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W. W. ANNABLE.  
BRAKE MECHANISM FOR RAILWAY CARS.  
APPLICATION FILED MAY 19, 1904.

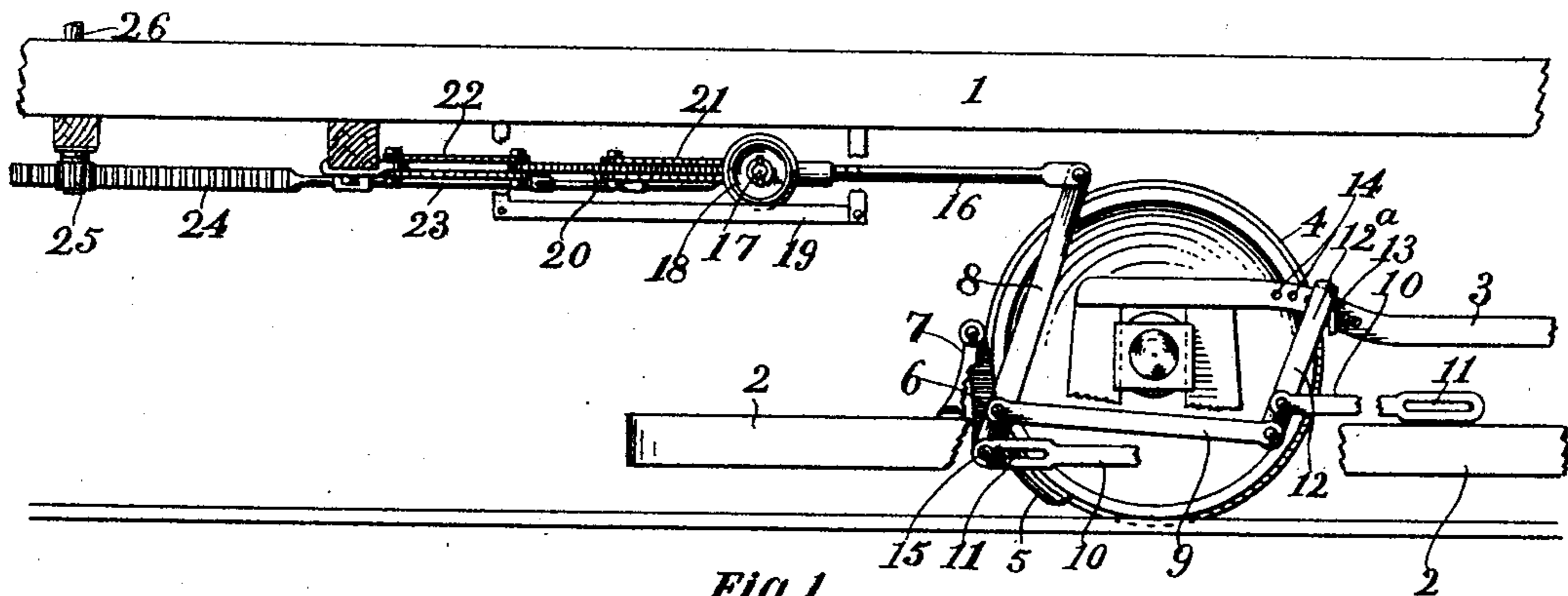


Fig. 1.

