J. F. COURSON.

DRAFT GEAR.

APPLICATION FILED DEC. 18, 1916.

1,237,757.

Patented Aug. 21, 1917.

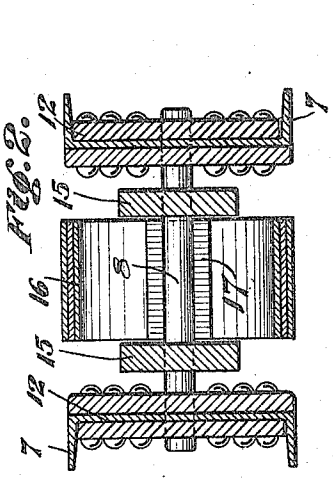

Fig. 2.

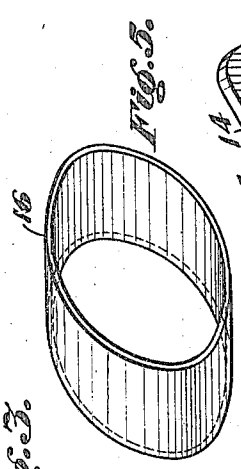

Fig. 5.

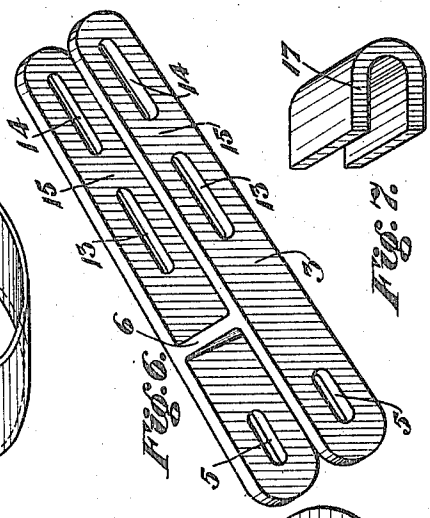

Fig. 6.

Fig. 7.

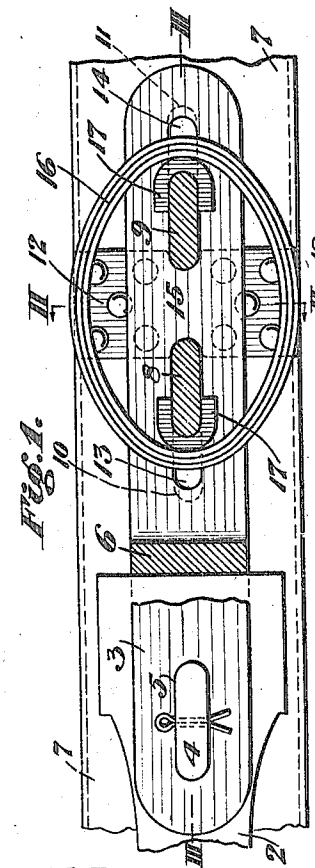

Fig. 1.

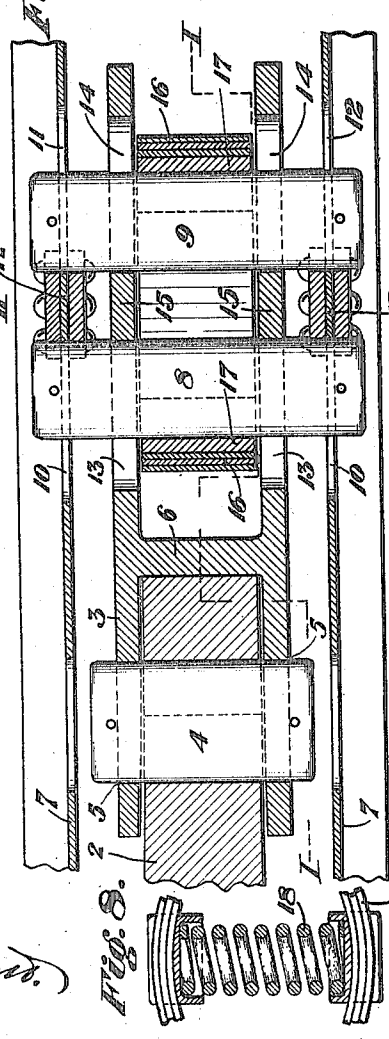

Fig. 3.

