

(No Model.)

J. KERNAGHAN.  
RAILROAD BRAKE.

No. 342,799.

Patented June 1, 1886.

Fig. 1.

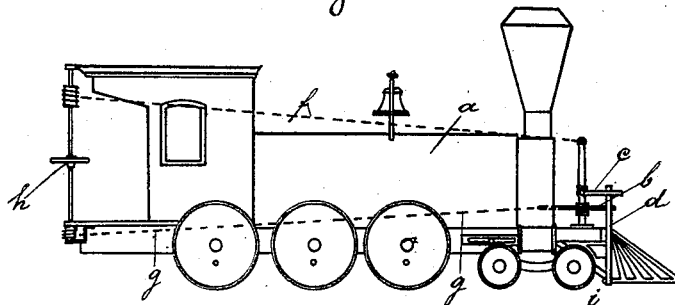


Fig. 2.

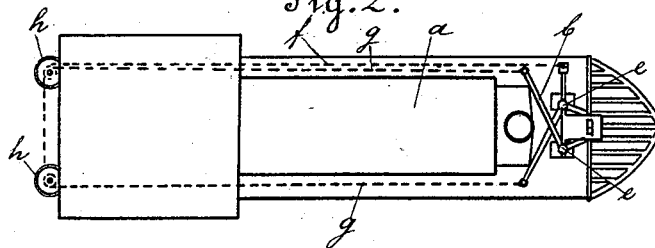


Fig. 3.

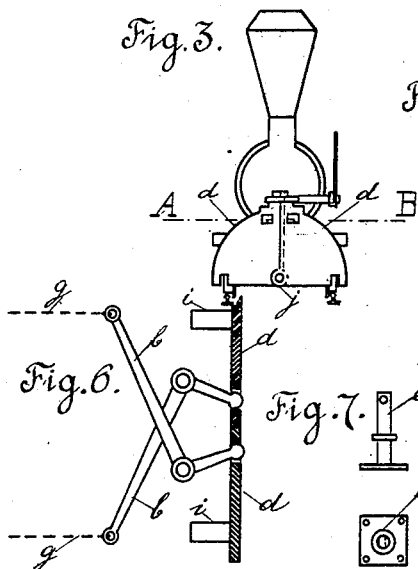


Fig. 5.

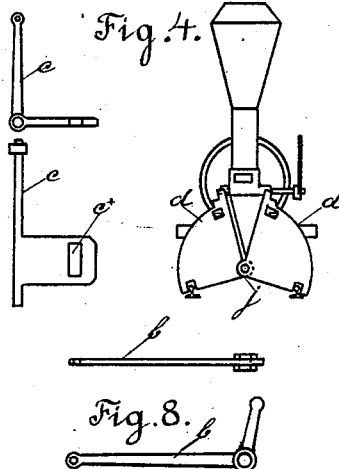


Fig. 6.

Fig. 7.

Fig. 8.

Witnesses.

S. A. Owen.

William H. Williams

Inventor.  
John Kernaghan  
By his Att'y.  
*Alfred J. Smith*

# UNITED STATES PATENT OFFICE.

JOHN KERNAGHAN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO  
THOMAS MORTON, OF SAME PLACE.

## RAILROAD-BRAKE.

SPECIFICATION forming part of Letters Patent No. 342,799, dated June 1, 1886.

Application filed September 17, 1885. Serial No. 177,405. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN KERNAGHAN, a resident of San Francisco, State of California, have invented a novel and useful Instantaneous Railway-Brake; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to means for instantly checking and stopping a railway-train by the application of a brake of novel construction, to which the cow-catcher may be attached in such manner as to add to the braking force.

The following description fully explains the nature of my said invention and the manner in which I proceed to construct, apply, and operate the same, the accompanying drawings being referred to by figures and letters.

Figure 1 represents elevation of locomotive, showing the brake with cow-catcher attached. Fig. 2 is a plan view of the same. Fig. 3 represents a front elevation, showing the brakes locked. Fig. 4 represents a front elevation, showing the brakes disengaged and in the act of braking a train. Fig. 5 shows two views of the lock-lever. Fig. 6 is an enlarged view of the brakes, showing the brake-levers with the brakes in section by the line A B. Fig. 7 shows two views of the upright brackets. Fig. 8 shows two views of the brake-levers. Fig. 9 shows two views of the lock-lever in a disengaged position.

In Fig. 1, *a* is the locomotive; *b*, brake-levers; *c*, lock-lever; *d*, brakes; *f*, chain or rope attached to lock-lever; *g*, chain or rope attached to brake-levers; and *i* lugs on inner edge of brake to engage bogie-wheels.

In Fig. 2, *a* is the locomotive; *b*, brake-levers; *c*, upright brackets for supporting brake-levers; *f*, chain or rope attached to lock-levers; *g*, chain or rope attached to brake-levers; *h*, common car-brake, and *i* lugs on inner edge of brake to engage bogie-wheels.