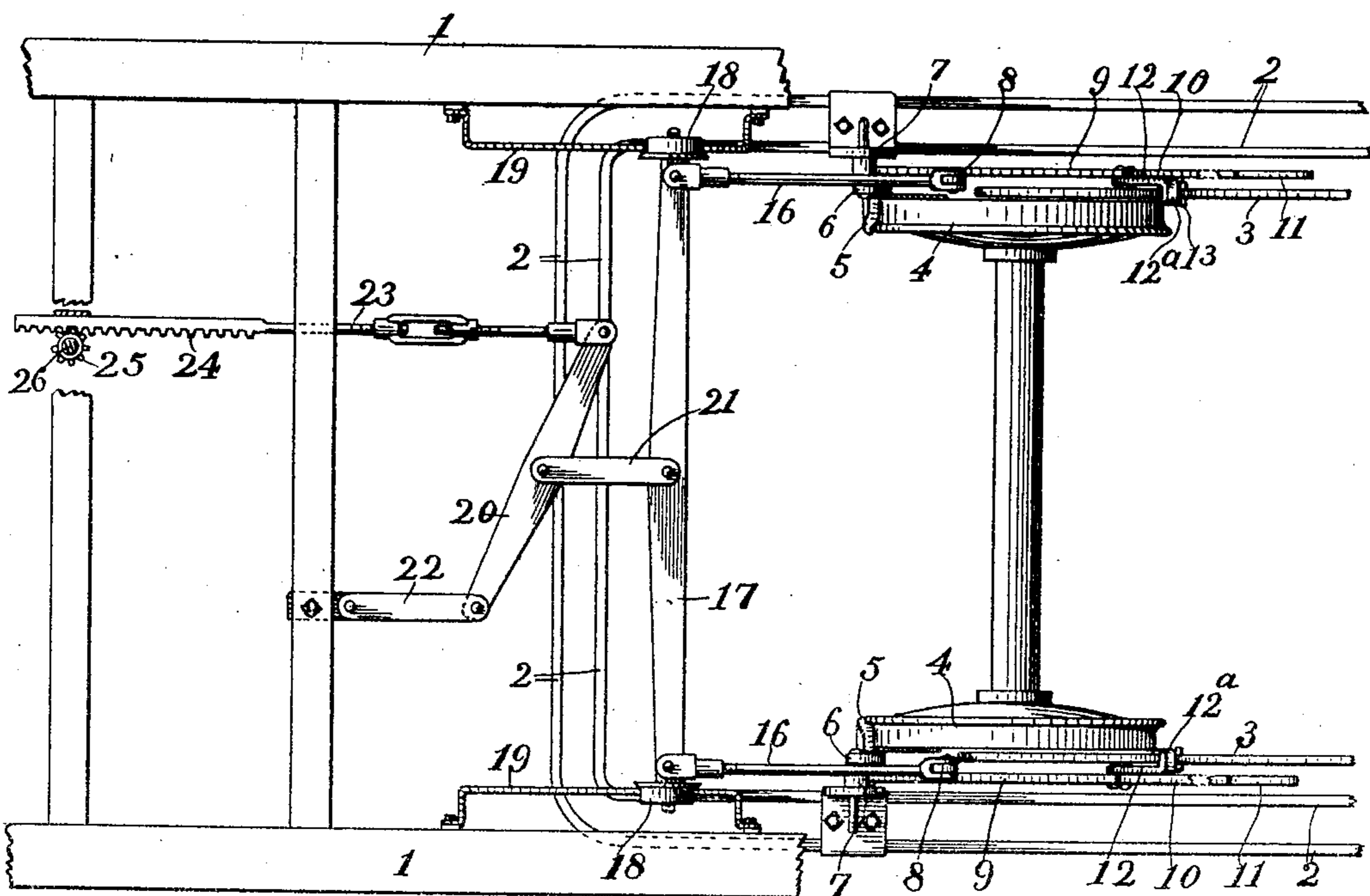


Fig. 2.

