

No. 736,824.

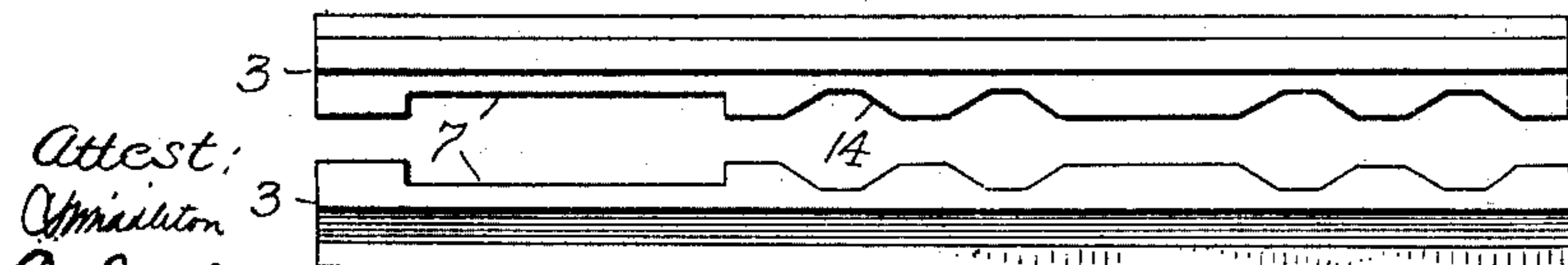
