J. F. COURSON.

DRAW GEAR.

APPLICATION FILED FEB. 21, 1910.

**1,006,633.** **Patented Oct. 24, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.

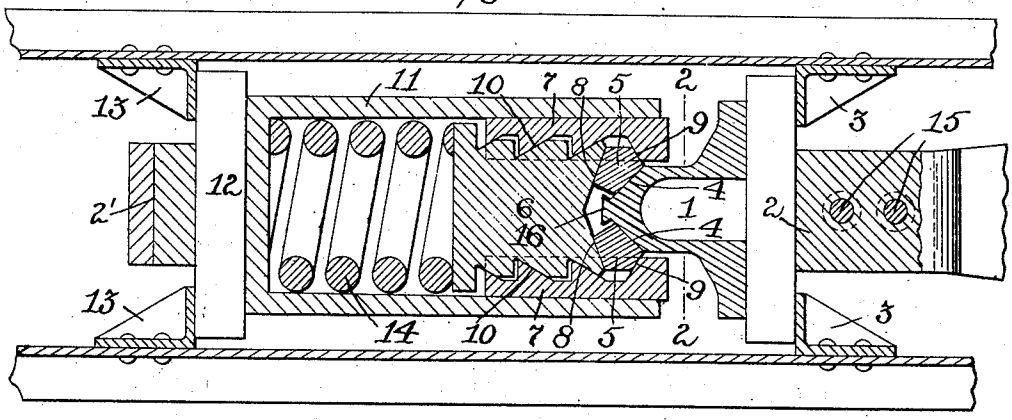



Fig. 2.

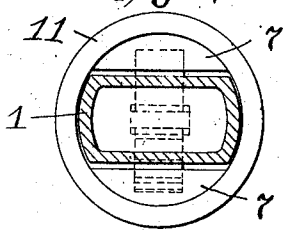



Fig. 3.

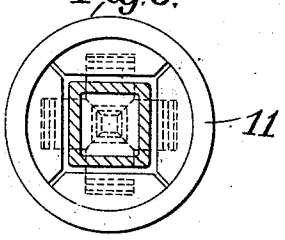



Fig. 4.

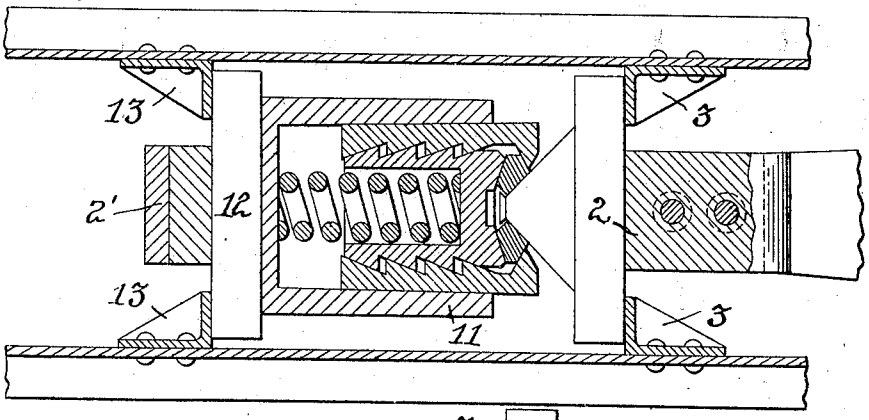
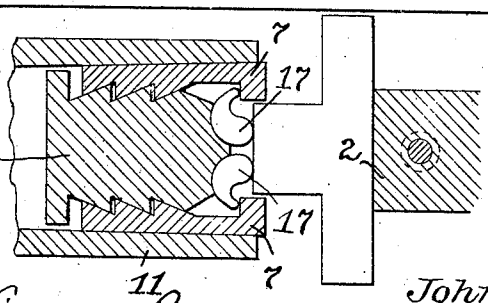



Fig. 5.

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**1,006,633.**

Patented Oct. 24, 1911.

2 SHEETS—SHEET 2.

Fig. 4a

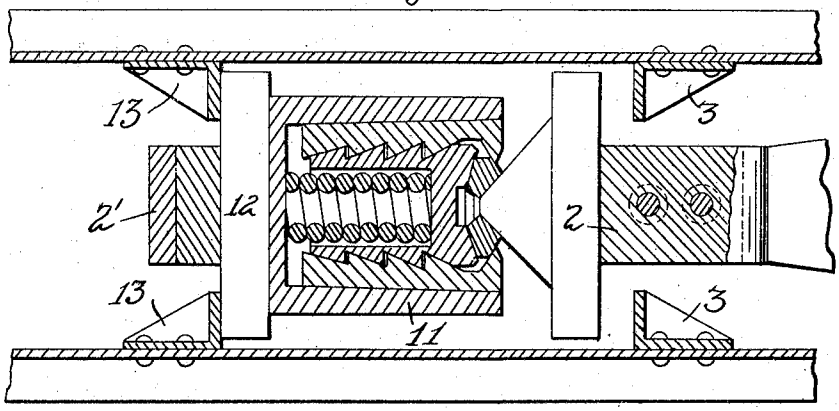



Fig. 8.

