

(No Model.)

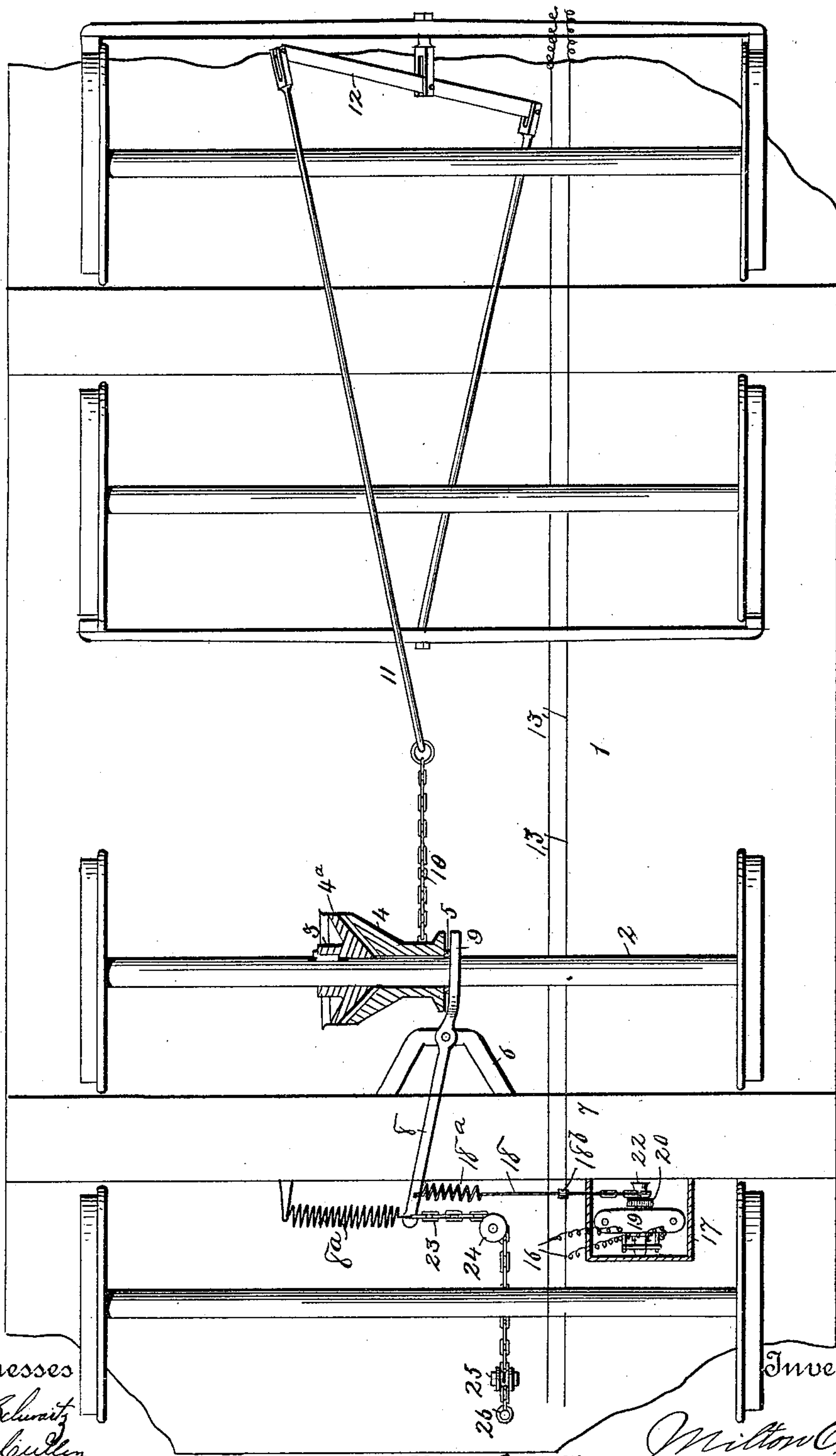
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M. E. COMPANY.
CAR BRAKE.

No. 494,505.

Patented Mar. 28, 1893.

Fig. 1.



