No. 754,677. PATENTED MAR. 15, 1904.

P. N. MOORE.

FRICTION SPRING DRAFT GEAR FOR RAILWAY CARS.

APPLICATION FILED NOV. 5, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

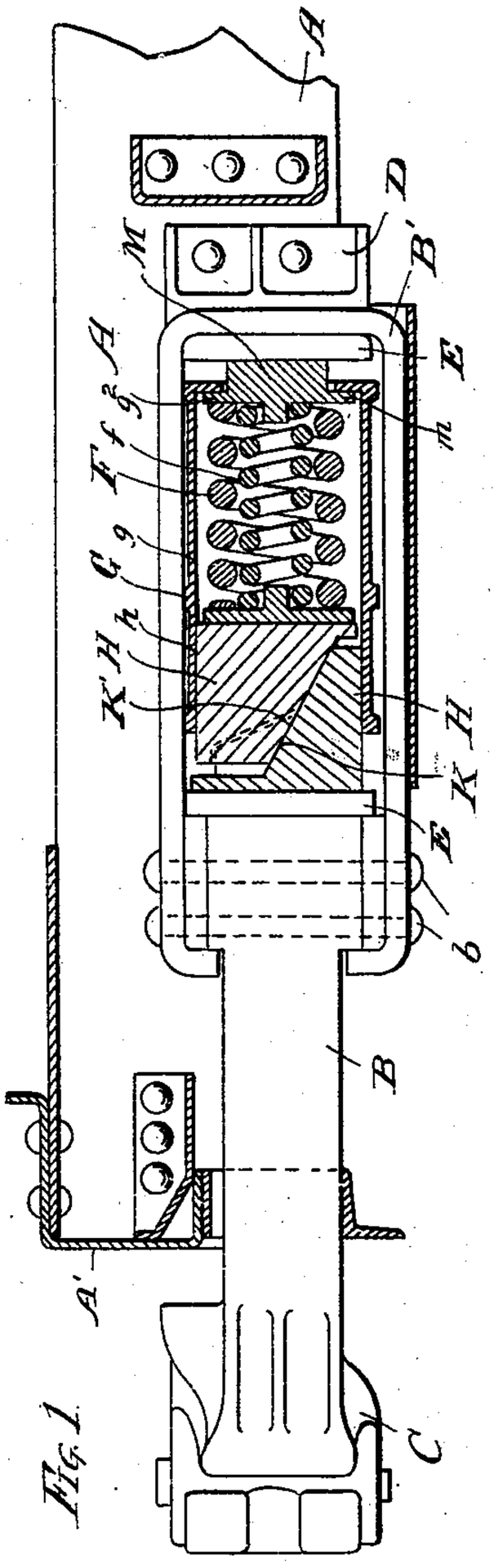

Fig. 1.

