J. F. O'CONNOR.

FRICTION DRAFT RIGGING.

APPLICATION FILED MAY 9, 1910.

Patented Dec. 31, 1912.

1,048,729.

2 SHEETS—SHEET 1.

Fig. 1

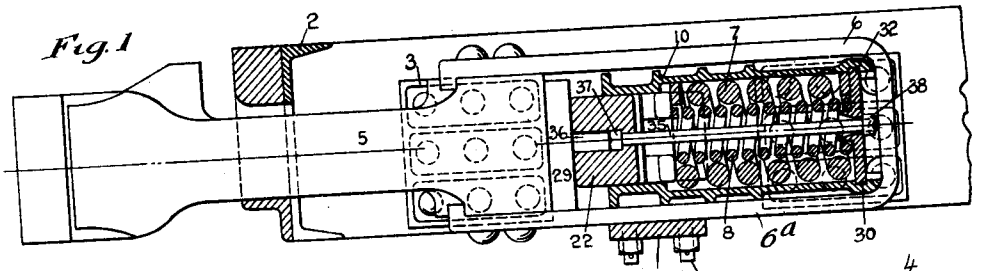


Fig. 2

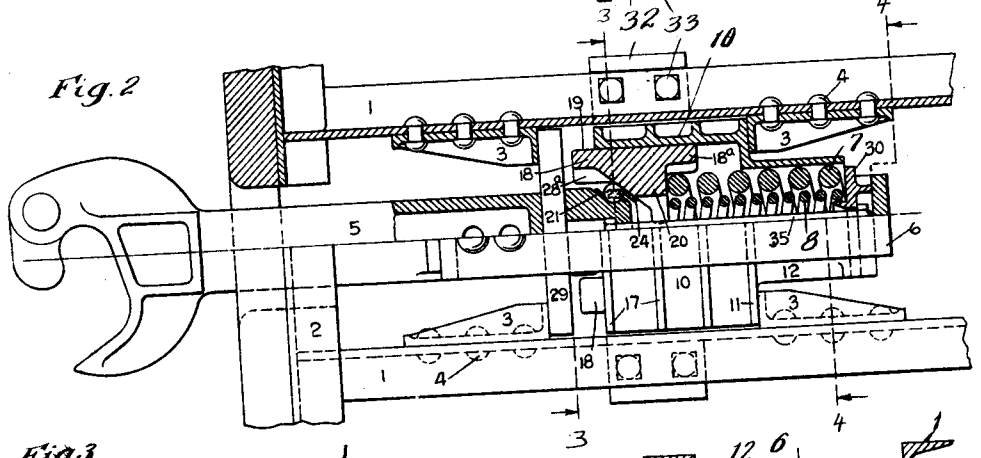


Fig. 3

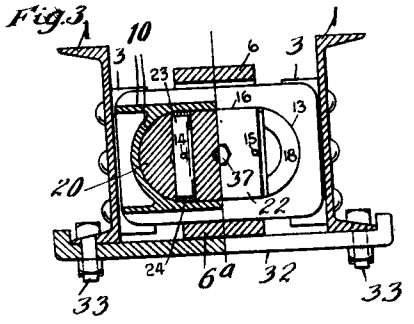


Fig. 4

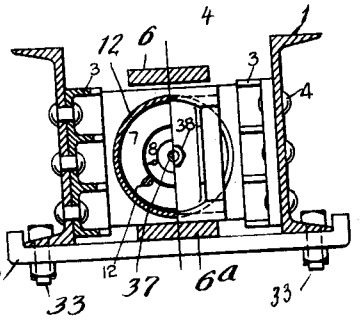
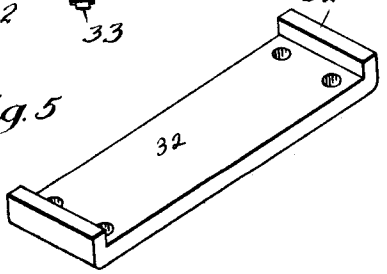


