

W. R. MATTHEWS.
DRAFT GEAR FOR RAILWAY CARS.
APPLICATION FILED MAY 12, 1908.

950,488.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

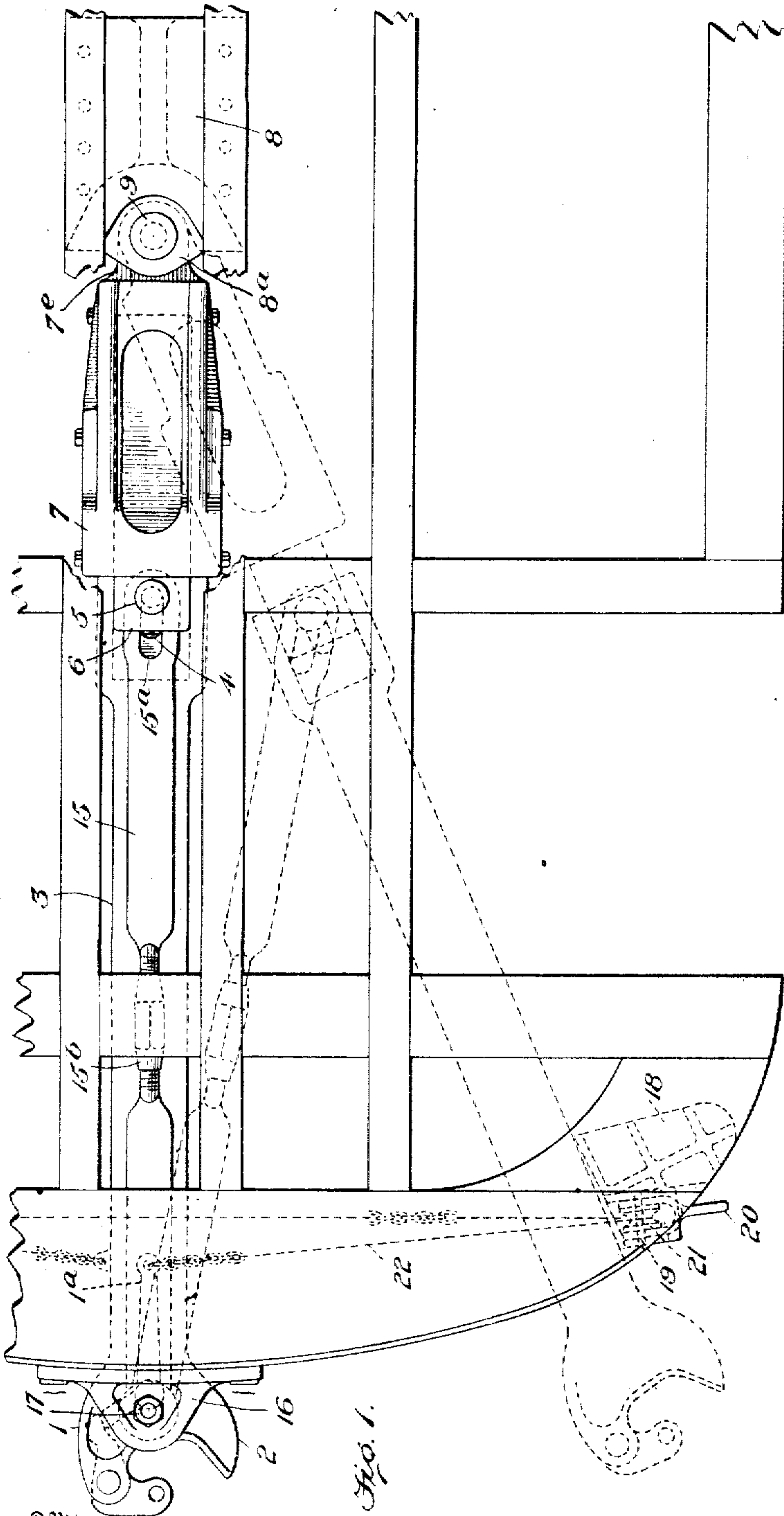


Fig. 1.

