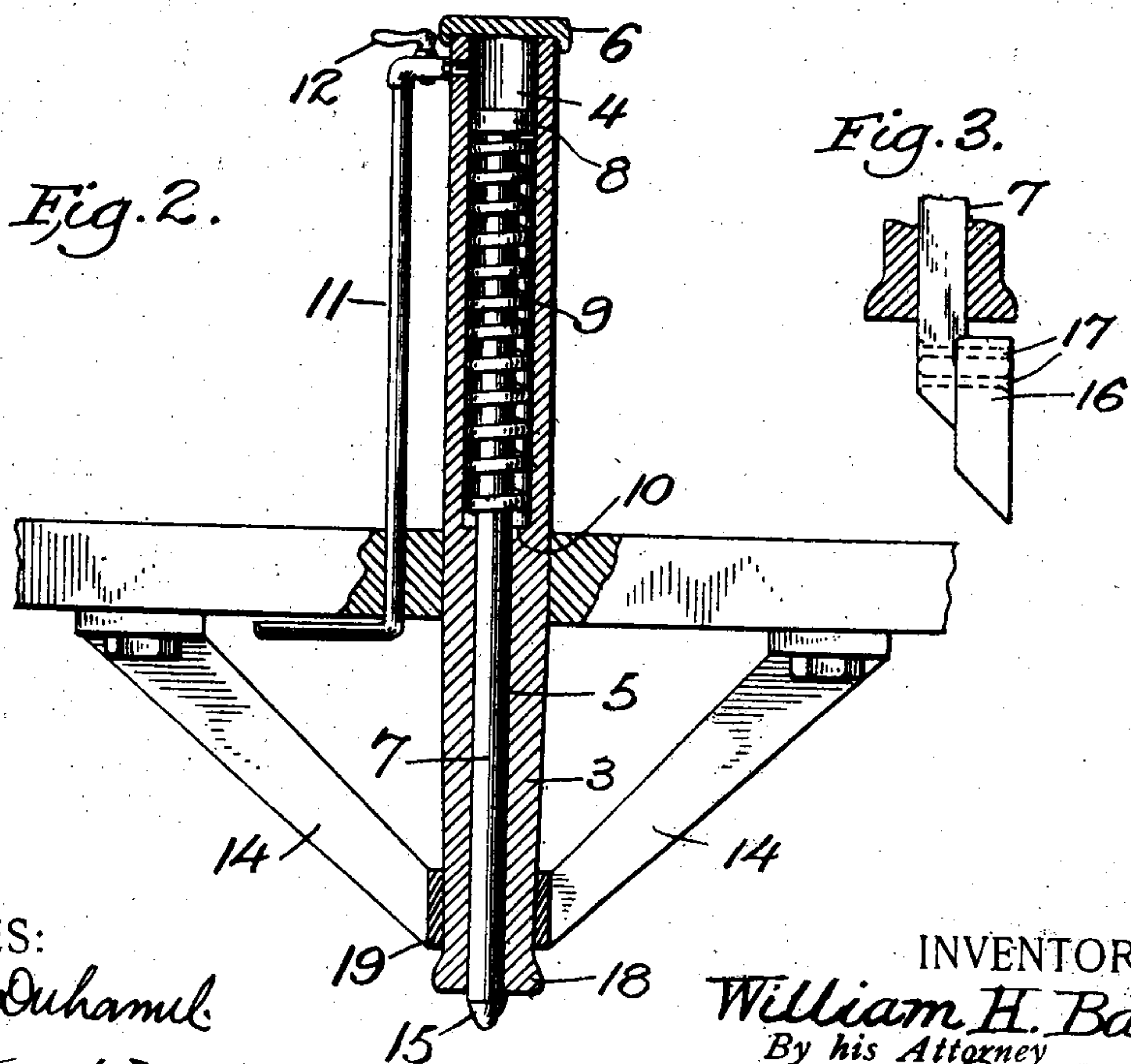
