

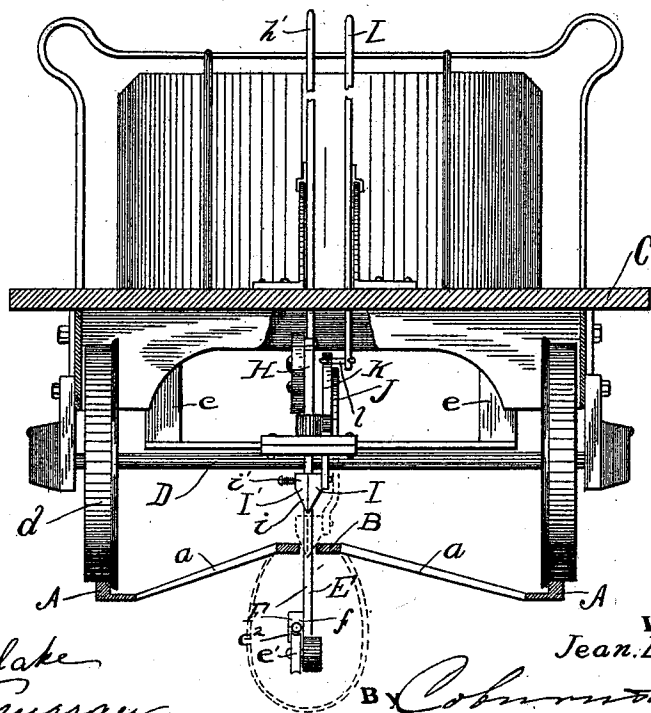
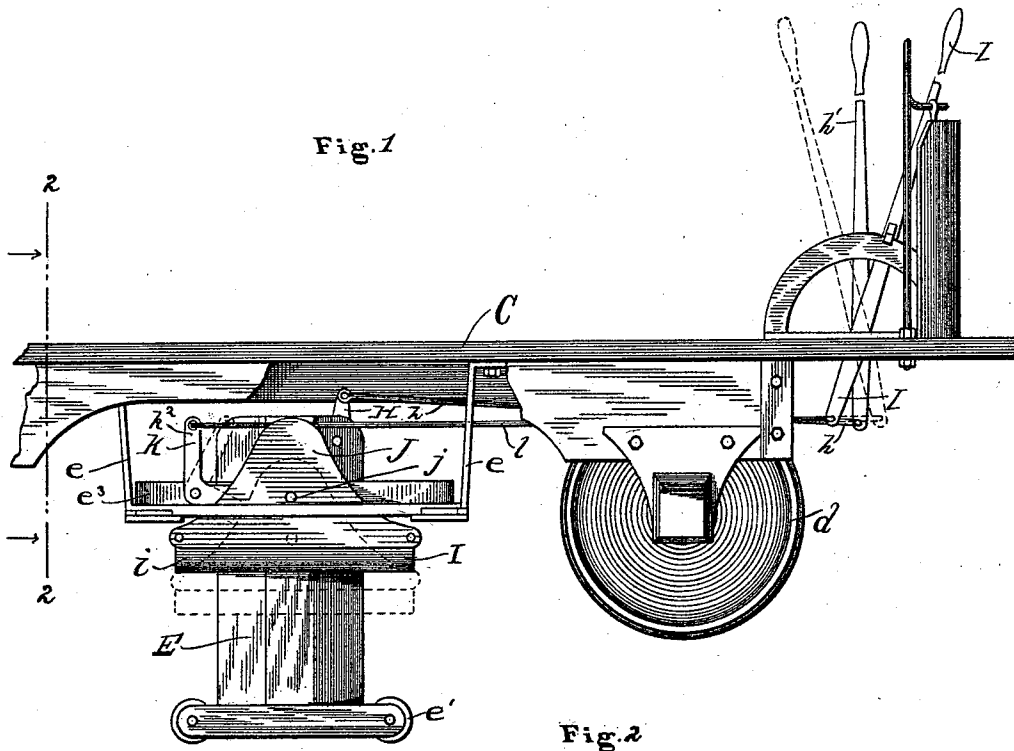
(No Model.)

2 Sheets—Sheet 1.

J. B. Z. DUMAIS.
CABLE CAR BRAKE.

No. 536,329.