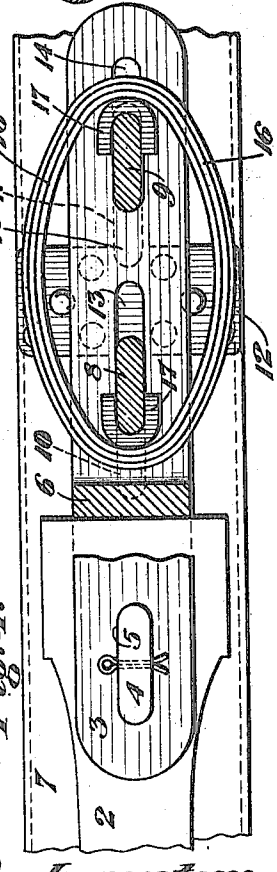

Fig. 4.

Fig. 8.

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UNITED STATES PATENT OFFICE.

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DRAFT-GEAR.

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To all whom it may concern:

Be it known that I, JOHN F. COURSON, a citizen of the United States, residing at 424 Third street, 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 is an improvement in draft gears, and is designed to provide for absorption of the shocks of buffing and pulling strains by means of an annular spring. Such spring is so mounted within a suitable framework as to be elongated in one or the other of two opposite directions whereby the sides of the spring are changed in position in a direction opposite to their resilient tendency and with a steadily increasing resistance proportioned to the strain, effecting a resulting reaction and desirable resistance.

One preferred form of the invention is shown in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical sectional view through a complete gear as assembled, in normal extended position, indicated by the line I, I, of Fig. 3.

Fig. 2 is a cross section on the line II, II, of Fig. 1.

Fig. 3 is a horizontal section on the line III, III of Fig. 1.

Fig. 4 is a view similar to Fig. 1 showing the gear in compression, due to buffing.

Fig. 5 is a detail perspective view of the annular spring.

Fig. 6 is a similar view of the drawbar shackle frame.

Fig. 7 is a similar view of one of the key bearing caps.

Fig. 8 is a detail view, partly broken away, showing a modified construction utilizing a supplemental spring.

In the drawings, 2 represents the drawbar of a coupler connected with the front end portions of a double-sided shackle frame 3 by a transverse bolt or key 4 engaging holes 5 thereof. The sides of frame 3 are connected by a cross bar 6 against which bears the rear end of drawbar 2 and the frame is mounted between the center sills 7, 7, upon transverse keys or bolts 8, 9, which in turn extend by their ends through slots 10, 10, and 11, 11, of the center sills. Slots 10 and 11 extend forwardly and backwardly beyond intervening reinforced bearing portions 12 of the center sills against which keys 8 and 9 bear, and which resists key 8 in buffing and key 9 in pulling under the strain of the annular spring in one direction or the other. Shackle frame 3 is likewise provided with slots 13, 13, and 14, 14, which extend forwardly and backwardly beyond intervening bearing portions 15, 15, which also engage keys 8 and 9, pulling key 8 forwardly in pulling and pushing key 9 rearwardly in buffing. As will be seen slots 10, 11, 13 and 14 are of ample length to provide clearance for full movement of the keys.

The active shock absorbing element of the gear is an annular spring 16 of one or more continuous bands of suitable resilient metal, as steel, and which is preferably of oval form, as shown in Figs. 1, 4 and 5. Said spring embraces keys 8 and 9 the keys preferably having U-shaped bearing thimbles or shoes 17 surrounding their outer edges as shown, and providing ample bearing surface for the spring at each inner end portion.

