J. A. PILCHER.

BRAKE ARRANGEMENT FOR SIX WHEEL CAR TRUCKS.

APPLICATION FILED FEB. 26, 1915.

1,156,490. Patented Oct. 12, 1915.

Fig. 1.

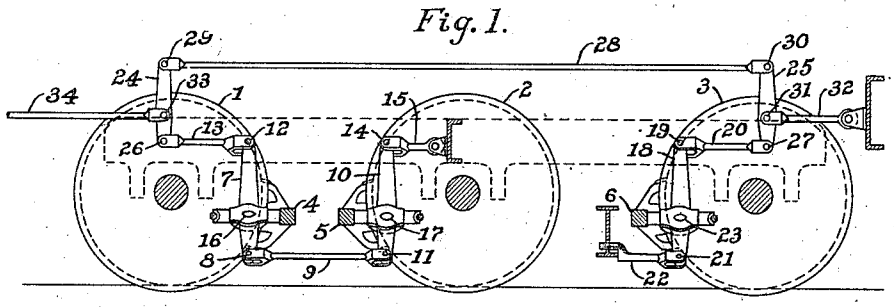


Fig. 2.

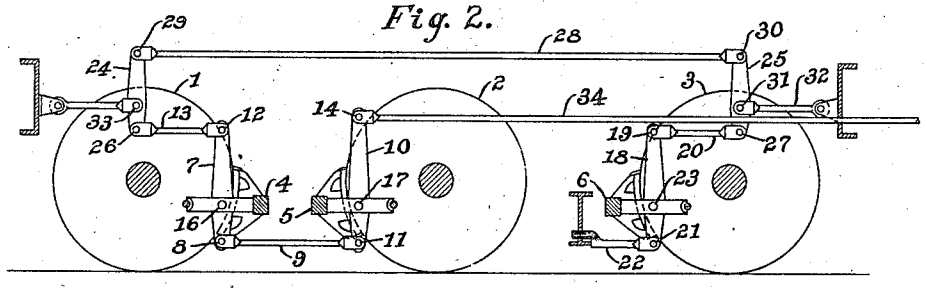


Fig. 3.

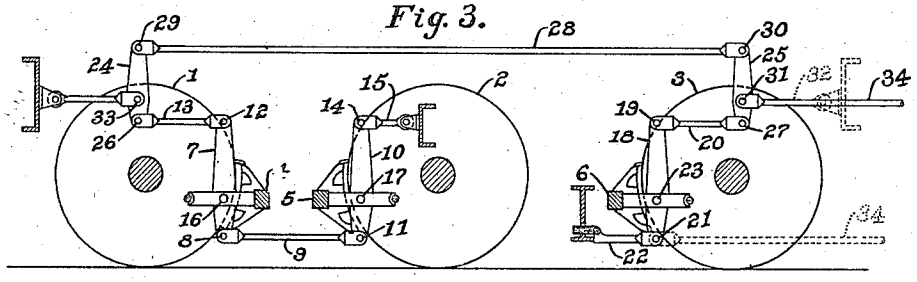


Fig. 6.

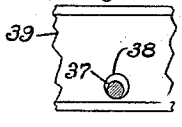


Fig. 5.

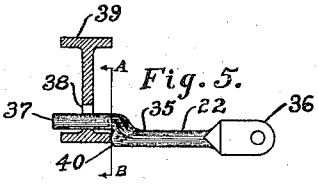
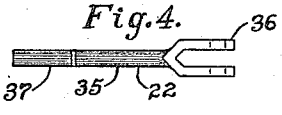


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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BRAKE ARRANGEMENT FOR SIX-WHEEL CAR-TRUCKS.

1,156,490. Specification of Letters Patent. Patented Oct. 12, 1915.

Application filed February 26, 1915. Serial No. 10,793.

To all whom it may concern:

Be it known that I, JOHN A. PILCHER, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Brake Arrangement for Six-Wheel Car-Trucks, of which the following is a specification.

This invention pertains to brake arrangements for car trucks and the particular object thereof is to provide an improved arrangement of levers, beams, rods, etc.

Another object is to provide an improved form of push fulcrum as will be described.

The invention consists in the arrangement and the formation of parts as will be herein described and particularly claimed.

In the drawings, Figure 1 is a sectional elevation of a truck showing the application thereto of my invention, and Figs. 2 and 3 are similar views showing alternate arrangements thereof. Fig. 4 is a plan view of the fulcrum as used and Figs. 5 and 6 are side elevational and transverse sectional views respectively thereof, the latter taken on the line A. B., Fig. 5.