Patented Mar. 26, 1895.



Witnesses.

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A. Murray

Inventor

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By *Coburn & Co.*

Attys.

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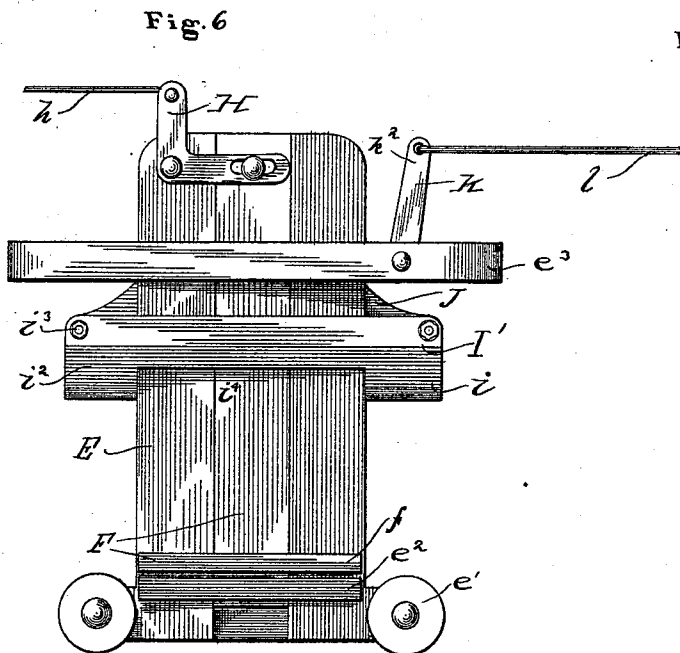
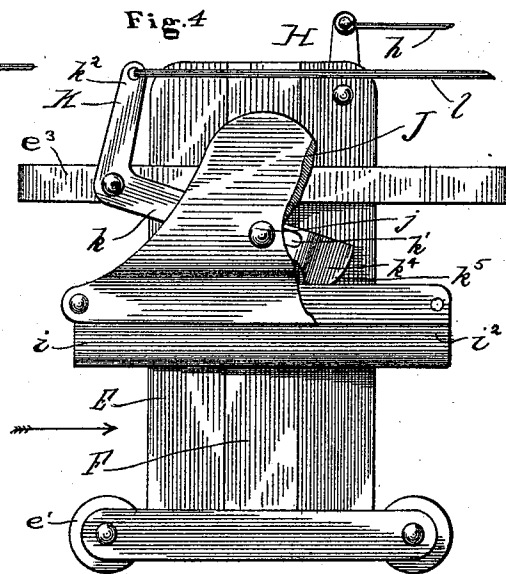
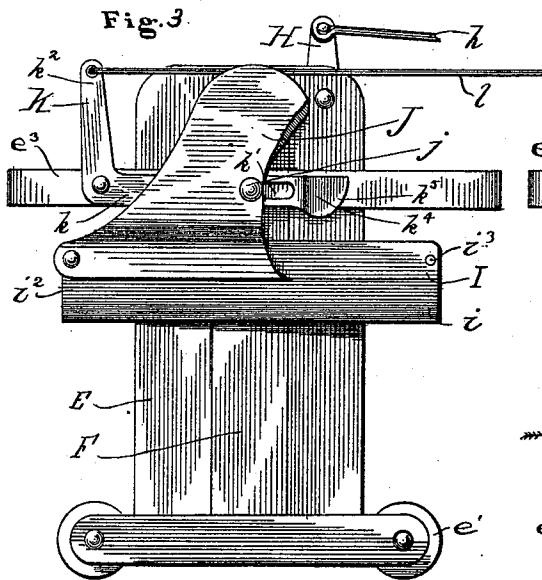
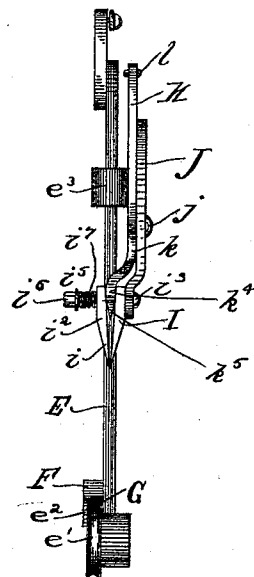


Fig. 5



Witnesses

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UNITED STATES PATENT OFFICE.

