J. F. COURSON.

DRAFT GEAR.

APPLICATION FILED AUG. 27, 1914.

1,162,574.

Patented Nov. 30, 1915.

2 SHEETS—SHEET 1.

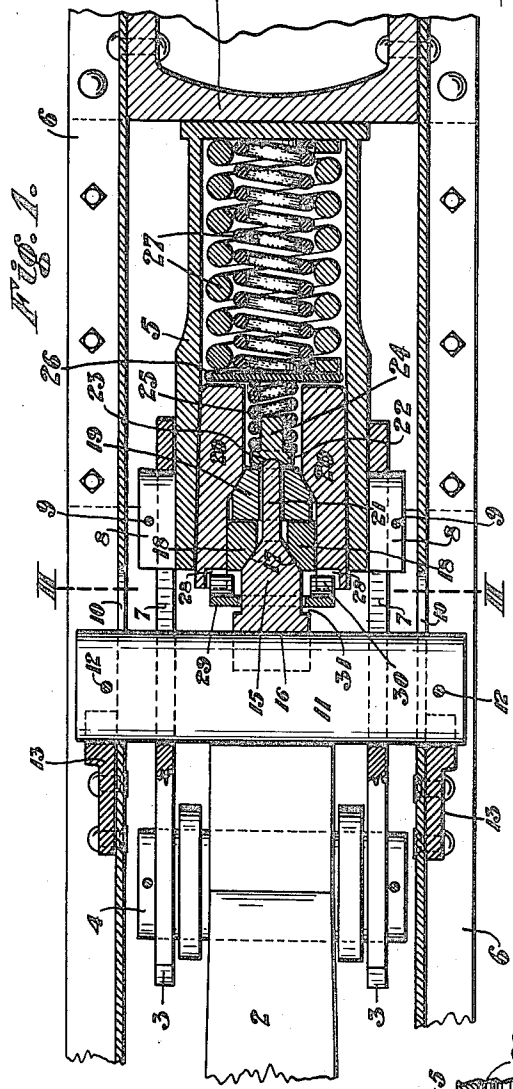


Fig. 1.

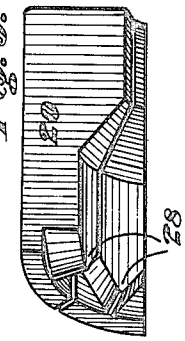


Fig. 5.

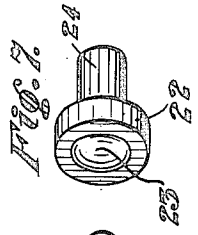


Fig. 7.

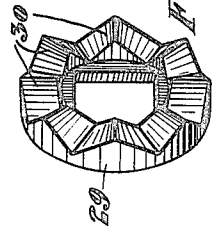


Fig. 4.

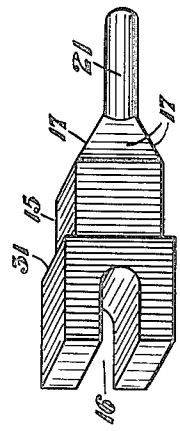


Fig. 6.

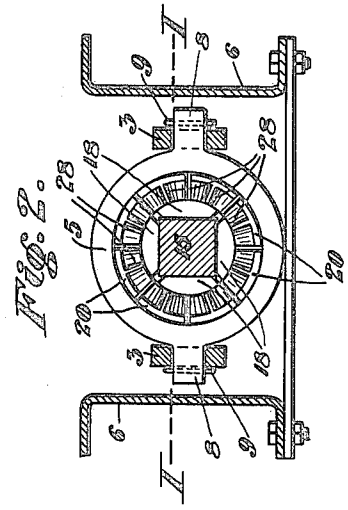


Fig. 2.

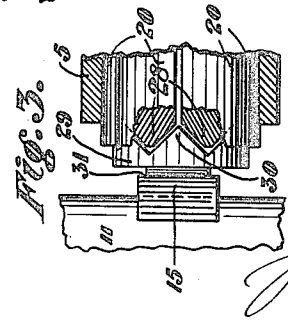


Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 8.