If desired, a supplemental compression spring 18 may be inserted between the opposite sides of spring 16^a as in Fig. 8, so as to reinforce it and supplement its resistance against collapsing strains.

In action, bearings 15 of frame 3 thrust key 9 backwardly in buffing, key 8 remaining stationary as resisted by bearings 12 and providing a stop for the front loop of spring 16. Backward movement of key 9 tends to elongate the spring as in Fig. 4 bringing its sides toward each other, and with a counteracting resistance which increases with the strain of buffing. In the same manner bearings 15 thrust key 8 forwardly in pulling, key 9 remaining stationary against bearings 12 and providing a stop for the rear loop of the spring, which is elongated in the same manner with corresponding resistance. In either movement the action is the same, and with either the annular spring alone, or reinforced as in Fig. 8, the resistance to either buffing or pulling strains is very great, especially as the sides of the spring approach parallelism.

The construction and operation of the gear will be readily understood from the foregoing description, and it will be found to provide a simple, economical and highly efficient means for exerting great resistance.

What I claim is:

1. A draft gear consisting of a slotted frame adapted to be connected to a drawbar or the like, abutments external of the frame,

keys extending through the slotted frame and engaging said abutments, and a spring embracing said keys.

2. In combination with fixed abutments, a longitudinally movable frame provided with bearing portions between clearance openings, a pair of transverse keys extending at each side of said bearing portions through said openings and adapted to engage said abutments, and an annular spring embracing said keys.

3. In combination with center sills having bearing abutments between front and rear clearance openings, a draw bar, a frame connected with the draw bar and having bearing portions between front and rear clearance openings, a pair of transverse keys extending through all of said clearance openings and engaging said bearing portions and abutments respectively, and an annular spring embracing said keys between the sides of said frame.

4. In combination with center sills having bearing abutments between front and rear clearance openings, a draw bar, a double sided frame connected with the draw bar and having bearing portions between front and rear clearance openings, a pair of transverse keys extending through all of said clearance openings and engaging said bearing portions and abutments respectively, and an annular spring embracing said keys between the sides of said frame.

5. In combination with center sills having bearing abutments between front and rear clearance openings, a draw bar, a double sided frame connected with the draw bar and having bearing portions between front and rear clearance openings, a pair of transverse keys extending through all of said clearance openings and engaging said bearing portions and abutments respectively, bearing thimbles on the outer middle portions of said keys, and an annular spring embracing said keys and thimbles between the sides of said frame.

6. In combination with center sills having bearing abutments between front and rear clearance openings, a draw bar, a double sided frame connected with the draw bar and having bearing portions between front and rear clearance openings, a pair of transverse keys extending through all of said clearance openings and engaging said bearing portions and abutments respectively, an annular spring embracing said keys between the sides of said frame, and a supplemental compression spring between the opposite sides of said annular spring.

7. In a gear, a pair of separable keys, intervening bearings therefor, means for moving one key away from the other, and an annular spring embracing said keys.

8. In a gear, a pair of separable keys, intervening bearings therefor, a frame engaging the inner portion of each of said keys and operable to move one away from the other, and an annular spring embracing said keys.

9. In a gear, a pair of separable keys, intervening bearings therefor, a drawbar, a frame connected to the drawbar engaging the inner portion of each of said keys and operable to move one away from the other, and an annular spring embracing said keys.

10. In a gear, a continuous annular spring, a pair of separable tension exerting members extending through the spring, intervening resisting abutments for said members, and means for moving one of said members away from the other to exert tension on the spring.

11. In a gear, a continuous annular spring, a pair of separable tension exerting members extending through the spring, intervening resisting abutments for said members, a drawbar, and a frame connected to the drawbar having portions engaging between said members for moving one away from the other to exert tension on the spring.

In testimony whereof I hereunto affix my signature.

JOHN F. COURSON.