(No Model.) 2 Sheets—Sheet 1.

L. ROBERTS & J. WHEATER.

BRAKE MECHANISM FOR CARS.

No. 491,664. Patented Feb. 14, 1893.

FIG. 3.

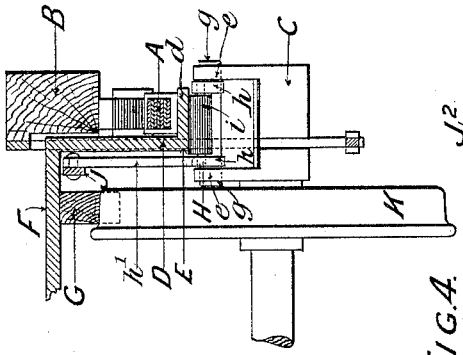


FIG. 4.

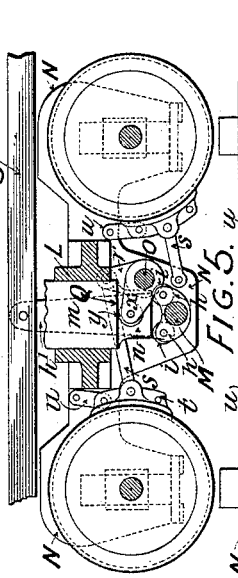


FIG. 5.

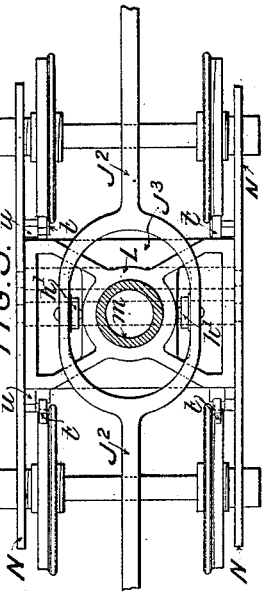


FIG. 1.

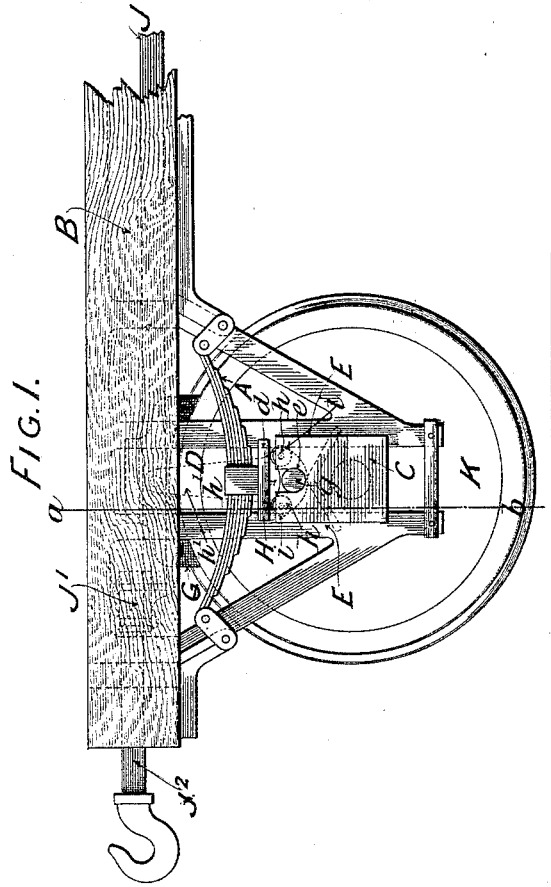
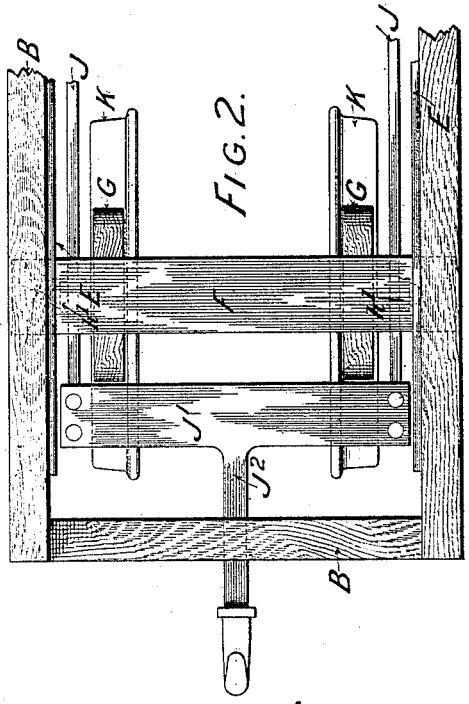


FIG. 2.



WITNESSES.
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their Attys

(No Model.) 2 Sheets—Sheet 2.

L. ROBERTS & J. WHEATER.

BRAKE MECHANISM FOR CARS.

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FIG. 8.