JEAN B. Z. DUMAIS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
CHARLES BACHRACH, OF SAME PLACE.

CABLE-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 536,329, dated March 26, 1895.

Application filed January 24, 1895. Serial No. 536,019. (No model.)

To all whom it may concern:

Be it known that I, JEAN B. Z. DUMAIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cable-Railway-Car Brakes, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1, represents a side elevation of a portion of a cable grip-car partly broken away; Fig. 2, a vertical section of the same, taken on the line 2—2 of Fig. 1; Fig. 3, a side elevation of the grip mechanism detached
15 with my invention applied and in idle position; Fig. 4, a similar view of the same with the said improvement in working position; Fig. 5, an end or edge elevation of the same, looking in the direction of the arrow, Fig. 4;
20 and Fig. 6, a side elevation similar to Fig. 3, but looking in the opposite direction. In these drawings, Figs. 1 and 2 are upon one scale; and Figs. 3 to 6, inclusive, on another and enlarged scale.

25 My invention relates to a device for braking cable railway trains or grip-cars, the object being to obtain a device the action of which is quick and very powerful to suddenly stop the car in case of emergency.

30 The invention consists in a beveled metallic plate or strip, preferably applied to one or both sides of the grip-holder or support and adapted to slide vertically thereon, in connection with mechanism whereby it may instantly be set down sharply into the grip-
35 slot, thereby braking or stopping the car by the quick and forcible wedging of this plate or plates between the grip-support and the edges of the slot.

40 It is not necessary for an understanding of my invention to show and describe an entire grip-car and cable railway track, as in all general features the construction of these parts may be of any known type. I have therefore
45 shown only so much of a grip-car and cable railway bed as is necessary to an understanding of the improvement. A description in detail of the construction and operation of these essential parts and my invention applied thereto will now be given, and the spe-
50 cial improvements which are believed to be

new and which it is desired to secure by Letters Patent will then be pointed out more distinctly in claims.

In the drawings, A. represents the track- 55 rails of a cable railway, and B. the horizontal strips, or slot-rails, which are connected respectively with the track-rails by means of cross-arms or braces, *a*, these parts of course being metal. The slot-rails B. run parallel 60 with the track-rails and are brought near together so as to provide a narrow space or slot between them. This is a structure well known and in general use, and the free space be- 65 tween the slot-rails is known as the "grip slot." It will be understood of course that there is the usual cable conduit below the grip-slot, as indicated by the dotted lines in Fig. 2 of the drawings.

Only a part of a grip-car is shown. C. rep- 70 represents the bottom or floor of the car, which is mounted in any usual way upon the axles, D., of the track-wheels, *d*., which of course are arranged to run on the track-rails. The grip-support, E., and grip, F., are of ordinary 75 construction, the support, as shown in the drawings, being connected by depending arms, *e*., to the car-bottom, so as to be supported and carried along by the latter. This grip-sup- 80 port passes down through the grip-slot, as usual, and is provided at its lower end within the conduit with anti-friction rollers, *e'*., on which the cable, G., rests. The grip, F., is mounted in this support in any known way so as to slide vertically therein and grip the ca- 85 ble between it and the usual bed-piece, *e''*., at one side of the grip-holder between the rollers thereon, the vertical portion of the grip being provided with the usual cross-bar, *f*., adapted to be forced down on this bed-piece. The de- 90 vices shown in the drawings for actuating the grip are, a bell-crank lever, H., pivoted to the grip-support and having a slotted connection at one end with the upright portion of the grip and at the other, by means of a connecting 95 rod, *h*., with a hand lever, *h'*., mounted on the car where the attendant is expected to stand.

