

(No Model.)

2 Sheets—Sheet 2.

M. E. COMPANY.
CAR BRAKE.

No. 495,960.

Patented Apr. 25, 1893.

Fig. 2.

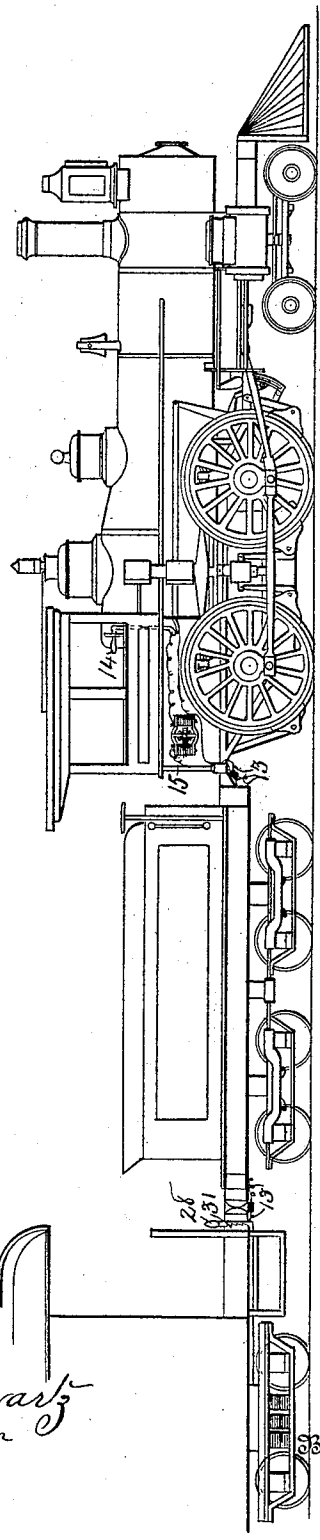


Fig. 5.

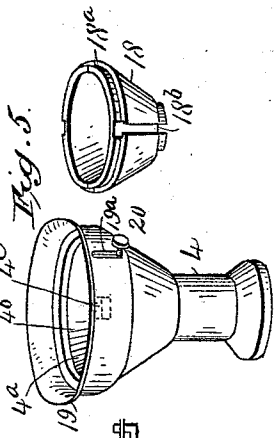


Fig. 6.

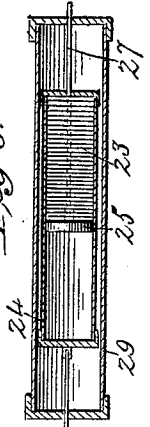


Fig. 3.

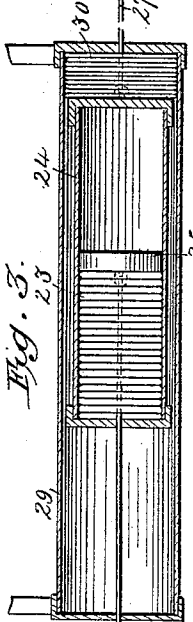
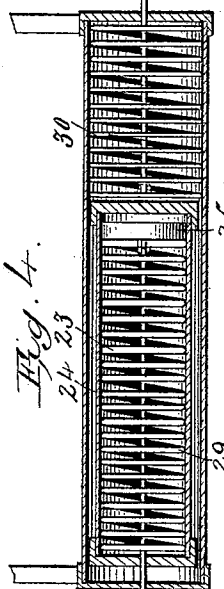


Fig. 4.



Witnesses
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By his Attorney
J. F. Reilly

UNITED STATES PATENT OFFICE.

MILTON E. CAMPANY, OF HAMILTON, ASSIGNOR OF ONE-HALF TO HORACE B. PECK, OF KALAMAZOO, MICHIGAN.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 495,960, dated April 25, 1893.

Application filed April 5, 1892. Serial No. 427,870. (No model.)

To all whom it may concern:

Be it known that I, MILTON E. CAMPANY, a citizen of the United States, residing at Hamilton, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Automatic Car-Brakes; 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 figures of reference marked thereon, which form a part of this specification.