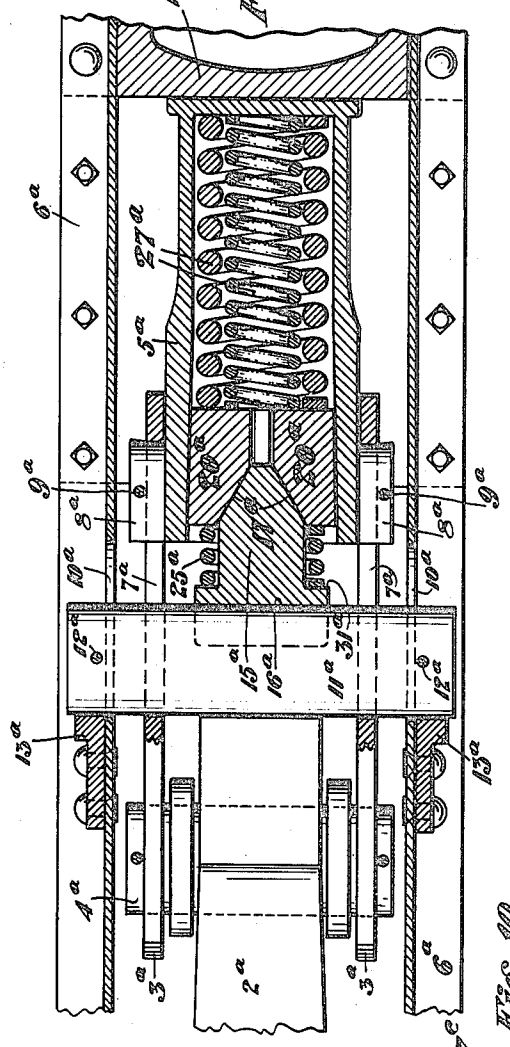


Fig. 9.

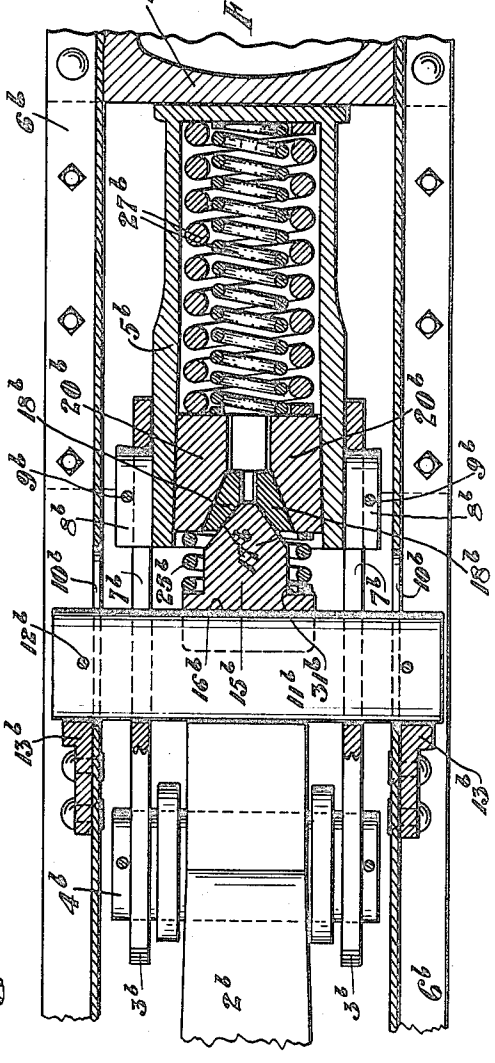
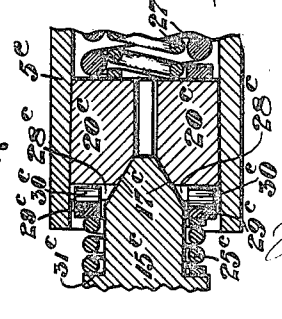


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN F. COURSON, OF PITCAIRN, PENNSYLVANIA.

DRAFT-GEAR.

1,162,574. Specification of Letters Patent. Patented Nov. 30, 1915.

Application filed August 27, 1914. Serial No. 858,811.

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-Gears, of which the following is a specification.

My invention consists of an improvement in draft gears, of the class using springs and friction shoes, in connection with centrally arranged expanding wedge mechanism, operable upon buffing or pulling, to effect expansion of the friction shoes within an embracing cylinder or casing.

The particular object in view is to provide, in a gear of this type, means for effecting the resumption of the parts to normal position, and the maintenance of the parts in a free open condition.

In the construction embodying the invention as herein presented, the specific application of the invention is to the central expanding wedge or pressure bar for releasing it from binding engagement with its co-acting parts.