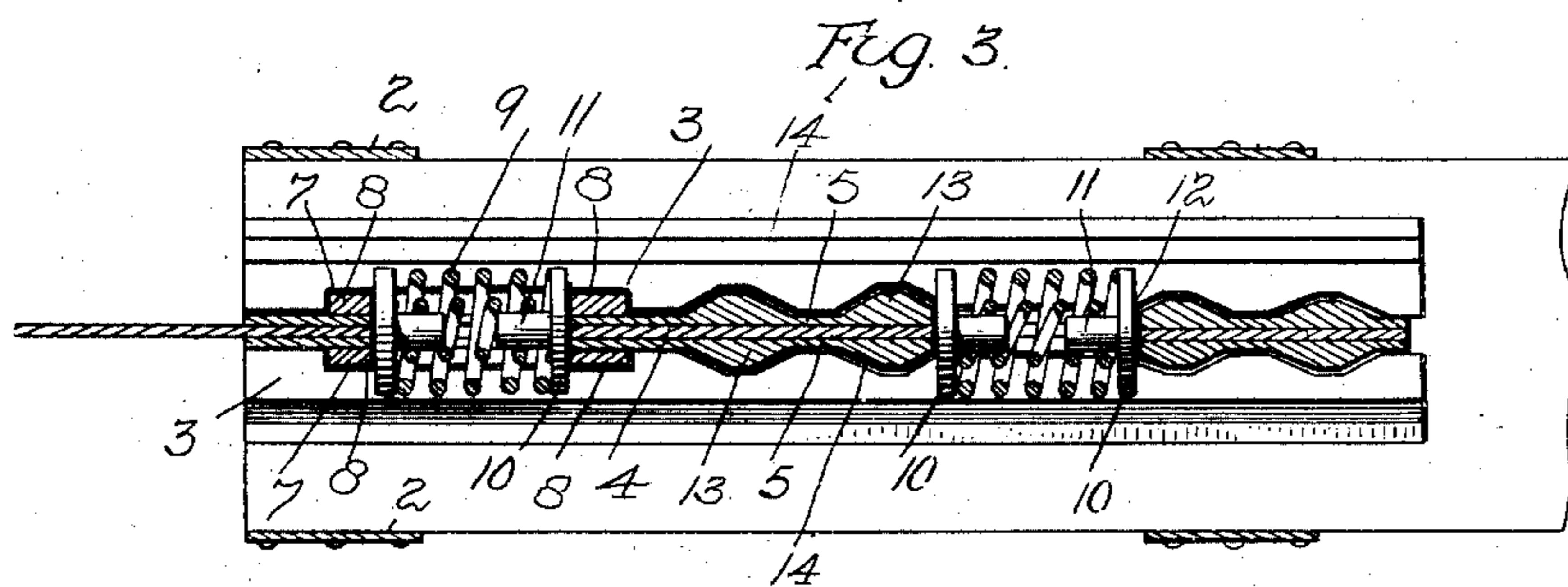
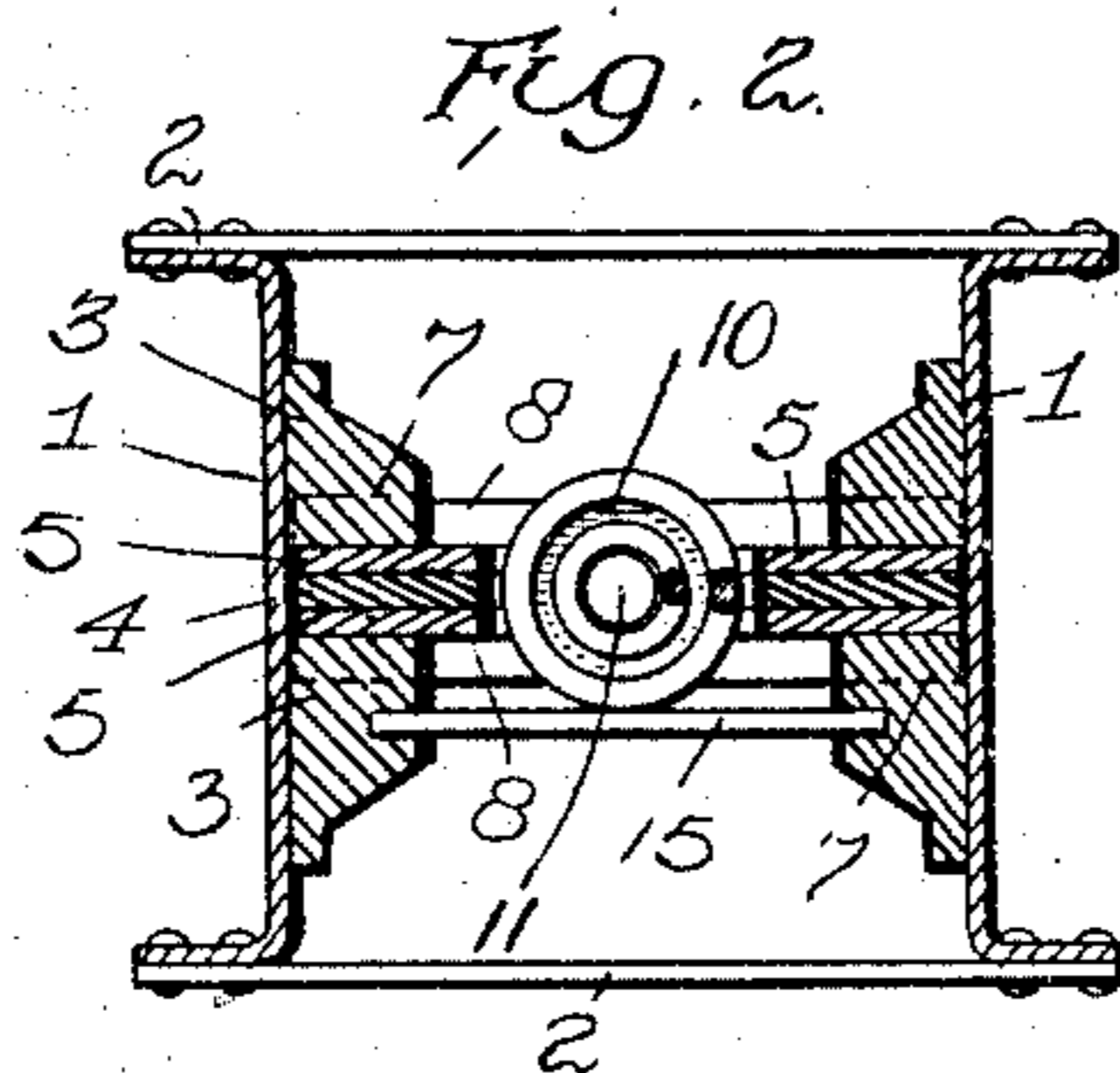