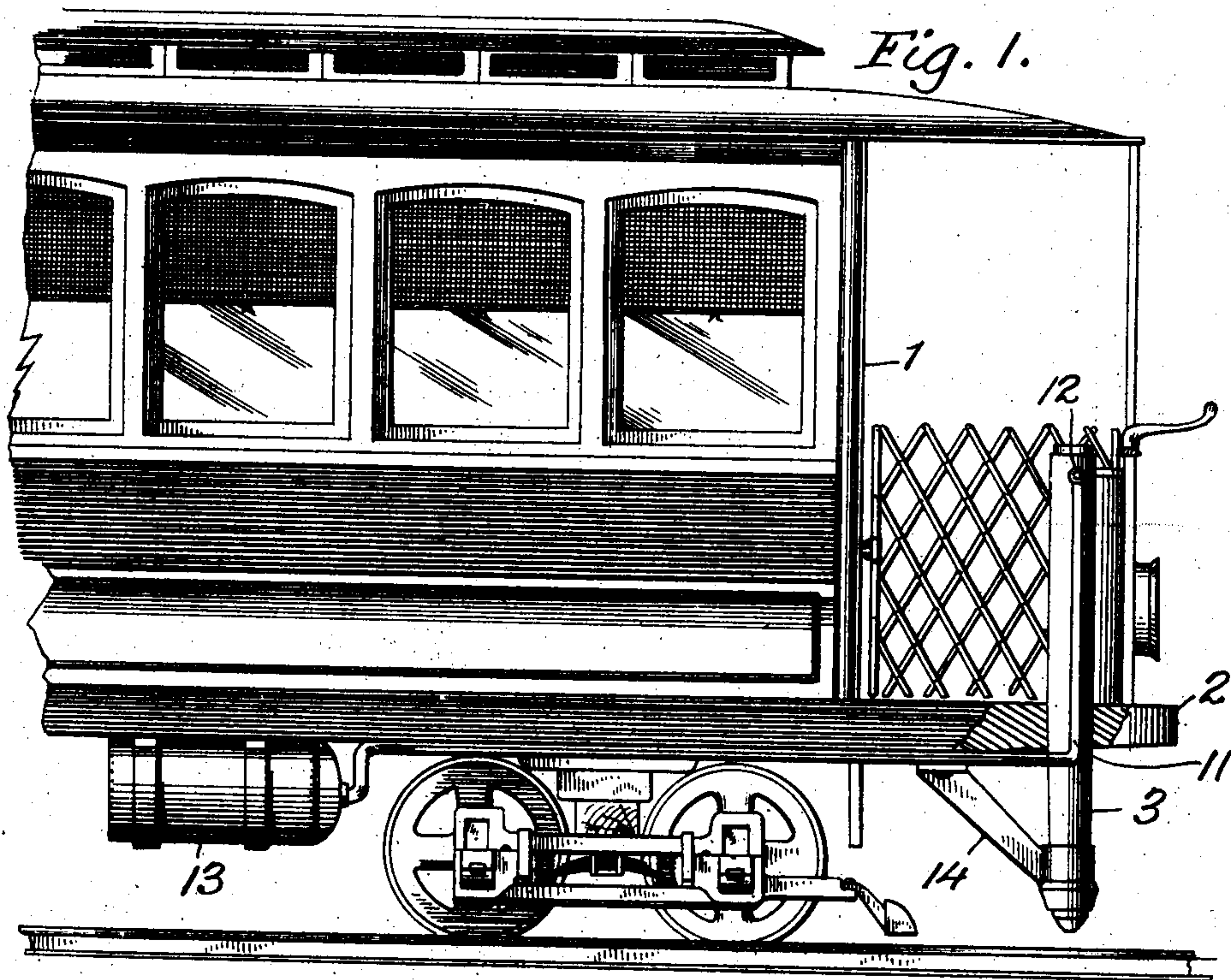