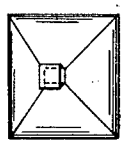


Fig. 6.

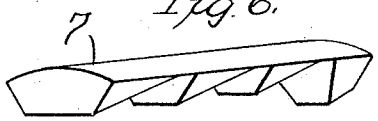



Fig. 9.

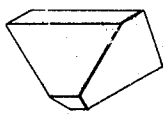
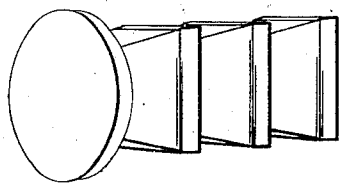


Fig. 7.



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# UNITED STATES PATENT OFFICE.

JOHN F. COURSON, OF PITCAIRN, PENNSYLVANIA.

## DRAW-GEAR.

1,006,633. Specification of Letters Patent. Patented Oct. 24, 1911.

Application filed February 21, 1910. Serial No. 545,132.

*To all whom it may concern:*

Be it known that I, JOHN F. COURSON, citizen of the United States, residing at Pitcairn, Pennsylvania, have invented certain new and useful Improvements in Draw-Gears, of which the following is a specification.

My present invention is an improvement upon the form of draw gear disclosed in Letters Patent of the United States granted to me August 17, 1909, #931,682, and it consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a sectional view through a draw gear apparatus embodying my invention; Fig. 2 is a cross sectional view on line 2—2 of Fig. 1; Fig. 3 is a cross sectional view similar to Fig. 2 of a modification in which four outer friction blocks are used instead of two; Fig. 4 is a view of another form of my invention adapted to go into the short space now occupied by the buffing spring in the wooden car construction. Fig. 4ª is a view similar to Fig. 4 with the parts thereof in the closed position due to buffing or pulling. Fig. 5 is a view of another form. Figs. 6, 7, 8 and 9 are views of details.

Referring to Figs. 1 and 2, 1 indicates the buffing block which receives the pressure or blow from the draw bar 2, this buffing block being arranged to contact by its portion 2′ with stops 3 on the frame during pulling strains. At its inner end the buffing block is tapered, presenting inclines 4 bearing on corresponding inclines of wedge blocks 5 which are interposed between the wedge block 6 and the friction blocks 7, having for this purpose inner or rear inclined faces 8 bearing on corresponding inclines on the centrally arranged wedge block 6 and inclines on their end or outwardly directed faces 9 bearing on corresponding inclines of the friction members 7. There may be any desired number of the friction blocks 7 located at different points about the wedge member 6, and these friction members 7 have teeth with inclined faces 10 fitting against corresponding inclines or teeth of the central wedge member 6. The friction blocks and wedges are inclosed within a cylinder 11, which bears at its rear end upon a follower 12 which, in turn, bears upon back stops 13 fixed to the car sills. A buffing spring 14 within the cylinder bears at one end upon the central wedge block 6, and at its other end upon the rear wall of the cylinder 11 to take up the initial buffing and pulling strains. Supposing the parts are subjected to buffing in coupling the cars, the buffing block 1 will be forced rearwardly, causing, by its inclines, a separation or outward movement of the wedge blocks 5, and the incline faces of these blocks at 8 and 9, working upon the corresponding inclines of the blocks 6 and 7, will tend to cause a movement of the same, the blocks 7 tending first to move forwardly while the central block moves rearwardly in opposite directions. This tendency will force the friction blocks 7 tight against the cylinder wall, and then after this continued pressure from the buffing block will cause such pressure upon the friction blocks 7 to be exerted between the inclined wall of the cylinder and the inclines of the inner wedge block 6 that the said blocks 7 will be forced inwardly down the inclines of the inner block 6, owing to these being steeper than the incline of the cylinder wall, and the device as a whole will move into the cylinder, the friction blocks 7 moving faster than the inner wedge block 6 owing to the steeper inclines thereon, and all of these parts, *i. e.*, the inner block 6, the outer friction blocks 7 and the small wedge blocks 5 moving more rapidly than the buffing point owing to said wedge blocks moving radially inward, due to said blocks moving down the inclines on the buffing member.

The relative position of the parts when the apparatus is free from pressure and when under pressure are illustrated in Figs. 4 and 4ª, respectively.

