No. 763,961. PATENTED JULY 5, 1904.

F. L. CLARK.

BRAKE RIGGING FOR RAILWAY TRUCKS.

APPLICATION FILED OCT. 11, 1902.

NO MODEL.

Fig. 1.

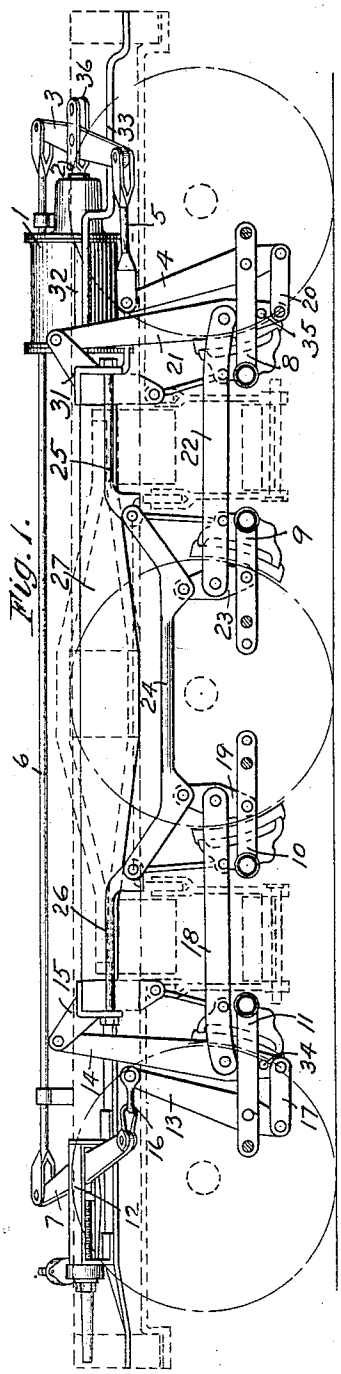
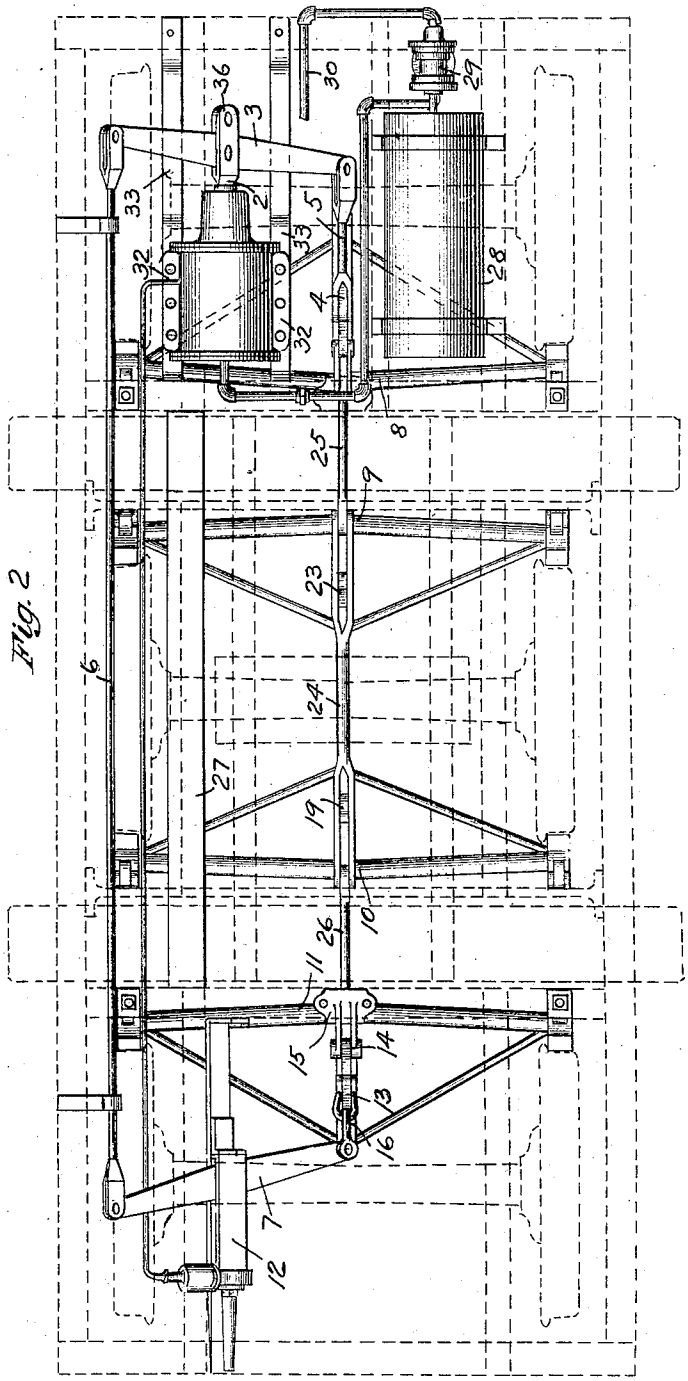


Fig. 2



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UNITED STATES PATENT OFFICE.