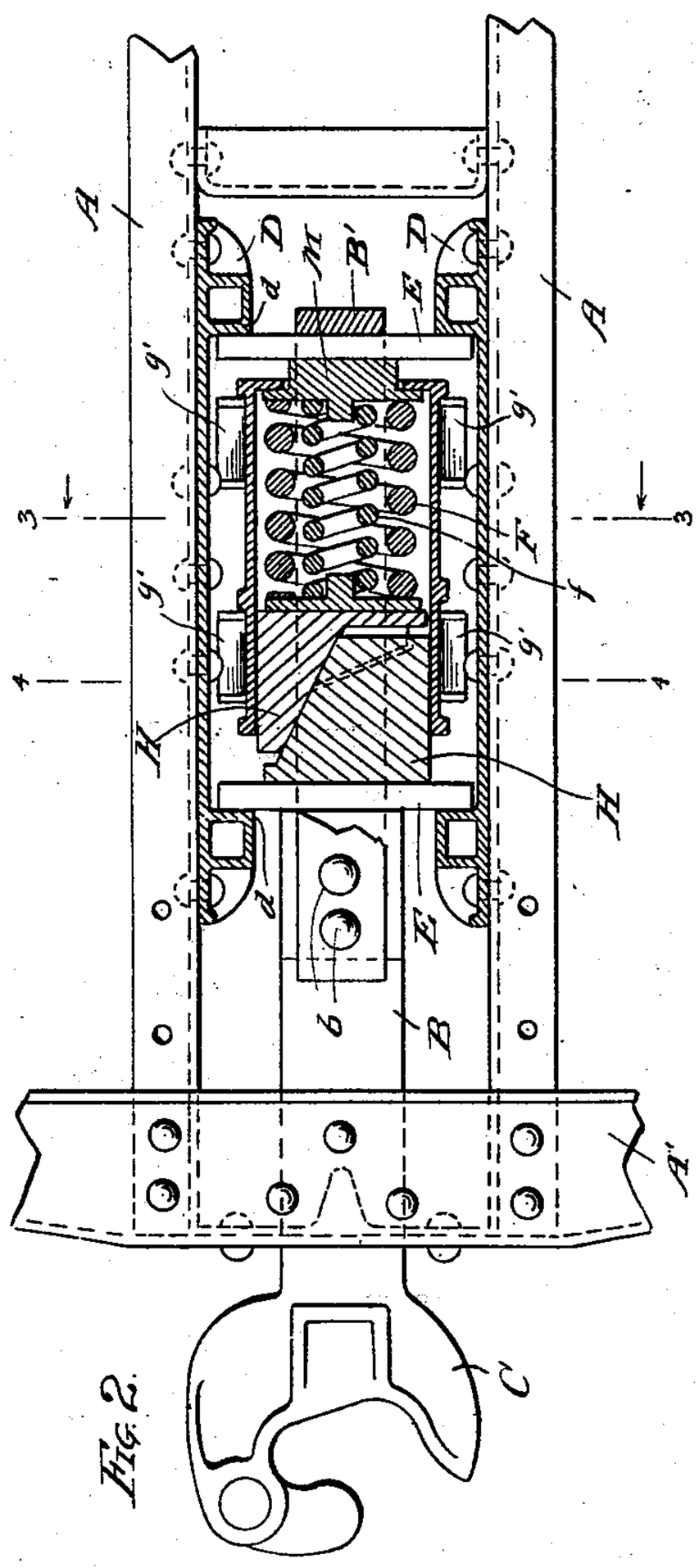

Fig. 2.

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NO MODEL. 2 SHEETS—SHEET 2.

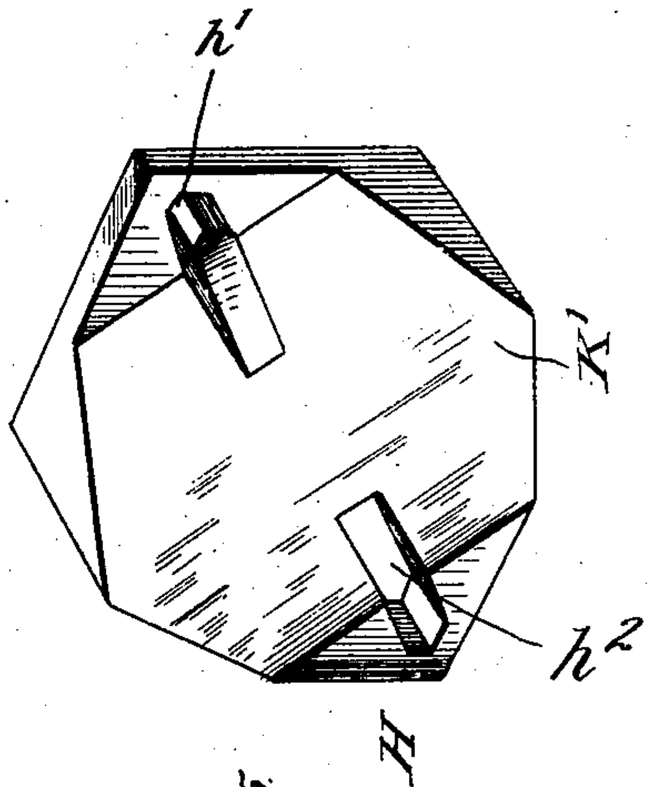

FIG. 5.