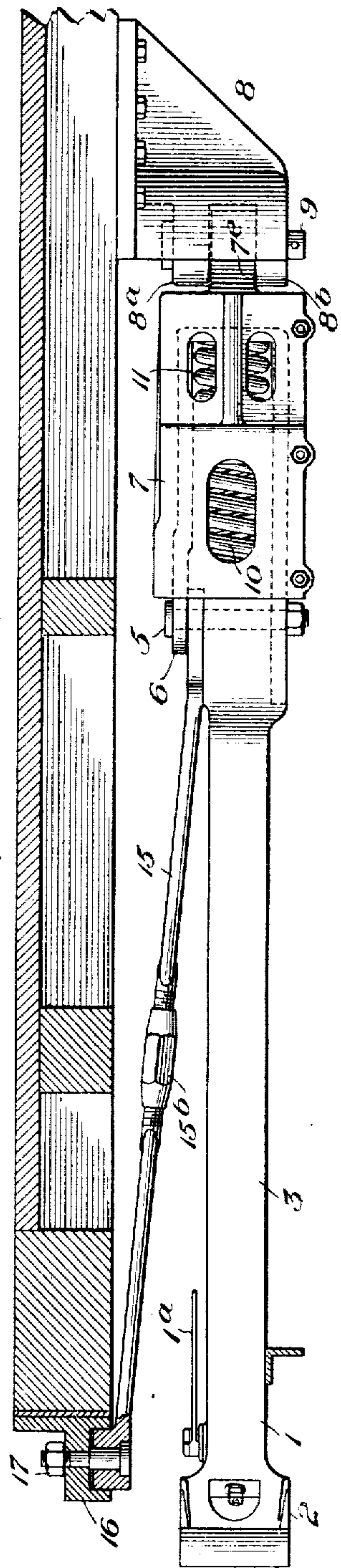


Fig. 2.

Witnesses

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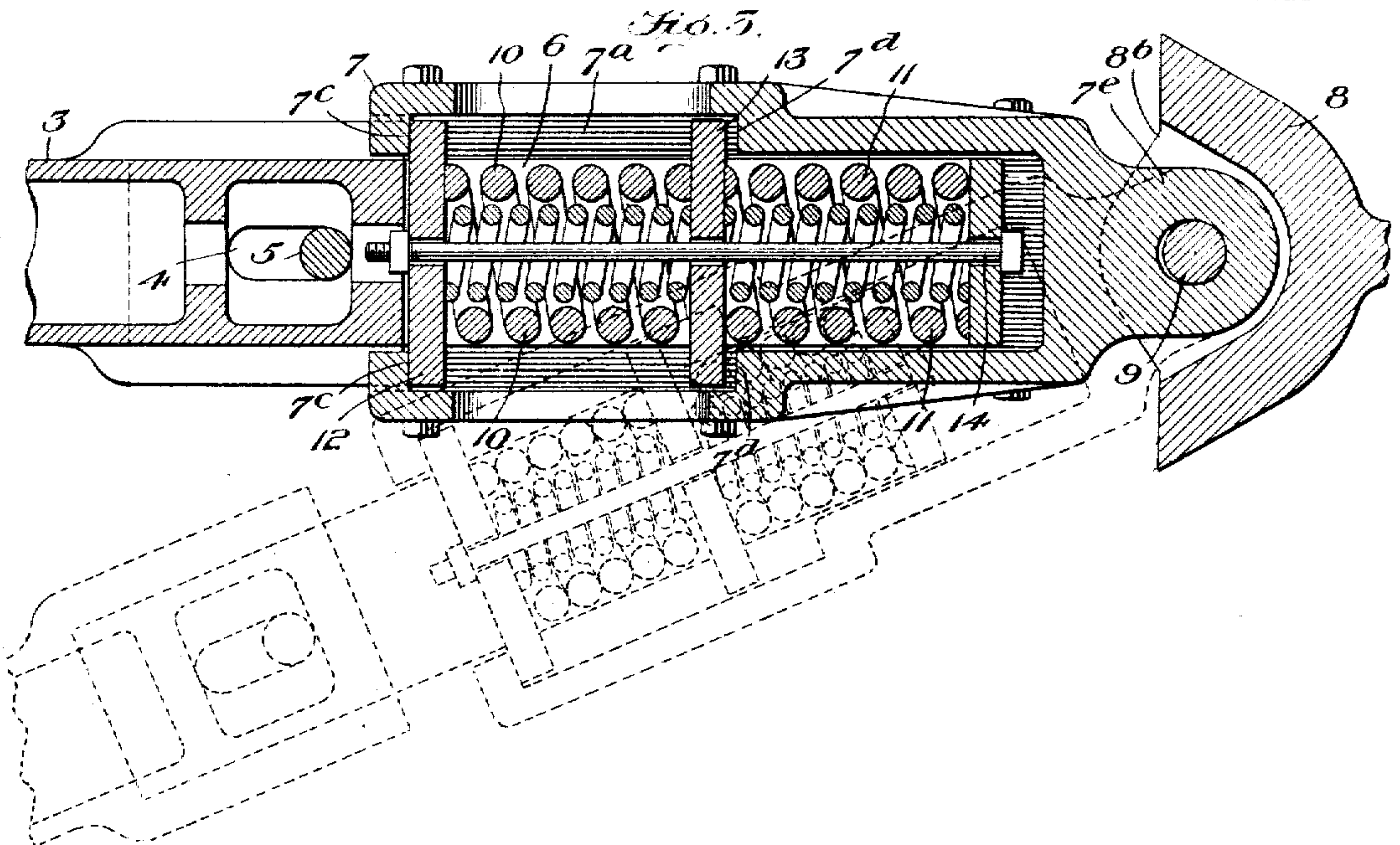


