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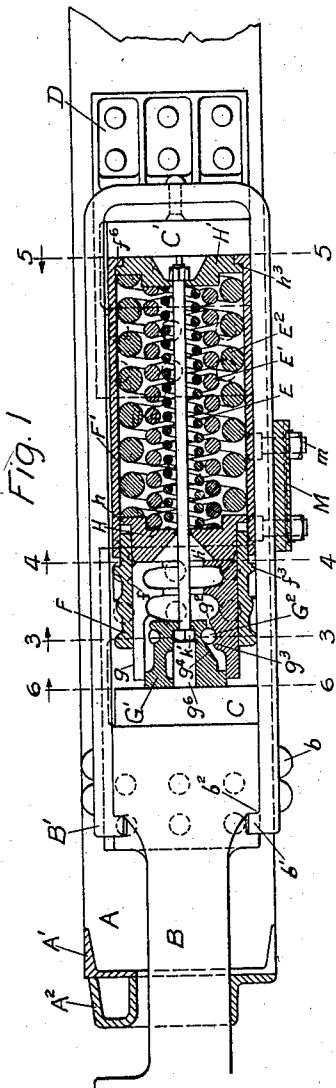
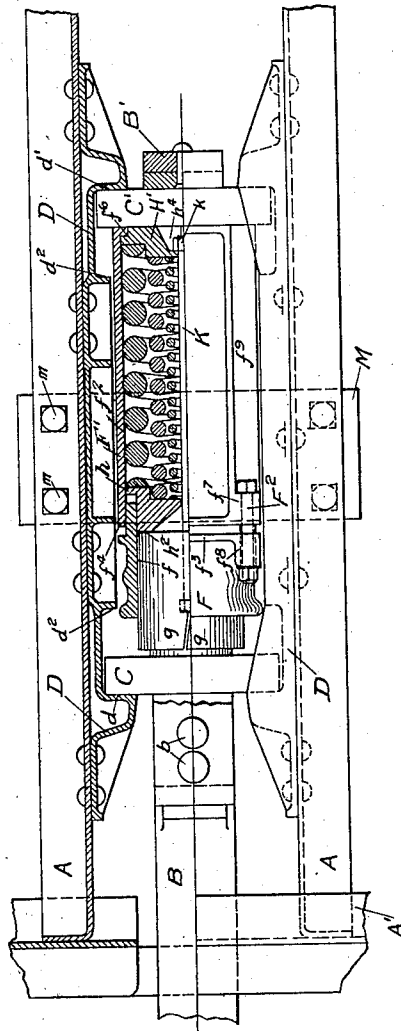


Fig. 1



WITNESSES:

Calvin B. Patch.  
 Pearl Abrams.

INVENTOR

John F. O'Connor.  
 BY Murray, Evans,  
 Adams & Clarke

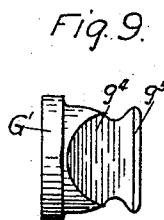
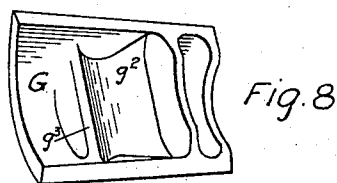
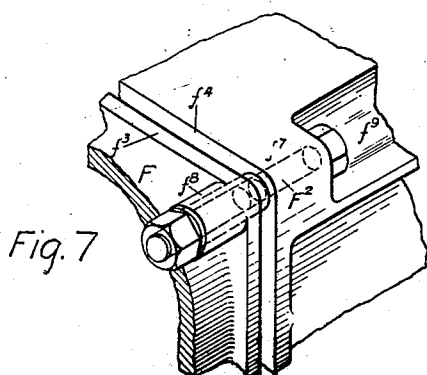
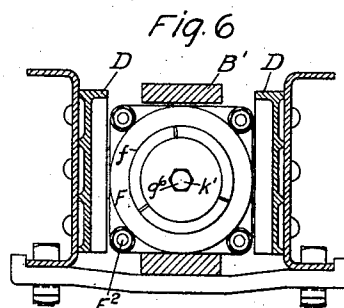
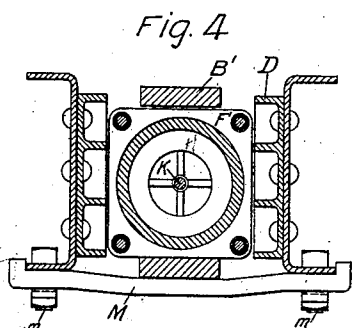
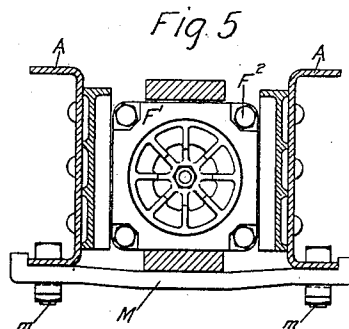
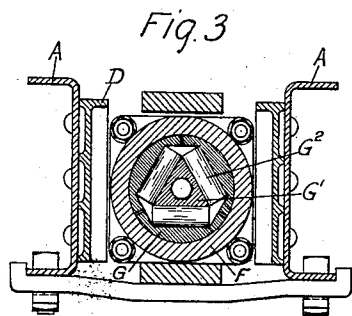
HIS ATTORNEYS