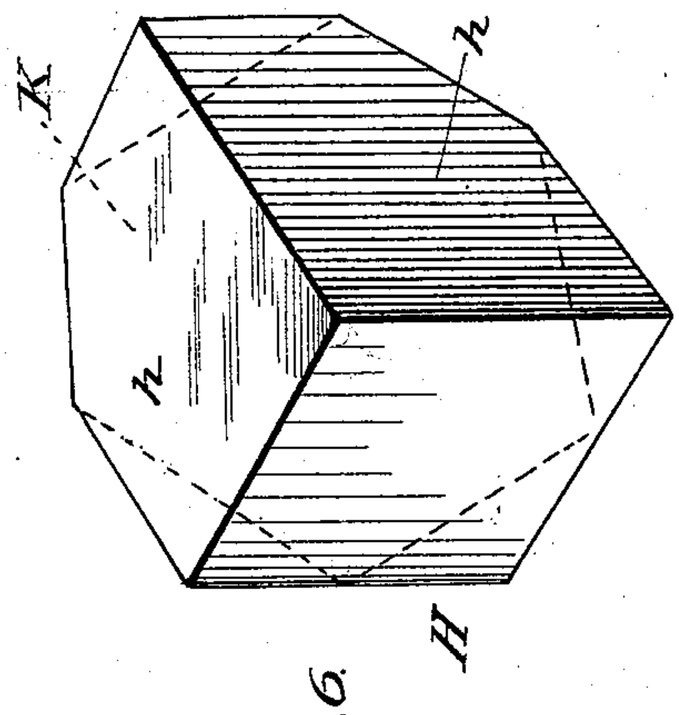

FIG. 6.

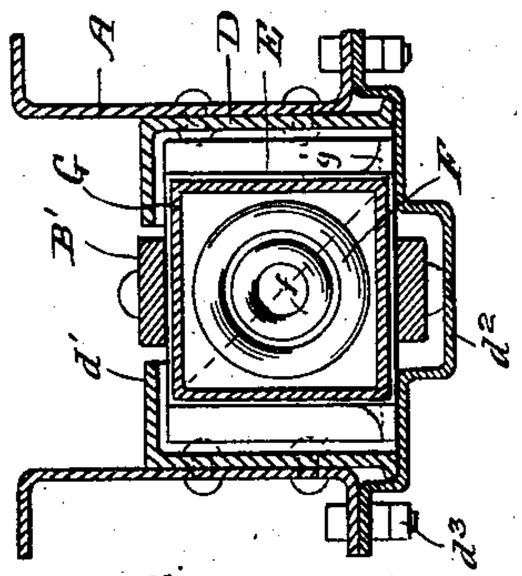

FIG. 3.

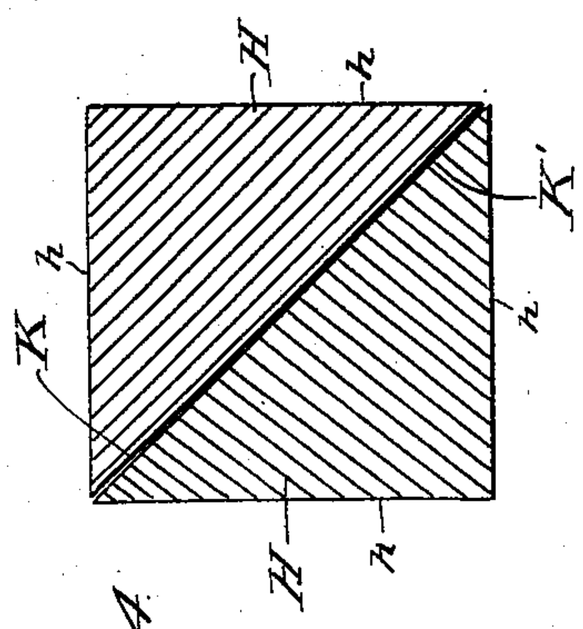

FIG. 4.

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No. 754,677. 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-GEAR FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 754,677, dated March 15, 1904.

Application filed November 5, 1903. Serial No. 179,902. (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-Gear for Railway-Cars, of which the following is a specification.

My invention relates to friction spring draft rigging or gear for railway-cars.

The object of my invention is to provide a friction draft-rigging of a strong, simple, and durable construction composed of few parts of simple form and capable of being cheaply manufactured and of being easily and conveniently applied to and removed from the car in which the spring and frictional devices are all directly behind the draw-bar and in the line of draft and which may be relied upon to operate with certainty, uniformity, and efficiency in properly cushioning both light and heavy strains, blows, or shocks, both in pulling and buffing, in which the spring and all the frictional devices and operating parts are self-contained in a sliding friction shell or case and none of which are fixedly secured or attached to the stationary frame or stop-castings of the car and in which the customary followers may be employed for primarily operating both the spring and the frictional devices and in which the cushion of the spring itself is directly utilized for primarily cushioning all strains or blows, light or heavy, and pulling or buffing.