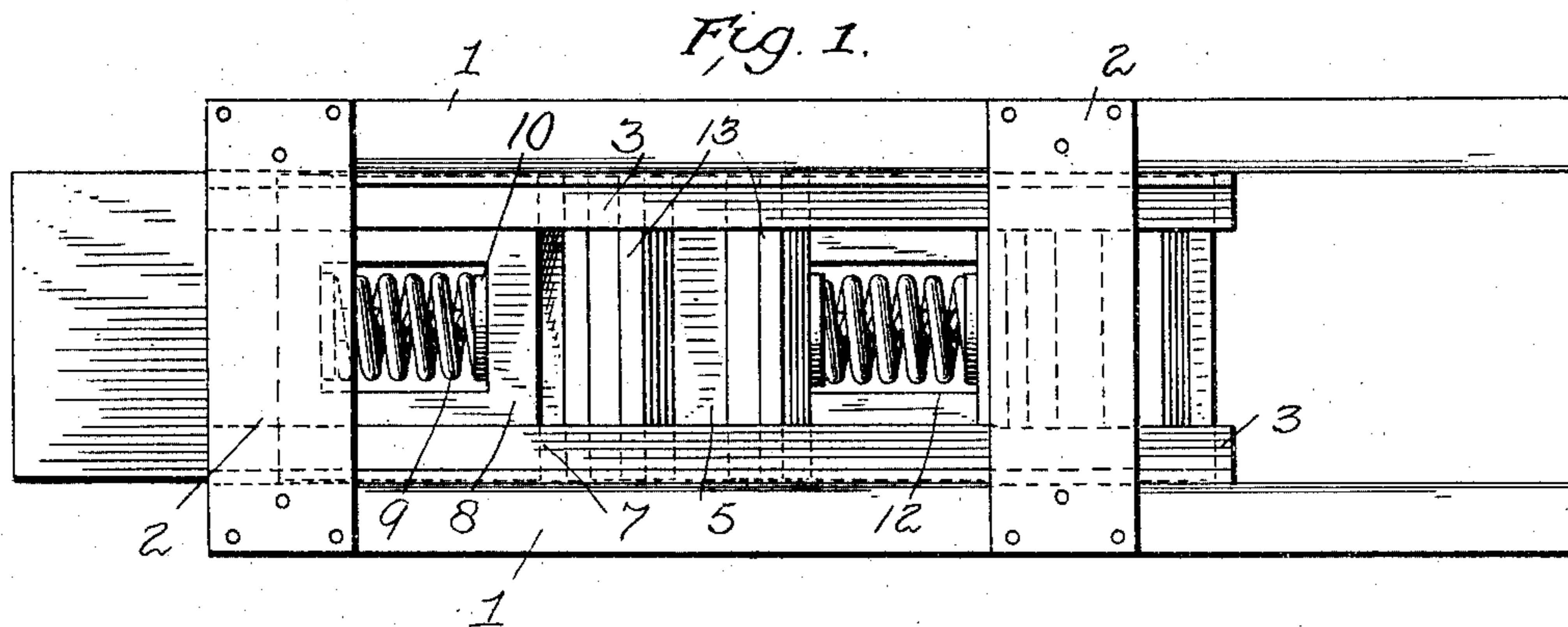
PATENTED AUG. 18, 1903.

