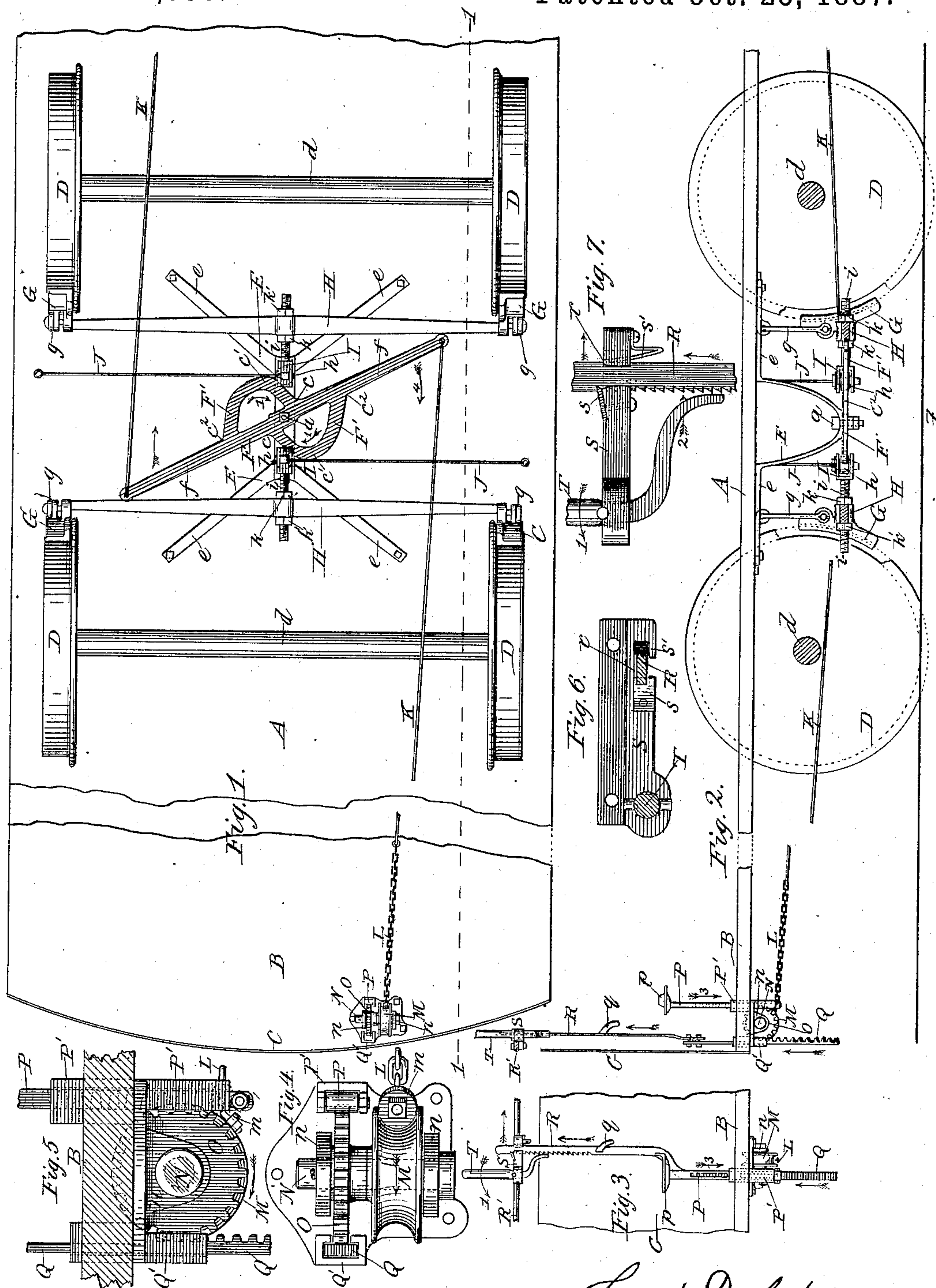


(No Model.)

L. DUBÉ.
CAR BRAKE.

No. 371,930.

Patented Oct. 25, 1887.



Witnesses.
Arthur M. Bugden
Charles L. Kinsley

Louis Dubé
Inventor.
By His Attorney
Alex. Selkirk

UNITED STATES PATENT OFFICE.