These objects are accomplished, in certain preferred forms of the apparatus, more fully hereinafter described, as illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal sectional view through the complete gear as assembled, the parts being shown in extended position, and indicated generally by the section line I. I. of Fig. 2. Fig. 2 is a transverse sectional view of the gear, taken on the line II. II. of Fig. 1. Fig. 3 is a detail view, partly in section, showing the arrangement of the spacing ring for the shoes. Fig. 4 is a perspective detail view of said ring, detached. Fig. 5 is a similar view, showing two of the friction shoes in their assembled position. Fig. 6 is a similar view of the central wedge or pressure bar. Fig. 7 is a similar view of the spring bearing stud or terminal for the inner end of said bar. Fig. 8 is a horizontal sectional view, similar to Fig. 1, showing a simplified construction and adaptation of the invention to a central expanding wedge directly engaging the friction shoes. Fig. 9 is a similar view showing the same construction, but with supplemental expanding wedges interposed between the central wedge and the friction shoes. Fig. 10 is a sectional detail view showing a further modified construction.

In the drawings, 2 represents the drawbar of a coupler fixedly connected with the bars or links 3, 3, by a transverse bolt or key 4, the links 3 extending rearwardly and engaging lugs 8 of the casing or cylinder 5 at each side, between the center sills 6, 6. The links 3 are slotted, as indicated at 7, embracing the lugs 8 and being retained in position by cotter pins 9. The center sills 6 are similarly slotted, as indicated at 10, and through said slots and slots 7 of links 3 extends the follower cross bar 11, being retained against longitudinal movement by bolts or cotter pins 12. Follower 11 bears forwardly against front stops 13 secured to the sides of the center sills, as shown, adapted to sustain the pulling effect of the draft gear and impart it to said sills, and rear stop 14, mounted between the center sills, acts as an abutment to receive the rear end of the casing 5.

The central wedge block or buffing pressure bar 15 bears directly against the rear central portion of follower 11, and is preferably provided with a transverse slot 16 between upper and lower cheeks, as shown in Fig. 6, for such purpose.

The central wedge block has angularly disposed wedge faces 17 of pyramidal or other suitable arrangement corresponding in number and degree of slope to the inner faces of expanding wedges 18, said faces tapering inwardly toward the center at such an angle toward the horizontal as to produce a maximum expansion with resulting free release.

In the construction shown in Fig. 1, a supplemental expanding wedge block 19, in abutting engagement with blocks 18, is provided with outer wedge faces engaging corresponding wedge faces on the inner sides of friction shoes 20 adapted to be inserted by the wedge mechanism and to assist in forcing the shoes 20 into frictional engagement with the interior surface of the casing 5, as will be readily understood. The central wedge 15, as is obvious, is of the "floating" type, being unconnected with and free of restraint by any connection with the rear portion of the gear.

Wedge blocks 18 and 19 are so constructed as to provide a central opening, through

which extends the rear stem 21 of wedge block 15 adapted to seat against the stud 22 and within the recess 23 thereof, said stud preferably having a rearwardly extending stem 24 for nesting within the releasing spring 25. Spring 25 seats against the front face of a transverse plate 26, which in turn bears against the front end or ends of spring or springs 27, mounted within the rear portion of the casing and bearing by their ends against its inner end in a well-known manner.

In normal position, as shown, spring or springs 27 being expanded, upon release of the gear, either in buffing or pulling, spring 25 operates to thrust stud 22 forwardly, pushing stem 21 and central wedge block 15 fowardly to a limited extent, sufficient to release its binding engagement with the coacting wedge mechanism. By this means, upon release of pressure, the parts are separated sufficiently to avoid binding or sticking.

Upon the closing of the gear, in pulling, the casing 5 will be drawn with its contents forwardly against the central wedge 15 resisted by follower 11, effecting expansion of the friction-creating mechanism, while in buffing rearward movement of drawbar 2 thrusts wedge 15 inwardly by follower 11, effecting the same result. In either case, spring 25 is preliminarily compressed to the desired degree, being lighter than the main spring 27, allowing of lost motion to be absorbed before actual expanding by the central wedge occurs, and thereafter, upon inward movement of the friction shoes 20 and the assembled parts, or outward movement of the casing, the main springs will be compressed through plate 26.

Upon releasing, outward movement of the spring 25 will effect the release of the central wedge and collapsing of the friction-creating mechanism, facilitating its forward travel to normal loose condition.

