

(No Model.)

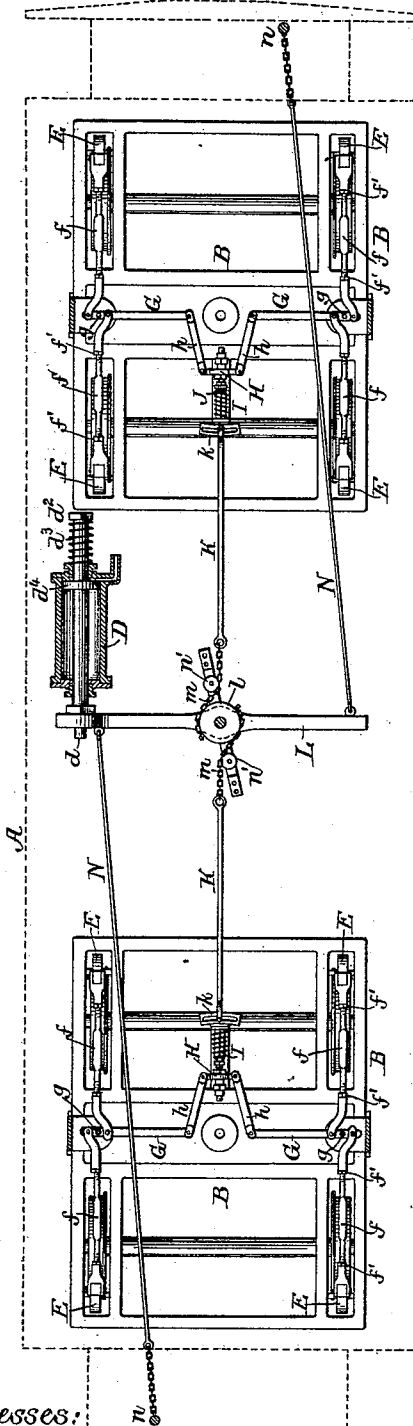
2 Sheets—Sheet 1.

C. FRIES, W. H. RICHARDSON & I. W. HACKETT.
CAR BRAKE.

No. 472,965.

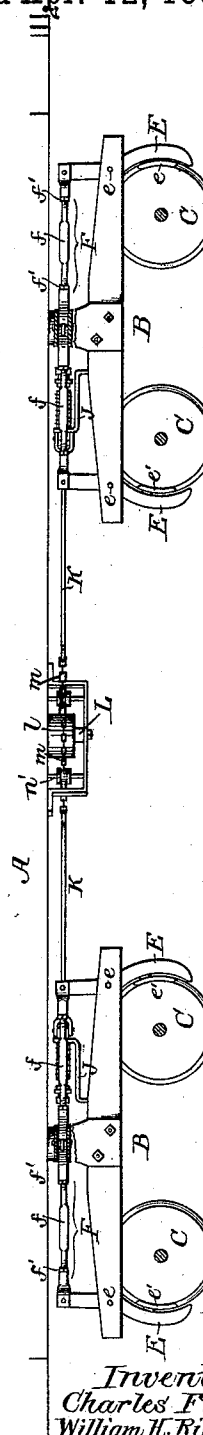
Patented Apr. 12, 1892.

FIG. 1.



Witnesses:
R. Schleicher.
A. V. Goupe

FIG. 2.



Inventors:
Charles Fries,
William H. Richardson,
& Isaac W. Hackett.
By their Attorneys
Houson & Houson

(No Model.)

2 Sheets—Sheet 2.

C. FRIES, W. H. RICHARDSON & I. W. HACKETT.
CAR BRAKE.

No. 472,965.

Patented Apr. 12, 1892.