J. F. O'CONNOR.  
 FRICTION DRAFT RIGGING.  
 APPLICATION FILED DEC. 18, 1909.

1,060,113.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 2.



WITNESSES:  
 Cahm B. Patch  
 Pearl Abrams.

INVENTOR  
 John F. O'Connor.  
 BY Munday, Evans,  
 Adcock & Clarke  
 HIS ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOHN F. O'CONNOR, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO  
WILLIAM H. MINER, OF CHICAGO, ILLINOIS.

## FRICTION DRAFT-RIGGING.

1,060,113.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed December 18, 1909. Serial No. 533,741.

*To all whom it may concern:*

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Friction Draft-Rigging, of which the following is a specification.

My invention relates to improvements in friction draft rigging.

My invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation, partly in central, vertical section of a friction draft rigging embodying my invention. Fig. 2 is a plan view, partly in horizontal section. Figs. 3, 4, 5 and 6 are vertical cross sections on lines 3—3, 4—4, 5—5 and 6—6 respectively of Fig. 1. Fig. 7 is a partial detail perspective view showing one corner of the telescoping and connected friction shell and spring case. Fig. 8 is a detail, perspective view of one of the friction shoes, and Fig. 9 is an elevation of the wedge.

In the drawing, A A represent the center sills or other draft members of the car frame to which the draft rigging is applied, A<sup>1</sup> the front or end sill, A<sup>2</sup> the buffer block or plate, B the draw-bar, B<sup>1</sup> the draft yoke secured to the draw-bar by rivets b and interengaging gibs or shoulders b<sup>1</sup> b<sup>2</sup>, C C<sup>1</sup> the followers, D the stop members riveted to the draft sills and provided with front and rear stops d d<sup>1</sup> and limiting stops d<sup>2</sup>, and E, E<sup>1</sup> E<sup>2</sup> the springs nesting one within another.

F is a longitudinally movable friction shell connected to and having a limited telescopic movement with a separate piece spring case F<sup>1</sup> which incloses the springs and abuts at its rear end against the rear follower C<sup>1</sup>. The friction shell F has an interior and preferably cylindric friction face f in sliding frictional engagement with the exterior friction face g of the segmental friction shoes G. At its inner or rear end, the friction shell F fits or telescopes within the outer or front end of the spring case F<sup>1</sup>, the inner wall f<sup>2</sup> of which is preferably cylindrical. The friction shell F and the separate piece spring case F<sup>1</sup> have a limited sliding

or telescopic movement in respect to each other to provide for a preliminary compression of the springs before the friction resistance mechanism comes into action, and thus cause the draft rigging to properly cushion light strains or blows. The friction shell F is provided with an exterior shoulder, rib or flange f<sup>3</sup> to limit the sliding or telescopic movement of the friction shell in respect to the spring case by engagement with the front end f<sup>4</sup> of the spring case.

