J. F. COURSON.

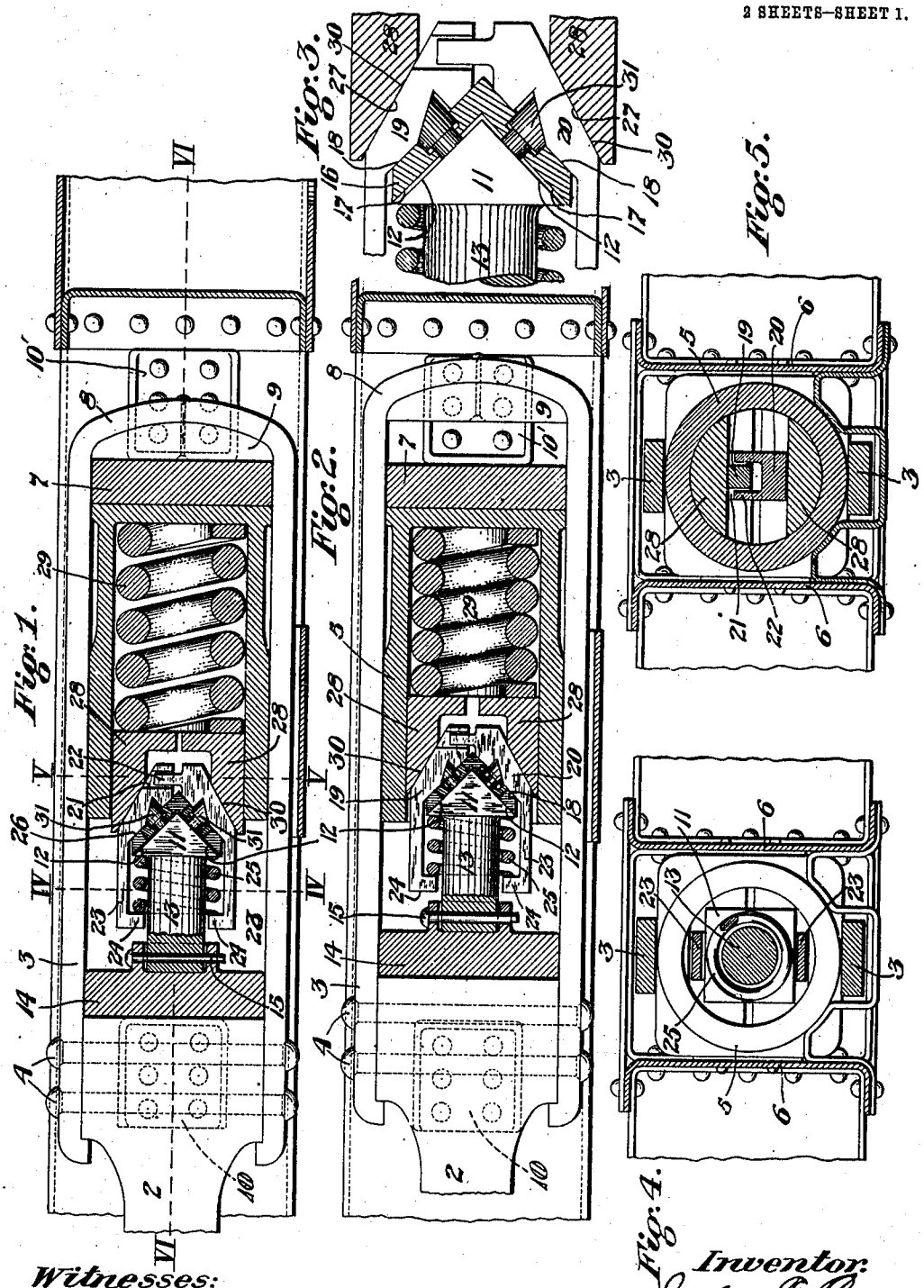
DRAFT GEAR.

APPLICATION FILED DEC. 24, 1909.

970,802.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.

