

W. R. MATTHEWS.
DRAFT GEAR FOR RAILWAY CARS.
APPLICATION FILED NOV. 22, 1907.

914,665.

Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

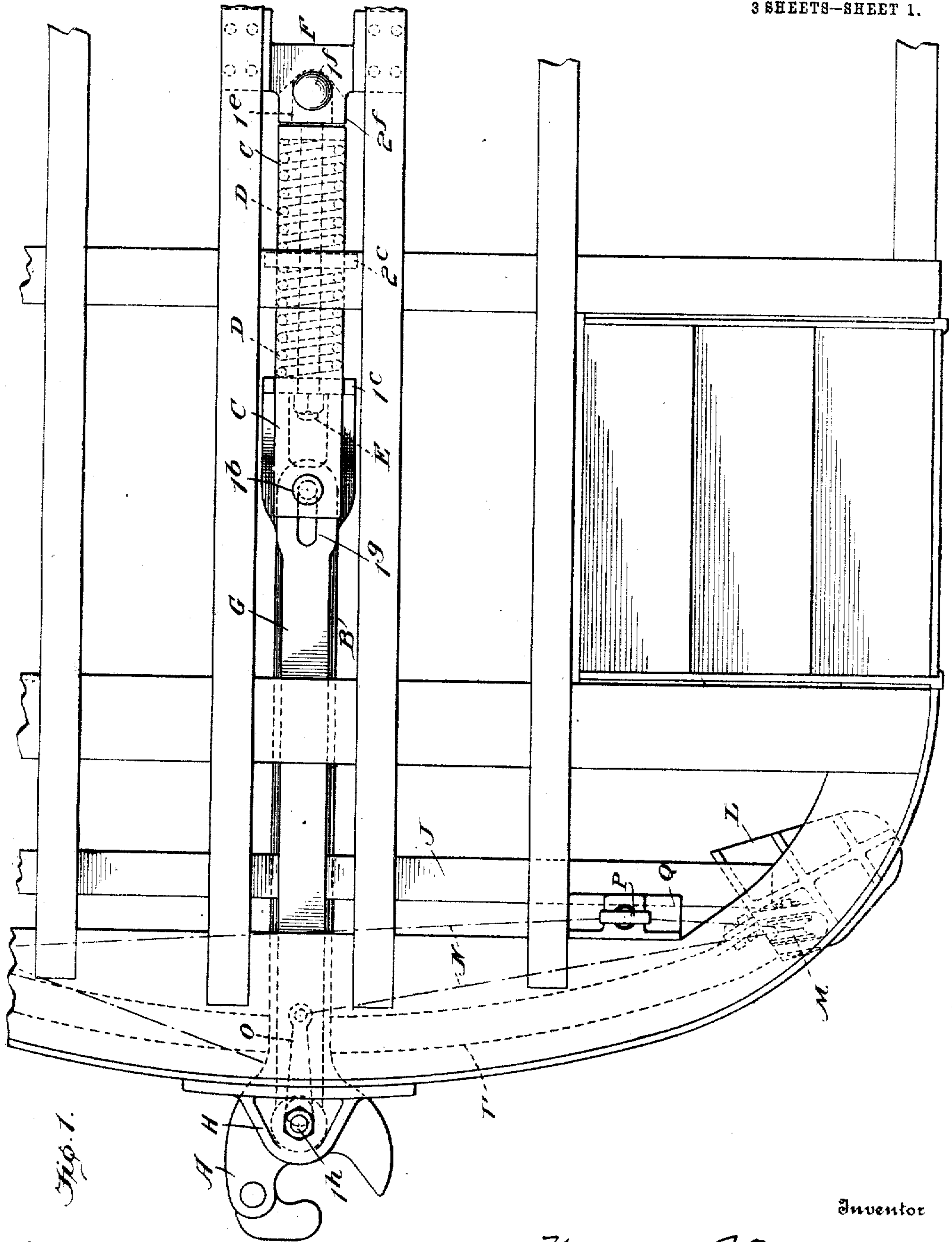


Fig. 1.

