J. F. O'CONNOR.

FRICTION DRAFT RIGGING FOR RAILWAY CARS.

APPLICATION FILED AUG. 4, 1909.

1,044,076.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

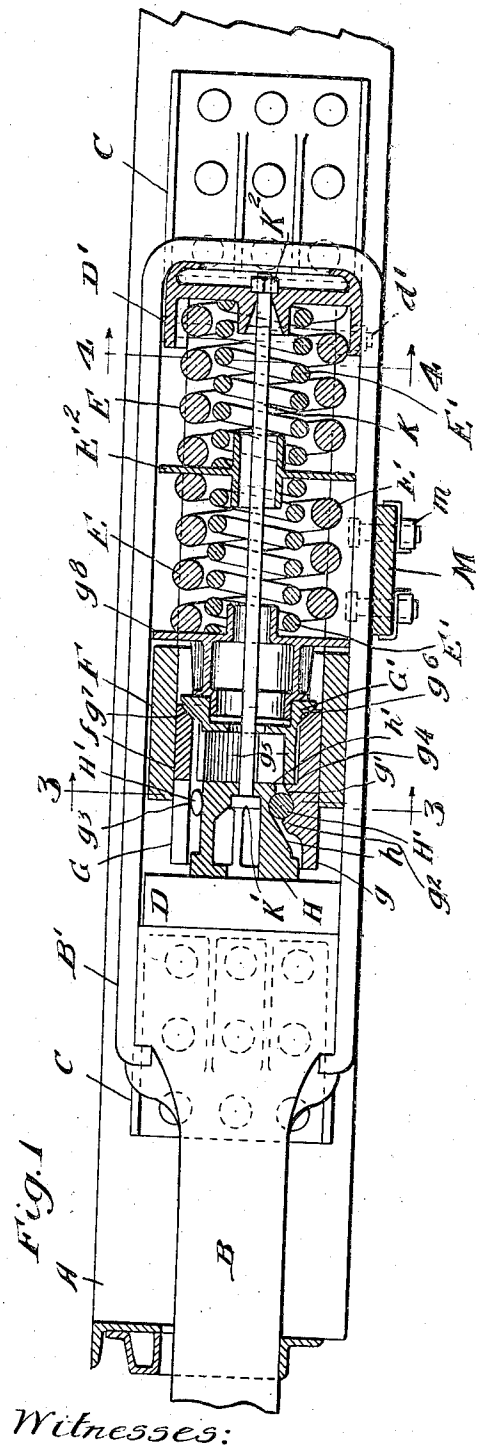

Fig. 1

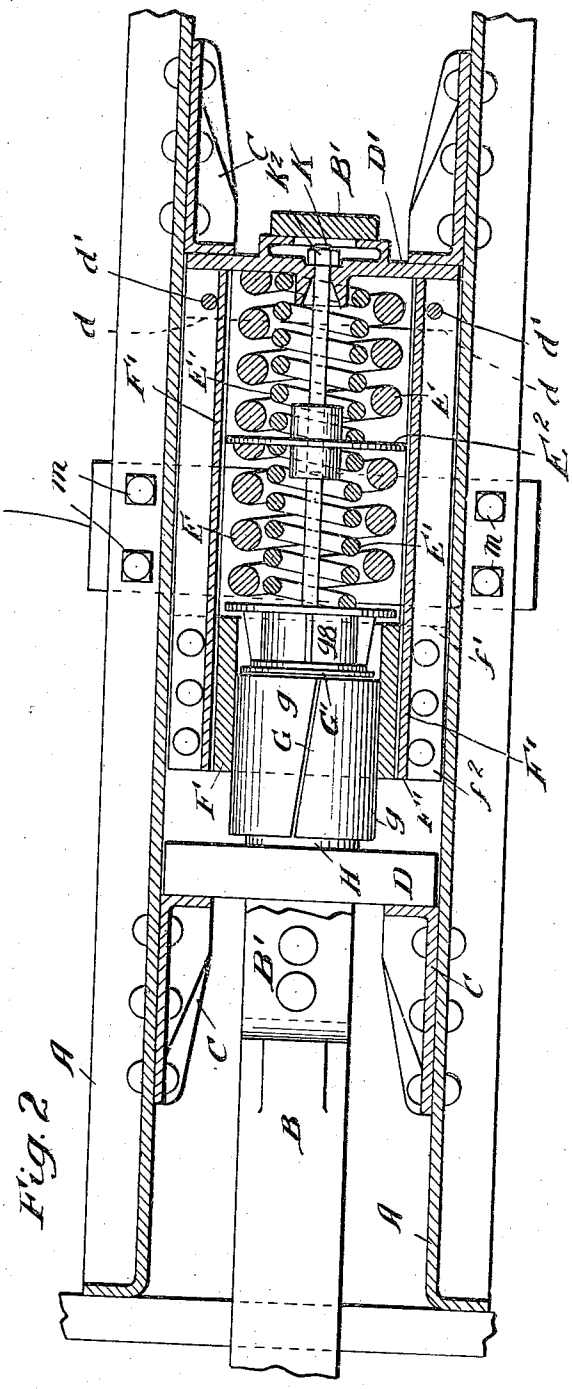

Fig. 2

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Fig. 3

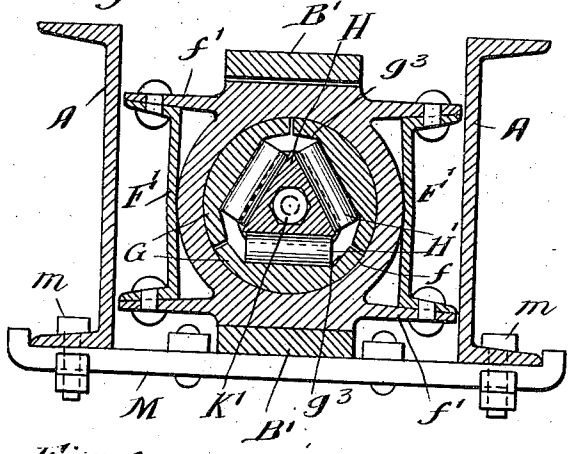


Fig. 6

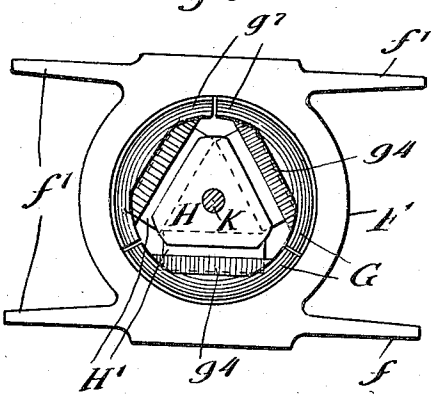


Fig. 4

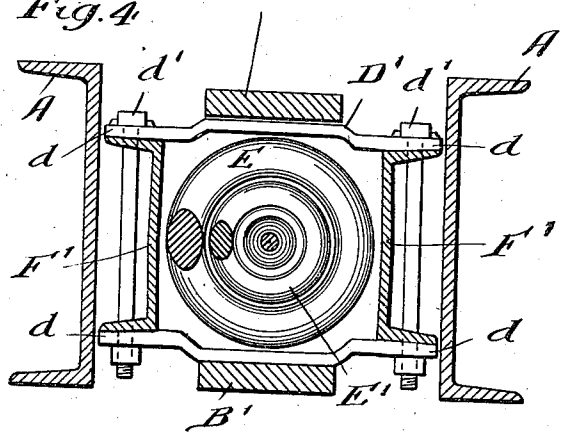


Fig. 7

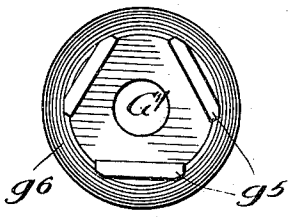


Fig. 5

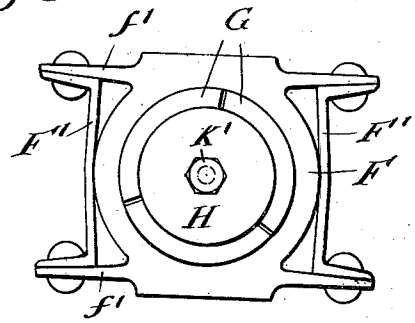


Fig. 8

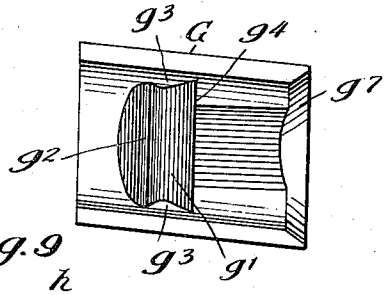
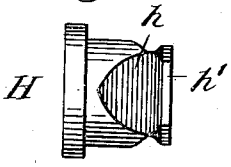


Fig. 9



Witnesses:

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UNITED STATES PATENT OFFICE.

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FRICTION DRAFT-RIGGING FOR RAILWAY-CARS.

1,044,076. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed August 4, 1909. Serial No. 511,081.

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 for Railway-Cars, of which the following is a specification.

My invention relates to improvements in friction draft rigging for railway cars.

The object of my invention is to provide a friction draft rigging of a strong, simple, efficient and durable construction which will have a high cushioning capacity and provide for an extended movement of the draw-bar over the customary two and one-eighth inch