LOUIS DUBÉ, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO JOSEPH DUBÉ, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 371,930, dated October 25, 1887.

Application filed February 25, 1887. Serial No. 228,804. (No model.)

To all whom it may concern:

Be it known that I, LOUIS DUBÉ, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have
5 invented certain new and useful Improvements in Car-Brakes, of which the following is a specification.

My invention relates to brakes for cars in which are employed the devices and elements
10 and combinations of devices and elements hereinafter particularly described, and specifically set forth in the claims.

The object of my invention is to produce in brakes for cars of the class shown in my former invention in Letters Patent No. 354,891,
15 granted December 28, 1886, a simpler form of construction of devices employed and more effective combinations of elements for readily applying the brake-shoes to the periphery of
20 the car-wheels with greater or less force, at the will of the operator. I attain this object by the means illustrated in the accompanying drawings, forming a part of this specification, in which—

25 Figure 1 is a plan view from the lower side of the car. Fig. 2 is a side elevation taken at line 1 in Fig. 1. Fig. 3 is an elevation of the devices for operating the brake viewed from inside the car. Fig. 4 is a view, on an enlarged scale, of the sheave and rack-pinion
30 mechanism from the lower side. Fig. 5 is a side elevation of the same. Fig. 6 is a plan view of the hand operating mechanism, and Fig. 7 is a side elevation of the same.

35 The same letters refer to like parts throughout the several views.

In the drawings, A represents the bottom of the car. B is one of its platforms, (the other not shown.) C is the dash-board, and D D
40 are the wheels of the car, mounted on axles *d*, which are suitably supported in bearing-boxes, (not shown,) as practiced by the trade.

E is a bracket secured to the lower side of the bottom of the car and provided with pivot-bolt *a*. This bracket can be made with any
45 suitable form of construction and be provided with suitable arms, *e e*, for its firm attachment to the car, and is made to project downwardly from the lower side of the bottom A at about
50 a point relatively central between the four wheels D D D D, as shown in Fig. 1, and to

such a distance as to hold the pivoting portion of bolt *a* at a point about on a plane with a horizontal line when drawn at about the middle of length of the brake-shoes, or at about
55 a point midway between the car-bottom and the rail Z.

F is a duplex cam-lever pivoted to the lower end of bracket E by pivot *a*. This lever has its opposite arms *f f'* made with about equal
60 length, and has connected with it the cams F' F', which cams can be made solid with said arms or be secured with them by any known suitable means. These cams F' are each substantially a duplicate of the other in size and
65 form, and are arranged in opposition to each other, and are made to have such a form of construction as to give to their respective edge operating-faces a progressive throw outward and off from their center of motion on pivot *a*,
70 beginning each at a point past their center of motion, as at *c*, on one of the arms *f*, and running outwardly on a curved line to point *c'*, and thence relatively back of said center of motion, with a longer curved form, to a point
75 on the other arm, as at *c''*, at a greater distance from the pivot *a* than the point of beginning of these cams, as at their respective points *c*.

G G are the brake-shoes, which are pivoted
80 on the ends of the brake-bars H. The shoes and their respective bars are suspended from the lower side of the car, or a piece attached to the same, by hangers *g g*, which hangers can be elastic or spring-like in character, as
85 are sometimes used; or they can be so pivoted at their upper ends to the bottom of the car that the natural gravity of the shoes and bar will carry the face of the shoes to a short distance from the periphery of the wheels, as
90 indicated by dotted lines in Fig. 2.

Connected with each brake-bar H at about its middle of length is a friction-roller, *h*, mounted in a housing, I, as indicated by dotted lines in Fig. 1 and shown in full lines in
95 Fig. 2. These housings I are each made with a width between their upper and lower sides which will correspond with the thickness of the cams F', working between and against the rollers *h*. These roller-housings I are shown
100 to be each made with the screw-threaded stem *i*, which passes through corresponding holes

made in the brake-bar H at its middle of length, and secured by nuts *k k'*. By means of these screw-nuts *k* and *k'* the housing I and its roller *h* can be adjusted at will nigher to
 5 or farther off from the brake-bar, as may be required, or as the wear of the brake-shoes might demand an adjustment to be made to bring the faces of the shoes in proper relative
 10 situation with reference to the peripheries of the wheels they are to engage with when the cam-lever is operated.

