

(No Model.)

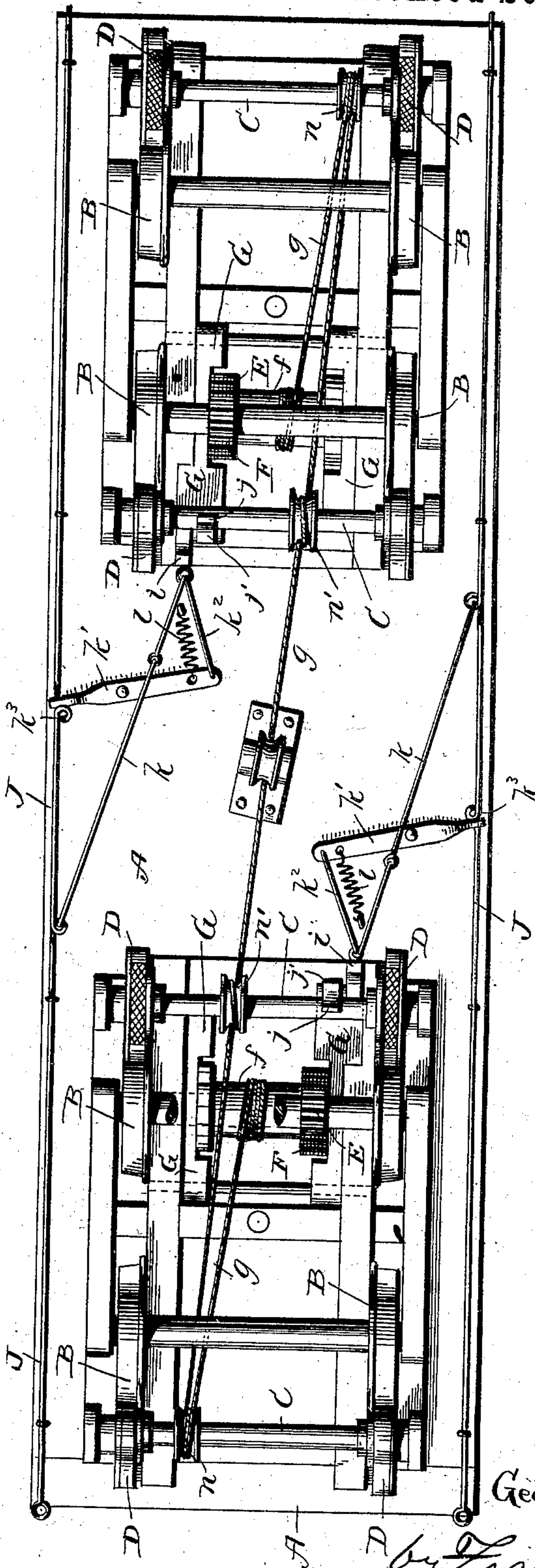
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G. F. BRANDAU.
BRAKE FOR RAILWAY CARS.

No. 505,435.

Patented Sept. 26, 1893.

Fig. 1.



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Fig. 2.