movement heretofore generally employed, and which will have a much greater than normal spring cushioning movement and also much greater than normal cushioning capacity, and in which the friction cushioning capacity and consequent wear may be kept as low as admissible for efficient and proper operation, and which will at the same time admit of the use of ordinary standard draft rigging springs, always kept in stock at car shops, and having the customary two and one-eighth inch compressive movement, and commonly known as class G springs. To practically accomplish this object or result, and at the same time keep the draft rigging within the necessary or standard length over all, I combine with the draw-bar, draft yoke, followers and stop members, a friction cushioning mechanism comprising a short friction shell with friction shoes, wedge and anti-friction rollers within the shell, two standard or class G springs (each capable of the standard two and one-eighth inch compression) placed end to end with a floating separator or disk between them, the rear spring bearing at its rear end against the rear follower, and the front spring bearing at its front end against a spring-cap which is interposed between the same and the rear end of the friction shoes, the two end-to-end springs being subjected to a one inch initial compression by means of a connecting rod extending between the rear follower and the wedge of the friction mechanism, the two springs thus permitting a further compression and consequent movement of the draw-bar of three and one-quarter inches, the rear follower being connected with the short friction shell by rolled steel channel bars, the flanges of which are bolted to horizontal webs or wings with which the friction shell is provided.

My invention also 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 longitudinal section, of a friction draft rigging embodying my invention. Fig. 2 is a plan view, partly in horizontal section. Fig. 3 is a cross section on line 3—3 of Fig. 1. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a detail front end view of certain parts. Fig. 6 is a detail end view of the friction shell and contained parts. Fig. 7 is a detail end view of the spring cap, and Fig. 8 is a plan view of one of the friction shoes, and Fig. 9 is a plan view of the wedge.

In the drawing, A represents the draft sills or members of the car frame to which the draft rigging is applied, the same being preferably rolled steel center sills, B the draw-bar, B^1 the draft yoke, C the draft lugs or stop members secured to the draft sills, D D^1 front and rear followers, E E^1 two standard or "class G" springs, each placed end to end with a floating separator or disk E^2 between them, and each preferably capable of the customary two and one-eighth inch compressive movement.