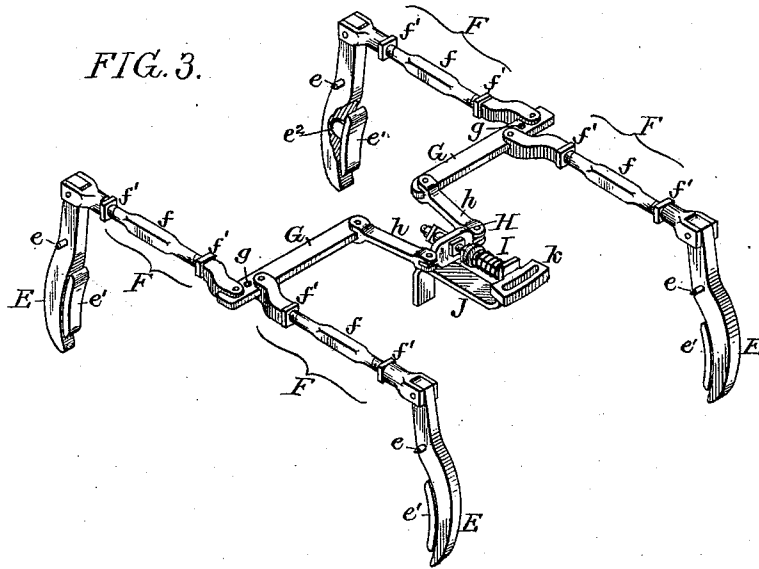


FIG. 4.

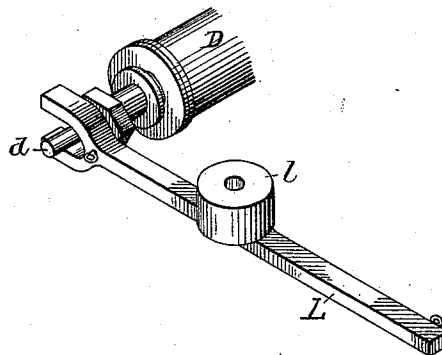
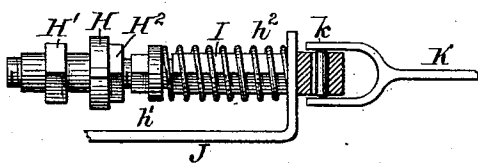


FIG. 5.



Witnesses:
R. Schleicher.
A. V. Groupe

Inventors:
Charles Fries,
William H. Richardson,
& Isaac W. Hackett
by their Attorneys
Howson & Howson

UNITED STATES PATENT OFFICE.

CHARLES FRIES, WILLIAM H. RICHARDSON, AND ISAAC W. HACKETT, OF
PHILADELPHIA, PENNSYLVANIA, ASSIGNORS OF ONE-FOURTH TO AUGUST
H. LUNNEMAN, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 472,965, dated April 12, 1892.

Application filed December 22, 1891. Serial No. 415,859. (No model.)

To all whom it may concern:

Be it known that we, CHARLES FRIES, WILLIAM H. RICHARDSON, and ISAAC W. HACKETT, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Car-Brakes, of which the following is a specification.

Our invention consists of certain improvements in the construction and arrangement of car-braking mechanism by which the braking power may be exerted to better advantage than heretofore and in which all the working parts are placed immediately beneath the body of the car and above the trucks at as great a distance from the ground as possible; for the purpose of preventing the clogging of the parts by dirt.

In the accompanying drawings, Figure 1 is a sectional plan view on the line 1 2, Fig. 2, of the trucks of a car, showing our improved braking mechanism, the outlines of the car being shown by dotted lines. Fig. 2 is an elevation of the same, illustrating a portion of the trucks. Fig. 3 is a perspective view of the braking mechanism attached to each truck, and Figs. 4 and 5 are views of details.

In the drawings, A represents the car; B B, the trucks, provided with wheels C; and D represents the pressure-cylinder having a connection with the air-brake pipe or with the pressure-reservoir ordinarily carried by cars using automatic brakes.

The mechanism employed upon each truck is precisely the same, and the description of but one will therefore be given.

E E represent brake-levers pivoted at *e* to the frame of the truck, and each lever carries a brake-shoe *e'*, secured in the body of the brake-lever by a projection *e''*, Fig. 3, fitting within a recess made in the body of the lever. At the upper end of each lever is pivoted one end of an adjustable rod F, the opposite end of which is connected to a horizontal lever G, pivoted at *g* to the truck. The rod F has an adjustable central section *f*, the opposite ends of which are threaded and adapted to threaded openings in the end pieces of the rod, and nuts *f'* are employed to lock the section *f* in any position to which it may be adjusted.