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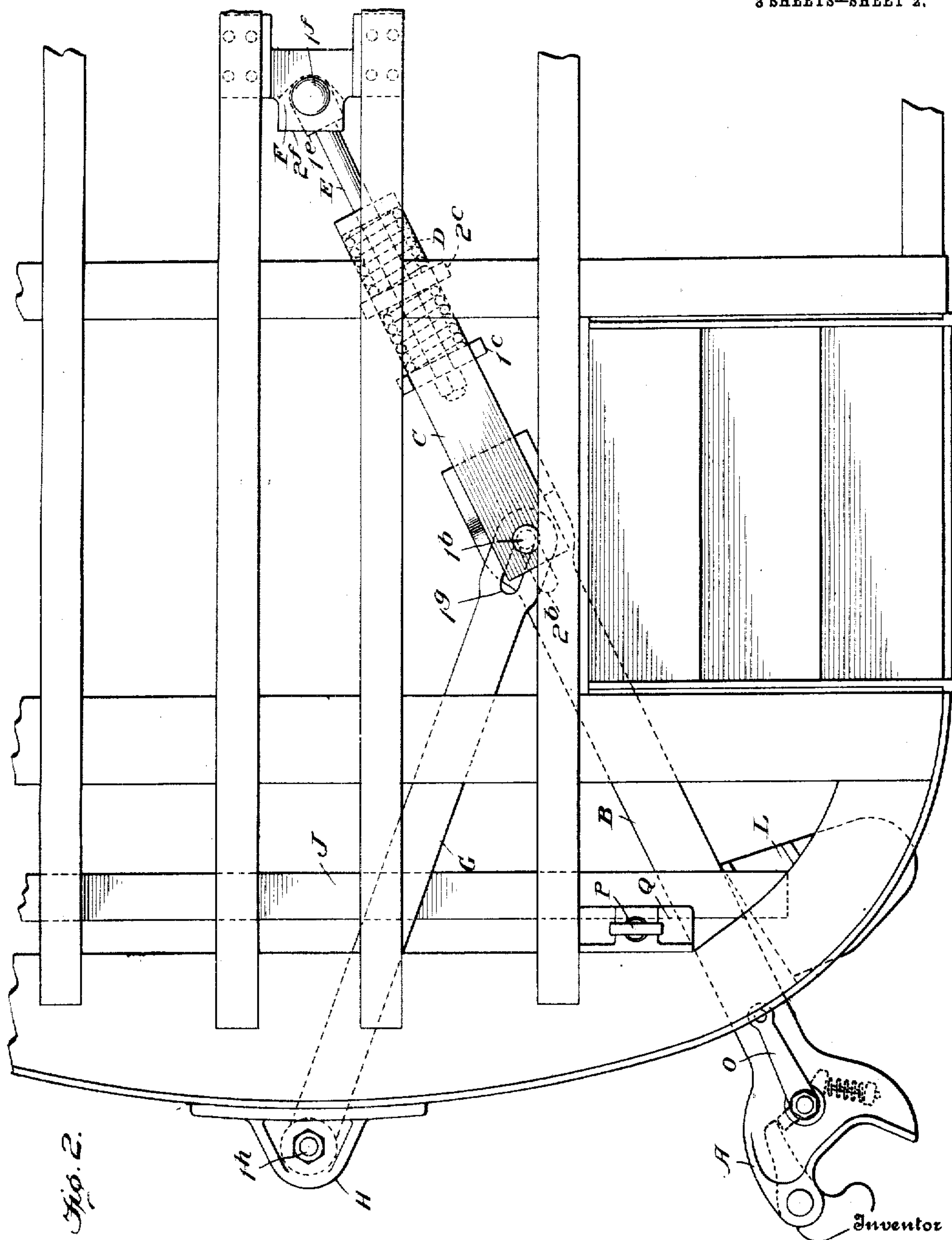