For the purpose of maintaining the several friction shoes 20 in spaced relation around the interior of the casing, each shoe is provided with a forwardly extending wedge-shaped terminal 28, and in front of the assembled friction shoes is a ring 29 embracing the central wedge and also provided with corresponding inwardly extending spacing wedges 30. These wedges, projecting between the faces of wedges 28, serve to maintain them in proper relative position annularly. The ring 29 has a limited range of movement longitudinally of central wedge 15, or the wedge has a corresponding range of movement with relation to the ring, inwardly of a limiting abutment or shoulder 31 of the wedge.

In Fig. 8, I show a modified or simplified construction embodying the invention, in which the working parts operable to produce the resisting friction within the cylinder 5^a are limited to a plurality of friction shoes 20^a within the casing, having forward angularly disposed wedge faces confronting the wedge faces 17^a of the central wedge 15^a. Said wedge in other respects as to its construction, mounting and operation is substantially the same as wedge 15, except that spring 25^a is interposed directly between it and the friction shoes 20^a, and operates to extend the wedge upon release of pressure, effecting loosening or collapsing of the friction shoe members.

The construction otherwise, the several parts and their mounting, is substantially the same as above described, and referred to by corresponding numerals with the exponent "a."

Fig. 9 illustrates a somewhat similar modified or simplified construction, in which the central wedge 15^b engages wedge members 18^b interposed between the central wedge and the friction shoes 20^b. The spring 25^b is applied and operates in the same manner as in Fig. 8, the several other parts being identified by corresponding numerals with the exponent "b."

In Fig. 10 I show a further modified construction in which the friction shoes 20^c within the casing 5^c are provided at their forward ends with tapered projections 28^c and a ring 29^c having rearwardly extending interfitting tapered projections 30^c engaging therewith, is mounted on the central expanding wedge 15^c. In such construction, the supplemental releasing spring 25^c bears inwardly against the front of said ring, insuring its placement toward the friction shoes.

The construction and operation of the invention will be readily understood from the foregoing description. It greatly facilitates the action of the gear in releasing and in insuring maintenance of the relative position of the parts.

The invention may be changed or modified in construction or detail arrangement by the skilled mechanic, but all such changes are to be considered as within the scope of the following claims.

What I claim is:

1. In a friction draft gear having a casing, a plurality of friction shoes within the casing having forwardly extending radially divided wedge faces, and a central expanding wedge; a spacing device for the friction shoes carried by the central expanding wedge provided with rearwardly extending wedges operable to engage the wedge faces of the friction shoes.

2. In a friction draft gear, the combination with the casing and the relatively movable drawbar, of friction shoes engaging the casing having forwardly extending tapered spacing projections, a central expanding

wedge operable to impart lateral movement to the friction shoes, and a ring mounted on the central expanding wedge having rearwardly extending tapered projections interfitting with said spacing projections.

3. In a friction draft gear having a casing, a plurality of friction shoes within the casing having forwardly extending radially divided wedge faces, and a central expanding wedge; a spacing device for the friction shoes carried by the central expanding wedge provided with rearwardly extending wedges operable to engage the wedge faces of the friction shoes, and a releasing spring interposed between and positively engaging the spacing device and central expanding wedge respectively.

4. In a friction draft gear having a casing, a plurality of friction shoes within the casing, a main spring bearing against the rear end of the casing and having a follower engaging the inner ends of the friction shoes, and a central expanding wedge provided with an extended stem; a releasing spring interposed between the follower and the end of said stem.

5. In a friction draft gear having a casing, a plurality of friction shoes within the casing, a main spring bearing against the rear end of the casing and having a follower engaging the inner ends of the friction shoes, and a central expanding wedge provided with an extended stem; a releasing spring interposed between the follower and the end of said stem and provided with a bearing stud engaging the end of the stem.

6. In a friction draft gear, the combination with the car framing, a transverse follower slidably mounted therein, a casing, and a relatively movable drawbar; of friction shoes engaging the casing and having inner wedge faces and a central expanding wedge operable to exert expanding pressure against the wedge faces of the friction shoes by its rear portion and having lateral cheeks providing a transverse slot embracing and engaging the follower.

7. In a friction draft gear, the combination with the car framing, a transverse follower slidably mounted therein, a casing, and a relatively movable drawbar; of friction shoes engaging the casing and having inner wedge faces, a central expanding wedge engaging the friction shoes by its rear portion and having lateral cheeks providing a transverse slot embracing and engaging the follower, and a releasing spring inserted between and directly engaging the friction shoes and wedge.

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

JOHN F. COURSON.

Witnesses:
T. B. HUMPHRIES,
C. M. CLARKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."