F is a short, longitudinally movable friction shell having an internal cylindric friction face *f* and provided on each side with laterally or horizontally projecting integral wings or webs f^1 to which the flanges f^2 of the rolled steel channel bars F^1 are securely riveted, by which channels the friction shell F is securely connected to the rear follower D^1, the rear follower having flanges *d* to which the channels F^1 are secured by bolts d^1 and the rear ends of the channels F^1 abutting directly against said follower D^1. The connecting channel bars F^1 thus cause the friction shell F to move longitudinally with the rear follower D^1. The segmental friction shoes G are preferably three in number, each having an external friction face *g* in sliding frictional engagement with the internal friction face of the shell F, and each having an inclined

or wedge face g^1 parallel to and coöperating with one of the inclined faces h of the wedge H, which is preferably three faced or pyramidal. Anti-friction rollers H^1 are interposed between the inclined or wedge faces of the friction shoes G and wedge H, the rollers corresponding in number to the friction shoes and bearing against the friction shoes centrally or at their longitudinal middle portion. The friction shoes G each have a friction seat or shoulder g^2 to keep the rollers in place, and the wedge H is provided with coöperating shoulders h^1; and the shoes G also have shoulders g^3 to keep the rollers in place lengthwise.

The segmental friction shoes G are preferably each an oblique segment of a cylinder, the oblique segments thus extending at an angle instead of parallel to the axis of the cylinder to prevent unevenness of wear of the friction shell at the meeting edges of the segmental shoes under the longitudinally reciprocating movement of the shoes in the shell. As the anti-friction rollers H^1 bear against the center or middle portion of the friction shoes G, the pressure or thrust of the draw-bar, transmitted through the wedge H and rollers H^1 to the friction shoes, comes centrally against the same, thus insuring proper bearing of the shoes against the shell from end to end of the shoes. To cause the opposing thrust or pressure of the springs to also come centrally against the friction shoes G, said shoes are each provided with a central bearing shoulder g^4 on its inner face closely adjacent to the inclined or wedge face g^1 thereof against which the central bearing roller H^1 acts, and against which central bearing shoulder g^4 the thrust or pressure of the springs E E^1 is transmitted by means of a spring cap or seat disk G^1, which is interposed between the rear end of the friction shoes and the front end of the front spring, said cap or disk G^1 being furnished with a plurality of wide and relatively thin supporting arms or bearing fingers g^5, one of which bears at its inner end against the shoulders g^4 of each of the friction shoes G. Normally, the spring seat or cap G^1 has no contact with or action against the friction shoes except through the supporting arms g^5 which engage at their inner ends the central bearing shoulders g^4 of the friction shoes. The cap G^1 may preferably have a bevel face g^6 and the friction shoes G may also have bevel faces g^7.

K is a connecting rod having a head K^1 at one end and a threaded nut K^2 at the other, which extends through the springs and bears at one end against the rear follower and at its other end against the wedge H, and which serves to hold the end-to-end springs E E^1 under an initial compression, preferably of about one inch, thus leaving the two springs capable of a further compressing and cushioning movement of three and one quarter inches, each of the springs being capable of the standard two and one-eighth inch compression.

In practising my invention, I prefer to employ two standard springs E E^1 instead of one long single spring, as the standard or class G springs are always kept in stock and found in railroad yards and car shops. The spring cap G^1 for convenience of manufacture is preferably made in two pieces or with a supplemental member g^8 against which the spring directly bears.

M is a removable tie-plate or guide which supports the draft rigging and is secured to the draft sills by bolts m.

I claim:—

1. In a friction draft rigging, the combination with a draw-bar, draft yoke and followers, of a friction shell provided with integral projecting wings, friction shoes within the shell, a spring, and channel bars connecting said shell with one of said followers, substantially as specified.

2. In a friction draft rigging, the combination with a draw-bar, draft yoke, stop members and followers, of a friction shell having an internal cylindrical friction face and connected rigidly to and movable with one of said followers, friction shoes within the shell and having external cylindrical friction faces, and a spring cushioning device in line with the draw-bar and between the friction shoes and one of the followers, said spring cushioning device being adapted to permit an extended movement of the draw-bar and exert an extended cushioning action thereagainst, said friction shell having means for attachment thereto of connecting bars and connecting bars extending between said shell and one of the followers substantially as specified.

JOHN F. O'CONNOR.

Witnesses:
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