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

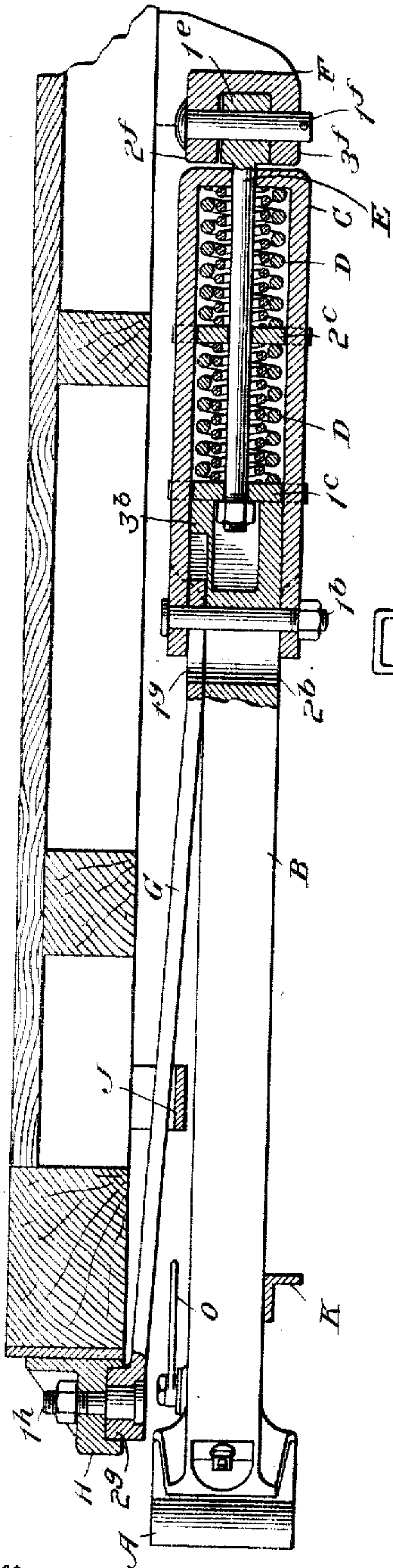
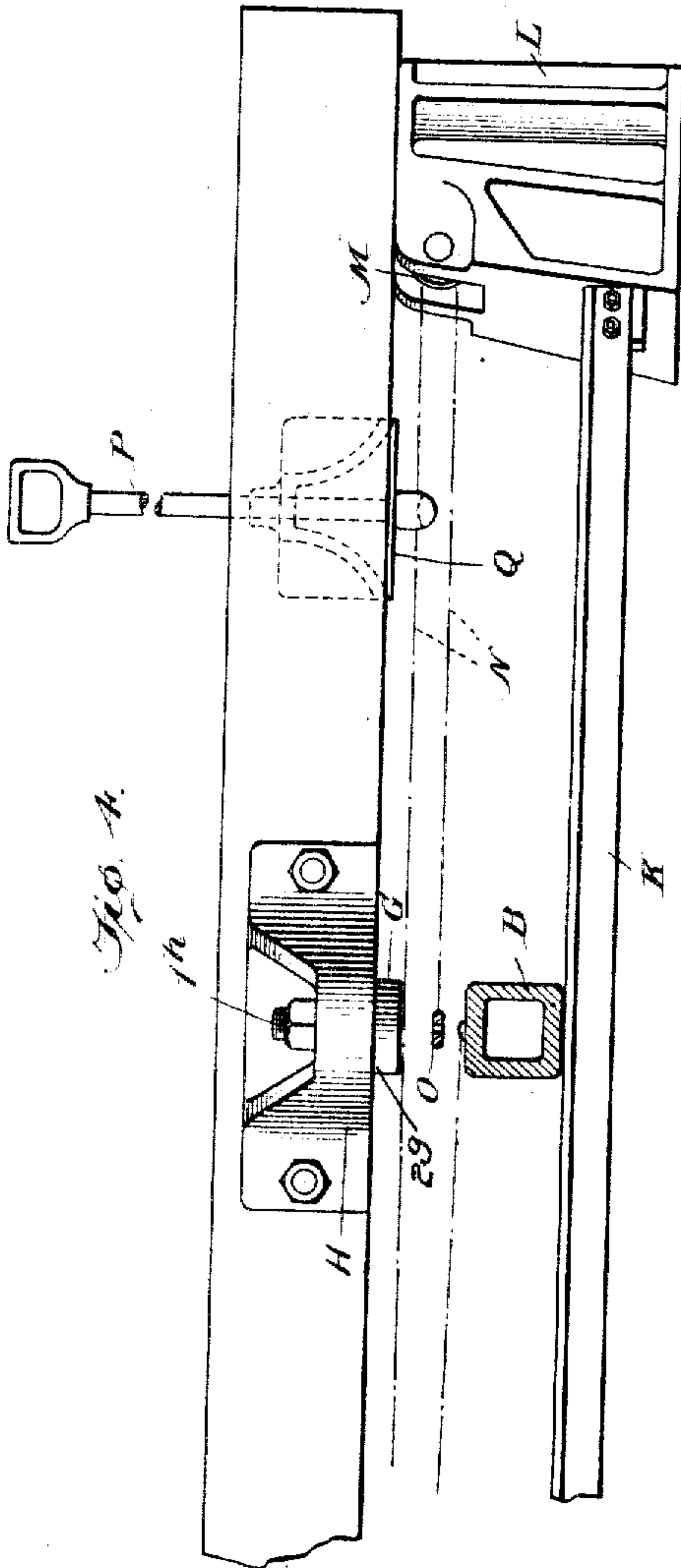