Fig. 4.

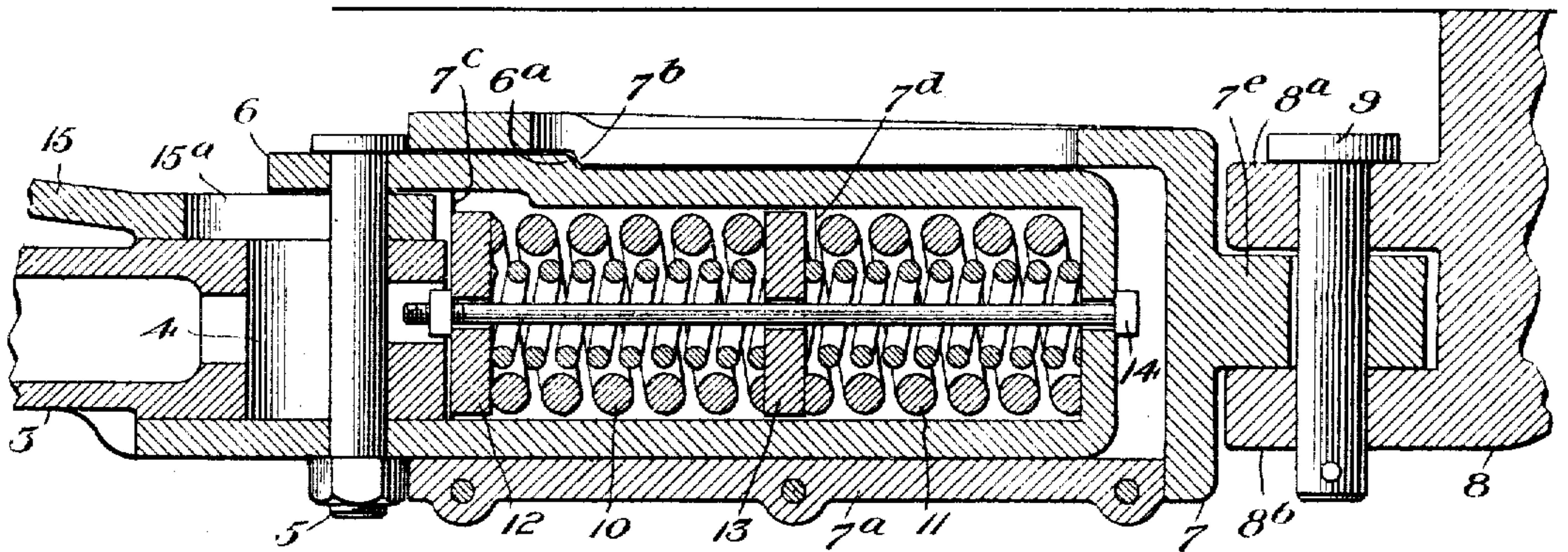
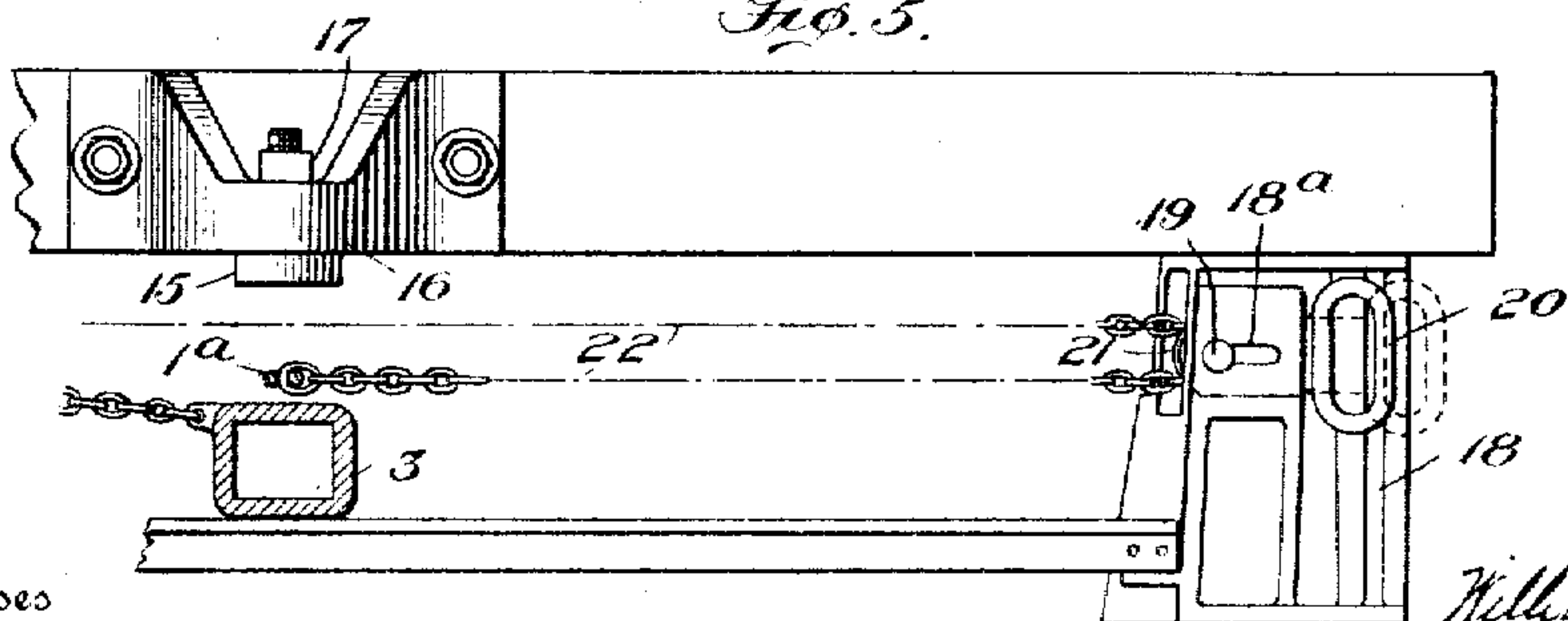