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BRAKE-RIGGING FOR RAILWAY-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 763,961, dated July 5, 1904.

Application filed October 11, 1902. Serial No. 126,894. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS L. CLARK, a citizen of the United States, residing in Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Brake-Rigging for Railway-Trucks, of which improvement the following is a specification.

My invention relates to brake-rigging for railway-cars, and has for its object to provide an improved form of brake-rigging especially adapted to be used on six-wheeled trucks.

With this object in view my invention consists in a new and improved brake-rigging having brake-beams applied to both sides of the center pair of wheels and the inside of each of the two outer pair of wheels.

My invention also comprises an equalized system of brake-rigging which, together with the brake-cylinder, may be mounted on the car-truck and adapted to equalize all strains due to braking, whereby all members of the car-truck will be relieved of any such strains; and it further consists in certain novel combinations and improved features of construction, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved system of brake-rigging applied to a six-wheeled truck, the truck being indicated in dotted lines; and Fig. 2 is a plan view of the same.

According to the construction as shown in the drawings the brake-cylinder 1 is mounted on the truck, and the piston-rod 2 is provided with a cylinder-lever 3, one end of which is connected, by means of rod 5, to the upper end of truck-lever 4, pivoted to the brake-beam 8 of one of the outer pair of wheels, the other end of said cylinder-lever being connected by a pull-rod 6 with the cylinder-lever 7 at the opposite end of the truck. This cylinder-lever 7 is pivoted to a bracket or slack-adjuster 12, which is secured to a truck-beam substantially in longitudinal alinement with the brake-cylinder.

The lower end of truck-lever 4 is connected by a link 20 with the lower end of intermediate lever 21, which is pivoted at its upper end to a bracket 31, supported on one of the cross-beams of the truck-frame. In a similar manner at the other end of the truck the lever 13, which is connected at its upper end by links 16 to cylinder-lever 7, is connected at its lower end by a link 17 with the lower end of intermediate lever 14, which is pivoted at its upper end to a bracket 15, supported on another of the truck-beams. These brackets 15 and 31 are connected together by rods 25 and 26 and intermediate connecting-bar 24, to which latter bar 24 are pivoted the truck-levers 19 and 23, pivoted to and partially supporting the brake-beams 10 and 9, respectively, for the center pair of wheels. These levers 19 and 23 are connected to the respective intermediate levers 14 and 21 by the compression or thrust bars 18 and 22, respectively, the leverage being so arranged that the pressure applied to the intermediate brake-beams 9 and 10 will be only one-half that applied to the brake-beams of the other pair of wheels.

The brake-cylinder is preferably supported on central horizontal flanges 32, which are mounted on brackets or bars 33, secured to a cross-beam of the truck-frame, and in order to relieve said beam and also the beam carrying the slack-adjuster from any bending movement due to braking stress a compression-strut 27 is inserted between these points on the cross-beams. It will also be noticed that the reactions at the fulcrum-brackets 15 and 31 will be equalized through the rod-and-bar connections 25, 26, and 24, while the reactions at the upper ends of the truck-levers 19 and 23 are equalized through the bar 24. It will thus be seen that all strains due to braking will be equalized throughout the system, thereby relieving all truck members from such strains.

The brake-beams are provided with the usual hangers, and the intermediate levers 14 and 21 may also serve as additional hangers for the brake-beams of the outer pairs of wheels by providing pins 34 and 35 therein for supporting the strut member of said brake-beam, and thereby preventing the same from tilting.

The auxiliary reservoir 28, triple valve 29, and branch pipe 30 of the automatic air-brake system may also be mounted upon the truck, if desired.

The piston-rod or push-bar is provided with an extended end 36, which is adapted to be connected to a hand-operated brake device, if desired.

It will now be seen that when fluid under pressure is admitted to the brake-cylinder the power will be transmitted to the truck-lever 4 by means of pull-rod 5 and to truck-lever 13 by means of pull-rod 6, lever 7, and link 16. This will cause the upper ends of these truck-levers to move outwardly, thus applying the outer brake-beams to the wheels, and, through the respective intermediate levers and rod connections to levers 19 and 23, cause the intermediate brake-beams 10 and 9 to be forced against the opposite sides of the center pair of wheels with equal pressure, thus exerting an equal amount of braking force on each pair of wheels and equalizing all strains throughout the system of brake-rigging, as before explained.