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM R. MATTHEWS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE MCCONWAY & TORLEY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRAFT-GEAR FOR RAILWAY CARS.

No. 914,665.

Specification of Letters Patent.

Patented March 2, 1909

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To all whom it may concern:

Be it known that I, WILLIAM R. MATTHEWS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Gear for Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of draft appliances for railway cars, and more particularly to that class of draft gear or draft rigging which is designed to permit an extended lateral movement of the car coupler.

By means of a few elements of simple form, I am enabled to produce an efficient and durable draft gear which permits cars to pass around very sharp curves and relieves the car platform and car framing from excessive lateral strains. The construction and arrangement of the several parts of the draft gear are such that the car coupler always tends to assume a central position.

In the drawings illustrating my invention, the scope whereof is pointed out in the claims, Figure 1 is a plan view of a device embodying my invention, a portion of the car platform and car underframing being also shown; Fig. 2 is also a plan view of the parts shown in Fig. 1, but illustrating the draft gear in a laterally displaced position; Fig. 3 is a vertical central section of the device as illustrated in Fig. 1, parts of the coupler and equalizer stem, however, being shown in side elevation; and Fig. 4 is an end elevation of the car platform, showing the relation of the coupler to the devices for supporting the forward end of the draft appliances; and also showing the preferred means for unlocking the coupler to permit cars to be uncoupled.

Like symbols refer to like parts wherever they occur.

I will now proceed to describe my invention more fully so that others skilled in the art to which it appertains may apply the same.

In the drawings, the coupler head A is shown as rigidly connected to the coupler shank or draft-stem B. Attached to the

rear end of the coupler shank in any manner which will permit the draft springs D, D to be compressed in buffing, is a yoke or spring-pocket C which is of substantially the same construction as those now in common use. A simple and satisfactory mode of connecting the coupler shank B and yoke C is illustrated in the drawings, from which it will be seen that the bolt 1^a, which confines the yoke C to the coupler shank B, passes through an elongated slot 2^b formed in the rear end of the coupler shank. Such a construction allows the coupler-shank and yoke to have the relative longitudinal movement necessary to compress the springs when a buffing operation occurs.

Housed within the yoke C are draft springs D, D. If desired a single spring may be employed, but it is preferred to use two springs arranged in alinement, with a follower 2^c interposed between them. The forward spring D is interposed between a forward follower 1^c and a rear follower 2^c, while the rear spring D bears at one end upon said follower 2^c and at the other end is seated upon the rear end of the yoke or spring-pocket C.

The forward follower 1^c, which normally abuts the rear end of the coupler shank B, is restrained from forward movement by means of a tail-bolt E, which is pivotally attached at its rear end to the car framing through the intermediacy of a pivot bolt 1^f and abutment casting F. The tail bolt E passes through the rear end of the yoke C, through the followers 2^c and 1^c and longitudinally through the springs D, D, and is provided at its forward end with a nut, which, by engagement with the follower 1^c, transmits to the tail bolt E the draft strains induced by a forward movement of the yoke or spring-pocket C.