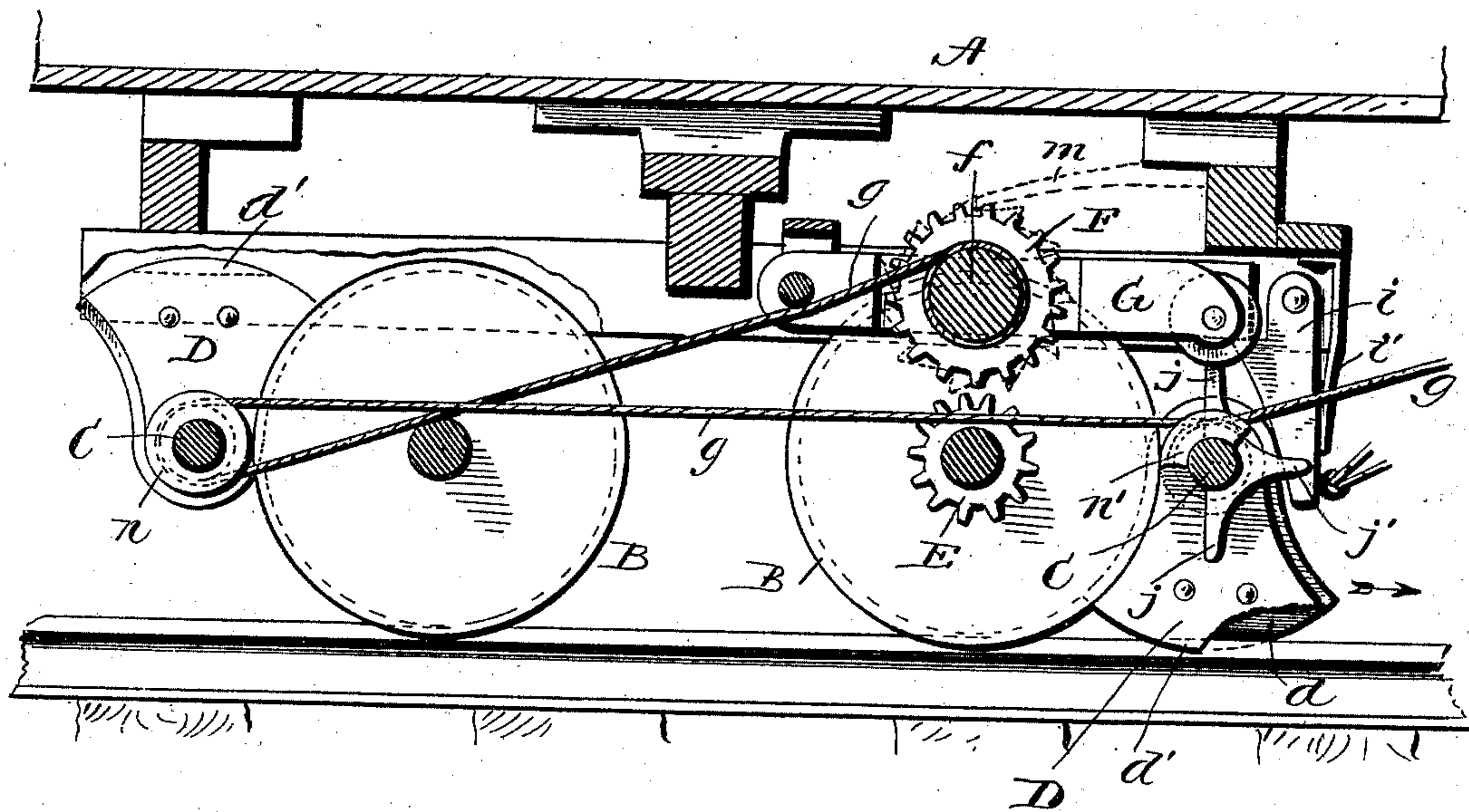


Fig. 3.