As heretofore used in connection with six-wheeled trucks the brake-beams for the outer pairs of wheels have usually been applied to the outside of said wheels, while only one brake-beam was employed on the center pair of wheels. This type of brake-gear, which is known as "outside-hung," has several objectionable features, one of which is that it produces tilting of the truck-frame during the time that the brakes are applied. The reason for this is that the outside brake-beams are hung to the truck at great distances from its center and when applied to the wheels the dragging movement tends to pull down one end of the truck-frame and push up the other end, thus causing a tilting which is not counteracted but rather augmented by the hanger of the intermediate brake-beam. With my improved form of brake-gear having inside-hung brake-beams for the outer pairs of wheels and brake-beams applied to both sides of the center pair of wheels this difficulty is entirely overcome, since the hangers of the brake-beams for the outer wheels are located so much nearer the center of the truck that the tendency to tilt the truck-frame is small, and even this is partially counteracted by the tilting effect produced by the brake-beams of the center pair of wheels, which acts in the opposite direction. It will also be observed that with the inside-hung brake the force tending to tilt the truck-frame, due to the dragging movement of the brake-beams in the direction of rotation of the wheels, acts in the opposite direction to the tilting effect caused by the momentum of the car when the wheels are retarded by an application of the brakes, and this comprises another of the important advantages of my improved form of brake-rigging.

Various modifications embodying the essential features of this improved brake-gear may be designed without departing from the spirit of my invention, and I do not, therefore, limit myself to the specific construction as shown and described, but wish to cover, broadly, an equalized brake-rigging for six-wheeled trucks having inside-hung brake-beams for the outer pairs of wheels and also a brake-rigging having a brake-cylinder mounted on the truck and intermediate equalized connections for transmitting pressure to the brake-beams without subjecting the members of the truck-frame to any strains due to braking.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A brake-rigging for six-wheeled trucks, comprising inside-hung brake-beams for the two outer pairs of wheels, a brake-beam for the center pair of wheels, truck-levers and intermediate connections for applying said brake-beams, a brake-cylinder mounted on the truck-frame and means for equalizing the braking stresses independent of the truck-frame.

2. A brake-rigging for six-wheeled trucks, comprising inside-hung brake-beams for the two outer pairs of wheels, a brake-beam for each side of the center pair of wheels, truck-levers and intermediate connections for applying said brake-beams, a brake-cylinder mounted on the truck-frame and means for equalizing the braking stresses independent of the truck-frame.

3. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pair of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers pivoted to said outer brake-beams and intermediate connections including compression-bars from said truck-levers to the center brake-beams.

4. In a brake-rigging for railway-trucks, the combination with brake-beams having truck-levers pivoted thereto, of a brake-cylinder mounted on the truck and having its piston connected to two of said truck-levers.

5. In a brake-rigging for railway-trucks, the combination with brake-beams and truck-levers pivoted thereto, of a brake-cylinder mounted on the truck, a cylinder-lever pivoted upon the truck, connections from the brake-piston to said cylinder-lever and to one of the truck-levers, and connections from said cylinder-lever to another truck-lever.

6. In a brake-rigging for railway-trucks, the combination with brake-beams and truck-levers for operating the same, of a brake-cylinder mounted on the truck, a cylinder-lever fulcrumed on the truck and a strut member located between the brake-cylinder and said lever-fulcrum.

7. In a brake-rigging for six-wheeled trucks, the combination of inside-hung brake-beams for the outer pairs of wheels, truck-levers for

operating said beams, a brake-cylinder mounted on the truck, a cylinder-lever pivoted to the piston-rod and connected to one truck-lever, another cylinder-lever having a fulcrum on the truck-frame and connected to the other truck-lever, a rod connecting said cylinder-levers, and a strut member between the brake-cylinder and said fulcrum on the truck-frame.

8. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pairs of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers for the outer brake-beams, intermediate levers for operating the center brake-beams and having fixed fulcrums on the truck-frame, and a direct equalizing connection between said fulcrums.

9. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pairs of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers for the outer brake-beams, truck-levers for the center brake-beams having stationary fulcrums, and a compression-bar connecting said fulcrums.

10. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pairs of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers pivoted to the outer brake-beams, and intermediate levers connected with said truck-levers for operating the center brake-beams.

11. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pairs of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers pivoted to the outer brake-beams, intermediate levers connected to said outer truck-levers and truck-levers for the center brake-beams operated by the respective intermediate levers.

12. In a brake-rigging for six-wheeled trucks, the combination with inside-hung brake-beams for the outer pairs of wheels and brake-beams for both sides of the center pair of wheels, of truck-levers pivoted to the outer brake-beams and intermediate levers for operating the center brake-beams, said intermediate levers also serving as additional hangers for the outer brake-beams.

In testimony whereof I have hereunto set my hand.

FRANCIS L. CLARK.

Witnesses:
R. F. EMERY,
JAS. B. MACDONALD.