

No. 865,391.

PATENTED SEPT. 10, 1907.

J. J. HOFFMAN.

FRICITION DRAFT GEAR.

APPLICATION FILED JULY 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

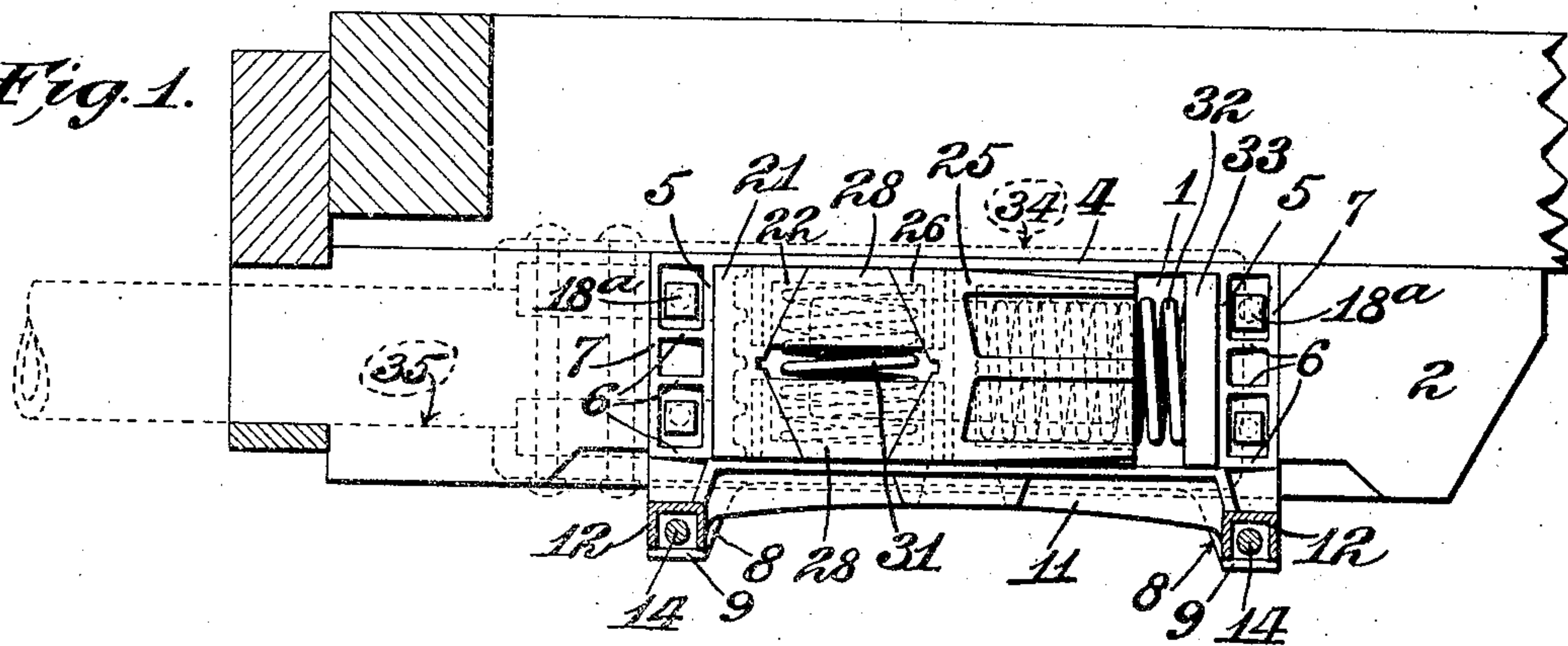


Fig. 2.