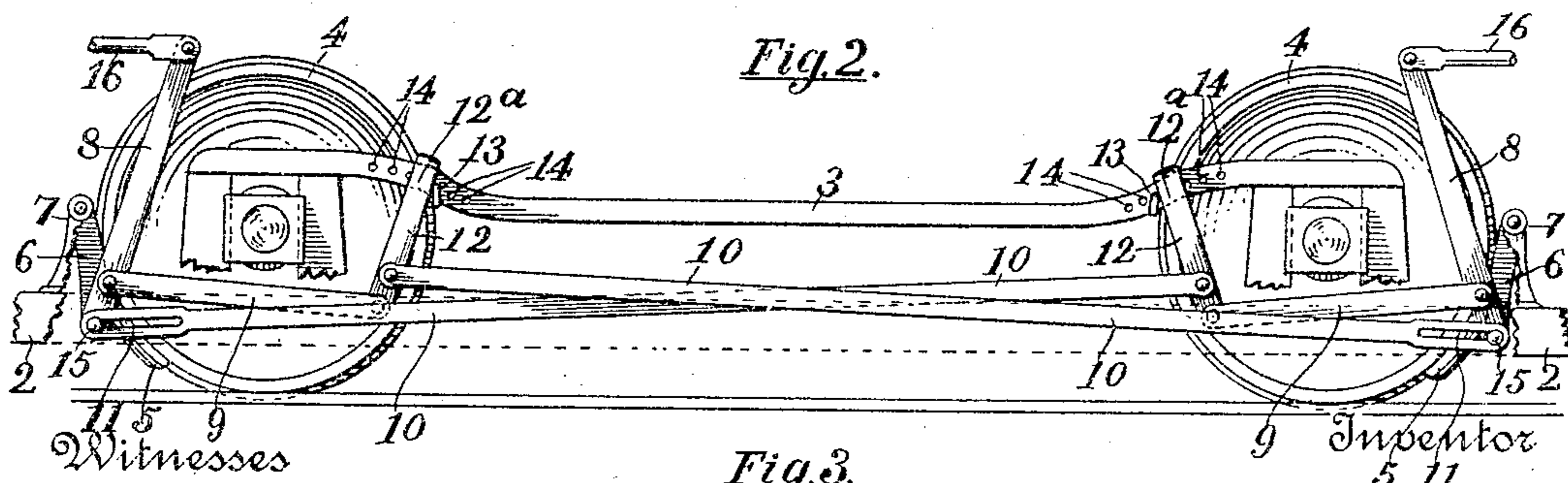


Fig. 3.

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## BRAKE MECHANISM FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 779,405, dated January 10, 1905.

Application filed May 19, 1904. Serial No. 208,663.

*To all whom it may concern:*

Be it known that I, WARREN W. ANNABLE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Brake Mechanisms 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 improvements in brake mechanisms for railway-cars, and more particularly for electrically-propelled cars; and its object is to provide mechanism that will in no wise obstruct or occupy the space between the wheels of the truck, and thus leave the same clear for the motors or other machinery, to provide ready means for taking up the slack due to the wear of the brake-shoes and other parts, to provide means for equalizing the pressure on the various brake-shoes regardless of any unequal wear or adjustment, to simplify the device, and to provide the same with various new and useful features hereinafter more fully described, and particularly pointed out in the claims.

My invention consists, essentially, of brake-shoes independently supported upon pendulum hangers, levers pivoted to the respective hangers and connected in pairs at each side by rods intermediately divided and pivoted to a take-up lever, near one end thereof, said lever pivotally supported and adjustable at the other end, said levers and rods being arranged outside the wheels of the truck, and equalizer-beams pivotally connected to the levers, as will hereinafter more fully appear by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention; Fig. 2, a plan view of the same, and Fig. 3 a detail of the same in side elevation.

Like numerals refer to like parts in all of the figures.

1 represents a portion of the car-frame; 2, a portion of the truck-frame; 3, a bar extending between the housing of the journal-boxes of the truck and supporting the take-up levers.

4 represents the truck-wheels; 5, the brake-

shoes pivoted to the lower end of the pendulous hangers 6, which are pivotally supported at their upper ends by brackets 7, mounted on the frame 2 and properly located to permit the brake-shoes to engage the wheels in opposing pairs at each side of the truck.