J J are stay-rods, which are connected each at one end with a housing I and at the other end with the car. These stay-rods hold these
 15 housings from being thrust sidewise and from their normal positions when the cams are being operated against the rollers *h* in directions of arrows 1 in Fig. 1, for forcing the brake bar and its shoes outward from said cams and to-
 20 ward the car-wheels the brake-shoes are to operate with. These stay-rods, by reason of their length, permit the housings to be moved forward from the pivot *a* on which the cam-levers move.

K K are draw-rods suitably connected with the respective ends of the cam-lever F, and are carried past the ends of the car and to beneath the platform of the same, where they connect with draw-chains L in the usual man-
 30 ner. The draw-chains L (one only is shown) are connected with the sheave-wheels M by means of a lug, *m*, made solid with each said wheel, as shown in Fig. 4, and these sheave-wheels are each secured to a shaft, N, to which
 35 is fixed the toothed wheel or pinion O, so that they—the sheave-wheel, shaft, and toothed pinion—will revolve together. The shaft N, to which the sheave-wheel M and toothed wheel O are fixed, is supported in suitable
 40 bearings, *n n*, secured to the lower side of the platform B in a firm manner.

P is a foot-rack, which is supported in a vertical position by a suitable way, P', which is secured to the platform B. The toothed
 45 side of this rack engages with the toothed pinion *o*, and its upper end is provided with a foot-plate, *p*. A downward pressure on the foot-plate of this rack will cause it to revolve the toothed pinion O, and thereby revolve
 50 shaft N and sheave M, so that the latter will be made to draw on draw-rod K through chain L and operate to move the cam-lever so as to cause the brake-shoes to be brought in contact with the peripheries of the car-wheels.

Q is a gravity-rack, suitably guided by the way Q', secured to the platform. This gravity-rack is so arranged in relation to the sheave M, toothed pinion O, and foot-rack P that when the major portion of the teeth of this gravity-
 60 rack is down below the toothed pinion the foot-rack will be raised and the chain L will be unwound from off sheave M, as illustrated in Fig. 2. Secured to the upper end of this gravity-rack Q is the holding-rack R, having its
 65 upper end guided in a suitable way, *r*, connected with the hand-rail R' of the dash-board. The teeth of this rack are preferably made

with inclined upper sides, as shown in Fig. 7. A detent, *s*, is placed opposite said teeth for engagement with the same, and a spring, *s'*, ar-
 70 ranged to press on the opposite side edge of this rack, forces said toothed portion forward, so that one of its teeth will have engagement with said detent *s*.

T is a hand-lever working through a suit-
 75 able eye made in piece S, holding the holding-rack R. This lever is pivoted with piece S, and its upper limb serves as a handle, by which it will be operated, while its lower limb is so bent as to bring its end to a bearing on two or more
 80 of the teeth of the holding-rack, as shown in Figs. 3 and 7. When this hand-lever is moved in direction of arrow 1 in Figs. 3 and 7, the opposite end of the lever will be moved in di-
 85 rection of arrow 2 in Fig. 7 and be made to crowd against the toothed side of the holding-rack R and force it back from detent *s*, so as to be free from engagement with the same, the
 90 spring *s'* at the same time yielding before the pressure of the holding-rack piece on it. When released from detent *s*, this holding-rack will be free to move down through its way *r* in
 95 piece S until stopped by its lower end striking on the upper end of way Q' of gravity-rack Q. A suitable handle, *q*, is provided at any convenient point on the holding-rack for rais-
 ing the same when desired.