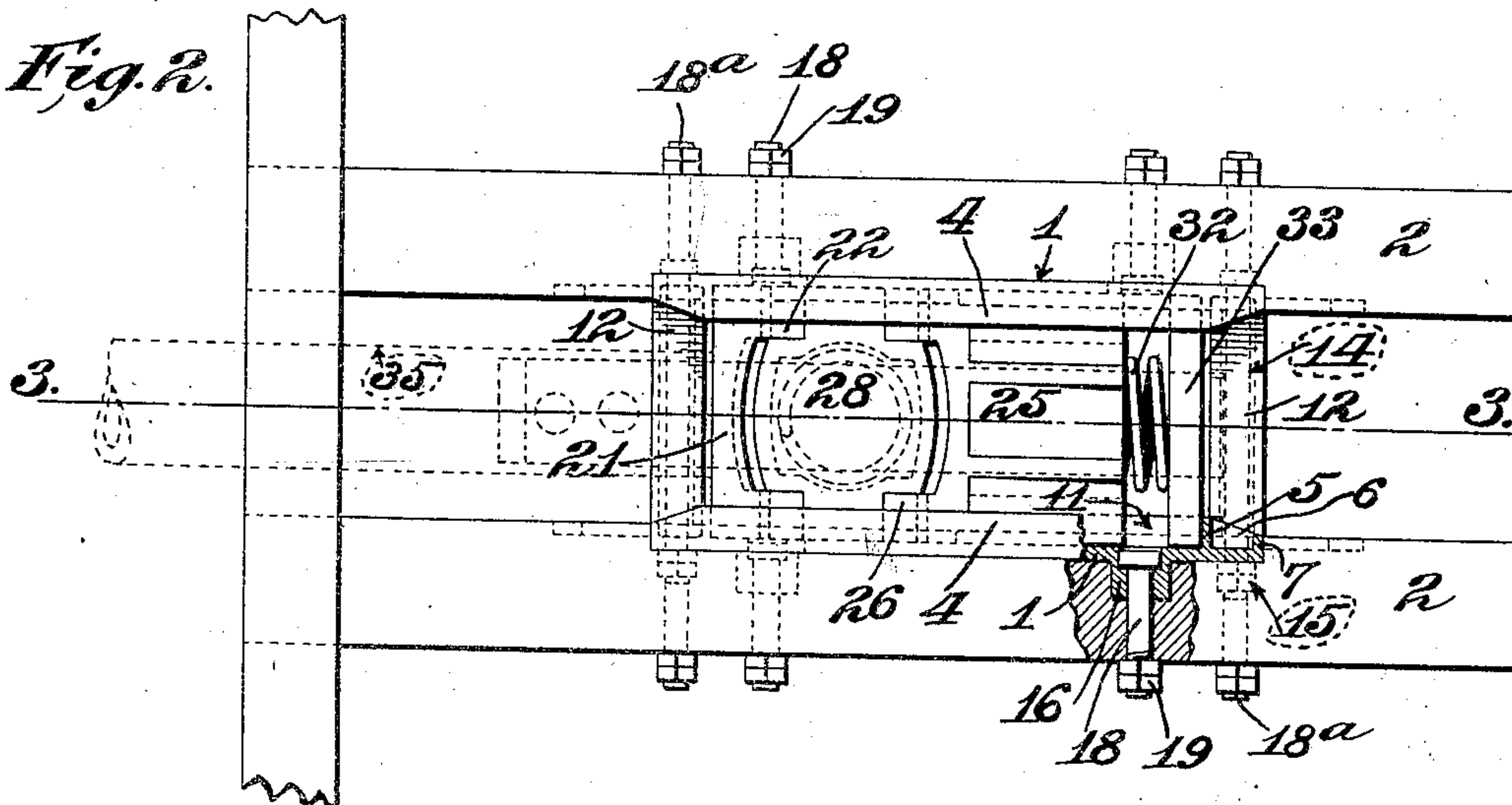
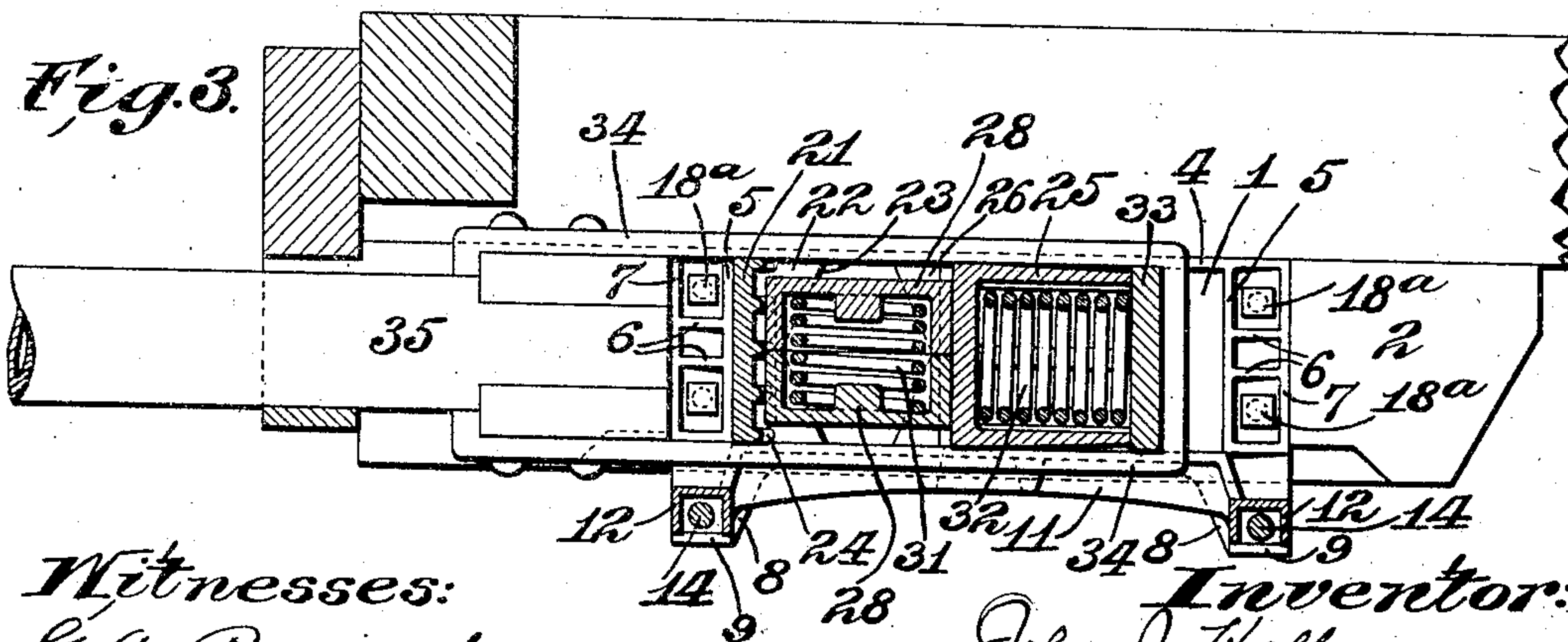