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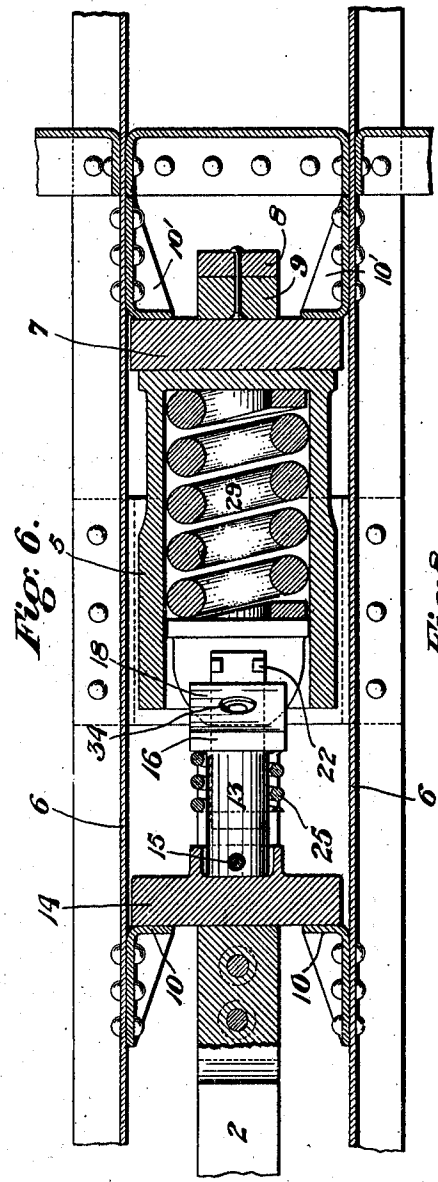


Fig. 6.

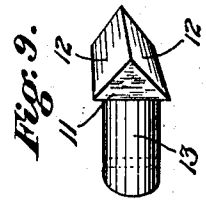


Fig. 9.

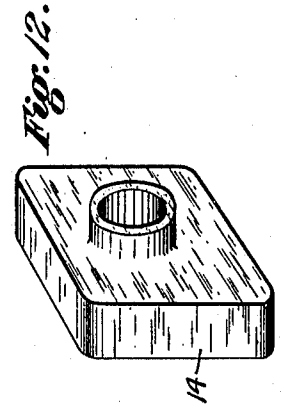


Fig. 12.


Fig. 8.

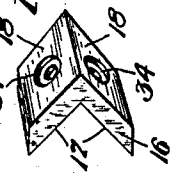


Fig. 10.

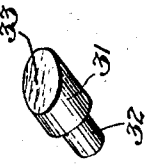


Fig. 13.

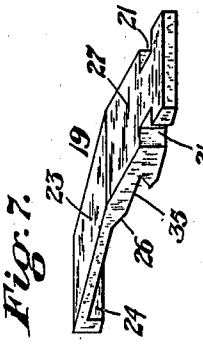


Fig. 7.

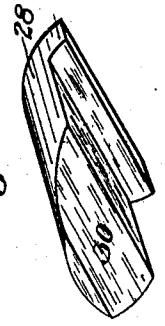


Fig. 11.

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# UNITED STATES PATENT OFFICE.

JOHN F. COURSON, OF PITCAIRN, PENNSYLVANIA.

## DRAFT-GEAR.

970,802. Specification of Letters Patent. **Patented Sept. 20, 1910.**

Application filed December 24, 1909. Serial No. 534,765.

*To all whom it may concern:*

Be it known that I, JOHN F. COURSON, a citizen of the United States, residing at Pitcairn, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Gear, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention consists of an improvement in friction draft gear for railway cars, etc., and it has for its object to provide a draft gearing of simple construction and high efficiency, and is designed to utilize the wedging and releasing qualities of wedge blocks between a central buffing member and surrounding friction member or members, having faces disposed at varying or differential angles.

The particular object of the present invention is to provide means for not only assisting in the release of the differential angle wedge blocks employed, but to insure their combined action and association in friction and release.

These objects are accomplished by the construction more fully hereinafter set forth.

In the drawings:—Figure 1 is a central vertical view of the complete draft gearing assembled, the parts being in extended position. Fig. 2 is a similar view, showing the parts under compression. Fig. 3 is an enlarged sectional detail view of the wedge block and its assembled operating parts. Figs. 4 and 5 are cross sectional views on the lines IV. IV, and V. V. respectively, of Fig. 1. Fig. 6 is a horizontal sectional view on the line VI. VI. of Fig. 1, the central wedge block stem, the wedge block shoe, and the end of the lower differential angle wedge block being shown in plan. Figs. 7 and 8 are detail views of the upper and lower differential angle wedge blocks respectively. Fig. 9 is a similar view of the central wedge block. Fig. 10 is a similar view of the wedge block shoe. Fig. 11 is a similar view of one of the friction blocks. Fig. 12 is a similar view of the forward follower plate. Fig. 13 is a similar view of one of the angle faced pins for holding the differential angle blocks.