H and H<sup>1</sup> are spring caps or seats fitting within the spring case F<sup>1</sup> and against which the ends of the springs abut. The front spring seat or cap H fits within the rear end of the friction shell F and abuts against the segmental friction shoes G, and it is provided with an exterior annular shoulder or rim h. The front spring seat or cap H is preferably recessed or cut away at its central portion at h<sup>1</sup> to give it only an outer bearing face h<sup>2</sup> against the end of the friction shoes G. The rear friction cap or seat H<sup>1</sup> has an external shoulder or flange h<sup>3</sup> engaging the internal flange or shoulder f<sup>2</sup> of the spring case F<sup>1</sup>. The rear or outer face of the cap H<sup>1</sup> has a central recess h<sup>4</sup> to receive the end k of the connecting rod K.

The friction shell F and spring case F<sup>1</sup> are preferably connected together in such manner as to provide for the limited sliding or telescopic movement of the one in respect to the other by short connecting bolts F<sup>2</sup> extending through external connecting members f<sup>5</sup> f<sup>6</sup> of the case and shell at the four corners thereof. The spring case F<sup>1</sup> has a substantially rectangular external wall furnished with recesses f<sup>7</sup> at the corners to form the external connecting member f<sup>7</sup> through which the connecting bolt F<sup>2</sup> passes. The flange or rim f<sup>3</sup> of the friction shell F is also preferably externally substantially rectangular in form, and the corners of this flange are thickened or enlarged longitudinally to form the connecting member f<sup>8</sup>, as will be readily understood from Figs. 2 and 7 of the drawing. The friction shoes G are furnished with inclined or wedging faces g<sup>2</sup> and seats or shoulders g<sup>3</sup> for the anti-friction rollers G<sup>2</sup> which are interposed between the inclined or wedging faces g<sup>2</sup> of the friction shoes and the corresponding inclined or wedging faces g<sup>4</sup> of the wedge G<sup>1</sup>. The friction shoes G are preferably three in

number, and the wedge  $G^1$  is pyramidal or provided with a corresponding number of inclined or wedging faces  $g^4$ , each having a shoulder or seat  $g^5$  to aid in keeping the anti-friction rollers  $G^2$  in position.

The wedge  $G^1$  has a central recess  $g^6$  to receive the head  $k^1$  of the connecting rod  $K$  which extends between the wedge and the rear spring seat or cap  $H^1$  and serves to connect all the parts and hold them in assembled position and also to maintain the springs  $E$   $E^1$   $E^2$  under an initial tension or compression.

$M$  is a removable tie-plate upon which the draft yoke  $B^1$  rests and which supports the draft rigging between the draft sills, the same being preferably removably secured to the lower flanges of the draft sills by short connecting bolts  $m$ . The springs  $E$   $E^1$   $E^2$  are preferably of such length as to provide for a three inch travel in compression, and thus afford, in connection with the friction shell and friction shoes a powerful and extended cushioning action.

I claim:—

1. In a friction draft rigging, the combination with a draw-bar, draft yoke and stop members, of a longitudinally movable friction shell having an internal cylindric friction face, a longitudinally movable separate piece spring case having a limited sliding movement in respect to said shell, a spring within said case, and longitudinally reciprocating friction shoes having external cylindric friction faces and a wedge within said shell, said friction shell and spring case having external projecting members and connecting bolts extending through and

slidable in said members, substantially as specified.

2. In a friction draft rigging, the combination with a draw-bar, draft yoke and stop members, of a longitudinally movable friction shell having an internal cylindric friction face, a longitudinally movable separate piece spring case having a limited sliding movement in respect to said shell, a spring within said case, and longitudinally reciprocating friction shoes having external cylindric friction faces and a wedge within said shell, said friction shell and spring case having at the corners thereof external projecting members and connecting bolts extending through said members, substantially as specified.

3. In a friction draft rigging, the combination with a friction shell, friction shoes and wedge, of a separate piece internally cylindric and externally rectangular spring case having a limited sliding movement in respect to said shell, and a spring within said case reacting at one end through said case against the friction shell and at the other end against the friction shoes when the case and shell are in their most extended position relatively to each other, said friction shell having an external shoulder to limit its sliding movement in respect to said spring case, and bolts at the corners of said spring case connecting the same with said friction shell.

JOHN F. O'CONNOR.

Witnesses:

EDMUND ADcock,  
PEARL ABRAMS.