Fig. 3.



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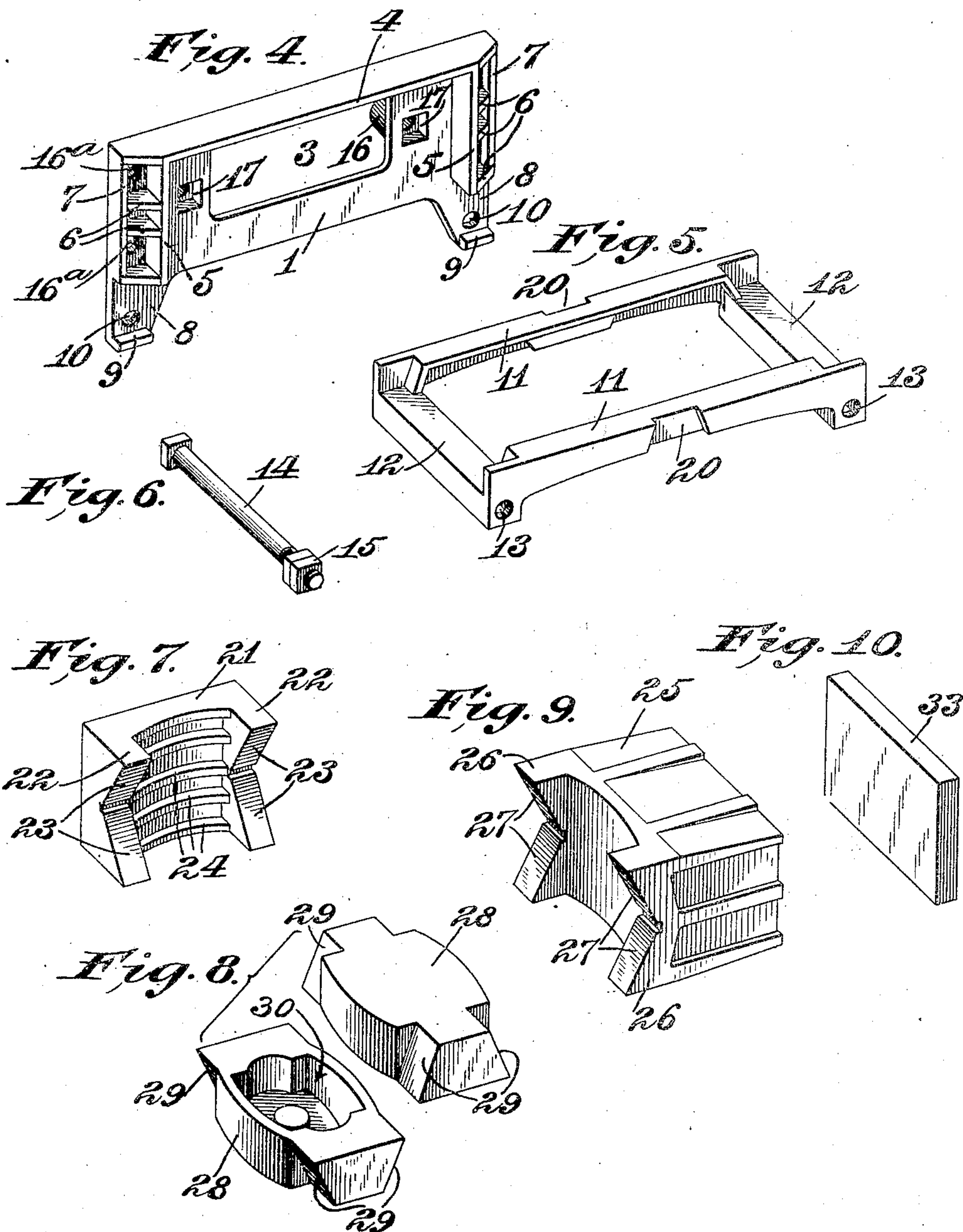
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FRICTION DRAFT GEAR.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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FRICITION DRAFT-GEAR.

