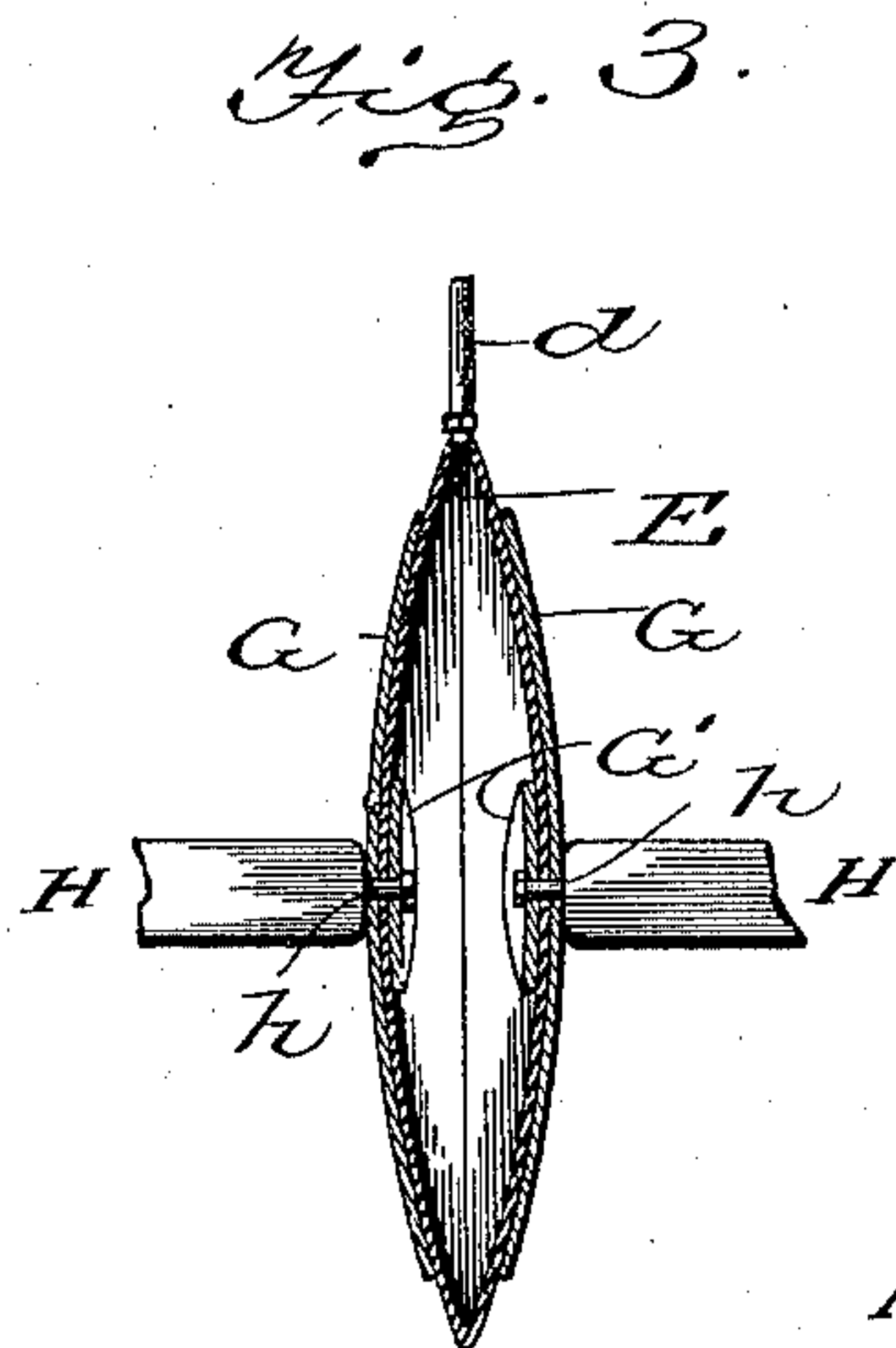
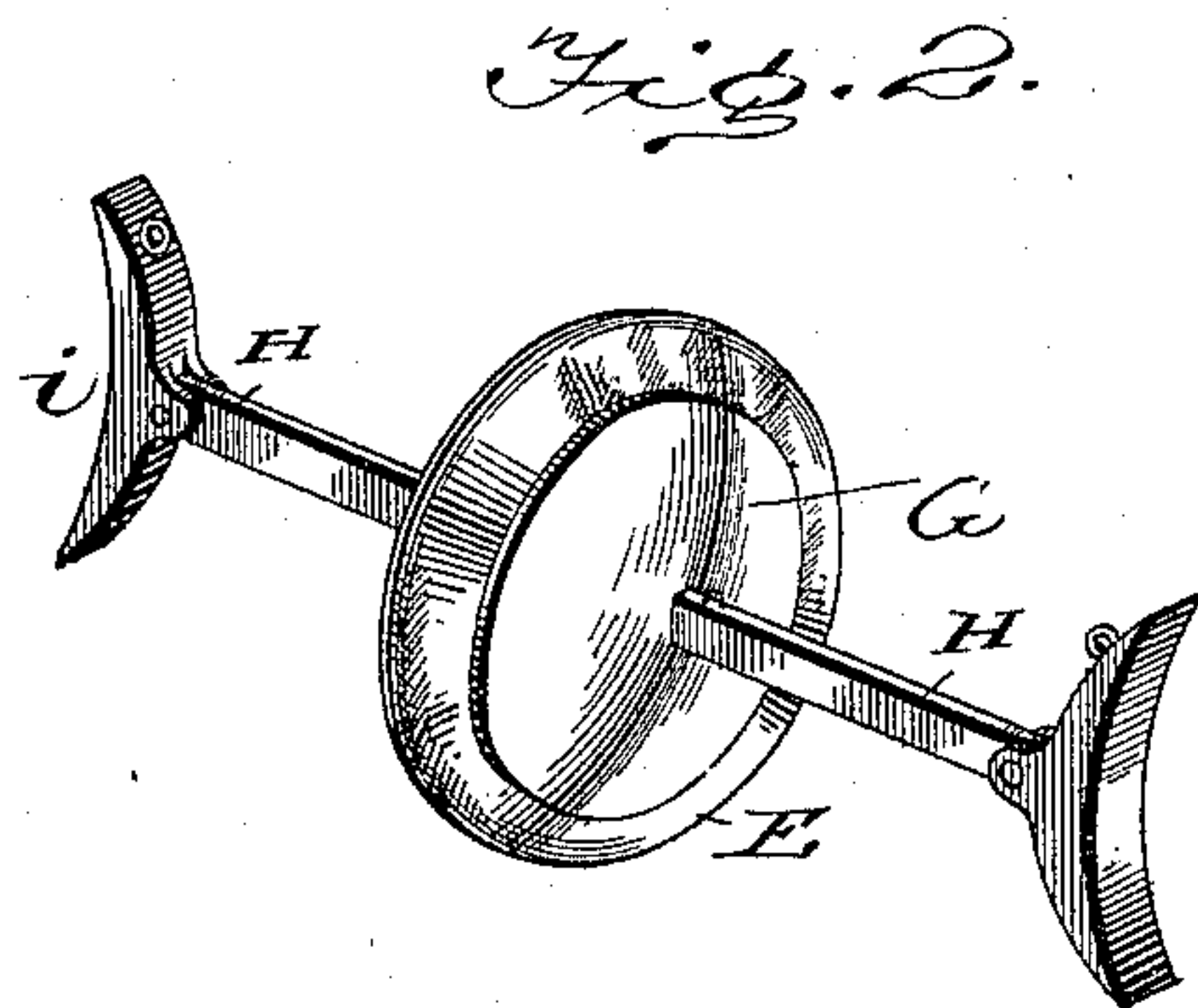