Fig. 5.



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UNITED STATES PATENT OFFICE.

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DRAFT-GEAR FOR RAILWAY-CARS.

950,488.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed May 12, 1908. Serial No. 432,494.

To all whom it may concern:

Be it known that I, WILLIAM R. MATTHEWS, a citizen of the United States, residing at Pittsburgh, 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 gear for railway cars, and particularly to a device of this character which will normally maintain the coupler in the longitudinal axis of the car and yet will permit said coupler to have an extended swinging lateral motion in either direction from its normal or central position when the car is passing around a curve, thus enabling the car to pass around very sharp curves and also relieving both the car and draft rigging from undue lateral strains.

The principal objects of the present invention are to provide means for affording an extended forward movement of the coupler when under draft or rounding curves, to provide means for permitting a relatively shorter rearward movement of the coupler under the influence of buffing forces, to provide means for giving to the spring or springs employed the requisite compression for centering the coupler, and to so combine the several parts of the structure that the coupler-centering bar or analogous device employed shall be relieved from destructive buffing shocks.

In the drawings chosen for the purpose of illustrating my invention, the scope whereof is pointed out in the claims, Figure 1 is a plan view of a draft gear embodying my invention, the position which the several parts occupy when the car is rounding a curve being shown in dotted lines; Fig. 2 is a side elevation of the same, the coupler being in its central position; Fig. 3 is an enlarged horizontal central section of the rear end of the draft gear, the position which the parts occupy when the coupler swings laterally being shown in dotted lines; Fig. 4 is an enlarged vertical central section of the rear end of the draft gear; and Fig. 5 is an end

view of a portion of the car, showing the coupler unlocking devices.

