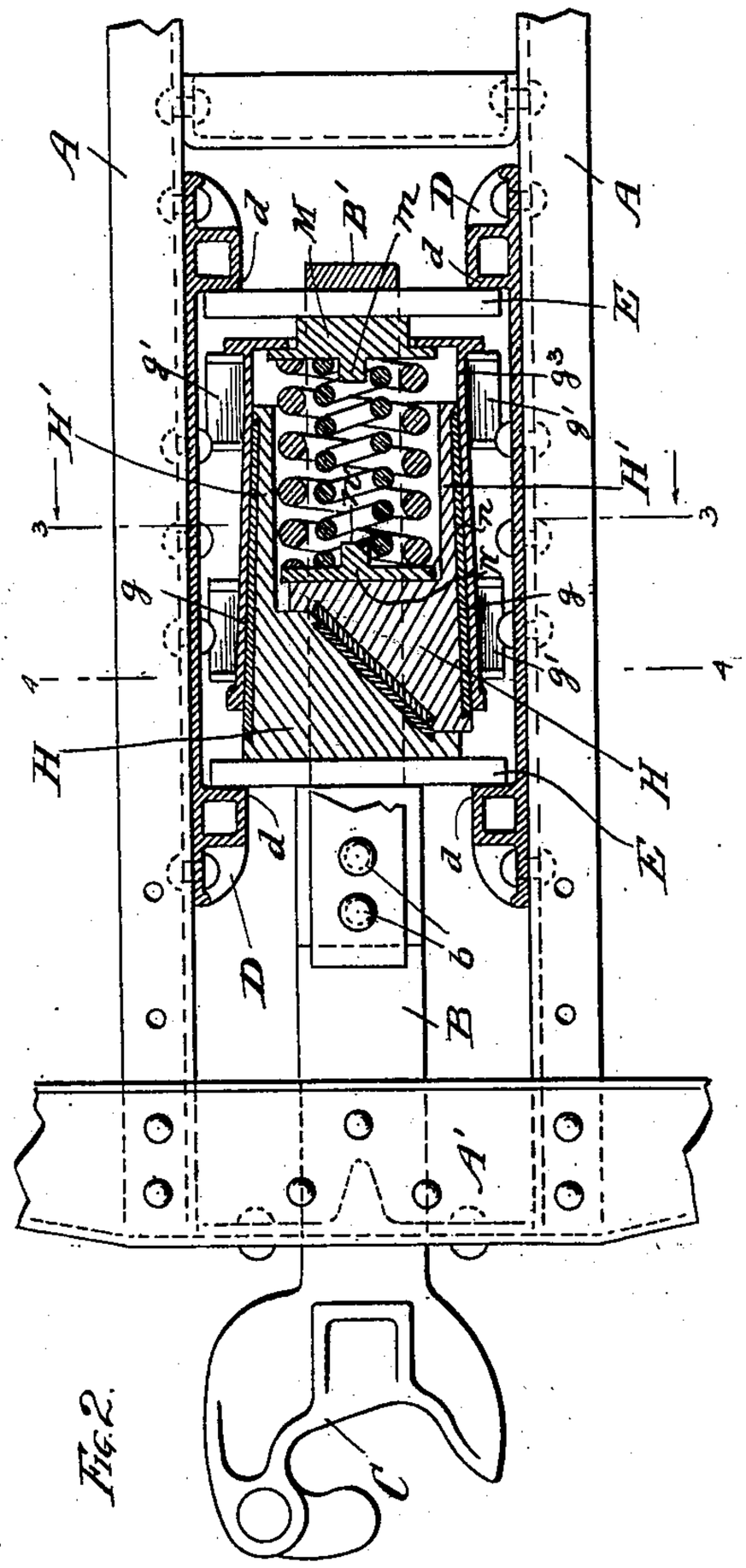

FIG. 2.

WITNESSES:
F. B. Townsend
H. W. Munday.