In the drawings 2 represents the draw bar of a coupler fixedly connected with the yoke 3 by transverse bolts 4 in the manner customary in this art, said yokes embracing the casing or cylinder 5 at top and bottom as shown, the yokes and casing being located between the central sills, 6, 6.

7 is a bearing block or piece set against the rear end of cylinder 5, against the outer end of which block bears the rounded end 8 of strap 3 with an interposed filling block 9, preferably secured to the end of the strap as shown.

10 are the front stops which sustain the pulling effect of the draft gear, and impart it to the center sills 6, to which the said stops, of angle form, are secured by riveting or otherwise; rear stops 10′, 10′, acting to impart buffing strains in the same manner.

11 is the central wedge block having angularly disposed wedge faces 12, 12, tapering forwardly from its central back edge at about 45 degrees to the horizontal, more or less. Said wedge block 11 is provided with a forwardly extending central stem 13 fitting against and connected with a front follower plate 14 by a pin 15, as shown in Figs. 1 and 2.

16 is a wedge block shoe, the function of which will be hereafter described, and which is in angle form as shown, having inner faces 17, 17, corresponding to the slope of faces 12 and having corresponding outer faces 18, 18, of substantially the same slope, adapted to provide bearing faces for the differential angle wedge blocks, 19 and 20. Said angle blocks are substantially alike except that one of them, as the upper, is provided with one or more sockets 21, into which project one or more interlocking pins 22 of the companion block, the purpose of which construc-angle wedge blocks, 19 and 20. Said angle wedge blocks in substantially the same position longitudinally of the apparatus, preventing movement of one lengthwise independent of the other, while still allowing the wedge blocks, as controlled, to freely approach toward or recede from each other. Each wedge block 19 and 20 is provided with the forward extension 23 having a terminal flange 24, between which and the rear face of the wedge block 11 is inserted a coiled spring 25 tending to normally maintain forward tension on the differential angle wedge blocks to separate them.

Each angle block 19 and 20 is provided at its inner forward portion with sloping faces 26 of the same angle as the outer faces 18 of the wedge block shoe 16, of about 45 degrees more or less, while the outer rear portions of differential angle blocks 19 and 20 are

provided with additional wedge faces 27 of a more acute angle to the longitudinal center than faces 26, to accomplish the wedging action on the friction blocks 28, 28. Said blocks 28 are mounted within cylinder 5 as shown, bearing against the buffing spring 29 by their flanged ends and are beveled off at their inner front portions at the same angle as the outer faces 27 of the differential angle wedge blocks, providing contacting faces 30 therefor.

With the exception of the wedge block shoe 16, the construction above described is substantially similar to that shown and described in my prior application filed Feb. 8th, 1909, Serial #476,588.

In the present construction of apparatus, I provide the interlocking engagement above described for the differential angle wedge blocks, and the shoe 16 and also supplemental mechanism for assisting in and insuring the collapse of said blocks on release, and also insuring and assisting in the equal distribution of the wedging effect of the central wedge block. Said mechanism consists in the beveled or angle faced pins 31, having reduced stem extensions 32 at their rear ends and beveled off to provide bearing faces 33 at their outer ends, of an angle somewhat flatter than the outer faces 27, of the differential angle wedge blocks. Said pins are mounted for operation in receiving sockets 34, 34, extending through each side of the wedge block shoe 16, as clearly shown, so that when the pins are inserted in place their stem extensions 32 will bear against the faces 12 of wedge block 11 when the apparatus is in normal collapsed position, as in Fig. 1.