Witnesses
A. J. Schwartz
John Cullen

Inventor
Milton E. Company
By his Attorney
J. Fred Reily

(No Model.)

2 Sheets—Sheet 2.

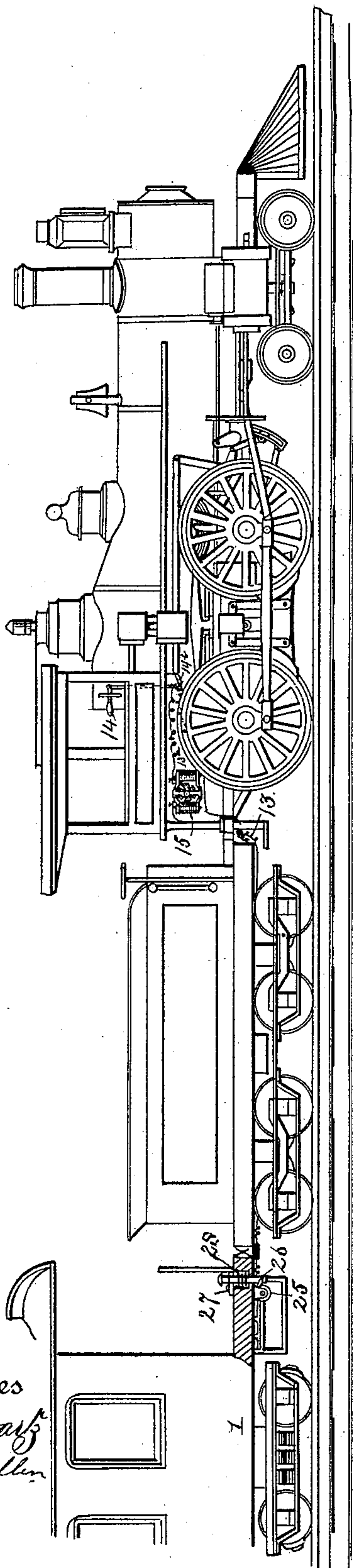
M. E. CAMPANY.

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Fig. 2.



Witnesses
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Fig. 4.