J. F. COURSON.  
DRAW GEAR FOR RAILWAY CARS.

APPLICATION FILED MAY 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

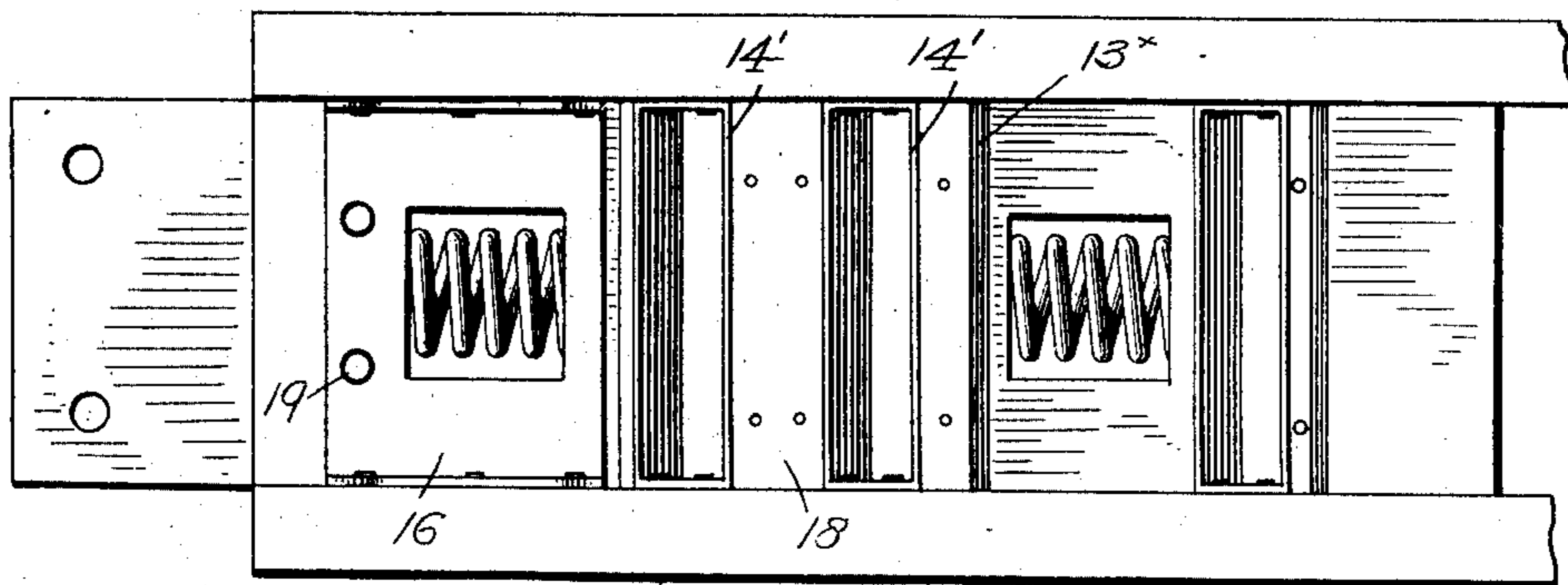


Fig. 5.