In Figs. 3, 4, 5, *d* is the brake; *j*, brake-hinge; *e*, lock-lever, and *e'* slot in same.

In Fig. 6, *b* is the brake-levers; *d*, brakes, and *i* lugs on inner edge of brakes to engage bogie-wheels.

In Figs. 7, 8, 9, *e* is the upright brackets; *b*, brake-levers, and *c* lock-lever.

In attaching my device to a locomotive in

use, I employ a shaft to support the brakes, to which the cow-catcher is attached, the shaft being secured to the front axle of the bogie. A heavy cross-bar, having its ends bent at a right angle, is also fastened to the bogie axle, and the shaft passes through the center of this cross-bar and projects through the brakes and cow-catcher. A hanging rod is attached to the shaft and secured to the platform of the locomotive, and two or more hanging rods connect the cross-bar with the head of the locomotive-frame. The front axle is re-enforced by heavy rods of iron or steel extending from it to the rear axle, and other iron or steel braces extend obliquely to the front and are secured to the head of the locomotive-frame.

The braking device, with the cow-catcher attached and forming part of it, acts on the shaft, which passes through it near the lower end. The brake and cow-catcher are in two sections, one section overlapping the other and having its lower edge beveled to permit both sections to open at the top, the lower ends being joined by a hinge. The cow-catcher is in two sections, each attached to a section of the brake and acting with it, and fastened by a ring-bolt to the shaft which passes between the sections. In other respects the cow-catcher is of the usual form. The brakes *d* are in the form of a half-disk divided in the center and overlapping the upper parts, projecting into a head, which enters a slot in a lock-lever, and the lower parts joined at the center by a hinge, *j*. The brakes are constructed of heavy wrought or malleable iron, and may be re-enforced on the inner sides by cross plates or bars of metal. The lock-lever *c* has a slot, *e'*, into which the head of the brakes enter and is held, and from the arm a chain or rope, *f*, passes overhead to the drum of the common brake *h*, or other means of attachment and action, placed on the platform of the cab. The brake-levers *b* are attached to the brakes *d*, and work on upright brackets *e*, and form a bell-crank joint. A chain or rope, *g*, passes from the right lever to a guide-pulley on the drum of the brake *h*, and a similar chain or rope passes from the left lever to the lower drum on the brake *h*. The upright brackets *e* are attached to the platform of the locomotive, and form journals for the lock-lever and the brake-levers. On

the inner side of the brakes *d*, near the edge, are lugs *i*, which act as friction-brakes on the bogie-wheels when the brakes *d* are engaged.

The operation of my device for the instantaneous braking of a railway-train is as follows: Before starting, the engineer sees that the lock-lever is in position, that the connecting-chains to lock-lever and brake-levers are free and in condition to act, and that the pawls on the common brake *h* are set. At the first appearance of danger or on the sudden occurrence of an emergency the engineer shuts off the steam and pulls the chain attached to the lock-lever, by which the lock is raised from the head of the brake, and the sections of the brake open at the top and their lower ends fall and powerfully grip the rails, with shoes conforming to their surface, as seen in Fig. 4. The lower ends of the cow-catcher, attached to the brakes, also fall at the same moment and grip the rails, and the lugs *i* on the inner sides of the brakes engage the bogie-wheels and act as friction-brakes. The form of the lower ends or shoes of the brakes and the cow-catcher fits on the rails and prevents their displacement by the sudden and great pressure. The occasion for the sudden stop having passed, the engineer pulls the chains attached to the brake-levers, by which the brakes are disengaged and raised to their position and held by the lock-lever.

My device with the cow-catcher detached may be attached to any part of a railway-train having the usual braking apparatus, where its braking action will prevent the bumping of

the cars, and the shape of the shoes or gripping parts will prevent the rails from spreading.

If my device complete is attached to the rear of a train and an occasion for a stop occurs, it will exert a powerful pressing force, which will check and gradually bring the train to a stand, while if it is applied to the front its gripping pushing force will act with a sudden energy.

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

1. A railroad-brake consisting of two disks placed in front of the locomotive and pivoted or hinged together at the bottom, with means, substantially as described, for opening said disks at the top and causing their lower edges to engage the rail, as set forth.

2. A railroad-brake consisting of two hinged disks or plates placed in front of the locomotive and having the cow-catcher attached to them, and devices, substantially as described, for operating said parts, in the manner and for the purpose set forth.

3. The combination of brake *d* with the cow-catcher, lock-lever *c*, brake-levers *b*, upright brackets *e*, and lugs *i*, substantially as described, and for the purposes set forth.

In testimony whereof I have hereunto set my hand and seal.

JOHN KERNAGHAN. [L. S.]

Witnesses:

A. B. SMITH,  
FERDINAND IMHORST.