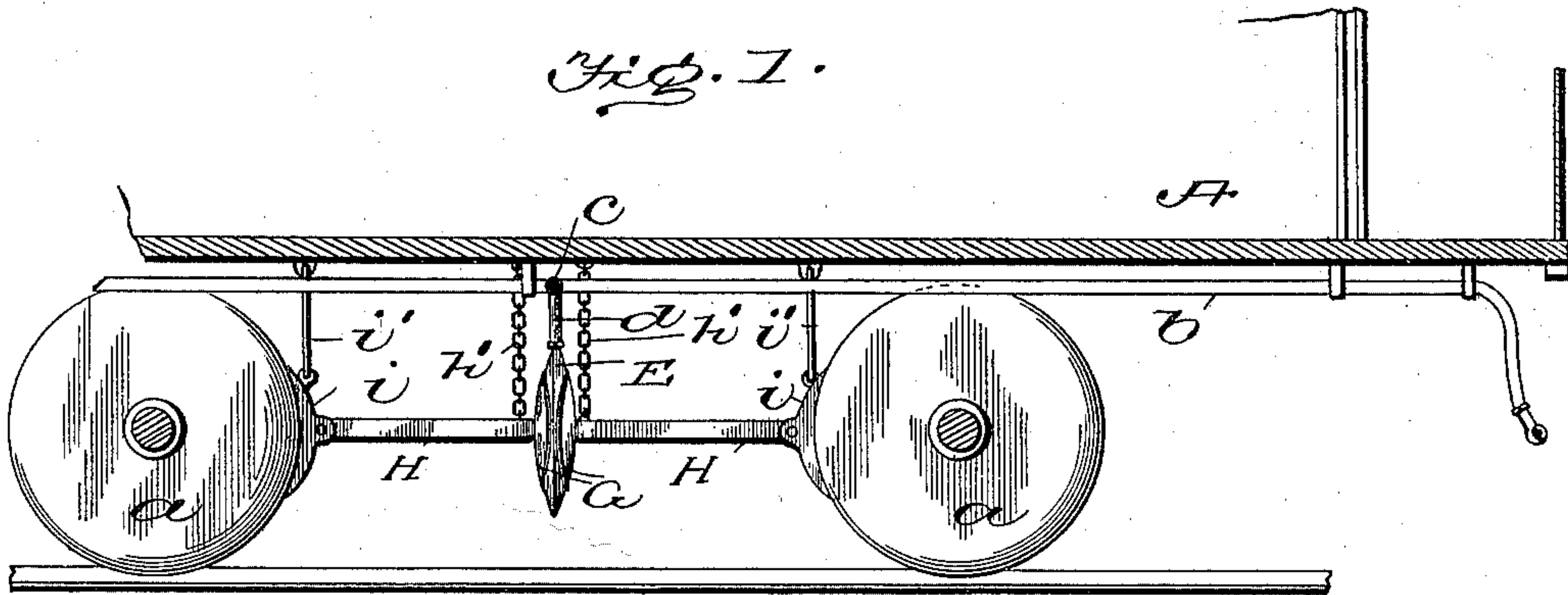