Referring now to the drawings wherein the same parts are similarly designated wherever they occur, 1 represents the end wheels of a six-wheel truck, 2 the middle wheels thereof and 3 the other end wheels.

The brake beams 4—5 and 6 are supplied for the pairs of wheels 1—2 and 3 respectively, and the beams 4 and 6 are disposed on the inner sides of the end wheels, thus constituting what is known as "inside" brakes. It will be realized that various advantages accrue from the use of these inside brakes, among which are shorter lever-actuating members and more convenient means for suspending the beams from the truck structure.

For the beam 4 is provided a live lever 7 and to this live lever is pivotally connected at the lower extremity thereof at 8 one end of a lever-actuating member or compression member 9, the other end of this member 9 being connected to the lower extremity of a dead lever 10 at 11, the dead lever 10 being supplied for the brake beam 5. To the upper extremity of the live lever 7 at 12 is pivotally connected one end of a lever-actuating member or pull rod 13, while the upper extremity of the dead lever 10 is fulcrumed at 14 and by means of the pull-fulcrum 15 to some convenient part of the truck or car. The brake beams 4 and 5 are fulcrumed to the levers 7 and 10 at the points 16 and 17 respectively and these points are located between the extremities described of their respective levers.

For the brake beam 6 is provided a dead lever 18, and to the upper extremity thereof is connected at 19 the one end of a lever-actuating member or pull rod 20. The lower extremity of the lever 18 is fulcrumed at 21 and by means of the push fulcrum 22 to some fixed part of the truck or car. The brake beam 6 is fulcrumed to this lever 18 at 23, between the extremities 19 and 21 thereof.

In order to properly actuate the various parts, equalizing levers 24 and 25 are provided at suitable points and to the one extremity 26 of the lever 24 is pivoted the other end of the lever-actuating member or pull rod 13. To the one extremity 27 of the lever 25 is pivotally connected the other end of the lever-actuating member or pull rod 20. The lever-actuating member or pull rod 28 connects the other extremities of these two equalizing levers 24 and 25, it being pivotally connected to them at the points 29 and 30 respectively.

One of the equalizing levers (25 in Fig. 1) is fulcrumed between its extremities at 31 and by means of the pull-fulcrum 32 to some convenient part of the car or truck, while to the other lever (24 in Fig. 1) is pivotally connected, between its extremities at 33, a lever-actuating member 34 which has operative connection at its other end (not shown in the drawings) with the brake mechanism of the car body.

The operation of the mechanism is as follows, reference being had to Fig. 1: The rod 34 being actuated as a pull member from the brake mechanism on the car body, the equalizing lever will be pulled ahead and likewise the rods 13 and 28. By means of the rod 13 the lever 7 will be actuated and the beam 4 will be applied to the wheels 1. The lever 7, fulcruming about 16, the rod 9 will be actuated as a compression member and the lever 10 thereby actuated and the beam 5 applied to the wheels 2, the lever 10 fulcruming at 14.

By means of the rod 28 the equalizing lever 25 will be actuated about the fulcrum point 31, pulling the rod 20 and actuating the lever 18 about the fulcrum point 21, thereby applying the beam 6 to the wheels

3. By properly proportioning the various levers I have produced a perfectly equalized brake mechanism in which there is a minimum of compression members and no such members of any appreciable length. Also, by the use of the equalizing levers 24 and 25, the rod 28 may be carried up over the truck structure instead of passing through the intricacies thereof.

In Fig. 2 I have shown the actuating member from the car body applied at a different point to my lever system and in Fig. 3 I have shown in full lines a third way of making such connection and in dotted lines a fourth way. From this it will be realized that the pull rod from the car body might be applied at any of the described fulcrum points. It is customary to suspend the brake beams for such trucks from members that have no relative vertical movement with respect to the wheels while it is usually necessary to affix the fulcrums such as 21 to some part of the truck or car that is carried on springs and that hence has such relative motion. Because of this it is necessary that such fulcrums be made to swing so as to allow this relative vertical movement of the two ends of the fulcrum without bending the material of the fulcrum. It is also important that the line of the push in such a fulcrum be not at an angle that will, by one of the components of the force, throw a transverse bending in the brake beam. To form this fulcrum 22 I provide a body portion 35, a shank portion 37, and a jaw portion 36. The shank portion is disposed within an opening 38 in a fixed portion 39 of the car or truck and the body portion 35 terminates in and forms a shoulder 40, adjacent the shank portion and which is adapted to abut the material adjacent the opening 38. This shoulder is preferably made with a curved face to allow the desired relative movement of the ends of the fulcrum and the hole 38 likewise accommodates the shank 37 during such movement.