The manner in which the several parts of this invention operates is as follows: When the foot-lever P is raised up, as shown in Fig. 100
 2, the gravity-rack Q will be down and the draw-chain L will be unwound from sheave M and the cams F' F' of cam-lever F will be in position shown in Fig. 1, with the brake-shoes G off from the peripheries of the car-wheels, 105
 while the gravity-rack Q will, by its own weight and weight of the holding-rack R, hold the toothed pinion M to position for holding the foot-rack up, as shown in Fig. 2. In the above-described position of the several parts the said 110
 parts are in their normal position and in readiness for operation at the will of the driver. When the brake-shoes are to be brought against the peripheries of the car-wheels, the operator will place one of his feet on the foot- 115
 plate *p* and force the foot-rack P downwardly and in direction of arrow 3, and thereby cause the said foot-rack to revolve the toothed pinion O and the sheave M, when the latter will wind on chain L, and through it and the draw- 120
 rod K move the cam-lever F in direction of arrow 4, and cause the cams F' F' to move in a wedging manner against the respective rollers *h* in housings I, and thereby, through stems *i* and the brake-bars H, force their respective 125
 brake-shoes G G against the peripheries of their corresponding car-wheels. When the foot-rack P is being pressed down, pinion O will be revolved, and in its revolution it will operate with the gravity-rack Q to raise it 130
 and its connected holding-rack R, when the detent *s* will engage with some one of the teeth in said holding-rack and hold the latter up to where it is raised to, and thereby, through the

pinion O and sheave M, hold the draw-chain L wound on said sheave, with the brake-shoes G pressing against the car-wheels through the operations of the cam-lever and its cams F' F' with the friction-rollers of the brake-bars. When the wheels are to be released from the action of the brake-shoes, the operator will, with one hand on the handle of the lever T, move said lever in direction of arrows 1 in Figs. 3 and 7, when the opposite end of said lever will be forced against the holding-rack R, when spring s' will yield and said rack will be moved off from engagement with detent s; and when free from this detent the weight of this holding-rack and its connected gravity-rack will operate to revolve pinion O in a reversed direction and cause the sheave M to unwind the draw-chain and at the same time effect an elevation of the foot-rack P to its normal elevated situation, when the brake-shoes will be allowed to move away from the peripheries of the car-wheels, and the cam-levers, with their cams, will be moved to their normal positions preparatory to another operation.

By means of the handle q, with the holding-rack R, the operator can, by lifting upon it, operate the rack Q, and through it and the pinion O and sheave M wind up the draw-chain L, and thereby draw the brake-shoes tight against the car-wheels; or, again, the operator can, with one hand lifting on handle q and with a foot on the foot-rack, operate conjointly both the gravity-rack and foot-rack to cause the pinion and sheave to revolve and wind on chain L for tightening the shoes on the car-wheels.

I claim—

1. In brakes for cars, the cam-lever F, having with it the duplex cams F' F', constructed with the curved faces c c' and c' c^2 , and arranged in relation to the center of motion or pivot a of the said cam-lever, in combination with the opposite friction-rollers and the brake-bars between the said rollers and the brake-shoes, substantially as and for the purposes set forth.

2. In brakes for cars, the combination, with brake-shoes G G, brake-bar H, and the cam F', of a friction-roller, h , contained in housing I and attached to a stem which is adapted to be adjusted in relation to the brake-bar and said cam, substantially as and for the purposes set forth.

3. In brakes for cars, the combination, with the cam-lever F, draw-bar, and draw-chain, of sheave M and toothed pinion O, fixed to the same shaft, and the foot-rack P and gravity-rack Q, operating with said pinion and in opposition to each other, substantially as and for the purposes set forth.

4. In brakes for cars, the combination, with the sheave operating with the draw-chain and the toothed pinion fixed on the same shaft and operated by the foot-rack P, of the gravity-rack Q and holding-rack R, suitably guided and provided with a detent which will retain said holding-rack in its lifted situation until released at the will of the operator, substantially as and for the purposes set forth.

5. In a brake for cars, the combination, with a chain-winding sheave and pinion fixed to the same shaft and a foot-rack operating with said pinion, of a second rack operating also with said pinion and in opposition to the foot-rack, the holding-rack R, detent s, spring s', and lever T, operated at will to disengage the said holding-rack and detent, substantially as and for the purposes set forth.

6. In a brake for cars, the combination, with the foot-rack and a pinion and sheave operating with the draw-chain of the brake, of the gravity or second rack, operating also with the said pinion, and provided with a lifting-handle, q, substantially as for the purposes and operations set forth.

LOUIS DUBÉ.

Witnesses:

ALEX. SELKIRK,
CHARLES SELKIRK.