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, 1 is a coupler having a head 2 of any suitable construction and a shank 3 which is formed with a longitudinally elongated slot 4 for the reception of the bolt 5 by means of which the coupler, coupler-centering bar and spring-pocket are movably connected. Attached to the coupler 1 through the intermediacy of the bolt 5 is a spring-pocket or yoke 6 which is formed with open sides to permit the introduction of springs and followers in the customary manner. The spring-pocket is housed within a draft casting 7 which is formed with an open forward end and which is preferably provided with a detachable bottom 7^a that is bolted to the main portion of the draft casting. Such a construction of the draft casting 7 permits the ready introduction of the yoke, springs and followers. For the purpose of limiting the rearward travel of the yoke 6 in the draft casting 7, said yoke is provided with a transversely extending shoulder or lug 6^a that is adapted to engage a corresponding transverse lug or shoulder 7^b formed on the interior of the said draft casting. The draft casting is also provided with interior shoulders or follower abutments 7^c, 7^c and 7^d, 7^d for cooperating with the followers 12 and 13, as will hereinafter more fully appear.

The rear end of the draft casting 7 is provided with a perforated lug, such as 7^e, or other suitable means for forming a pivotal connection with the pivot casting 8 which is rigidly secured to the car framing in any suitable manner. The bolt hole in the lug 7^e is preferably somewhat elongated as shown, as such a construction permits the draft casting 7 to move rearwardly a sufficient distance to transmit buffing shocks directly to the pivot casting 8 instead of transmitting them to the latter through the pivot bolt 9. The lug 7^e of the draft casting is interposed between the lugs 8^a and 8^b

formed integral with the pivot casting 8, and through these three lugs the bolt 9 passes, the draft gear being thus not only pivotally attached to the car body but being also supported at its rear end.

Within the yoke 6 are springs 10 and 11 and followers 12 and 13. The rear spring, 11, which is designed to receive but a small portion of any buffing shocks, is seated upon the rear end of the yoke 6 and is separated from the forward spring 10 by the interposed follower 13. The forward spring, 10, which may be fully compressed by buffing forces, is interposed between the follower 13 and the forward follower 12, the rearward movement of the coupler shank 3 during a buffing operation causing the said forward follower to move rearwardly in the usual manner. In order to facilitate the assembling of the yoke, springs and followers and their introduction into the draft casting 7, as well as for the purpose of giving to the springs 10 and 11 any initial compression which may be desired, a rod 14 having a nut thereon is inserted through the rear end of said yoke and through said springs and followers.

Pivotally attached to the coupler 1 and yoke 6, in such manner as to permit a relative longitudinal movement with respect thereto, is a centering bar 15 the forward end of which is pivotally mounted upon the car framing in any suitable manner, as, for example, by means of a bracket 16 and pivot bolt 17. The pivot pin 5 by which the coupler and yoke are connected preferably also serves as the means for connecting the centering bar 15 to said members, the rear end of said centering bar being provided with a slot 15^a through which the bolt 5 passes. The centering bar may be, and preferably is, fashioned in two parts which are connected by a sleeve nut 15^b that affords means for giving to the springs 10 and 11 the proper compression to center the coupler. By this means the parts may be not only initially adjusted, but wear and loss of elasticity in the springs may be compensated for.

The operation of the devices heretofore described will be as follows. When the coupler is subjected to draft the coupler shank 3, acting through the bolt 5, will cause the spring-pocket or yoke 6 to move forwardly, and as the forward follower 12 is restrained from forward movement by the stops 7^c upon the draft casting 7 the springs 10 and 11 will be compressed between said forward follower and the rear end of said yoke. During this operation the centering bar 15 is not subjected to strain, since the bolt 5 simply moves forward in the slot 15^a formed in the rear end of the centering bar. When buffing takes place the rear end of the coupler shank 3 forces the forward follower 12