Fig. 5



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6

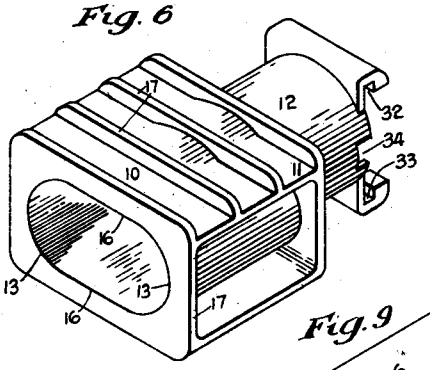


Fig. 7

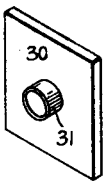


Fig. 8

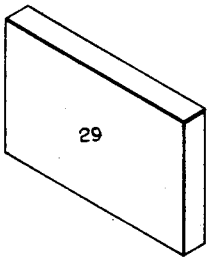


Fig. 9

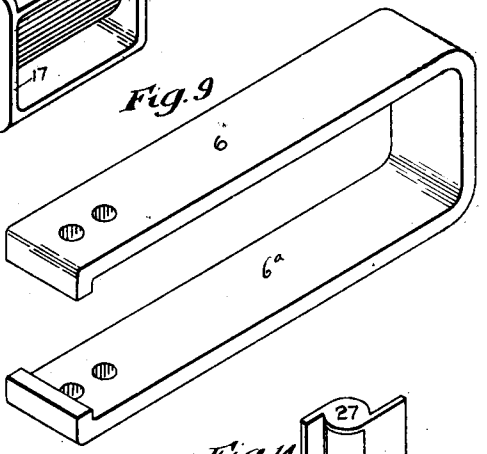


Fig. 10

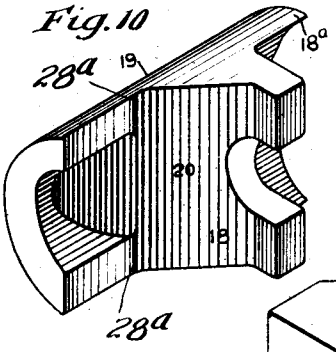


Fig. 14

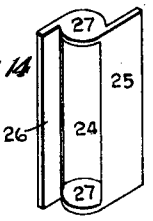


Fig. 13

Fig. 12

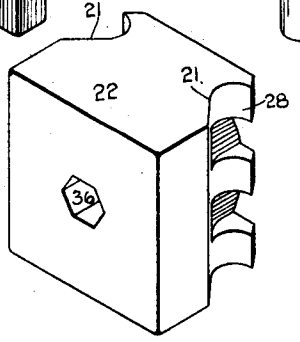
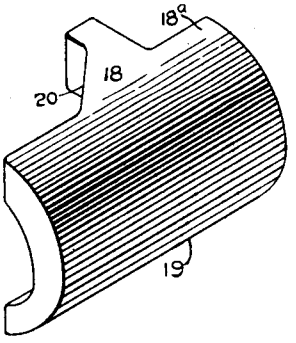


Fig. 11



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UNITED STATES PATENT OFFICE.

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

FRICTION DRAFT-RIGGING.

1,048,729. Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed May 9, 1910. Serial No. 560,118.

To all whom it may concern:

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing at 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.

The object of my invention is to provide a friction draft rigging of a strong, simple, efficient and durable construction, composed of few parts of economical manufacture.

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 by which I accomplish this object or result.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation, partly in central, vertical, 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 the broken line 3—3 of Fig. 2. Fig. 4 is a cross section on the broken line 4—4 of Fig. 3. Fig. 5 is a perspective view of the carrier or tie-plate. Fig. 6 is a detail, perspective view of the friction cylinder. Fig. 7 is a detail perspective view of the removable head or plate of the friction shell. Fig. 8 is a detail perspective view of the front follower. Fig. 9 is a detail perspective view of the draft yoke. Figs. 10 and 11 are detail perspective views of one of the friction shoes, looking from opposite sides. Fig. 12 is a detail perspective view of the wedge. Fig. 13 is a detail perspective view of one of the anti-friction rollers and Fig. 14 is a detail perspective view of one of the roller saddles.

In the drawing, 1, 1 are the center sills or other members of the car frame to which the draft rigging is applied, 2 the front or end sill, 3 stop members secured to the sills 1 by rivets 4 or other suitable means and against which the followers abut.

5 is the draw-bar and 6 the draft yoke secured thereto in the usual or any suitable manner.

7, 8 are the springs, the small one nesting within the larger.

10 is a longitudinally movable friction shell of oblong or rectangular cross section externally adapted to fit between the center sills 1 and having an integral follower acting member or shoulder 11 and spring inclosing member or case 12 and provided with two segmental circularly curved or cylindric friction faces 13, 13, the friction surfaces being, preferably each of the same radius, struck about centers 14, 15 spaced apart laterally, the friction shell having flat or straight intermediate portions or faces 16, 16 connecting the segmental cylindric friction faces 13, 13. The friction shell is also provided with transverse external strengthening ribs 17, 17 extending across its upright and horizontal external faces.