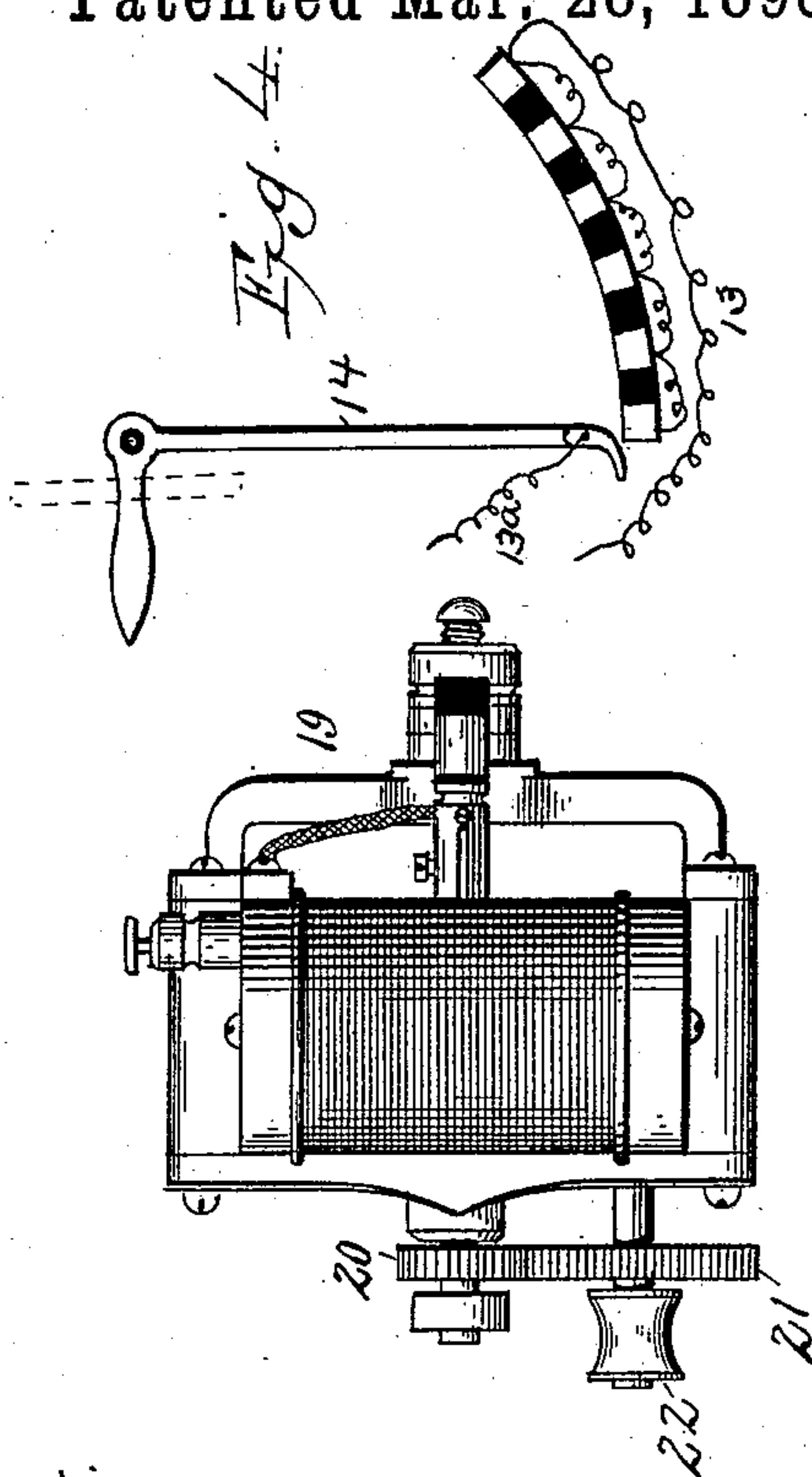
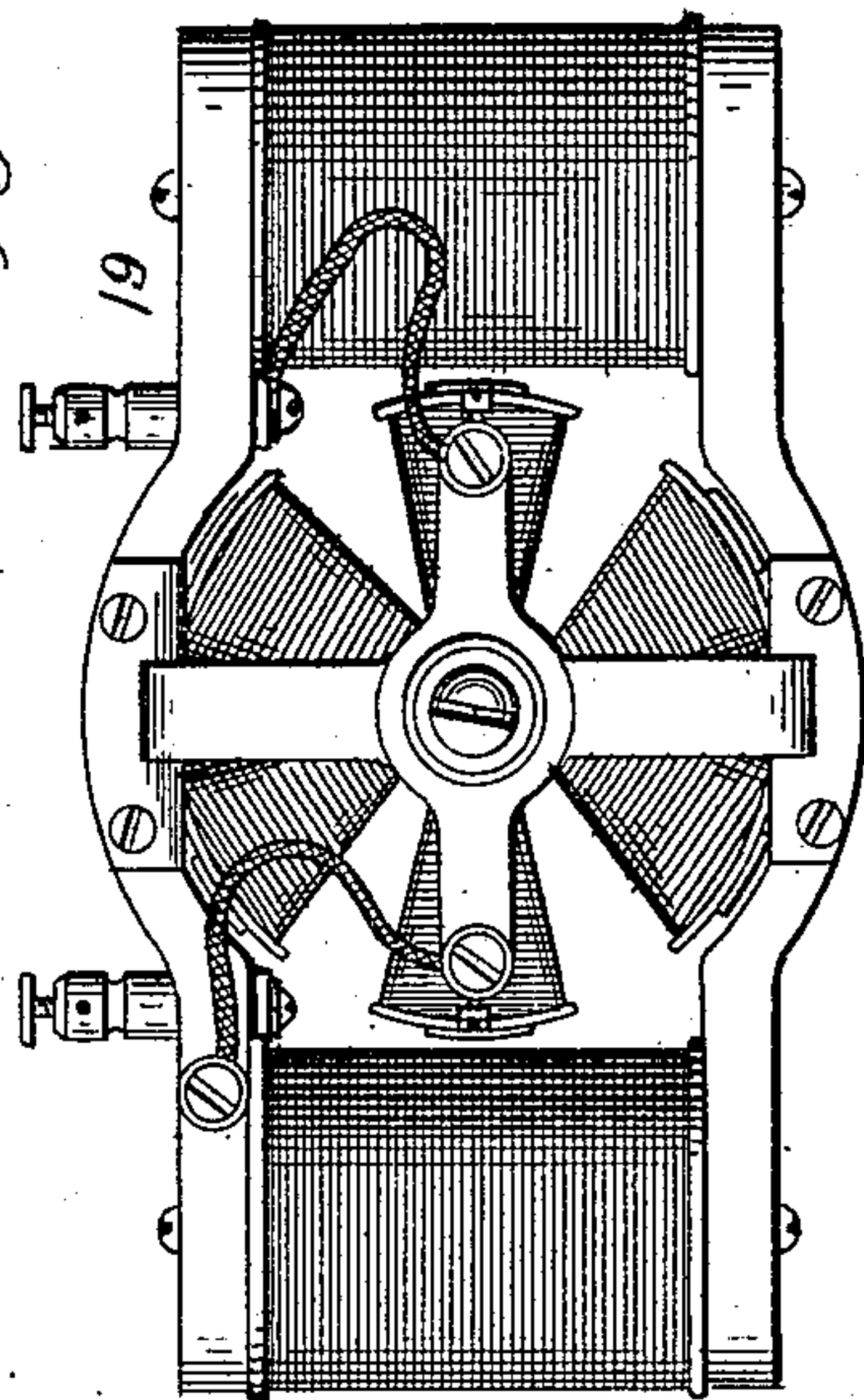