The under sides of the differential angle wedge blocks 19 and 20 are provided with faces 35 sloped to the angle of faces 33 of pins 31. By this construction when pressure is exerted against the wedge block 11 in buffing, the cylinder 5 is braced against rear stops 10′ and in pulling block 11 is braced against the front follower plate 14, to resist the surrounding portions. In either operation its faces 12 will force the pins 31 outwardly through their bearings and into the recesses in the under sides of the differential angle blocks and against the sloping faces or angles 35 thereof. This action throws the differential angle wedge blocks outwardly equally at each side to bring the faces 27 against faces 30 of the friction blocks 28, forcing them outwardly against the walls of cylinder 5 and against spring 29, in which position they are located to effect the further separation and binding of the friction blocks. As the impact of buffing or pulling is exerted through the differential angle wedge blocks against the friction blocks with increasing pressure, spring 29, is compressed and the frictional engagement rapidly increased, due to the spreading action of the angles 27 and 30. The faces 26, 18, 17 and 12 being materially more blunt and less tapered, upon release of pressure and relative movement longitudinally of wedge block 11 with relation to the differential angle wedge blocks upon separation therefrom of the wedge blocks, the pins 31 will immediately recede, allowing the differential angle wedge blocks to collapse and close inwardly on faces 18 of the wedge block shoe. This action slightly compresses spring 25, which, however, being comparatively much weaker than spring 29 will be easily effected and will at the same time tend to constantly draw the differential angle wedge blocks forwardly upon release of pressure.

The apparatus as thus constructed and operated, therefore provides for the prompt application of the wedging action equally by both differential angle wedge blocks and friction blocks; the equally prompt separation and release of friction upon release of either buffing or pulling pressure; it insures the equal spreading and release of the differential angle wedge blocks by means of the interposition of the independent angle-faced pins, and insures the maintenance of relationship between the blocks themselves and between them and the other parts by reason of their interlocking engagement.

The operation of the apparatus will be readily understood from the foregoing description.

The advantages result primarily in the great frictional contact pressure between the friction blocks and cylinder within a comparatively short range of longitudinal movement and the immediate and complete separation of the binding parts upon release of buffing or pulling pressure. The parts are easily assembled and their assemblage is facilitated by means of the interlocking engagement of the differential angle wedge blocks and bevel faced pins.

Having described my invention what I claim is:—

1. In a friction draft gear, the combination with the casing and the relatively movable draw bar; of friction blocks engaging the casing, a buffing block adapted to receive the impact of the draw bar having an angle-faced shoe, and differential angle wedge blocks interposed between the friction blocks and said shoe.

2. In a friction draft gear, the combination with the casing and the relatively movable draw bar; of friction blocks engaging the casing, a buffing block adapted to receive the impact of the draw bar having an angle-faced shoe, differential angle wedge blocks interposed between the friction blocks and said shoe, and relatively movable abutments mounted in said shoe, and engaging the differential angle wedge blocks.

3. In a friction draft gear, the combination with the casing and the relatively movable draw bar; of friction blocks engaging the casing, a wedge block, an angle-faced shoe therefor, differential angle wedge blocks between the friction blocks and said shoe, and relatively movable abutments mounted in said shoe adapted to engage the wedge block and the differential angle wedge blocks.

4. In a friction draft gear, the combination with the casing and the relatively movable draw bar; of friction blocks engaging the casing, a wedge block, an angle-faced shoe therefor, differential angle wedge blocks between the friction blocks and said shoe, and relatively movable abutments mounted in said shoe adapted to engage the wedge block and having sloping faces engaging the under sides of the differential angle wedge blocks.

5. The combination with the differential angle wedge blocks having inclined inner faces, of a wedge block and its angle-faced shoe, and relatively movable releasing pins for the differential angle wedge blocks mounted in said shoe and engaging the wedge block.

6. The combination with the differential angle wedge blocks, of a wedge block having a relatively movable angle-faced shoe, and means mounted in said shoe adapted to engage the wedge block and the differential angle wedge blocks to permit inward travel of the differential angle wedge blocks upon movement of the wedge block away therefrom.

7. The combination with the casing, friction blocks and buffing block; of differential angle wedge blocks between the friction blocks and buffing block, having interlocking portions for preventing independent longitudinal movement of either of said blocks.

8. The combination with the wedge block and the differential angle wedge blocks at each side thereof having flanged extensions, of a spring engaging the wedge blocks and said flanged extensions.

9. In a friction draft gear, the combination with the casing and the relatively movable draw bar; of friction blocks engaging the casing, a central wedge block, differential angle wedge blocks between the friction blocks and the central wedge block, and yielding means mounted on the central block engaging the differential angle wedge block.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. COURSON.

Witnesses:
C. M. CLARKE,
CHAS. S. LEPLEY.