The abutment member F, which may be secured to the car framing in any suitable manner, is preferably formed with horizontally extending pivot lugs 2^f and 3^f between which the enlarged end 1^e of the tail-bolt is interposed. This construction is advantageous, as the lugs 2^f and 3^f thus support and vertically confine the rear end of the draft rigging, and the pivot bolt 1^f is thus put in double shear.

G is an equalizer member which is so constructed and combined with the associated parts of the draft gear as to constantly

tend to maintain the car coupler in the longitudinal axis of the car. The equalizer member is pivotally attached to the car platform or car framing and to the coupler shank B and yoke C in a manner which will permit it to have a relative longitudinal movement with respect to said coupler shank and yoke. For this purpose it is preferred to form the rear end of the equalizer member G with a slot 1^a through which the pivot pin 1^b connecting the coupler shank B and yoke C passes. The slot 1^a is sufficiently long to let the bolt 1^b move freely forward when the coupler is subjected to a draft strain, and in order that such a relative longitudinal movement of the parts may occur, the upper part of the coupler shank B is maintained in spaced relation with the yoke C by means of a lug or bridge wall 3^b formed on the rear end of said coupler shank, as will be readily understood by reference to Fig. 3.

The forward end of the equalizer member G is preferably attached to the car framing by a single pivotal connection. For this purpose a vertically extending circular boss 2^a is formed upon the forward end of said equalizer member, said boss fitting into a circular socket formed in the underside of a pivot casting H which is secured to the end sill of the car platform in the longitudinal axis of the car. The pivot boss 2^a is held in proper position by means of a bolt 1^b, which, as shown, is preferably provided with an annular shoulder that permits the nut to be screwed tight without causing the said boss to bind in its socket. A construction such as described affords a very strong and durable pivotal connection for the forward end of the equalizer member G, but it is to be understood that other forms of pivotal connection may be employed if desired.

J is a chafing iron which is attached to the car framing. It is made sufficiently long to permit the equalizer member G to swing radially from side to side without interference. Its function is to act as a stop to prevent the coupler from striking the equalizer bar.

As a means for supporting the front end of the draft gear as the coupler moves to one side or the other of the center of the car, a supporting rail K is provided. Each end of this supporting rail, which is preferably an angle-iron that extends substantially parallel to the outer end of the car platform, is bolted or otherwise attached to the lower part of one of the stop castings L. The stop castings L, which serve to limit the lateral displacement of the coupler A in either direction from the center of the car, are secured to the under side of the car platform and extend downwardly therefrom.

Journalled in each of the stop castings L is a grooved roller M around which passes the flexible uncoupling member N by which the coupler lock O is brought to an unlocked position. In the drawings the flexible uncoupling member N, which is preferably a chain, is represented by a dot and dash line. The flexible member N is attached at one end to the coupler lock O, passes from thence around one of the grooved rollers M, then through a slot or eye formed in the lower end of a vertically movable uncoupling bar P, then around the other grooved roller M, and, finally, is attached at its other end to the coupler shank B. The vertically movable uncoupling bar P is mounted to reciprocate in a guide member Q which is attached to the car platform directly above that portion of the flexible member N which extends between the two grooved rollers. The guide casting Q is provided with a downwardly opening chamber through which the uncoupling bar P passes, said chamber having flaring side walls which permit the chain N to be readily drawn upward by the bar P.

By means of the coupler release rigging just described the coupler may be unlocked when in any position, it being only necessary, in order to bring the lock O to an unlocked position, to pull upwardly upon the handle of the uncoupling bar P. It will be understood that when the coupler moves laterally as the car to which it is attached passes around a curve, the flexible uncoupling member N moves freely around the grooved rollers M and through the eye at the bottom of the uncoupling bar P, thus accommodating itself to the various positions of the coupler.

When the coupler is subjected to a draft strain exerted in the longitudinal axis of the car, the coupler shank B, acting through the bolt 1^b, causes the yoke C to move forwardly. This forward movement of the yoke C causes the draft springs D, D to be compressed between the rear end of said yoke and the follower 1^c, since the tail bolt E, which is attached to the abutment member F that is secured to the car framing, prevents said follower 1^c from moving forward. During such an operation, the bolt 1^b moves forward in the slot 1^a of the equalizer member G, which is thus not subjected to any strain.