No. 865,391.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed July 9, 1906. Serial No. 325,197.

To all whom it may concern:

Be it known that I, JOHN J. HOFFMAN, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Friction Draft-Gears, of which the following is a specification.

This invention relates to friction draft gears for railway cars and has for its principal objects to simplify the frictional working parts; to provide an improved carrier and guide for the working parts of the draft gear; and to attain certain other advantages hereinafter more fully set forth.

The invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a view partly in section and partly in elevation showing the working parts of the draft gear in normal position; and also showing the position of the drawbar and yoke in dotted lines; Fig. 2 is a top plan view with a portion of a sill in section; Fig. 3 is a vertical longitudinal section taken on the line 3—3 of Fig. 2, but showing the drawbar and yoke in side elevation; Fig. 4 is a detail perspective view of one of the cheek-plates; Fig. 5 is a detail perspective view of the carrier casting; Fig. 6 is a detail perspective view of the securing bolt; Fig. 7 is a detail perspective view of the friction follower-block; Fig. 8 is a detail perspective view of the intermediate laterally movable friction blocks; Fig. 9 is a detail perspective view of the friction box-casting; and, Fig. 10 is a detail perspective view of the follower-plate.

The guide and carrier for the draft gear comprises flanged cheek-plates 1 which are adapted to be secured to the draft sills 2 of a car. These cheek-plates are preferably castings formed with openings 3 to reduce their weight. A flange 4 is provided along the upper inner edge of each of the cheek-plates. Vertical flanges 5 are formed on the inner face of said cheek-plates near each end thereof and are suitably braced by webs 6 which terminate at outer ribs 7 as at the ends of the plates. Said flanges 5 serve as limit stops for the followers or movable abutments of the friction gear. Each of the cheek-plates 4 is also formed with downward extensions 8 at its ends having lugs 9 on the inner face thereof and also having perforations 10 therein. A carrier frame, preferably an integral casting having angular side members 11 and channel end members 12, is adapted to rest upon the lugs 9 on the cheek-plate extensions 8. The carrier frame is provided with perforations 13 which are adapted to register with the perforations 10 in the cheek-plate extensions 8. A securing bolt 14 is passed through said registering perforations and is threaded at its ends to receive locking nuts 15. The cheek-plates are pre-

erably formed with integral bosses or extensions 16 on their outer faces, that is, the faces adjacent to the draft sills. The bosses 16 are adapted to be set into suitable recesses in the draft sills, and have holes therethrough. The innermost portions of said holes are enlarged and squared to receive and prevent the rotation of the rectangular heads of securing bolts 18, which are passed through said holes in the bosses and alining holes in the draft sills. The heads of the bolts are received in the square depressions 17 which are of a sufficient depth to allow the bolt-heads to clear the inner face of the cheek-plates. Locking nuts 19 are fitted on the ends of the bolts 18. Perforations 16^a are also formed in the cheek-plates 1 for the reception of additional securing bolts 18^a. In order to readily place the carrier frame in position or to remove the same from the cheek-plates, notches 20 are formed in the side members 11. These notches are of a sufficient depth to clear the lugs 9 on the cheek-plate extensions 8 when the carrier frame is lifted between said cheek-plates. In placing the carrier frame in position, it is placed with the notches in alignment with the lugs 9 at either end of the cheek-plates and lifted until the side members 11 clear said lugs, and then moved longitudinally until the end members 12 rest upon the lugs 9. Then the perforations 10 and 13 are made to register and the securing bolts are placed in position.