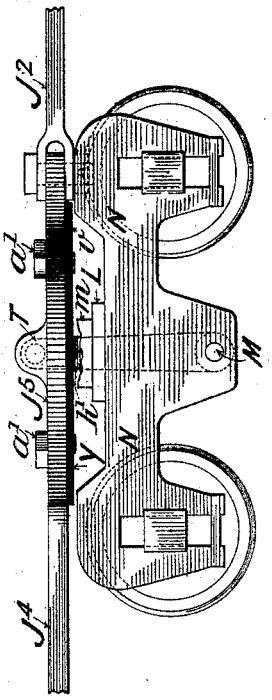


FIG. 7.

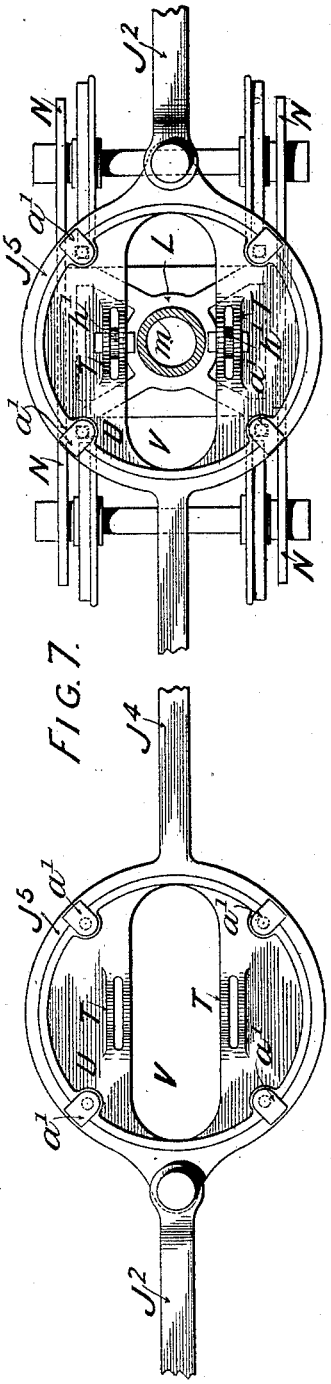
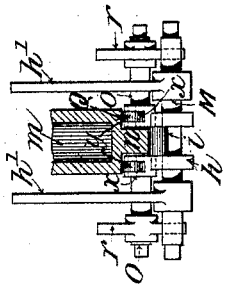


FIG. 6.



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UNITED STATES PATENT OFFICE.

LUKE ROBERTS AND JAMES WHEATER, OF BRADFORD, ENGLAND; SAID WHEATER ASSIGNOR TO SAID ROBERTS.

BRAKE MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 491,664, dated February 14, 1893.

Application filed March 18, 1892. Serial No. 425,462. (No model.) Patented in England July 1, 1890, No. 10,151.

To all whom it may concern:

Be it known that we, LUKE ROBERTS and JAMES WHEATER, engineers, subjects of the Queen of England, residing at Bradford, in the county of York, England, have jointly invented certain new and useful Improvements in Brake Mechanism for Railway and Tramway Vehicles, (for which we have obtained a patent in Great Britain, No. 10,151, bearing date July 1, 1890;) and we do hereby declare the following to be a full, clear, and exact description of the same.

The object of this invention is to provide simple and automatic brake mechanism particularly applicable to railway and tramway vehicles.

The said improvements consist in utilizing the weight of the load or body of the vehicle to keep the brake applied and in the arrangement of mechanism hereinafter described for automatically taking off the brake as soon as power to move the vehicle is applied to the draw bar or its equivalent.

In the accompanying drawings Figure 1, represents a side view of one end of a railway truck illustrating the application of our invention to an ordinary four wheeled vehicle. Fig. 2, is a plan of the same, and Fig. 3, is a cross section on the broken line *a*, *b* Fig. 1. Fig. 4, is a longitudinal section of a slightly modified arrangement particularly applicable to the bogie of a tram or railway vehicle. Fig. 5, is a plan of the same, and Fig. 6, is a detail view of certain parts of the mechanism. Fig. 7, is a plan view of an arrangement for coupling the draw bars and brake levers of two bogies together and is represented attached to a bogie at one end while the other end is shown alone so as to make its construction perfectly clear. Fig. 8, is a side view of the bogie with one end of said connecting arrangement mounted thereon.

In Figs. 1, 2 and 3, the springs A, supporting the body B of the vehicle, instead of being secured in the ordinary way to the axle boxes C are mounted upon and secured to the projection *d* of the vertical slide D one of which is fitted above each axle box between the axle box horns E. The slides D opposite each other are preferably connected together by the cross piece F so that one side tends to steady the other and also to form a stout attachment for the brake blocks G which are secured in any convenient manner to the cross piece F. Bearings *e*, *e* are formed in each axle box in which the pivots or journals *g*, *g* of a lever H are mounted, said lever has a short horizontal arm *h*, *h* on each side which carry the anti-friction rollers *i*, *i* and such lever is also provided with a long vertical arm *h'* connected at the top to the horizontal bar J one of which is provided at each side of the vehicle and the ends of each of the arms *h'* are connected thereto. The ends of the bars J, J are rigidly secured at each end of the vehicle to the cross-bar J' to which the draw bar J^2 is rigidly secured.