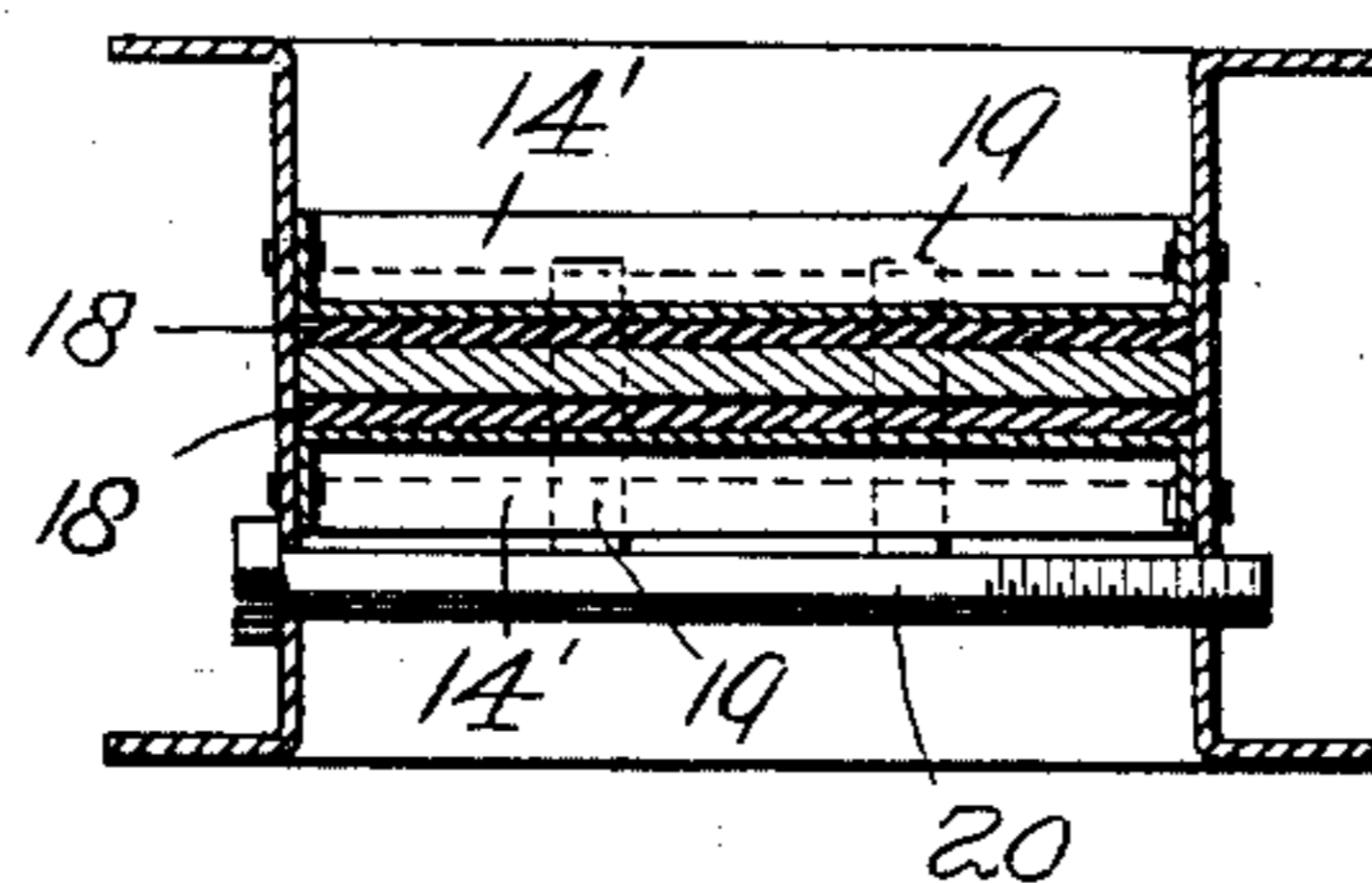
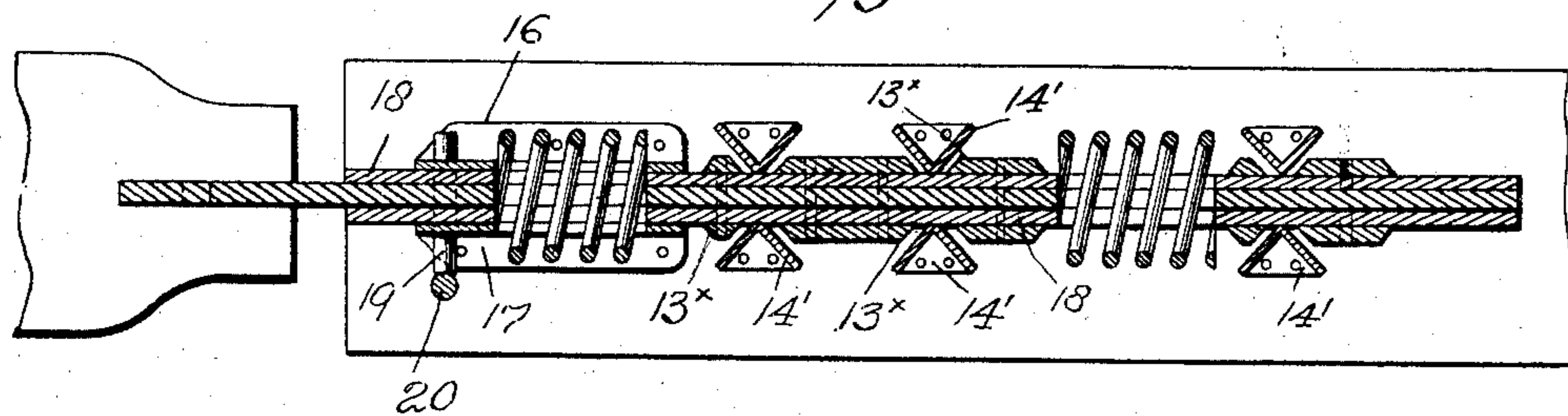


Fig. 6.