The frictional working parts comprise a friction follower-block 21 having parallel side extensions 22 at its ends. The outer ends of the side extensions 22 are each formed with a reentrant angle to provide inclined faces 23, and the body of the block is preferably formed with strengthening ribs 24.

A box-casting 25 is mounted to slide longitudinally between the cheek-plates 1. This box-casting is formed with parallel side extensions 26 the ends of which have reentrant angles to form inclined faces 27 corresponding to the faces 23 on the follower block 21. Interposed between the follower-block 21 and the box-casting 25 are two vertically movable friction blocks 28. These friction blocks are counterparts whose ends are formed with inclined faces 29 which are adapted to abut against and frictionally engage said inclined faces 23 and 27 on the follower-block and box-casting, respectively. Said vertically movable friction blocks are hollowed out, as indicated at 30 in Fig. 8, to provide seats for a compression spring 31. The tendency of said spring is to normally force the friction blocks apart.

The movable box-casting 25 is adapted to receive a spring 32. One end of the spring 32 abuts against the inner face of the front wall of the box-casting, and the opposite end of said spring abuts against a follower-plate 33 which is mounted to slide longitudinally between the cheek-plates. Normally the follower-plate

33 bears against its limit stops 5 on the cheek-plates 1, at a short distance beyond the end of the box-casting. The normal position of the friction follower-block 21 is also against its limit stop on the cheek-plate, both said block and said follower-plate being normally kept against their respective stops by the spring 32.

As shown in dotted lines in Figs. 1 and 2, and in full lines in Fig. 3, a yoke 34 of any suitable construction is looped around the working parts of the gear. The ends of the yoke are riveted to the drawbar 35 in the usual manner. Normally the looped end portion of the yoke engages the follower-plate 33, and the end of the drawbar engages the friction follower-block 21.

In the operation of the draft gear, a pull upon the drawbar will be transmitted through the yoke to the follower-plate 33, which will tend to compress said spring 32. A strong pull upon the drawbar will cause the follower-plate 33 to compress the spring and abut against the end of the box-casting 25. The force of the continued pull is transmitted through said box-casting and the friction blocks 28 to the follower-block 21 which is held against movement by the limit stops on the cheek-plates. In consequence of the friction faces of the friction-blocks 28, being inclined, the longitudinal stress thereon has a transverse component which tends to force said friction blocks towards each other against the force of their spring 31. In effecting this movement the blocks are made to slide along the adjacent faces of the box-casting and of the follower-block, which action produces a great amount of friction. When the drawbar is relieved from the pulling stress, the springs 31 and 32 will restore the working parts to normal position.

By the construction and arrangements herein described, a simple and effective mechanism is produced. All undue pulling stress is initially taken up by the follower 33 and finally by the friction blocks 28 and spring 31, the action being controlled by the angularity of the inclined friction surfaces which can be varied to suit different conditions.

The buffing action of the gear is substantially the same as the draft action, except that the follower-plate 33 serves as the abutment and the friction follower-block 21 is initially moved, and moves with it the box-casting and the interposed friction-blocks 28.

The construction and arrangement of the cheek-plates and carrier frame herein described permits the carrier frame to be quickly removed and replaced, when it is desired to repair or replace parts of the mechanism or to interchange parts of one angularity with corresponding parts of different angularity.

Obviously, my device is capable of considerable modification within the scope of my invention, and therefore I do not wish to be limited to the specific construction shown and described.

What I claim as my invention and desire to secure by Letters Patent is:

1. A guide and carrier for draft gear comprising cheek-plates having upper flanges, end flanges constituting limit stops, and supporting lugs, a carrier frame adapted to rest upon said supporting lugs between said cheek-plates, said carrier frame comprising integral angular side bars and channel end bars, said cheek-plates and said carrier frame being provided with alining perforations, and bolts for securing said carrier frame to said cheek-plates, said bolts being passed through said alining perforations.

2. A guide and carrier for draft gear comprising cheek-plates having top flanges, end flanges provided with reinforcing ribs and constituting limit stops, and depending extensions having supporting lugs formed thereon, and also provided with perforations, a carrier frame adapted to rest upon said supporting lugs, said carrier frame comprising integral angular side bars and channel end bars, said side bars being provided with perforations near the ends in alinement with the channel of said end bars, and adapted to aline with the perforations in said cheek-plate extensions, and bolts adapted to be passed through said alining perforations to secure said carrier frame to said cheek-plates.

St. Louis, Missouri, July 6, 1906.

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Witnesses:

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