Each truck is provided with four of these

rods F and brake-levers E, the levers being arranged in pairs and one pair being adapted to the wheels on one side of the truck and each pair being pivoted to a single lever G, the connections between each of a pair of rods F and the lever G being on the opposite sides of the pivot-point *g* of the latter. The adjacent ends of the lever G are connected by links *h* to a common cross-head H, carried by a sliding bar I and adapted to be locked in any position to which it may be adjusted on said bar by means of nuts H' H², Fig. 5. One end of the bar I is square in cross-section and is adapted to a squared orifice within the bracket J, fixed to the truck, the outer end of the bar being provided with an opening *k* for the reception of an anti-friction roller carried by the brake-rod K. This opening is elongated and is curved on a line of a circle struck from the king-bolt of the truck, so that the brake-rod may be operated effectively without regard to the position of the truck end of either a straight or curved track. Between the bracket J and an adjusting-nut *h'* on the bar I is a spring *h''*, which acts normally to keep the brake-shoes *e'* from contact with the periphery of the car-wheels.

Pivoted to the bottom of the car is a lever L, (shown more clearly in Fig. 4,) one end of the lever being bifurcated and adapted to the piston-rod *d* of the pressure-cylinder D, and secured to or forming part of the lever is a drum *l*, to which are connected the ends of chains or cables *m*, extending from the drum over guide-wheels *n'* to one end of the brake-rod K, so that upon the operation of the piston-rod *d* and the consequent movement of the lever L the drum *l* will be partially rotated and will draw the brake-rods K K toward each other with sufficient force to operate the brake-levers and stop the car.

The connection between the lever L and the piston-rod *d* is such that the working force operates only in one direction, and the piston-rod is provided with a nut *d'*, by which the lever L may be moved to a greater or less extent, as required. This piston-rod *d* extends entirely through the cylinder D and is provided on its opposite end with an adjustable nut *d''*, between which and the end of the cylinder is a spring *d'''*, which serves to return

the piston to its normal position after the brakes have operated.

To the opposite ends of the lever L are attached brake-rods N N, extending to the usual hand-brake *n* at the opposite end of the car, so that the brakes may, if necessary, be operated by hand without in any way affecting the movement of the piston *d*⁴ or piston-rod *d*.

The various parts are adjustable for wear, and the brake-shoes normally are within a short distance from the wheels, so that but a slight movement of the brake-lever *l* is required to set the brakes.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination, in a car-brake, of the levers E E, pivoted to the frame of the truck, brake-shoes carried by said levers, the pivoted levers G, rods connecting the levers E and G, a cross-head, links connecting said cross-head to the levers G, and mechanism for operating said cross-head, substantially as specified.

2. The combination of the levers E E, pivoted to the frame of the truck, brake-shoes carried by said levers, the levers G, pivoted to the truck, adjustable rods connecting the levers E and G, a cross-head, links connecting the levers G to the cross-head, guides for said cross-head, said cross-head being provided with a curved slot *k*, and a brake-rod having one of its ends adapted to said curved slot, substantially as specified.

3. The combination, in a car-brake, of the brake-levers E E, pivoted to the frame of the truck, brake-shoes carried by said levers, the pivoted levers G, a guided cross-head, links connecting the levers G to said cross-head, a guided bar on which said cross-head is carried, and means for adjusting said cross-head on the bar, substantially as specified.

4. The combination, in a car-brake, of the levers E E, pivoted to the frame of the truck,

the levers G, pivoted to said truck, and rods F, each having one end connected to the levers E E and their opposite ends pivoted to the lever G on the opposite sides of the pivot-point of the lever G, the cross-head, the links *h*, connecting the levers G to said cross-head, a guided bar carrying said cross-head, and a spring between said cross-head and a fixed point, substantially as specified.

5. A brake-lever system comprising a pivoted lever L, a drum thereon, chains or cables extending from said drum to the brake-rods, stationary guiding-wheels *n'* for said chains, the brake-rods, brakes adapted to be operated thereby, and a pressure-cylinder for operating upon said lever L, substantially as specified.

6. A braking system comprising the brakes and brake-rods, the lever L, centrally pivoted beneath the car, a drum carried thereby and adapted to operate the brake-rod, a pressure-cylinder, a piston therein, a piston-rod adapted to act upon said lever L, and brake-rods N N, extending from said lever to the hand-brake-wheels, substantially as specified.

7. The combination of the pressure-cylinder, its piston, a piston-rod connected thereto, an adjustable nut on said piston-rod, and a brake-lever pivoted to the car and having one of its ends in contact with said nut, but free to move independently of the piston-rod, with brake-rods connected to said lever, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES FRIES.
WILLIAM H. RICHARDSON.
ISAAC W. HACKETT.

Witnesses:

JNO. E. PARKER,
EUGENE ELTERICH.