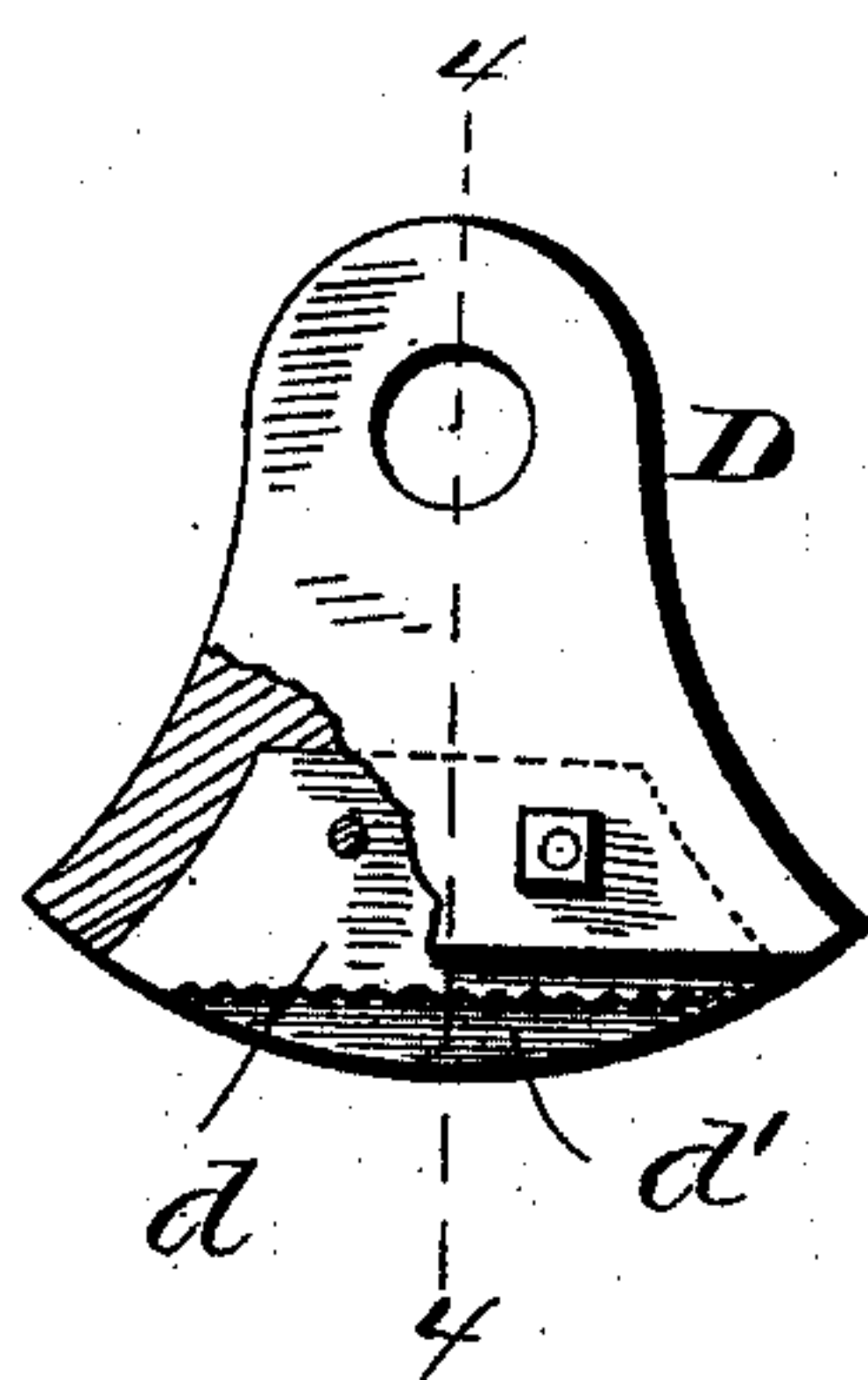
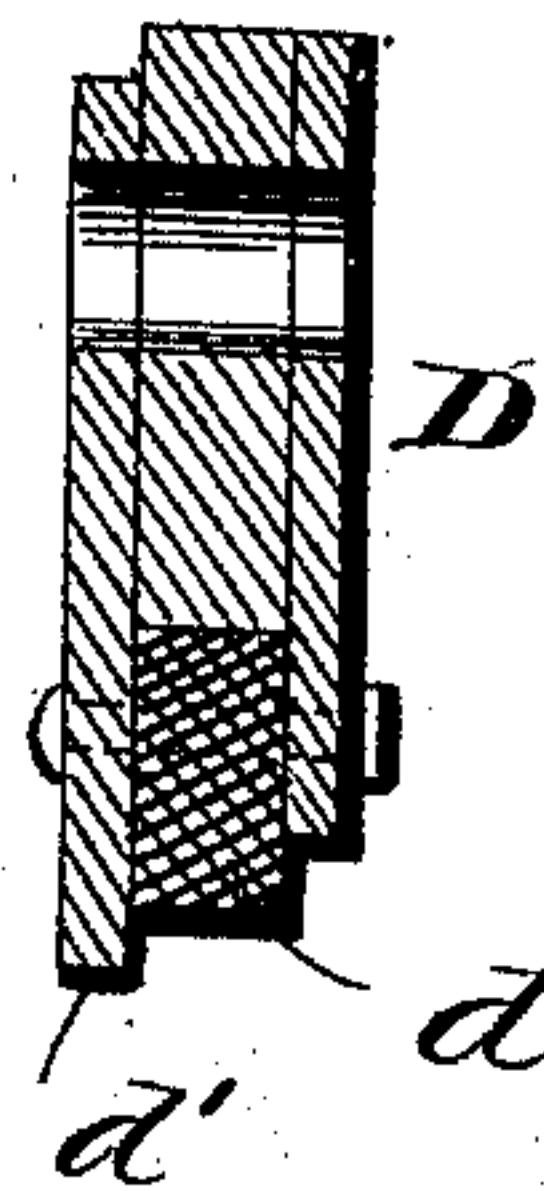