The various parts are so relatively arranged that when the draw bar is in the position shown the brake blocks bear with approximately the full weight of the body of the vehicle upon the peripheries of the wheels K but as soon as sufficient power is applied to either end of the draw bar to move the vehicle, the draw bar, capable of a limited horizontal motion, first moves horizontally which motion inclines the levers H so that one of the anti-friction rollers *i* carried by the horizontal arms of each of said levers is brought to bear against the underside of the projections *d* of the vertical slides D and thereby lifting such slides raise the brake blocks connected to the cross pieces F clear of the wheels K leaving the vehicle perfectly free to be moved along. As soon however as the power required to move the vehicle is withdrawn or seriously diminished the weight of the body of the vehicle as it falls to its original position carries the various parts back to the position shown in the drawings and again applies the brake.

The bogie shown in Figs. 4 and 5 may be of any ordinary form and the seat L is provided with the usual vertical slide *m*, shown broken off in the drawings, to receive the support of the body of the vehicle. A rocking shaft M mounted between the side frames N carries two long arms *h'* connected above to the draw bar J^2 which is provided with a slot J^3 so that the center of the bogie does not interfere with its longtudinal motion. Said rocking shaft also carries two short horizontal arms *h*, *h* provided at their extremities with anti-friction rollers *i*, *i* lying immediately beneath the

bottom n of the slides m. The remainder of the brake mechanism is of a well known type consisting of a cross shaft O operated by the levers or arms x, x (Figs. 4 and 6) mounted thereon and levers r, r fixed at each end connected by the rods s to the brake shoes t, hung by the links u to the side frames. The brake is normally kept on by the shoulders Q of the slide m bearing upon the anti-friction rollers y, y carried by the arms x, but when power is applied to the draw bar J^2 the rocking shaft M is turned through the medium of the arms h' so that one of the anti-friction rollers i is raised and bearing against the bottom n of the slide m and by lifting such slide clear of the arms x, x takes off the brake.

Instead of connecting the arms h' directly to the draw bar said arms are preferably pivoted at the top between the lugs T of the circle U supported by said arms above the bogie. This circle is provided with a central slot V which allows a limited longitudinal motion without interfering with the slide m. A similar circle U is mounted over the other bogies and the two circles are connected together by the rod J^4 having a circular strap J^5 at each end fitting the circles and held in position close to the flanges Y of said circles by the heads of the bolts a' mounted therein. The draw bars J^2 are secured to the straps J^5 in a line with J^4. By this arrangement the bogies thus coupled together are capable of considerable independent motion, as for instance in passing curves without practically interfering with the brake.

What we claim as our invention and desire to secure by Letters Patent is:

1. In railway and tramway vehicles, the combination with the body of the vehicle, and a brake mechanism, normally applied by the weight of the body, of a draw bar mechanism, through which power to move the vehicle is applied, connected with said brake mechanism and operating to release the brake when power to move the vehicle is applied; substantially as described.

2. The combination with brake mechanism actuated by the weight of the vehicle, of a lever or its equivalent connected to the draw bar and adapted to raise the weight of the vehicle for the purpose of taking off the brake, substantially as herein shown and described.

3. The combination with brake mechanism actuated by the weight of the vehicle of a lever connected to the draw bar having its fulcrum on the axle box or other part rigidly supported by the wheels, and having arms to bear upon the spring or its equivalent supporting the body of the vehicle, substantially as herein shown and described.

4. The combination with a brake mechanism actuated by the weight of the vehicle, of a lever connected to the drawbar having its fulcrum on the axle box or other part rigidly supported by the wheels and provided at its lower end with two laterally extending arms bearing against the support for the body of the vehicle, whereby when the drawbar is moved in either direction the weight of the vehicle will be raised and the brakes thrown off; substantially as herein shown and described.

5. In a bogie vehicle, the combination with levers h' or their equivalent adapted to remove the brake, of the circular attachments U and the coupling J^4, J^5, J^5, substantially as herein shown and described.

6. In railway and tramway vehicles constructed on the bogie principle, the combination with a circular attachment connected to the brake levers of each bogie, of a coupling loosely mounted upon and attached to the peripheries of said circular attachments and also connected to the draw bar of the vehicle, substantially as herein shown and described.

In testimony whereof we have hereunto set our hands in the presence of the two subscribing witnesses.

LUKE ROBERTS.
JAMES WHEATER.

Witnesses:
DAVID NOWELL,
SAMUEL A. DRACUP.