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# UNITED STATES PATENT OFFICE.

JOHN F. COURSON, OF PITCAIRN, PENNSYLVANIA.

## DRAW-GEAR FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 736,824, dated August 18, 1903.

Application filed May 6, 1903. Serial No. 155,870. (No model.)

*To all whom it may concern:*

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

My invention relates to draw-gear for railway-cars; 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 plan view. Fig. 2 is a cross-sectional view, and Fig. 3 a longitudinal sectional view of one form of my invention. Fig. 3<sup>a</sup> is a detail view. Fig. 4 is a plan view of another form of my invention, Fig. 5 being a cross-sectional view of Fig. 4, and Fig. 6 a longitudinal sectional view of Fig. 4.

In the drawings, 1 indicates the longitudinal sills of the car, formed, preferably, of rolled channel-iron, and these are connected to the body of the car in any desired manner, and they are connected together by cross-pieces 2, riveted to the flanges of the channel-irons. On the inner sides of the channel-irons bars 3 are secured, a pair of said bars being located on the inner side of each channel-iron and the members of each pair being separated from each other to receive the draft-bar 4 and to receive also friction plates or bars 5, one of which is located on the upper side of the draft-bar and the other upon the lower side thereof. The longitudinally-extending bars 3 are provided near their front ends with recesses 7, in which are located ends of stop-plates 8, one of said plates being located above the upper friction-bar and the other being located below the lower friction bar or plate. The fixed stop-plates, together with the draft-bar and friction-plates, are provided with a rectangular opening in which is located a double spring 9, composed of outer and inner members with end plates or followers 10, having centering projections 11 extending into the spring. This spring, with its follower-plates, is arranged within the openings formed in the stop, friction, and draft plates, which openings align with each other at the front of the

draft-gear, and the follower-plates bear upon the edges of the said stop, friction, and draft plates. The friction and draft plates at or near their rear ends are provided, further, with openings 12, in which is located a spring similar to that before mentioned. The friction-plates are provided with cross bars or pieces 13, provided with inclined front and rear surfaces adapted to engage corresponding inclined surfaces formed on the longitudinally-extending bars 3. The inclined surfaces on the bars 3 I have marked 14, and there may be any desired number of these, corresponding to the inclined faces on the cross-pieces of the friction-plates. When the draft-bar is moved in either direction, the forward spring will be at once compressed and afford a yielding resistance to the movement of the bar. This immediate compression of the forward spring is due to the fact that it is confined by the edges of the opening in the fixed stop-plates before mentioned, so that as soon as the draft-bar moves the spring will begin to be compressed. The rear spring, however, will not be immediately compressed, as this is retained only by the draft-bar and the friction-plates, and all of these plates are adapted to have movement with the draft-bar at the beginning of the latter's movement in either direction; but after a slight movement of the draft-bar, together with the friction-bars, has taken place the inclined surfaces of the friction-bar will come into contact with inclined stops or surfaces 14 on the longitudinally-extending guide and stop-bars 3 and the movement of these friction-plates will be gradually arrested, and upon the continued movement of the draft-bar the rear spring will be compressed, and in addition to this the friction-plates will be forced toward each other and will thus subject the draft plate or bar to a frictional resistance.

It will be seen from the above that this improved form of draft-gear is arranged to take up the power of the springs in succession, and, further, it is adapted to apply to the draft-bar the resistance due to the compression from the friction-plates, and this compression takes place after the forward spring is compressed.

In order to hold the springs within the open-

ings in the several plates, I provide the lower bars 3 with longitudinally-extending grooves, into which is inserted a plate 15, the upper surface of which is adapted to afford a rest for the lower sides of the springs.

One feature of the construction above described is the facility with which the different parts may be disconnected and removed from the car and with which also they may be assembled on the car. In taking the parts from a car for purposes of repair, adjustment, or renewal it is simply necessary to remove the springs from the openings in the several plates, and this may be done by taking out the plate 15 and forcing the springs downwardly, and then the draft-bar can be drawn out, allowing the upper friction plate or bar to fall upon the lower friction plate or bar, and this will allow the upper stop-plate to drop down out of the recesses in the lower sides of the bars 3, and thus this stop-plate, together with the upper and lower friction-plates, can be removed, and after this is done the lower stop-plate can be raised from the recesses in the lower bars 3 to permit its removal. In assembling the parts an operation the reverse of the above takes place.