My invention consists in an automatic brake for cars, which is so constructed that should the cars accidentally break apart or separate, the brakes will be instantly and automatically applied to each car; using the momentum or force of each car to stop it, as herein-after explained: and my invention will be hereinafter fully described and claimed.

Referring to the accompanying drawings; Figure 1 is a bottom plan view, partly in section. Fig. 2 is a perspective view of a locomotive and the forward car of a train provided with my invention. Fig. 3 is a sectional plan view showing the brake "set" or applied. Fig. 4 shows the brake released by hand. Fig. 5 illustrates in detail the movable conical clutch sleeve. Fig. 6 is a detail view.

The same numerals of reference indicate corresponding parts in all the figures.

Referring to the several parts by their designating numerals; 1 indicates the body of a railway car, upon one of the axles, 2, of which is fixed the conical clutch-sleeve 3.

8 indicates a lever which is pivoted upon the bearing-piece 6, and has the bifurcated inner end 9.

13, 13, indicates two insulated copper wires which run the full length of each car, the ends of the corresponding wires being coupled between the cars, the wires running to the locomotive to a small dynamo 15, which is run in any suitable manner, and from the dynamo to the small lever 14, by means of which the engineer makes and breaks the current, in the usual manner. Beneath each car two smaller insulated wires 16, 16, run from the main wires 13 to a closed box or casing, 17.

The above-specified parts are described in detail in my application filed March, 1892, for an electric car brake, and are not claimed separately in this application.

4 indicates a loose conical pulley or clutch-sleeve, which encircles and runs loosely upon the axle 2 between the fixed cone 3 and a stop-collar 5. In the inner inclined face, 4^a, of this clutch is formed an annular recess, forming a shoulder 4^b at each end of said inclined face as seen in Fig. 1, and on opposite sides of the outer shoulder 4^b (see Fig. 5), project the two opposite locking-lugs 4^c, having the square heads.

18 indicates a packing or facing of paper, compressed to the requisite solidity, which is usually formed in two halves for convenience in placing it in position, and which is formed with the annular recesses 18^a at each end, to adapt it to fit down in the recessed face of the clutch-sleeve. The outer sides of the packing are formed with the locking-recesses, 18^b, in which the headed lugs 4^c fit, thus locking the packing firmly and securely in position against all lateral pull or strain. Around the outer edge of the conical sleeve 4 is secured a metal band, 19, by set-screws, 20, passing through slots, 19^a, in the band. By loosening these screws the band can be slid back to remove the worn packing, 18, and to replace it with new; while when in position the projecting end of the band, 19, will effectually prevent dirt of all kinds from entering between the inclined faces of the two clutch-cones or sleeves.

10 indicates a chain, one end of which is made fast to the loose pulley 4 while its other end is attached to a rod, 11, which runs to the trucks at the other end of the car, where it is attached to a powerful brake-lever, 12, which will draw the brake-shoes against the wheels.

Within the closed casing 17 is arranged a suitable electrical device or motor, 21, the one shown being similar to that shown in my above-mentioned application; but any suitable electrical motor can be substituted. The chain, 22^a, at the end of the rod 22 is attached to the revolving shaft 21^a of this motor, the other end of this rod being connected to the outer end of the lever 8. The circuit is kept normally closed by the engineer, with the motor 21 holding the rod 22 drawn in, thus holding the pivoted lever 8 so that its inner end will not press against the loose clutch-sleeve