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE FRIEDERICH BRANDAU, OF COHOES, NEW YORK, ASSIGNOR OF
ONE-FOURTH TO JAMES WALLACE, OF SAME PLACE.

BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 505,435, dated September 26, 1893.

Application filed June 7, 1893. Serial No. 476,857. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FRIEDERICH BRANDAU, a citizen of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Brakes for Railway-Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention aims to provide a car brake enabling the brakes on each car of a train to be applied from one point by one man and which in so far as the effective application of the shoes is concerned will be automatic. Another object is the provision of a brake capable of exciting two different retarding effects, so that under extraordinary circumstances, as in case of accident the stoppage of a train can be produced in the shortest possible time and space. To these ends and such others as the invention may pertain, the same consists in the mechanism hereinafter specified and shown in the annexed drawings, in which—

Figure 1 is a bottom view of a railway car equipped with my invention; Fig. 2 a longitudinal section through one of the trucks and Figs. 3 and 4 are detail views.

The structure of the car frame and the trucks, and the arrangement of the latter do not have to be unusual when the car is to be equipped with my brake, and, hence, no description of these parts is necessary. Suffice it to say that in the drawings I show at each end of the car A, a truck provided with four wheels B.

Journalled at the opposite ends of each truck is a shaft C to which is secured, in line with the wheel B a brake shoe D of peculiar shape. Said shoe has two, oppositely curved faces adapted in the manner to appear, to each be applied to the face of the wheel and a straight face connecting the curved faces that is adapted to be placed in contact with the rail or track.

The rail engaging face is preferably of cor-

rugated or roughed rubber in the form of a block *d* placed in a recess or cavity in the side of the shoe D. Adjacent to the straight face the shoe has a lip or flange *d'* to engage the side of the rail, and prevent its sidewise movement from the latter. In cases of emergency when a short, quick stop is desired one of the curved faces is to be applied to the wheel and the straight face is applied to the track so that simultaneously there will be braking force applied to both wheel and track. In ordinary cases but one curved face will be applied to the wheel.

On the axle of each truck nearest the center of the car is keyed or otherwise fixed a pinion E that is adapted to mesh with and drive a gear F mounted upon a drum or windlass *f* that is journaled in a swinging frame G whose inner end is pivoted at or near the center of the truck and whose free end is toward the center of the car. A rope or cable *g* having its two ends fastened respectively to the windlasses passes thence to and several times around a pulley *n* on the outermost shaft C then to and several turns around a pulley *n'* on the innermost shoe-carrying shaft C, and thence over a pulley secured to the under side of the car at its center, to the other truck. It will be seen that by this arrangement the winding of the cable on one windlass through the revolution of the proper axle will revolve the shoe-carrying shafts C on both trucks, and according to the direction of rotation of the shafts apply the shoes D to the wheel alone or to both wheel and rail. Obviously, when the shoes are to be applied to the track or rail, only the shoes in advance of the wheels must be thus used, since were those in rear of the wheels applied to the rails the friction would tend to move them away from both wheel and track instead of crowding them all the more tightly against the two. In view of this, the shafts of the trucks are coupled or connected by the cable so that only one set of shoes on each truck is applied at a time to both wheel and track, the other sets being turned upward, away from the rail. As the application of the brakes depends on the meshing of the pinion and gear, their disengagement, of course, results in the releasing of the brakes, and such disengagement is effected by swing-