In Figs. 4, 5, and 6 I show a modification of the invention in which the rigid stop-plates 16 and 17, located at the front of the draw-gear, are formed of angle-iron suitably secured by rivets or otherwise to the angle-iron sills. The friction-plates 18 in this form are provided with transversely-extending shoulders having inclines 13<sup>x</sup>, adapted to cooperate with stops 14', composed of channel or angle iron having inclined or sloping walls to correspond with the inclines of the friction-plates. Substantially the same action takes place in this form of my invention as in the form before described, in that the power of the springs is taken up in succession, and the friction-plates are forced into strong frictional contact with the draft-bar by the inclined shoulders or surfaces on the draft-bar and stop-bars, respectively. I provide means for fixing the draft-bar against movement in either direction, so that in cases where long lumber or iron is loaded on two cars and extends from one car to the other the two cars may be coupled together so that neither one will have movement toward or from the other, which movement would tend to displace or disarrange the load. For this purpose I use pins 19, extending vertically through the openings in the draft-bar and in the fixed portions of the draft-gear—i. e., the fixed stop-plates—and these pins are placed in position from beneath the draft-gear, and when in position they are held against falling out by a cross-bar 20, suitably held in the angle-iron sills of the car. I have shown these connecting-pins in this modified form of draft-gear; but it will be understood that they are intended to be used in connection with the form first described.

Any suitable form of coupling-head may be used in connection with the draft-bar, and I prefer the ordinary Master Car-Builders' coupling-head.

The spring at the rear end of the draft-gear on relaxing will not subject the frame of the car to shock or strain, as this will be taken up entirely by the draft-bar itself.

I claim—

1. In combination in a draw-gear, a draft bar or plate, a spring carried thereby and stop means, said spring being normally unrestrained in its movement with the draw-bar by the said stop means, and being restrained by the said stop means after the draw-bar is moved to a certain extent, substantially as described.

2. In combination in a draft-gear, a draft-bar having an opening therein, a spring confined in the said opening and moving freely with the said draft-bar, and stop means for restraining the spring after the draft-bar has moved to a certain extent, substantially as described.

3. In combination in a draft-gear, a draft-bar, a spring carried by the said draft-bar and moving freely therewith and stop means for restraining the said spring only after it has moved with the draft-bar to a certain extent forward or backward, substantially as described.

4. A draft-gear comprising a draft-bar, a spring carried thereby and stop means for the two ends of the spring normally out of action thereon to permit the spring to have a certain amount of free movement before being restrained by the said stop means, substantially as described.

5. A draft-gear comprising a draft-bar, a spring carried thereby, stop means normally inactive as against the said spring and arranged to restrain the same only after the spring has moved with the draft-bar to a certain extent and a second spring to be acted on by the draft-bar and stop means for the said second spring normally acting thereagainst to restrain and cause compression of the said spring upon the movement of the draw-bar, substantially as described.

6. In combination in a draft-gear, a draft-bar, a spring carried thereby, stop means normally inactive upon the said spring to allow a certain free movement of the same with the draft-bar and a friction-plate acting upon the draft-bar, substantially as described.

7. In combination in a draft-gear, a draft-bar, a spring carried thereby to have a certain amount of movement unrestrained, stop means for restraining the said spring and a friction-plate arranged to be pressed upon the draw-bar by the action of the said stop means, substantially as described.

8. In combination, a draw-bar, a spring carried thereby to have a certain amount of free movement therewith, a friction-plate

and stop means, the said stop means acting upon the spring through the said friction-plate, substantially as described.

9. In combination in a draft-gear, a draw-bar, a spring carried thereby, a friction-plate having inclines thereon and engaging the said spring and fixed inclines on the car-frame arranged to press the friction-plate upon the draw-bar and act as stops for restraining the movement of the spring, substantially as described.

10. In combination in a draft-gear, a draft-bar, a friction-plate having inclines thereon and fixed inclines on the frame of the car for forcing said plate upon the draw-bar, substantially as described.