The brake device which is the subject matter of the present invention, as illustrated in the drawings, is applied to and carried by the 100 grip-support. This device consists of long, rather narrow metal plates, I. and I', of some-

what greater length than the width of the grip-support. These plates are constructed to be applied to the respective sides of the grip-support transversely thereof and free to slide up and down thereon. They are constructed with a lower section, z , which is inclined or beveled on its outer face in relation to the grip-support, this inclination being downward and inward, thus providing a kind of wedge surface at the lower portion of the plate which runs transversely of the grip-support and extends out beyond each edge of the latter. This inclined section takes a large portion of the width of the plate, and the remaining or upper section, z' , above this incline, is preferably of uniform thickness. The invention may be applied with only one of these plates on one side of the grip-holder, but the preferable construction is to apply a plate on each side of the grip-holder, which is the arrangement shown in the drawings. For this purpose each end of each plate beyond the edge of the grip-holder is thickened somewhat on the inside, thereby forming a kind of head, z^2 , and these heads or thickened ends of the plates come together at each edge of the grip-holder and are secured by bolts, z^3 , or in any other suitable way. The beveled plates, under this arrangement, inclose the grip-holder and at the same time are free to slide up and down thereon.

The inner faces of the plates fit the sides of the grip-holder quite nicely, so that, if they are moved down to the grip-slot, they will enter the latter on each side of the holder, thus introducing a kind of long wedge between the grip-holder and the slot-rails on each side of the former, as indicated in dotted lines in Fig. 2. Obviously, if these plates are brought down into this position in the grip-slot with sufficient force, they will operate as stops or brakes to the grip-car; the inclined faces on the plates will act as wedges and, when forced down into the slot with sufficient power, will produce such frictional resistance to the movement of the car as will very quickly completely stop the latter, unless the grip-support gives way. Obviously devices are required whereby the attendant or driver on the car may operate these sliding, wedge-shaped plates or brake device whenever necessary, and the mechanism for this purpose may be varied.

As illustrated in the drawings, one of the plates carries a kind of standard, J , which, as shown, is a triangular-shaped plate the base of which is about as long as the brake-plate to which it is attached by means of the bolts, z^3 , and extends upward thence in tapering form. An angle or crank-lever, K , is pivoted at its angle to the upper plate section, z' , of the grip-support. The long arm, k , of this lever is connected to the inside of the standard J by means of a pin, j , on said standard, which enters a slot, k^1 , in said arm of the lever. The short arm, k^2 , of the lever extends upward and is connected with a hand-

lever, L , by a rod, l , this hand-lever being mounted on the car-frame similar to the grip-lever and very near the latter, so that the attendant or driver may easily reach either. Obviously, by means of this lever, the attendant may force down the brake-plates with all the strength he possesses and thereby brake or stop the car quickly, as described above. The wedge-shaped plates will of course be lifted by throwing the lever in the opposite direction whenever it is desired to release the car again.

There are some specific features of construction differing somewhat from plain, wedge-shaped brake-plates secured together by ordinary bolts, which will now be described.

The brake-plate I' , on the side of the grip-car opposite the plate I , to which the operating mechanism is connected, has its central lower portion cut out, thereby providing a long notch or recess, z^4 , in length corresponding to the width of the grip-holder, so that the latter may be received between the two enlarged or thickened ends of the said plates, as seen in Fig. 6. Furthermore, the brake-plates are connected together so as to be somewhat yielding. For this purpose the connecting bolts, z^3 , are made somewhat longer than the thickness of the plate ends, so that there is a projecting end, z^5 , of each bolt extending out some distance beyond one of the plates, as seen in Figs. 2 and 5. On the extremity of this projection is a nut, z^6 , between which and the plate on that side of the grip-holder there is a spring, z^7 . These bolts are near the upper edges of the brake-plates, and, being loose on the bolts, it is obvious that the said brake-plates may be separated or forced apart somewhat at their said upper edges, the springs on the bolts yielding to permit this. The device shown in the drawings for this purpose is an extension, k^4 , at the extremity of the long arm of the lever K . This extension is widened and bent inward so as to be brought into the same plane as the opening between the upper edges of the brake-plates and is provided with a beveled or wedge-shaped outer or lower edge, k^5 , the contour of this edge being circular or curved, preferably, as seen in Figs. 3 and 4. Now, when the brake-plates are lowered or forced down into the grip-slot, as described above, this projection on the end of the actuating lever will be driven down between the upper edges of the brake-plates, and, being wedge-shaped, the said plates will be separated more or less, as suggested above and as indicated in Figs. 4 and 5. This action obviously will increase the wedging force or action of the said brake-plates, for the least separation or forcing outward of the upper edges of the said plates must increase the wedging and stopping contact of the inclined or beveled surfaces of said plates in contact with the slot-rails as indicated in Fig. 5.