Fig. 5.



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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. 494,505, dated March 28, 1893.

Application filed April 5, 1892. Serial No. 427,869. (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 Electric 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 electric brake for cars in which the car is stopped by its own momentum or force by the use of a friction pulley or clutch which is applied by electricity; the whole being under the control of the engineer, who can apply the brakes with greater or less power as may be required; or when desired the brakes of each car can be applied separately; 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 end of a car provided with my invention; Fig. 3 a perspective detail view of one form of electric motor which may be employed, as hereinafter described. Fig. 4 is a detail view.

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

Referring to the several parts by their designating numerals: 1 indicates the body of a railway car, a bottom plan view of which is shown in Fig. 1. Upon one of the axles, 2, of the car is secured a conical clutch-sleeve, 3, encircling the axle and made fast to the same; and 4 indicates the loose conical pulley or clutch-sleeve, which encircles and runs loosely upon the axle, between the fixed cone 2 and a ring or collar, 5, which encircles and is made fast to the axle, a metal ring or band, 4^a, secured on the end of the loose clutch-sleeve 4 preventing the entrance of dirt between the sleeves 3 and 4. A curved metal bearing or brace piece, 6, is bolted to the beam, 7, between the wheels at that end of the car; and

upon this bearing is pivoted a lever, 8, at a suitable distance from its inner end. The inner end of this lever is bifurcated, and the arms 9 thus formed are slightly curved to give a correct bearing against the end of the loose clutch-sleeve 4 when the lever is turned on its pivot.

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, and is there attached to a powerful brake-lever, 12, which will draw the brake-shoes against the wheels.

13, 13, indicate two insulated copper wires which run the full length of each car, the ends of these pairs of wires being coupled together between the several cars, and between the front car and the locomotive, and thus run the length of the entire train.

Upon the locomotive of the train, at some convenient point, such as that shown in Fig. 2, is mounted a small dynamo, 15, which may be run by a belt or gearing from one of the axles, or by any suitable means. The exact construction of the dynamo and the exact method of running it can of course be varied at will. The insulated copper wires 13, 13, are connected electrically with this dynamo, and run from it to a small lever, 14, by means of which the engineer may make or break the circuit at will, in the usual manner, and can also make the current strong or light.