The particular embodiment of this fulcrum shown is adapted to keep the line of push properly alined in order to prevent the transverse load on the brake beam spoken of and to do this the shoulder 40 abuts the structure 39 to one side of the opening 38. At the same time all of the other desirable points set forth are accomplished. The shank 37 also extends through the opening 38 a sufficient distance to prevent its coming dislocated after having been connected to the lever 18.

Thus I have shown the embodiment of my invention and I claim the following:

1. In a brake arrangement for six-wheel car trucks the combination with three brake beams of a similar number of brake levers, the said beams being fulcrumed to the said levers respectively between the extremities thereof and said beams being adapted to serve an outside pair, the middle pair, and the other outside pair of truck wheels respectively, a lever-actuating member pivotally connecting the corresponding extremities of the first two of the said brake levers and forming fulcrums therefor, a fulcrum for the other extremity of the second of the said brake levers, an additional fulcrum for the one extremity of the third of said brake levers, a pair of equalizing levers fulcrumed between their extremities, a lever-actuating member pivotally connecting the corresponding extremities of the said equalizing levers, an additional pair of lever-actuating members pivotally connecting the other extremities of the said equalizing levers with the other extremities of the said first and third brake levers, and a lever-actuating member pivotally connected to one of the said levers at a fulcrum point thereof.

2. In a brake arrangement for six-wheel car trucks the combination with three brake beams of a similar number of brake levers, the said beams being fulcrumed to the said levers respectively between the extremities thereof and said beams being adapted to serve an outside pair, the middle pair, and the other outside pair of truck wheels respectively, a lever-actuating member pivotally connecting the corresponding extremities of the first two of the said brake levers, a fulcrum for the other extremity of the second of the said brake levers, an additional fulcrum for the one extremity of the third of said brake levers, a pair of equalizing levers fulcrumed between their extremities, a lever-actuating member pivotally connecting the corresponding extremities of the said equalizing levers, an additional pair of lever-actuating members pivotally connecting the other extremities of the said equalizing levers with the other extremities of the said first and third brake levers, and a lever-actuating member pivotally connected to one of the said equalizing levers at the fulcrum point thereof, whereby the said mechanism may be actuated.

3. In a brake arrangement for six-wheel car trucks, an equalizing lever, a lever-actuating member pivotally connected to the said equalizing lever at one of the extremities thereof, a live brake lever to which is pivotally connected at one extremity the other end of said lever-actuating member, a brake beam fulcrumed to the said live brake lever between the extremities thereof, a second lever-actuating member pivotally connected to the said live brake lever at the other of its extremities, a dead brake lever to which is pivotally connected at one of its extremities the other end of the said second lever-actuating member, a second brake beam fulcrumed to the said dead brake lever between the extremities thereof, the other extremity of the

said dead brake lever being fulcrumed, a second dead brake lever the one extremity of which is fulcrumed, a third brake beam fulcrumed to the said second dead brake lever between the extremities thereof, a second equalizing lever fulcrumed between its extremities, a third lever-actuating member pivotally connected at one end to the one extremity of the said second equalizing lever and at the other end to the other extremity of the said second dead brake lever, a fourth lever-actuating member pivotally connecting the other extremities of the said first and second equalizing levers, and means from the brake mechanism of the car body, pivotally connected to one of the said levers at a fulcrum point, whereby the entire mechanism may be actuated.

4. In a brake arrangement for car trucks, a fixed portion of the car or truck having an opening therethrough, in combination with a brake lever and a push fulcrum therefor, the said fulcrum having a shank portion adapted to be received and guided by the said opening and a body portion forming a shoulder, the said shoulder being adapted to abut the material adjacent the said opening in pushing, and means on the said fulcrum for the attachment thereto of the said brake lever.

5. In a brake arrangement for car trucks, a fixed portion of the car or truck having an opening therethrough, in combination with a brake lever and a swinging push fulcrum therefor, the said fulcrum having a shank portion adapted to be received and guided by the said opening and having a shoulder adjacent the said shank portion, the said shoulder being adapted to swingingly abut the material adjacent the said opening in pushing, and means on the said fulcrum for the attachment thereto of the said brake lever.

6. In a brake arrangement for car trucks, a fixed portion of the car or truck having an opening therethrough, in combination with a brake lever and a swinging push fulcrum therefor, the said fulcrum having a shank portion adapted to be received and guided by the said opening and having a shoulder adjacent and to the side of the said shank portion, the said shoulder being adapted to swingingly abut the material adjacent the said opening in pushing, and means on the said fulcrum for the attachment thereto of the said brake lever.

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

JOHN A. PILCHER.

Witnesses:
H. B. WADE,
ROY K. BROWN.