The application of this braking mechanism is independent of the grip and may be ap-

plied whether the latter is in operation or not, though of course it will be expected always that the grip is released before or at the moment the brake is applied.

5 There may be modifications in the mechanical devices here shown and described, without departing from the main features of my invention, and such changes are contemplated. It will also be apparent that the wedging
10 brake may be mounted on a suitable support quite separate from the grip-holder; but the arrangement of the sliding plates upon the grip-holder as herein shown and described is the one preferred. A carrier-support for the
15 brake-plates may also be applied to cars run as trailers to the grip-car, on roads where trailers are used, if desired. If thus applied, the brake may be operated by the conductor on each car.

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

1. In cable railway cars, a support depending from the bottom of the car and adapted
25 to enter the grip-slot, in combination with a plate on one or both sides of said support, free to slide vertically thereon and inclined or beveled on its outer face, and mechanism whereby the attendant may quickly force the
30 inclined or wedge-shaped plates down into the spaces between the support and the respective slot-rails, substantially as described.

2. In cable railway cars, the grip-holder secured to the car-bottom and depending therefrom, in combination with the slot-rails down
35 between which the grip-holder passes, plates inclined or beveled on their outer faces and constructed to be applied to embrace the grip-holder, but free to slide vertically thereon,
40 and mechanism, terminating near the driver or attendant, whereby the latter may quickly and readily depress the said plates and force the beveled edges into the grip-slot, substantially as described.

45 3. In cable railway cars, a grip-support, E., depending from the car-bottom to which it is connected, in combination with the slot-rails through which the grip-support passes, plates, I. and I', of greater length than the width
50 of the grip-holder, beveled along their outer faces and provided with thickened ends or heads, z^2 , at their projecting ends, adapted to embrace the edges of the holder, fastening devices for securing the said plates together
55 at their upper edges, and mechanism, connected to one of the plates, whereby the attendant may lower and raise the latter at will, substantially as described.

60 4. In cable railway cars, a wide plate-support, secured to and depending from the car bottom and adapted to pass down through the

grip-slot, in combination with plates of greater length than the width of said support, beveled on their outer faces and constructed to surround and loosely embrace said support when
65 fastened together, fastening bolts, v^3 , passing through the upper edges of said plates and projecting beyond the same on one side of the support, a spring, v^4 , applied to the projecting bolt-ends between the nuts or heads thereof
70 and the adjacent plate, mechanism whereby the attendant may readily force said plates down into the slot between the slot-rails, and a wedge-shaped device connected with said mechanism and adapted to be driven in be-
75 tween the upper edges of the plates when the latter are depressed into the grip-slot by the attendant, substantially as described.

5. In cable railway cars, a grip-support, E., connected to and depending from the car-
80 bottom, in combination with plates, I. and I', constructed to be applied to and loosely embrace the grip-support and provided with beveled lower edges, i , which edge, in the plate I', is cut away to provide a long recess,
85 i^4 , bolts securing the upper edges of said plates, and mechanism, connected with one or both of said plates, whereby they may be lowered and raised along said grip-support, substantially as described.

6. In cable railway cars, a grip-support, E., depending from the car-bottom, in combination with beveled plates, I. and I', constructed to loosely embrace said support, an
90 elastic or yielding device for connecting said plates at their upper edges, a crank-lever, K., pivoted to the grip-support and connected by one arm, k , with the sliding beveled plates, the said arm having a wedge-shaped extension,
95 k^4 , and a lever, L., connected to the other arm, k^2 , of the lever K., whereby the attendant, by operating said lever, may force the beveled plates down into the grip-slot and simultaneously drive the wedge-shaped lever
100 extension in between the upper edges of said plates, substantially as described.

7. In cable railway cars, a grip-support, E., connected to and depending from the car-bottom, in combination with beveled plates, I. and I', adapted to loosely embrace said
110 support and slide vertically thereon, a standard, J., fastened to one of said plates and rising therefrom, an actuating lever, K., pivoted to the grip support and connected by a slot at one end with the said standard, and an actuating lever, L., connected to the other arm of
115 said lever, substantially as described.

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Witnesses:

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