When a buffing force is applied to the coupler, the forward follower 1^c, which abuts the rear end of the coupler shank B, is forced rearwardly, thus compressing the springs D, D between said follower and the rear end of the yoke. As the rear end of the yoke C does not contact the abutment casting F, the pressure of the springs D, D is transmitted from the yoke C to the equalizer member G, and through the latter to the car framing. During this buffing operation the

forward end of the tail-bolt E enters the opening formed in the rear end of the coupler shank B.

When the coupler is displaced from its normal position in the center of the car, as is the case when the car passes around a curve, the equalizer member G is also necessarily displaced, turning upon its pivotal connection with the pivot casting H as a center. (This displacement of the equalizer member G, acting through the connecting bolt I^h, causes the yoke C to move away from the abutment casting F, and the springs D, D are consequently compressed in the manner heretofore described. Upon the withdrawal of the force causing the coupler to depart from its normal position in the center of the car, it is evident that the springs D, D will expand until they are again of normal length. Throughout this expansion the equalizer member G is subjected, at its point of connection with the yoke C, to a pulling force which acts in the direction of length of the tail bolt E. As the equalizer member is inextensible and is pivotally attached to the car at its forward end, it is evident that during this expansion the other parts of the draft gear are constrained to return to the normal position in the center of the car, since in such position the tail-bolt E is in alinement with the equalizer member G and the forces acting upon each have no lateral components.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a draft gear, the combination with a coupler which is provided with means whereby it may be pivotally connected to the body of a car, of means for cushioning draft and buffing forces applied to said coupler, and an equalizer member which constantly tends to maintain the coupler in the longitudinal axis of the car, said equalizer member and coupler being relatively movable in buffing.

2. In a draft gear, the combination with a coupler, of means for cushioning draft and buffing forces, and an equalizer device which constantly tends to maintain the coupler in the longitudinal axis of the car, said coupler and equalizer device being pivotally connected and being relatively movable longitudinally both in draft and buffing.

3. In a draft gear, the combination with a coupler which is provided with means whereby it may be pivotally connected to the body of a car in a yielding manner, of an equalizer device which is provided with means whereby it may be attached to a fixed portion of the car so as to rotate with-

out accompanying translation, said equalizer being pivotally connected to the coupler.

4. In a draft gear, the combination with a coupler which is provided with means whereby it may be pivotally connected to the body of a car in a yielding manner, of an equalizer device which is attached to and rotates without translation about a fixed portion of the car and is connected with the coupler.

5. In a draft gear, the combination with a coupler which is provided with means whereby it may be pivotally connected to the body of a car in a yielding manner, of an equalizer member which is movable laterally with said coupler about a fixed portion of the car as a center, said coupler and equalizer member being connected so that their point of attachment is maintained at a constant distance from the center of movement of the equalizer member during the lateral movement of the parts.

6. In a draft gear, the combination with a coupler which is provided with means whereby it may be pivotally connected to the body of a car in a yielding manner, of an equalizer member which is movable laterally with said coupler about a fixed portion of the car as a center, said coupler and said equalizer member being also relatively movable longitudinally.

7. In a draft gear, the combination with a coupler, of a yoke connected thereto, a spring within said yoke, a tail-bolt which is provided with means whereby it may be pivotally attached to the car body, a follower by which the pressure of the spring is transmitted to the tail-bolt, and an equalizer member which is connected with said coupler, said equalizer being movable laterally with said coupler about a fixed portion of the car as a center, and said coupler and equalizer being relatively movable longitudinally.

8. In a draft gear, the combination with a coupler, of a yoke, means operating through said yoke for pivotally connecting said coupler to the body of a car in a yielding manner, an equalizer member which is provided with means whereby it may be pivotally connected to a fixed portion of the car body and which is connected to the coupler, and a bolt which connects said coupler, yoke and equalizer member.

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

WILLIAM R. MATTHEWS.

Witnesses:

FRANK J. BOWERY,
F. D. ECKER.