No. 834,961.

PATENTED NOV. 6, 1906.

W. H. BALCH.
EMERGENCY STOP.
APPLICATION FILED SEPT. 6, 1905.



WITNESSES:

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WILLIAM H. BALCH, OF BROOKLYN, NEW YORK.

EMERGENCY-STOP.

No. 834,961.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed September 6, 1905. Serial No. 277,236.

To all whom it may concern:

Be it known that I, WILLIAM H. BALCH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Emergency-Stops, of which the following is a specification.

This invention relates to emergency-stops for street-railway cars.

The objects of the invention are to improve and simplify the construction of such devices; furthermore, to increase their efficiency in operation and to decrease the expense attending their manufacture and use.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed as a practical embodiment thereof.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation, partly in section, of a street-car with an emergency-brake constructed in accordance with the invention. Fig. 2 is a vertical section, partly in elevation, of the improved brake. Fig. 3 is a detail sectional view.

Like reference characters indicate corresponding parts in the different figures of the drawings.

The reference-numeral 1 indicates a street-railway car which may be made of any suitable form and construction. Extending downward through the platform 2 of the car 1 is an improved emergency-brake cylinder. The cylinder 3 is formed adjacent to its upper end with a large bore 4 and adjacent to its lower end with a small bore 5. The upper end of the large bore 4 is closed by means of a removable cap 6. Extending through the small bore 5 into the large bore 4 is a rod 7, which is provided at its upper end with a piston-head 8, located in the large bore 4 of the cylinder 3. The rod 7 is surrounded at its upper end by a coil-spring 9, which is located inside the large bore 4 and bears at its lower end against a shoulder 10 at the lower end of the bore 4 and at its upper end against the piston-head 8. The coil-spring 9 serves to maintain the rod 7 normally in raised position, as shown in Fig. 2.

Communicating with the upper end of the cylinder 3, above the piston-head 8, is an air-supply pipe 11, having a controlling cock or

valve 12. The supply-pipe 11 is connected with a reservoir 13, which is adapted to be supplied with compressed air in any suitable manner.

The lower end of the cylinder 3 is strengthened by means of upwardly-inclined braces 14, which are attached to the under surface of the platform 2 in any suitable manner.

The lower end of the rod 9 preferably is pointed, as indicated at 15, although said rod may be provided, if desired, with a detachable shoe 16, formed of any suitable material, as indicated in Fig. 3. The shoe 16 preferably is held in position by a pin 17, which extends through the lower end of the rod 7.

Constructed as above described the improved emergency-brake of this invention is operated in the following manner: If the ordinary brakes of a car should fail to work or if it should be desired to bring the car to a sudden stop, the valve 12 is opened to permit a quantity of compressed air to pass from the reservoir 13 into the upper end of the cylinder 3, with the result that the rod 7 is forced downward until its lower end comes in contact with the ground and causes the car to be brought to a standstill.

It will be observed from Fig. 2 that the wall of the cylinder 3 is thicker adjacent to the small bore 5 than it is adjacent to the large bore 4. For this reason the lower end of the cylinder is capable of receiving the strain which is placed thereon when the rod 7 is forced downward into contact with the ground. It will also be observed from Fig. 2 that the lower end of the cylinder 3 is formed with an annular enlargement or rib 18 in order to prevent the downward displacement of the collar 19, to which the braces 14 are connected.

The improved emergency-brake of this invention is strong, simple, durable, and inexpensive in construction, as well as thoroughly efficient and rapid in operation.

Having thus described the invention, what is claimed as new is—

1. Combination with a street-railway car, of a vertically - extending cylinder having a large bore, and a small bore of approximately the same length as the large bore, the wall of said cylinder surrounding the small bore being thicker than the wall surrounding the large bore, a rod extending through the small bore into the large bore, a piston-head connected with said rod and located in the

large bore, a coil-spring surrounding the rod and bearing against the piston-head, an annular enlargement on the lower end of the cylinder, a collar surrounding the cylinder
5 above the enlargement, a plurality of braces connected with the collar, an air-supply pipe communicating with the cylinder above the piston-head and valve in said air-supply pipe, and a compressed-air reservoir connected with
10 the supply-pipe, substantially as described.

2. An emergency-brake comprising a cylinder, said cylinder being interiorly reduced to provide a small bore and a large bore, the wall of the cylinder surrounding the small

bore being thicker than the wall thereof surrounding the large bore, a rod extending through the small bore into the large bore, a piston-head carried by said rod and located in the large bore, pneumatic means for forcing the rod downward, and spring means for
20 forcing the rod upward.

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

WILLIAM H. BALCH.

Witnesses:

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H. G. HOSE.