rearwardly. The initial rearward movement of the follower 12, acting through the spring 10, causes the rear follower 13 to also move rearwardly the short distance necessary to bring it into engagement with the stops 7^a formed upon the interior of the draft casting 7. The rear spring 11 is thus slightly compressed in the beginning of the buffing operation, but after the follower 13 interposed between the springs has moved into engagement with its stops the remainder of the buffing shock is entirely taken by the forward spring 10, which transmits the shock to the draft casting 7 through the follower 13. As the enlargement of the pivot pin opening in the pivot lug 7^e of the draft casting permits said draft casting to move rearwardly into contact with the pivot casting 8, the buffing shock is delivered directly to said pivot casting instead of being transmitted thereto through the pivot pin 9. It will be noted that the coupler centering bar 15 is not subjected to any strain during the buffing operation, as the slot 4 formed in the rear end of the coupler shank 3 permits the coupler to move rearwardly the full buffing distance without engaging the pivot bolt 5 by which said centering bar is connected to said coupler. When the coupler is displaced laterally from its normal position in the longitudinal axis of the car, the centering bar 15 acting upon the yoke 6 through the connecting bolt 5 causes the said yoke to move forward in the draft casting 7, the said draft casting at that time turning upon the pivot pin 9 to thus maintain its alinement with the coupler 1. As the yoke 6 is moved forwardly in the draft casting 7 the springs 10 and 11 are compressed between the forward follower 12 and the rear end of said yoke, as before explained. As soon as the force causing the lateral displacement of the coupler is withdrawn or diminished the springs 10 and 11 are enabled to expand, and as the expansion of the springs entails a rearward movement of the yoke which can only be effected by permitting the centering bar 15 to move toward its centralized position, the said centering bar is consequently drawn toward or fully to its normal position, as the case may be, thus also swinging the coupler toward or to its normal position in the longitudinal axis of the car.

Any suitable means may be employed for actuating the coupler lock to cause it to release the knuckle, but the construction illustrated more particularly in Fig. 5 is deemed preferable, as it permits the coupler to be readily unlocked in any of its laterally displaced positions. For this purpose a depending bracket such as 18 is attached to each corner of the car at the extreme limit of lateral travel of the coupler. Mounted in each of these brackets, as, for example,

by means of a pin 19 passing through a slot 18^a formed in said bracket, is a slidable member 20 which is provided with a hand hold and which carries a grooved roller 21 mounted upon the pin 19 as an axle. A chain 22, which passes around the grooved rollers 21 on opposite sides of the coupler, is attached at one end to the shank 3 of the coupler 1 and at the other to the coupler lock 1^a. As the coupler swings laterally the chain 22 moves freely around the rollers 21 without subjecting the coupler lock 1^a to any substantial strain, but by pulling upon either of the members 20 by which the said rollers are carried the coupler lock 1^a may be actuated through the chain 22, thus unlocking the coupler.

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

1. In a draft gear for railway cars, the combination with a coupler which is adapted to be mounted upon the body of a car so as to have a lateral swinging movement with respect thereto, of springs for resisting draft and buffing forces, said springs permitting the coupler to have an extended forward movement under the influence of draft forces and when rounding a curve and a relatively shorter rearward movement under the influence of buffing forces, and means including a plurality of followers and a centering bar pivotally connected to the coupler for energizing said springs when the coupler is displaced laterally.

2. In a draft gear for railway cars, the combination with a coupler, of a draft casting through which said coupler is adapted to be pivotally connected to the body of a car, springs interposed between said coupler and draft casting, means whereby said springs operate to normally maintain the coupler in a centralized position, and means for imparting an initial compression to said springs.

3. In a draft gear for railway cars, the

combination with a coupler, of a draft casting through which said coupler is adapted to be pivotally connected to the body of a car, said draft casting being provided with follower abutments, springs compressible by the movement of the coupler, a follower interposed between said springs and adapted to engage follower abutments on the draft casting, a follower interposed between the coupler and said springs and adapted to engage follower abutments on the draft castings, means for compressing said springs when the coupler is subjected to a draft force, and means for also compressing said springs when the coupler is rounding a curve.

4. In a draft gear for railway cars, the combination with a coupler, of a coupler centering bar pivotally connected thereto, and means for pivotally connecting said coupler to the body of a car in a yielding manner, said means cooperating with said coupler centering bar to normally maintain the coupler in a centralized position, and said means also permitting the coupler to have an extended forward movement and a relatively shorter rearward movement.

5. In a draft gear for railway cars, the combination with a coupler, of a yoke which is relatively movable with respect thereto, springs within said yoke, a follower interposed between said springs, a follower adapted to be engaged by the coupler, a draft casting adapted to be pivotally connected to the body of a car and having follower abutments adapted to engage said followers, and a coupler centering bar which is pivotally connected to said coupler and is adapted to be pivotally connected to the body of a car.

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

WILLIAM R. MATTHEWS.

Witnesses:

F. D. ECKER,

FRANK J. BOWERY.