ing the frame G upward, and, to keep the wheels free, it is locked up by a pawl or catch *i* that engages a projection upon it at its free end.

5 The upward movement of the frame is effected at the instant of complete application of the shoes either for a short stop or a slow stop, (as heretofore indicated) by two diametrically opposite teeth or lugs *j j*, on the innermost shaft C which, according to the direction of revolution of the shaft strike a friction roller *g* at the extreme free end of the frame G. A lug or tooth *j'* between the others, operates to swing the frame upward at an intermediate position of the shaft and shoes
15 in their half revolution.

The frames G when released from the pawls *i* fall of their own weight, and carry the pinion and wheel into mesh, and to operate the
20 pawls I provide the following means, viz: normally each pawl is pressed into frame engaging position by a spring *i'*. To draw it from this position I run in guides along the under side of the car near its edge a rod J, that is connected directly to the pawl by rods
25 or links *k* and also by a pivoted lever *k'* one of whose ends is connected to the pawl by a link or rod *k²* and whose other end is engaged by a collar or shoulder *k³* on said rod J. A
30 spring *l* draws the lever in opposition to the rod. Thus connected to the rod it will be seen that longitudinal motion of the rod in either direction will release the pawl from the frame. It is to be understood that the pawl
35 of each truck has its own operating mechanism such as that described above.

It is thought the operation of my brake needs no further setting forth than has been given, it being only required, perhaps, to add,
40 that as the winding drums *g* are arranged to rotate in opposite directions, the application of the brakes in case of accident is effected by releasing the frame G of the forward truck, while for ordinary use the brakes are applied
45 by releasing the frame G of the rear truck. As the rods J of one car are to be connected to those of an adjoining car it will be seen that one person at one point is enabled to apply the brakes to a whole train.

50 It is to be understood that my invention is applicable to all kinds of cars which employ

brakes, regardless of the means used for their locomotion. Preferably a ratchet wheel is mounted on the windlass *g* which is engaged by a fixed pawl *m* on the truck frame only
55 when the frame G is raised. Where the brakes are applied by using both the rail and wheel engaging faces of the shoes, as in case of accident, the shoes can only be released by backing the car. Preferably to prevent slipping of the cable over the pulleys, the grooved
60 faces of the latter are roughened or serrated, to bite into the rope.

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

1. A brake shoe having two oppositely curved faces and a straight connecting face with an elastic block held in a recess therein and having a roughened acting face substantially as shown and described. 70

2. The combination with a brake shoe, and a shaft to which it is secured, of a pulley on said shaft, a windlass carrying frame and cable, and a plurality of lugs; and means for
75 operating the same, substantially as shown and described.

3. The combination with a brake shoe, and a shaft to which it is secured, of a pulley on said shaft, a windlass carrying frame and cable, and a plurality of lugs, and means for
80 operating the same, and a spring actuated pawl, substantially as shown and described.

4. The combination with a brake shoe, and a shaft to which it is secured, of a pulley on
85 the shaft, a windlass carrying frame and cable, and a plurality of lugs; and means for operating the same, and a spring actuated pawl, a pivoted lever and a sliding rod J actuated thereby. 90

5. In combination with the brake actuating mechanism, comprising in part a windlass carrying frame, the locking pawl and the longitudinally movable rod, connected to and adapted to move said pawl when moved in
95 either direction, substantially as described.

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

GEORGE FRIEDERICH BRANDAU.

Witnesses:

ROSEN J. HOUSE,
TIMOTHY J. MCGANN.