INVENTOR:
Peter N. Moore
BY
Munday, Evarts & Adcock.
His ATTORNEYS

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NO MODEL. 2 SHEETS—SHEET 2

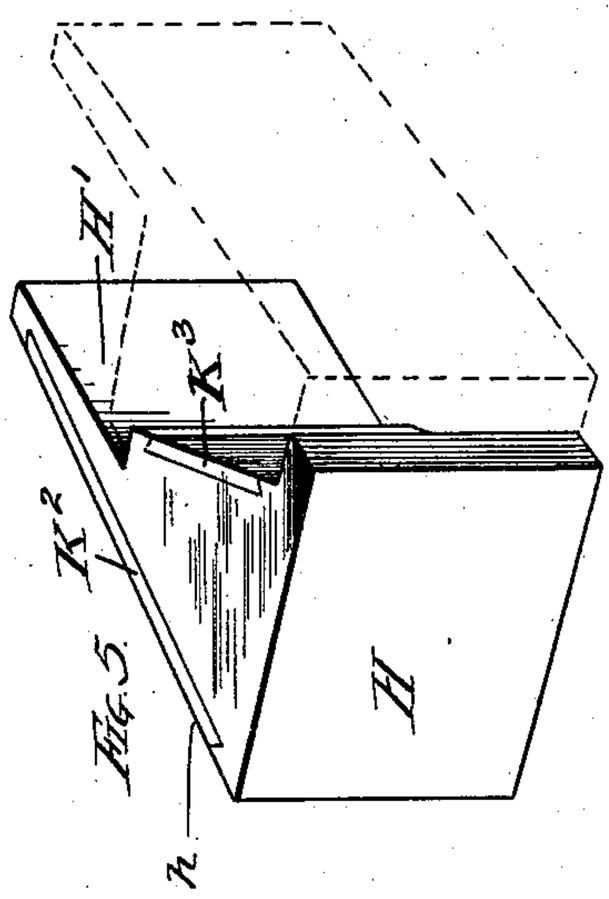

FIG. 5.

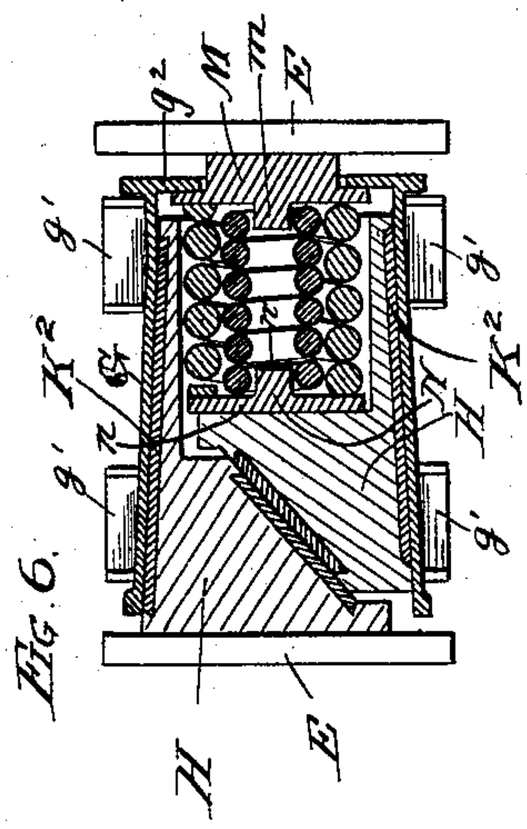

FIG. 6.

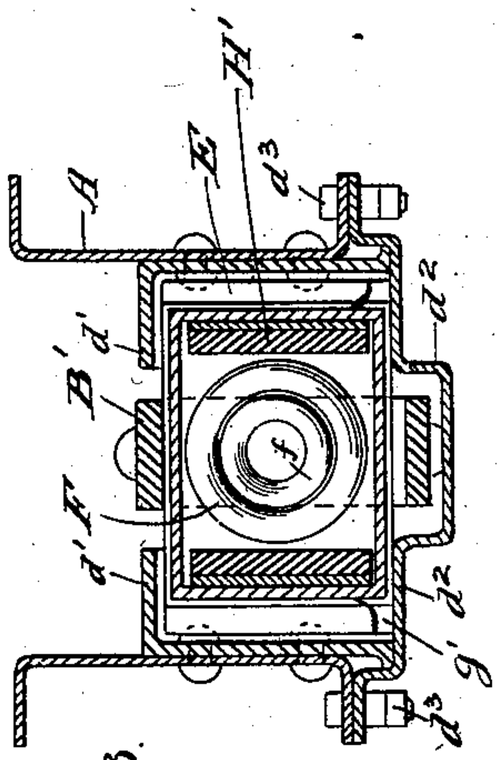

FIG. 3.