(No Model.)

M. E. CAMPANY.
COMPRESSED AIR DISK BRAKE.

No. 598,766.

Patented Feb. 8, 1898.



Witnesses

John L. Smith
Wm S. Hodges.

Inventor

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by

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UNITED STATES PATENT OFFICE.

MILTON E. CAMPANY, OF HAMILTON, MICHIGAN.

COMPRESSED-AIR DISK BRAKE.

SPECIFICATION forming part of Letters Patent No. 598,766, dated February 8, 1898.

Application filed April 17, 1897. Serial No. 632,598. (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 Compressed-Air Disk 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 letters of reference marked thereon, which form a part of this specification.

My invention consists in a compressed-air disk brake which is designed especially for street-cars, and which combines great simplicity of construction, dispensing with all brake-beams, brake-levers, and cylinders, with effectiveness in operation.

The invention will be hereinafter fully described and claimed.

Among the practical advantages of this invention are its extreme cheapness to manufacture owing to its simplicity of construction, in which there is no complicated mechanism and which dispenses with all brake-beams, brake-levers, and cylinders, the ease with which it can be attached in operative position to a car, its extreme lightness and durability, its quick and direct action, and the impossibility of its "leaking off," a defect with air-brakes using a cylinder where the gradual leak of the air past the piston releases the brakes in a short time.

Referring to the accompanying drawings, in which the same letters of reference indicate corresponding parts in the several views, Figure 1 is a side view, partly in section, showing my invention applied to a car. Fig. 2 is a perspective view of the same. Fig. 3 is a sectional detail view of the disk.

Referring to the several parts by letter, *a a* are the wheels of a street-car A, beneath which extends the train-pipe *b*, a flexible rubber hose *d* running from each side of a central T-joint or coupling *c* of the train-pipe to the diaphragm E at each side of the car. The diaphragms E are preferably made of the round or circular form here shown and of any suitable flexible material—such as leather, rubber, prepared paper, or cloth rubber lined—

and is preferably reinforced and strengthened by circular metal plates G, with smaller plates G' on the inside, through which pass eyebolts *h*, to the outer ends of which are coupled what may be termed the "inner" ends of horizontal rods H, the outer ends of which are pivotally connected to the brake-shoes *i*. The diaphragms are connected to each other at their outer edges in any approved manner that will prevent leakage and form a strong connection. The brake-shoes are hung beneath the car by the usual links *i'* and the inner ends of rods H by chains *h'*.

When it is desired to apply the brakes, the compressed air is let into the train-pipe *b* and passes through the flexible tubing *d* to the diaphragms E, the parts and particular arrangement thereof being duplicated on each side of the car. The instant the air enters between the diaphragms it inflates and expands the latter, exerting a pressure on the metal plates G G, the rods H H, and the brake-shoes *i i*, from which it will readily be seen that as soon as the air is admitted to the train-pipe *b* the brakes are instantly set with more or less force, according to the amount of pressure let into the train-pipe.

It will be seen that with this brake the action is direct, there being no cumbersome or complicated intervening mechanism. There are no brake-beams whatever, no brake-levers, no cylinders, nothing fastened to the body of the car except the train-pipe. The construction and arrangement of the parts reduce the weight to a minimum and provide for readily and conveniently placing the mechanism upon the car. It will also be noted that the particular manner of supporting the diaphragms and the manner of connecting the plungers or brake-bars thereto relieve said diaphragms of wear.

I do not confine myself to the particular form and position of the diaphragms here shown, as this circular form may be deviated from, and changed to a square or other suitable outline.

It is impossible with this brake mechanism for the brakes to "leak off," which often happens with air-brakes using a cylinder, where the gradual leak of the air past the piston releases the brakes in a short time.

The ease with which this brake can be ma-

nipulated, its great simplicity and cheapness of construction, and direct and positive action are among its leading practical advantages.

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

10 In an air-brake for cars, the combination of the brake-shoes supported by depending rods or links, brake-bars pivoted to the shoes and extending toward each other, chains supporting the inner ends of said bars, diaphragms intimately secured to each other at

their outer edges and connected to the brake-bars, and plates on the inner and outer sides 15 of the diaphragms to reinforce said connection, the outer plates being of considerable diameter; together with a flexible tube connecting the diaphragms with the train-pipe, as herein shown and described. 20

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

MILTON E. CAMPANY.

Witnesses:

N. S. SEARS,
H. J. SEARS.