18, 18 are a pair of friction shoes having external segmental cylindric friction faces 19 in sliding frictional engagement with the internal segmental cylindric friction faces 13 of the friction shell. Each of the friction shoes 18 is preferably furnished with an extension 18^a at its inner end to give it a more extended frictional bearing or engagement with the internal friction face 13 of the friction shell. Each of the friction shoes is furnished with an inner wedge face 20 for coöperation with the corresponding wedge face 21 of the wedge 22 and the interposed anti-friction roller 23 and roller saddle 24. The roller saddle 24 has an extended flat wing or blade 25 loosely adjacent to the wedge face 20 of the friction shoe 19 and a flat blade or wing 26 loosely adjacent to the wedge face 21 of the wedge 22 and also connecting flanges 27 for engagement with the ends of the anti-friction rollers 23. The wings or blades 25, 26 thus give the roller saddle 24 an extended bearing at its end against the straight or flat connecting face 16 of the friction shell 10, thus preventing the saddle tilting or skewing and causing it always to remain in an upright position, and the roller 23 always at right angles to the draw-bar or line of draft. The wedge 22 has a curved shoulder 28 to aid in keeping the roller and saddle in proper position and the shoe 20 has a coöperating stop 28^a for the roller.

29 is the front follower interposed between the rear end of the draw-bar and the wedge 22 and adapted to engage the front stops or shoulders of the stop members 3. The oblong form of the friction shell in cross section and the spaced apart centers 14, 15 about which the segmental cylindric internal

friction faces 13, 13 of the friction shell are struck enables me to use friction shoes 20 and wedge 22 of relatively large size, thus giving the front end of the wedge an extended bearing against the follower 29 and enabling the follower to be made materially thinner and lighter without diminishing its effective strength.

As the friction shell is provided at each side with follower acting shoulders or members 11, 11 and thus enabled to dispense entirely with a separate piece rear follower as the [illegible] 11 of the friction shell are extended sufficiently for engagement with the rear stop shoulders of the stop members 3.

The spring inclosing member or section 12 of the friction shell is preferably cylindrical in form internally and externally and is made of just the size or diameter required for accommodating the larger spring 7, thus giving adequate depth or extent to the shoulders 11 of the friction shell for proper bearing against the rear stop shoulders.

At their rear ends, the springs 7, 8 bear against a removable head or plate 30 which is furnished with a boss 31 on its inner face for centering or supporting the rear end of the inner spring 8 and which fits in suitable guides or grooves 32 formed in the friction shell 10 at the rear end of its spring case member 12, the friction shell having a slot 33 in one side furnished with an enlargement 34 to accommodate the boss 31, and thus enable the head 30 to be removed and replaced when required. A rod or connection 35 extends through the springs, wedge 22 and removable plate 30, thus holding all the parts assembled within the friction shell and the springs under an initial tension or compression, preferably of one half inch or more or sufficient to automatically take up wear. The wedge 22 has a central recess 36 to receive the head 37 of the rod 35, which is furnished with a threaded nut 38 at its rear end.

To assemble the parts within the friction shell 10, the larger spring 7 is first inserted from the rear end of the friction shell, then the removable head or plate 30 is inserted in place and then the smaller spring is inserted through the opposite end of the friction shell, and then the friction shoes and wedge and connecting rod 35 are put in place; then the springs are initially compressed and the nut 38 applied, thus connecting all the parts.

As the spring 7 is of larger exterior diameter than the distance between the flat or parallel interior faces 16, 16 of the friction shell at the friction face end thereof, the spring 7 is put under a slight tension or compressed sufficiently to enable the plate 30 to be inserted and its boss 31 pass the end of the spring. And when the smaller spring 8, friction shoes, wedge and connecting rod 35 are applied, both springs are initially compressed preferably a half inch or more and then the screwing up of the nut 38 holds the smaller spring 8 and larger spring 7 both under an initial or preliminary compression sufficient to compensate for subsequent wear of the parts. After the parts are thus assembled, the inner spring 8, by its engagement with the projection or boss 31 on the removable head 30, locks said head in position and thus renders unnecessary any separate fastener or securing device to prevent the head [illegible] from slipping out of the shell 10 [illegible]sely.