A yoke 2′ is attached to the draw bar at 15, as is usual in these constructions, and the rear end of this yoke embraces and bears upon the rear follower 12, and with pulling strains the action above described is substantially the same, the cylinder being moved forward in relation to the buffing block. The wedge blocks lie with their longitudinal axes directed transversely of the apparatus. The inclines 4, 9, are formed at a more acute angle in relation to the longitudinal axis of the apparatus than the inclines 8, and because of this the wedge

blocks will have a quick release when the strains are relieved, and jamming of the wedge blocks will be thereby prevented.

The inner end of the buffing block 1 terminates in a head 16 embracing the inner ends of the wedge blocks, which will prevent their displacement, and limiting their inward positions in relation to each other.

In Figs. 4 and 4ª I show my invention organized to occupy little space longitudinally of the car adapting it to be used within the same space occupied by the ordinary buffing spring in some forms of cars. In this form the central wedge block 6′ is formed hollow, and receives the spring, thus shortening the length of the apparatus.

I do not wish to limit myself to the wedge blocks as the means interposed between the friction blocks for moving them in opposite directions, as other forms of members may be used, such, for instance, as in Fig. 5, where rocker or fulcrumed members 17 may be employed, in which case the buffing block would not have the wedge shaped face.

It will be observed where I employ the wedge blocks each has three inclined surfaces fitting respectively the incline on the buffing block, that on the central wedge block, and that on the outer friction block.

For releasing, dependence is had on the angle or incline 4, this being substantially a 45 degree angle, though a 50 degree, and, in some cases, a 60 degree angle will secure proper release of the parts. On a 45 degree angle, the forward and outward pressure will always be the same; consequently there will be no sticking.

I claim as my invention:—

1. In a draw gear, a casing, a central wedge block, a plurality of friction blocks between the central block and the casing, and having inclines contacting with inclines on the central block, a buffing block, and a plurality of members interposed between the central block and the outer blocks, and borne upon the buffing block to exert pressure upon the central wedge block and outer friction blocks in opposite directions, substantially as described.

2. In a draw gear, the combination of a casing, a central wedge block, a plurality of friction blocks between the friction block and the casing, said blocks having contacting inclines, a buffing block, and a plurality of wedge-shaped members interposed between the central wedge block and the outer friction blocks, said buffing block having inclines bearing on the inclines of the said wedge-shaped members, substantially as described.

3. In combination a casing, a central wedge block, a plurality of friction blocks between the same and the casing having inclines engaging inclines on the central block, a buffing block operating centrally of the draw gear, and a plurality of members interposed between the central wedge block and the outside friction blocks for exerting pressure upon them in opposite directions, substantially as described.

4. In combination a casing, a central wedge block, a plurality of friction blocks between the same and the casing having inclines engaging inclines on the central block, a buffing block operating centrally of the draw gear, and a plurality of wedge members interposed between the central wedge block and the outside friction blocks for exerting pressure upon them in opposite directions, said buffing block having a wedge shaped end bearing upon the wedge blocks, substantially as described.

5. In combination in a draw gear, a casing, a central wedge block, a plurality of outer friction blocks between the central block and the casing, a buffing block operating substantially centrally of the casing, and wedges interposed between the central wedge block and the outer friction blocks, and movable outwardly and inwardly in respect to the axial center of the casing, and a buffing block for operating the wedges to exert pressure upon the central wedge block and outer friction blocks in opposite directions, said friction blocks having contacting inclines, substantially as described.

6. In combination a casing, a central wedge block, a plurality of friction blocks disposed about the central block, and between the same and the casing, a centrally disposed buffing block having inclines and wedges disposed about the buffing block and interposed between the central wedge block and the outer friction blocks, said wedge blocks having inclines, one obtuse and one acute in respect to the axis of the apparatus, and bearing respectively upon corresponding inclines of the central block and the outer block, said wedges having also inclines bearing upon the corresponding inclines of the buffing block, substantially as described.

7. In combination in a draw gear, a casing, a central wedge block within the casing having inclined faces, friction blocks disposed about the central wedge block bearing on the casing and having inclines faces bearing on those of the central wedge block said wedge block having also inclined faces at its end, a buffing block having an inclined face the angle of which in respect to the axis of the apparatus is different from that of the end inclines on the central wedge block, and wedge blocks interposed between the said buffing block the said central wedge block and the said friction blocks, and having differential inclines common to those of the buffing block, the end of the wedge block and the friction blocks, substantially as described.

8. In a draw gear, the combination of a

casing tapering inwardly, a central wedge block, friction blocks between the wedge block and the tapering wall of the casing, and having the inclines on their inner faces which bear on the central wedge block steeper than the incline of their outer faces bearing on the tapered wall of the cylinder, a buffing block and a plurality of wedge shaped members interposed between the central wedge block and the outer friction blocks and having inclines borne upon by inclines of the buffing block, substantially as described.

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

JOHN F. COURSON.

Witnesses:
JESSE D. SNYDER,
GEORGE G. COSTELLO.