My invention consists in connection with a draw-bar, draw-bar extension, longitudinally-arranged spring, a sliding friction shell or case having an interior friction-surface, and a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral, transverse, or outward movement and having exterior friction-surfaces in sliding frictional engagement with the interior friction-surface of the case or shell and provided also with interengaging wedging or inclined 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.

It further consists in combination, with the foregoing, of a seat-block interposed between the rear end of the spring and the rear follower to cause the initial movement of the draw-bar in either direction to be cushioned by the direct action of the spring until engagement takes place between the rear end of the sliding friction-shell and the rear follower.

It further consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical longitudinal section of a friction spring draft-rigging embodying my invention. Fig. 2 is a horizontal section, partly in plan. Figs. 3 and 4 are cross-sections on lines 3 3 and 4 4, respectively, of Fig. 2; and Figs. 5 and 6 are detail perspective views of one of the sliding friction-blocks, the friction-blocks being preferably duplicates of each other.

In the drawings, A represents the draft-timbers or center sills of a car, and A′ the front or cross sill, these parts 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-castings, the same having front and rear stops *d* for the followers E E to abut against, and upper and lower guides *d′* and *d²* 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 *d²* being preferably in the form of a removable plate secured in place by bolts *d³* 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 square or rectangular in cross-section and having interior friction-surfaces g on its four sides. It is provided with 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 exterior friction-faces h in sliding frictional engagement with the interior frictional faces g of the sliding friction shell or case G and each being further provided with interengaging wedging or inclined operating-faces K K′, the same meeting preferably on a diagonal plane or cornerwise of the blocks H H. One end of the spring F bears against the front follower E through the interposed sliding friction-blocks H H, and the other end of the spring bears against the rear follower E through an interposed seat-block M, which projects through the 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. The friction-blocks H H are held from lateral, transverse, or outward movement by the surrounding friction shell or case G, and the frictional resistance and wear are exerted by and confined to the parallel friction-surfaces g and h of the friction-shell and friction-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.

In my invention the spring and frictional devices are self-contained in the shell G and have no rigid or fixed connection with the car-frame or stop-castings, and consequently require no special adjustment to the car and always maintain themselves automatically in proper coöperative relation and are directly and easily applied to cars having the ordinary draw-bar, draw-bar extension, follower, and side-plate or stop-casting construction.

In operation, in pulling or buffing the first movement of the draw-bar is cushioned by the direct action of the spring itself until engagement takes place between the rear end of the sliding friction-shell and the rear follower, when the further movement of the draw-bar causes the sliding friction-shell G and the sliding friction-blocks H H to move and 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.

The sliding friction-blocks H H have interfitting lugs and recesses h' h^2 on their meeting faces to keep the blocks in registry with each other.

The followers E E are plain flat followers having parallel faces, and the friction-blocks H H are independent of and in separate pieces from the followers.

I claim—

1. In a friction draft gear or rigging for railway-cars, the combination with a draw-bar, draw-bar extension, longitudinally-arranged spring, plain flat followers having parallel faces, 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 having exterior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging or inclined operating-faces 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, said friction-blocks being independent of and in separate pieces from the followers, substantially as specified.

2. In a friction draft gear or 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 friction-surface, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having interior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging or inclined operating-faces 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, 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 gear or 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 friction-surface, 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 or inclined operating-faces 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, the interengaging wedging or inclined operating-faces of said friction-blocks being diagonal or cornerwise of the blocks, substantially as specified.

4. In a friction draft gear or 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 friction-surface, a plurality of sliding friction-blocks inside said case or shell and confined thereby from lateral or transverse movement, and having interior friction-faces in sliding frictional engagement with the interior friction-surface of the case or shell, and provided with interengaging or inclined operating-faces 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, 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, the interengaging wedging or inclined operating-faces of said friction-blocks being diagonal or cornerwise of the block, substantially as specified.

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