8 represents levers pivoted at their lower ends to the lower ends of the hangers 6. These levers are connected in pairs at each side of the truck by means of two rods, each rod consisting of two parts 9 and 10, connected at their outer ends to the respective levers and pivoted at their adjacent ends to take-up levers 12, near the lower end thereof and a short distance apart. The upper ends of these take-up levers are provided with hooks 12<sup>a</sup>, which slidably and pivotally engage the bar 3 and are adjusted thereon by means of pins 13, inserted in one of a series of holes 14 in the bar. Each connecting-rod at one end engages a stud 15 opposite the brake-shoe and is provided with a slot 11, traversed by said stud, as hereinafter described, and at the other end is connected to the lever 8 at a distance above the stud 15. The levers 8 at each end of the truck are connected, by means of rods 16, to an equalizing-beam 17, extending horizontally beneath the car. These equalizing-beams are supported on suitable tracks 19 and are operated by means of levers 20, pivotally connected at one end to the frame of the car by rods 22 and intermediately connected to the beam 17 by rods 21 and actuated by the rod 23, attached to the other end and provided with a rack 24, engaged by a pinion 25 on a vertical shaft 26, which shaft is provided with the usual hand-wheel, pawl, and ratchet (not shown) for manipulating the same.

In operation whenever the pinion 25 is rotated to pull on the rod 23 the equalizing-beam 17 is drawn forward and being pivoted at the middle will pull equally upon the levers 8 regardless of the relative adjustment of parts or wear upon the respective brake-shoes. When the shoes 5 contact the wheels, they fulcrum the levers 8, connected therewith, and the forward movement of the levers will pull on the upper connecting-rod extending from this lever to the lower end of the corresponding lever on the same side and will thus draw the opposite brake-shoe 5 against

the wheel of the same side. The stud 15 of this lever will traverse the slot 11 of the other connecting-rod during this movement. The device is thus operative from either end of the car. In the event that one side is so adjusted that the connecting-rods are unequal or there is more wear on any one shoe than on the corresponding shoe the equalizer-beam 17 will adjust on its middle pivot and fully equalize the pressure on the respective brake-shoes. The device thus at all times automatically adjusts itself to any variation in adjustment or of wear.

When occasion arises to take up the length of any of the connecting-rods, it is only necessary to move the hook 12<sup>a</sup> on the bar 3 and readjust the pin 13 in the openings 14. It will also be noted that the equalizing-beams 17 are substantially above the end of the truck-frame and that all connecting-rods and levers are outside the truck-wheels, thus leaving the entire interior of the frame between the wheels unobstructed to accommodate the motors and other mechanism.

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

1. In combination with the wheels of a car-truck, four independently-movable brake-shoes, a lever pivotally connected to each brake-shoe, rods connecting the levers at the respective sides of the truck, an equalizing-beam connected at its respective ends to the levers at the respective ends of the truck, and means for moving the equalizing-beam pivotally connected to the middle thereof.

2. In combination with the wheels of a car-truck, four independently-movable brake-shoes, levers pivotally connected to two of said brake-shoes, an equalizing-beam connected to said levers at its respective ends, means for moving the beam pivotally connected to the middle thereof, and rods connected to the levers at one end and connected to the opposite brake-shoes at the other end.

3. In combination with the wheels of a car-truck, a pendulum hanger adjacent to each wheel, a brake-shoe attached to the movable end of each hanger and adapted to engage the respective wheel, a lever pivoted to each of two hangers at opposite sides of the truck, an equalizing-beam connected to the levers at its respective ends, means for operating the beam pivotally connected to the middle thereof, a rod connected to each lever at one end and connected to the opposing brake-shoe at the other end.