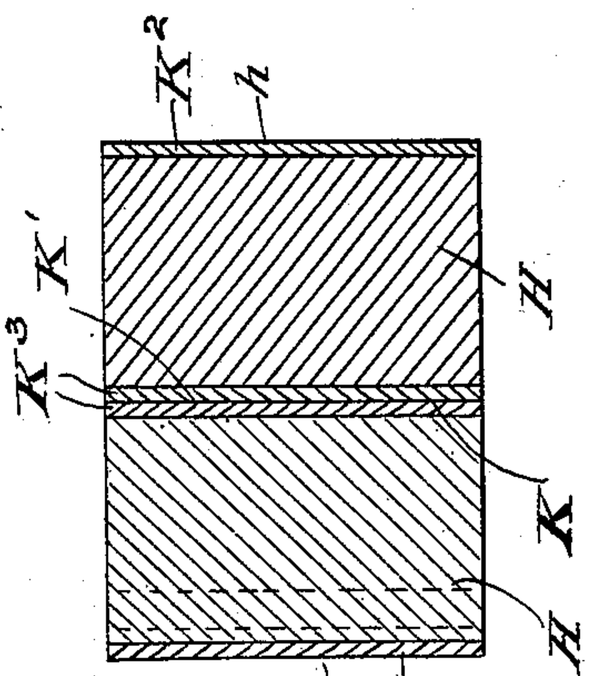

FIG. 4.

WITNESSES:
F. B. Townsend,
A. W. Munday.

INVENTOR.
Peter N. Moore.
BY
Munday, Evarts & Adcock
his ATTORNEYS

No. 754,679. 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. 754,679, dated March 15, 1904.

Application filed November 5, 1903. Serial No. 179,904. (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 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 an interior friction-surface extending nearly its full length and a plurality of sliding friction-blocks inside the case or shell and confined thereby from lateral or outward movement, and having exterior friction-surfaces and integral friction extensions or wings projecting beyond the front end of the spring to increase the frictional surface of the sliding friction-blocks against the shell, and provided with interengaging wedging or inclined operating-faces for causing the sliding friction-blocks to frictionally grip and press the 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 vertical 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 on line 4 4 of Fig. 2. Fig. 5 is a perspective view of one of the sliding friction-blocks and showing the other friction-block in dotted lines, and Fig. 6 is a detail horizontal section showing the spring compressed.

In the drawings, A represents the draft-timbers or center sills of a car; A′, the front or cross sill, the same being represented of an ordinary steel-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-casting, the same having front and rear stops *d* for the followers E E to abut 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 preferably rectangular in cross-section and having interior and preferably slightly tapering or flaring friction-surfaces *g* on its two upright sides and terminating in a straight portion g^3 near the rear end of the shell. The friction-shell G has feet or projections *g′* to rest or slide upon the lower guide d^2 of the side plate or stop-castings D.

H H are coöperating sliding friction-blocks, having each a wing or projection H′ extending nearly the length of the shell G and embracing the spring F between them. The wings or projections H′ materially increase the interengaging friction-surfaces of the friction-shell and friction-blocks without increasing the length of the draft-rigging or the space between the followers E E, as the spring lies between the friction-wings H′ H′. The friction-blocks and their wings have exterior and preferably slightly tapering or flaring frictional surfaces *h* on their vertical sides parallel to and in sliding frictional engagement with the corresponding interior frictional faces *g* of the shell G. The sliding friction-blocks H H are provided with interengaging wedging or inclined operating-faces K K′, the same meeting, preferably, 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 transverse movement by the surrounding friction shell or case G, and the frictional resistance 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 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.

The friction-blocks H H are provided, or preferably provided, with inserted wearing-plates K^2 on their friction-faces. If desired, similar plates K^3 may be inserted on the wedging or inclined operating-faces K K' of the friction-blocks H H. The purpose of the plates K^3, however, is to prevent wear and not to produce a frictional resistance, as the friction-blocks H H being confined from lateral or outward movement by the inclosing shell G the plates $K^3 K^3$ have only a very slight and substantially no slipping or sliding movement in respect to each other.

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 blocks H H move 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 is very slight or infinitesimal, so to speak, as the wedging faces K K' of the blocks H H are at a steep angle, while the taper of the surfaces *g g* is very small.

I claim—

1. In a friction draft-rigging, 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 friction-surface, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and each provided with a projecting wing extending on each side of the spring and embracing the same, 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 shell or case and friction-blocks, to frictionally grip or forcibly press against each other, said followers and said sliding friction-blocks being in separate pieces and independent of each other, substantially as specified.

2. In a friction draft-rigging, 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 friction-surface, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and each provided with a projecting wing extending on each side of the spring and embracing the same, 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 shell or case and 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 partial compression of the spring before the follower engages the friction shell or case, substantially as specified.

3. In a friction draft-rigging, 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 friction-surface, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and each provided with a projecting wing extending on each side of the spring and embracing the same, 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 shell or case and friction-blocks, to frictionally grip or forcibly press against each other, said friction-blocks having inserted wearing-plates on their friction-faces, said followers and said sliding friction-blocks being in separate pieces and independent of each other, substantially as specified.

PETER N. MOORE.

Witnesses:
H. M. MUNDAY,
EDMUND ADCOCK.