4. When the engineer desires to set or put on the brakes it is only necessary for him to move the small lever 14 to break the circuit, when the rod 22 is released from the "pull" of the motor 21, and a spring, 23, connected to the outer end of the pivoted lever 8 on the side opposite to the rod will at once draw it in the opposite direction, thus causing its inner end to press the loose clutch-sleeve 4 in contact with the fixed cone 3; when the loose clutch-sleeve will revolve with the fixed one, winding the brake-chain 10 upon it and applying the brakes automatically. This spring 23 can be arranged in various ways, but I prefer to inclose it in a tubular casing, 24, having end-caps. In one end of this casing is arranged a movable disk, 25. A wire rope (or chain or rod) 26, is secured at one end to the center of this disk, and at its other end to the outer end of lever 8; while to the end of the cylinder 24 opposite to the lever is attached the end of a wire rope 27, the other end of which is secured to the cranked inner end of a hand-lever, 28. The casing 24 is preferably inclosed in a cylindrical casing 29, to protect it and the spring 30 from dirt; this spring 30, which is much weaker than the spring 23, being arranged between the right-hand end of the casing 24, in the drawings, and that end of the outer casing 29, as shown. The outer end of the hand-lever 28 engages in a notched rack, 31, which holds it when turned in either direction. The end of the cranked hand-lever is normally held over to the right, drawing the tubular casing 24 in that direction and compressing the spring 30, as shown in Fig. 3. The spring 23 is normally compressed; and it will now be seen that when the engineer breaks the circuit, thus releasing the lever 8 from the pull on the rod 22, that the spring 23 will expand, moving the disk 25 back to the end of the cylinder 24, and, through the connection 26, drawing the outer end of the lever 8 in that direction, thus pressing the loose clutch-sleeve up in contact with the fixed sleeve 3, and thus putting on the brakes. It will be seen that by this construction not only will the brakes be applied on the whole train when the engineer breaks the electric current, or circuit, but also that should any of the cars break away from the rest of the train, should any of the couplings between the cars break, the spring 23 will at once automatically put on the brakes; for should a car break away from the train the electric wires would be broken apart, and the motor 21 thus ceasing to work, the rod 22 would be slackened, and the spring 23 be free to work. When the brakes are set on a separated car, to release them the hand-lever 28 is turned to the left, when the spring 30 will slide the casing 24 to the left, thus slackening the wire 26, and releasing the pressure of the lever 8 on the loose clutch-sleeve.

The casing 24 can be reversed within the outer casing 29, as shown in Fig. 6, so that

while the spring 23 operates on the lever 8 in the same manner, the spring 30 is dispensed with.

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

1. The combination, with the car axle having a driving surface, of a drum having a driving surface arranged to engage with said surface of the axle, a chain secured at one end to said drum and at its other end to a brake lever, the said brake lever, a clutch lever pivoted to the car and connected at one end to said drum whereby the driving surfaces may be thrown into and out of engagement, a spring secured at one end to said clutch lever for throwing said surfaces into engagement, means for holding said driving surfaces normally out of engagement whereby said spring is held under tension and a lever attached at one end to the other end of said spring, whereby the tension thereof may be relaxed, substantially as set forth.

2. The combination, with the car axle, having a driving surface, of a drum, having a driving surface arranged to engage with said surface on the axle, a chain secured at one end to said drum and at its other end to a brake lever, the said brake lever, a clutch lever pivoted to the car and connected at one end to said drum whereby said driving surfaces may be thrown into and out of engagement, means for holding said surfaces normally out of engagement, a movable casing mounted on the car, a spring arranged in said casing and connected at one end to said clutch lever whereby said surfaces are thrown into engagement when the clutch lever is released, a lever pivoted to the car and connected at one end to said casing whereby said surfaces may be disengaged and a spring for retracting said casing, substantially as set forth.

3. The combination, with a car axle having a driving surface, of a drum having a driving surface arranged to engage with said surface on the axle and a chain attached at one end to said drum and at its other end to a brake lever, the said brake lever, a clutch lever pivoted to the car and connected at one end to said drum whereby said driving surfaces may be thrown into and out of engagement, means for holding said surfaces normally out of engagement, a movable casing mounted on the car, a spring arranged in said casing, a disk arranged in said casing behind said spring, said disk being connected to the clutch lever, a lever pivoted to the car one end of which is connected to said casing and a spring arranged behind said casing and having a bearing on the car, substantially as set forth.

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

MILTON E. CAMPANY.

Witnesses:

H. J. FISHER,
H. A. SEARS.