4. In combination with the wheels of a car-truck, a pendulum hanger adjacent to each wheel, a brake-shoe attached to the movable end of each hanger and adapted to engage the respective wheel, a lever pivoted to each hanger at one end, an equalizer-beam connected to each pair of levers, means for operating each beam pivotally connected to the middle

thereof, and two connecting-rods extending between the levers at the respective sides of the truck and pivotally connected thereto, each rod also having a slotted opening at one end engaging a stud on one lever and pivoted to the other lever at a distance from the stud.

5. In a brake mechanism a transversely-divided connecting-rod, a take-up lever to which the adjacent ends of said rod are pivoted at a distance apart, and means for pivotally and adjustably supporting the said lever.

6. In a brake mechanism, a connecting-rod transversely divided intermediate its ends, a take-up lever pivotally connected near one end to the adjacent ends of said rod, a supporting-bar for said lever, a hook on the lever pivoted and adjustable on said bar, and means for adjusting the hook on the bar.

7. In a brake mechanism, two truck-wheels, two brake-shoes oppositely engaging the truck-wheels, a lever pivotally connected to each brake-shoe, two connecting-rods pivotally connected to said levers at their respective ends and intermediately divided, each rod having a slotted opening traversing a stud on the lever, two take-up levers to which the adjacent ends of the connecting-rods are pivoted means for pivotally and adjustably supporting the ends of the take-up levers, and an equalizer-beam for operating the first-named levers.

8. The combination of two truck-wheels, two brake-shoes oppositely engaging the same, pendulum hangers supporting the brake-shoes, levers pivoted to the hangers, means for separately operating the levers, connecting-rods pivotally attached to the levers at each end and intermediately divided, take-up levers to which the adjacent ends of the rods are pivoted, hooks on the ends of the levers, a supporting-bar having a series of openings and engaged by the hooks, and a pin adjustable in the openings in the bar and engaging the take-up lever.

9. In combination with an equalizing-beam for brake mechanism, a lever pivotally connected at one end to the car-frame, rods connecting said lever to the middle of the beam, a rod connected to the other end of the lever, a rack on the rod, a vertical shaft, and a pinion on the shaft engaging the rack.

10. The combination of the four wheels of a car-truck, pendulum hangers near each wheel, a brake-shoe attached to each hanger and engaging the respective wheel, levers pivotally connected to each brake-shoe, an equalizing-beam attached to each pair of levers at the respective ends of the truck, two connecting-rods pivotally connected to the two levers at each side of the truck, each rod having a slot in one end traversing a stud on the lever, a lever pivotally connected to the middle of each beam, an operating-rod connected to each lever, a rack on each operating-rod, a pinion engaging each rack, and a shaft to operate each pinion.

11. The combination of a car-truck having

four wheels and a frame, a pendulum hanger  
near each wheel and supported on the frame,  
a brake-shoe mounted on each hanger, a lever  
pivoted to each hanger, two rods connecting  
5 the levers at the respective sides of the truck,  
each rod being divided and having a slotted  
end, a stud on each lever engaging and trav-  
ersing a slot in a rod, a supporting-bar at each  
side of the frame, take-up levers pivotally  
10 and adjustably supported on said bars, and  
pivotally attached to the adjacent ends of the  
rods, means for adjusting the levers on the  
supporting-bars, an equalizer-beam attached  
to the levers at the respective ends of the  
15 truck, a rod connected to said beams, a rack  
on said rod, a pinion engaging the rack and a  
shaft to operate the pinion.

12. In a brake mechanism, in combination

with the wheels of a car-truck, a frame sur-  
rounding the wheels, brake-shoes engaging 20  
the wheels, pivoted hangers supporting the  
brake-shoes, levers attached to the hangers,  
rods connecting the levers, said hangers, rods  
and levers being arranged between the wheels  
and the frame, an equalizing-beam above the 25  
ends of the frame, and connected to the levers  
at its respective ends, and means for operat-  
ing said beams extending outward from the  
respective ends of the truck, and pivoted to  
the middle of said beams. 30

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

WARREN W. ANNABLE.

Witnesses:

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GEORGIANA CHACE.