As the follower acting shoulders 11 of the friction shell are at the rear ends of the friction surfaces 13, 13 and near the ends of the springs, and as no space is required for a separate piece rear follower, the front and rear stop shoulders may be placed relatively close together, thus economizing space.

The lower limb or member 6ª of the draft yoke 6 rests and reciprocates upon the carrier or tie-plate 32 which is secured to the flanges of the center sills 1 by short removable bolts 33 which pass through the lower flanges of the center sills.

I claim:—

1. In a friction draft rigging, the combination of a draw-bar, draft yoke and stop members, of a longitudinally movable friction shell of oblong cross section externally and having a pair of longitudinally extending internal, segmental, cylindric friction faces struck about centers spaced apart, said shell having intermediate connecting faces between its friction faces, friction shoes within the shell, a wedge, a pair of anti-friction rollers interposed between the wedge and the friction shoes said rollers extending transversely to said intermediate connecting faces of the shell and a spring within the friction shell acting against the friction shoes, said friction shell of oblong cross section enabling said rollers, wedges and shoes to be of relatively large size, substantially as specified.

2. In a friction draft rigging, the combination of a draw-bar, draft yoke and stop members, of a longitudinally movable friction shell of oblong cross section externally and having a pair of longitudinally extending internal, segmental, cylindric friction faces struck about centers spaced apart, said shell having intermediate connecting faces between its friction faces, friction shoes within the shell, a wedge, a pair of anti-friction rollers interposed between the wedge and friction shoes said rollers extending transversely to said intermediate connecting faces of the shell and a spring within the friction shell acting against the friction shoes, and roller saddles having wings fitting loosely between the wedge faces of the friction shoes and wedge said saddles hav-

ing end faces engaging said intermediate connecting faces of said shell substantially as specified.

3. In a friction draft rigging, the combination of a draw-bar, draft yoke and stop members, of a longitudinally movable friction shell of oblong cross section externally and having a pair of internal, segmental, cylindric friction faces struck about centers spaced apart, said shell having intermediate connecting faces between its friction faces, friction shoes within the shell, a wedge, a pair of anti-friction rollers interposed between the wedge and the friction shoes and a spring within the friction shell acting against the friction shoes, and roller saddles having wings fitting loosely between the wedge faces of the friction shoes and wedge, the end faces of said saddles engaging said intermediate connecting faces of said shell, substantially as specified.

4. In a friction draft rigging, the combination with a friction shell having a pair of internal segmental cylindric friction faces struck about centers spaced apart with intermediate connecting faces between its friction faces, of friction shoes within the shell having coöperating external friction faces, a wedge, anti-friction rollers interposed between the wedge and friction shoes and roller saddles having extended wings for engagement with the wedge and friction shoes, the end faces of said saddles cooperating with said intermediate connecting faces of said shell to prevent the saddles from tilting, substantially as specified.

5. In a friction draft rigging, the combination with a draw-bar, draft yoke and front and rear stops, of a friction shell having a pair of opposing curved friction faces spaced apart, said shell having intermediate connecting portions between said friction faces, friction shoes having external curved friction faces engaging said curved friction faces of the friction shell, a wedge acting to spread the friction shoes, a spring interposed between the rear head or end of the friction shell and the friction shoes, said friction shell having follower acting shoulders for engagement with one pair of said stops, said shell having a removable head plate at its rear end, provided with a boss on its inner face for engagement with an inner spring, and an inner spring engaging said removable head and serving to lock it in position, substantially as specified.

6. In a draft rigging, the combination with inner and outer springs, a shell inclosing said springs and a removable head for one end of said shell having a projection on its inner side for engagement with the end of the inner spring to support the spring and cause the spring to lock the removable head in position, substantially as specified.

7. In a draft rigging, a spring case having a slot and guides to receive a removable head at one end, and a removable head for said case having a projection on its inner side to support a spring and cause the spring to lock the head in position, substantially as specified.

8. In a draft rigging, having a wedge, a friction shoe and an anti-friction roller interposed between the shoe and wedge, a roller saddle having extended wings fitting loosely between the shoe and wedge, substantially as specified.

9. In a friction draft rigging, having a friction shell, a friction shoe, wedge and anti-friction roller interposed between the shoe and wedge, a roller saddle having means for engagement with the roller and an extended end face for engagement with the friction shell to prevent the saddle from tilting and cause it to hold the roller in proper position, substantially as specified.

JOHN F. O'CONNOR.

Witnesses:
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H. M. MUNDAY.