11. In combination in a draft-gear, a draw-bar, a friction-plate having inclines, inclines on the frame to coact with those on the friction-plate and a spring located in openings in the draw-bar and friction-plate, substantially as described.

12. In combination in a draft-gear, a friction-plate and stops for the said friction-plate comprising portions extending transversely between the sills of the car and having inclines thereon, substantially as described.

13. In combination in a draft-gear, a draft-bar, a plurality of springs acting upon said bar, a stop-plate having an opening for one of the springs and held rigidly in relation to the movement of the draft-bar and stop means for the other spring, substantially as described.

14. In combination in a draft-gear, a draft-bar, a spring, a stop-plate extending between the sills of the car and having an opening for the spring, a friction-plate, a spring connection between the said friction-plate and draft-bar and stop means for the said friction-plate, substantially as described.

15. In combination in a draft-gear, a draft-bar, a friction-plate bearing thereon, a stop-plate for a spring arranged outside of the said friction-plate and having an opening, and a spring located in said opening, the said draft-bar also having an opening for the spring, substantially as described.

16. In combination in a draft-gear, a draft-bar, a spring for restraining the movement of the draft-bar, stop means for the spring removably held in interlocked position with a part of the frame by the draw-bar, the said draw-bar and stop means being removable upon the removal of the spring, substantially as described.

17. In combination a draft-bar, stop means comprising a plate interlocking removably with a part of the frame when the draft-bar is in position, and a spring located in an opening in the said plate and holding the draft-bar under restraint and in connection with the said stop-plate, substantially as described.

18. In combination, a draft-bar, a friction-plate, holding means for a spring removably interlocked with the frame and held in inter-

locked position by the draft-bar and friction-plate and a spring held by the said means removable and acting upon the draft-bar to restrain the same, substantially as described.

19. In combination in a draft-gear, a draft-bar, holding means for a spring arranged to be detached from the frame of the car by a movement vertically thereof, said holding means being held in interlocked position by the draw-bar and a spring connection between the said holding means and draw-bar, substantially as described.

20. In combination in a draft-gear, a draft-bar, a friction-plate on the upper and lower side of the same, a holding-plate above and below the friction-plates removably interlocking with the frame and detachable therefrom by a vertical movement, a spring held by said holding means acting upon the draft-bar, said spring being removable, substantially as described.

21. A draft-bar, a spring acting thereon, a plate having an opening for the spring and engaging recesses on the frame of the car, said plate being removable from said recesses by a vertical movement and being held in the said recesses by the draw-bar, substantially as described.

22. In combination in a draft-gear, a draft-bar, upper and lower friction-plates, upper and lower holding-plates having openings, a spring located in the openings and engaging the draw-bar and recesses in the frame of the car in which the said holding-plates are removably located and from which they may be removed by a vertical movement, substantially as described.

23. In combination in a draft-gear, a draft-bar, friction-plates, a spring acting on the draft-bar, a holding-plate for the said spring and longitudinally-extending bars on the frame having recesses for the spring-holding plates and having inclined stops coacting with inclines on the friction-plates, substantially as described.

24. In combination, a draft-bar, a spring acting thereon, means for restraining the spring against longitudinal movement with the draft-bar and means for supporting the spring comprising the longitudinally-extending bars and the removable plate held thereby, substantially as described.

25. In combination, in a draft-gear, a draw-bar movably supported, a spring for resisting the movement of the draw-bar and means for locking the draw-bar against longitudinal movement, substantially as described.

26. In combination in a draft-gear, a draw-bar movably supported, a spring for resisting the movement of the draw-bar and means for locking the draw-bar against longitudinal movement, said means consisting of a pin inserted in the draw-bar from below and held by a part of the framework of the car, substantially as described.

27. In combination in a draft-gear, a draw-

bar movably supported, a spring for resisting  
the movement of the draw-bar and means for  
locking the draw-bar against longitudinal  
movement, said means consisting of a pin in-  
5 serted in the draw-bar from below and held  
by a part of the framework on the car, and  
means for holding the said pin in place, sub-  
stantially as described.

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

JOHN F. COURSON.

Witnesses:

HUGH COSGROVE,  
GEORGE P. MERTZ.