In the drawings, one of the wires 13 is shown connected with one pole of the dynamo, while the other wire 13 runs to a curved metal plate, or preferably to a curved resistance-board, 14^b, and a short wire 13^a runs from the other pole of the dynamo to the lower end of the handle-lever 14. It will be seen that when the lever 14 is turned by its insulated handle so that its curved lower end will come in contact with the resistance-board 14^b, over which it travels, the circuit will be thus closed; and as the end of the lever is pulled around toward the far end of the resistance-board the current is made stronger. Beneath each car two smaller insulated wires, 16, 16, run from the main wires 13, 13, to a closed box or casing, 17, in which is an electrical device which, when the current is applied, will draw the

chain or rod 18 with greater or less force according to the amount of current used: this rod 18 (which preferably has a coiled spring 18^a forming a part of its length, to prevent
5 any excessive strain) being secured at its outer end to the long end of the pivoted lever 8.

The electrical device 19 which I have shown in the accompanying drawings consists of a
10 small electric motor, on the shaft or spindle of which a small cog-wheel, 20 is secured meshing with a much larger gear wheel, 21, and to the small shaft, 22, of this larger gear-wheel the end of the chain at the outer end of rod
15 18 is secured. The object of this gearing is to reduce the speed with which the rod 18 will be drawn in, as it is only desired that it should be moved with comparative slowness in applying the brakes. I have shown at 19 the
20 electric motor which was described and covered by Patent No. 389,207, and do not claim any part of its construction, as any suitable electrical motor or device can be used in the casing 17 which will draw the rod 18
25 when the current is applied by the engineer closing the circuit. A stop, 18^b, on the rod prevents its being drawn too far into the casing. It will now be seen that in operation when the engineer desires to put on the
30 brakes, it is only necessary for him to move the small lever in the cab which will make the circuit and, through the devices just described, will pull on the chain or rod L with as much force as the engineer may desire,
35 according to the strength of the current which he uses. The lever 8 is thus turned on its pivot, when its bifurcated inner end presses the loose friction sleeve 4 against the fixed conical clutch-sleeve 3, which is revolving
40 ing with the axle, thus causing the loose-clutch-sleeve to revolve with the fixed sleeve, and winding the brake-chain 10 on the pulley 4 (in whichever direction it is running) thus drawing on the rod 11 which is connected
45 to the brake-lever, and applying the brake-shoes directly to the wheels of the trucks. It will thus be seen that the momentum or force of the cars themselves will be used to press the brakes firmly against the
50 car-wheels, and stop the train; that the brakes of the entire train, no matter how long it may be, are completely under the engineer's control, and that the more current the engineer applies when making the circuit the stronger
55 will the brakes be applied to the wheels of the several cars. The conical clutch-sleeve 4 is calculated to slip within the loose pul-

ley 3 after sufficient force is obtained to stop the car, when the loose pulley 3 is pushed against the fixed pulley, thus guarding
60 against any breakage of the several parts. A spiral spring, 8^a, connected to the outer end of the lever 8, pulls the lever back as soon as the current is broken, thus freeing the loose pulley 4 from the pressure of the
65 lever.

In order to enable the brakes of each car to be applied separately when desired, either after a car has been disconnected from the train or while still forming a part of it, I at-
70 tach a chain 23 to the outer end of the lever 8, the chain then running around a pulley 24 and over a pulley 25 near the end of the car, where its outer end is attached to the lower end of a rod 26. This rod moves vertically,
75 its upper end rising above the platform; and by pressing down upon it with the foot the chain 23 will be pulled down at its outer end, thus acting on the lever 8 to move the loose cone and put on the brakes. When thus
80 pushed down, a spring-bar, 27, engages in a recess in the side of the rod, and holds the brake locked; and to release the brake it is only necessary to push the free end of this
85 spring-bar aside with the foot, freeing it from the recessed rod 26, when a spring 28 will raise the rod to its normal position. On freight cars the rod 26 will run to the top of the car, where the spring-bar will be located.

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

In a car brake, the combination with the axle of the car, of a friction clutch mounted thereon, one of the pieces of which clutch is
95 movable longitudinally upon the axle, and is provided with a drum, a chain from the drum to the brake lever, a lever pivotally secured to the frame of the car, one end of which lever engages with the movable portion of the
100 clutch, an electrical motor secured to the car provided with a projecting shaft, and a chain secured to the opposite end of said pivoted lever, and to the projecting end of the shaft and adapted to be wound thereon, whereby
105 the lever is operated and the clutch is thrown into engagement and the brakes are set, 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.