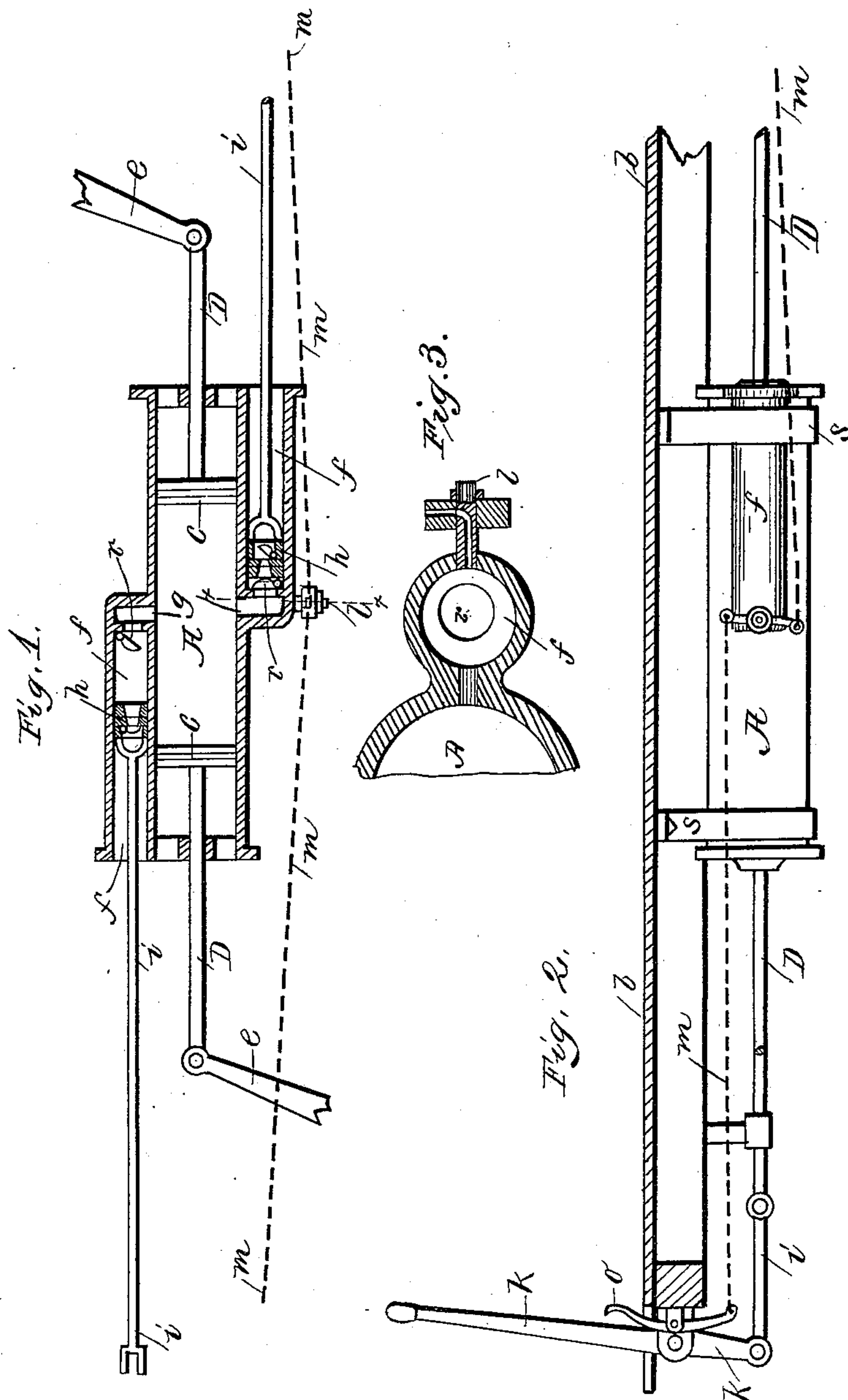


(No Model.)

R. A. KISKADDEN.
DEVICE FOR OPERATING CAR BRAKES.

No. 404,418.

Patented June 4, 1889.



Witnesses:
M. E. Harrison.
J. A. Herrow.

Inventor:
Robert A. Kiskadden
Rev. O. D. Lewis
Att'y.

UNITED STATES PATENT OFFICE.

ROBERT A. KISKADDEN, OF ALLEGHENY, PENNSYLVANIA.

DEVICE FOR OPERATING CAR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 404,418, dated June 4, 1889.

Application filed July 9, 1888. Serial No. 279,456. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. KISKADDEN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Operating Car-Brakes; and I do hereby 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a device for operating railway and other car brakes; and it consists of the novel construction and combination of parts, as will be fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a sectional plan view of my improved device for operating car-brakes constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail sectional view.

To put my invention into practice, I provide a cylinder A of suitable size and form of construction, and secure the same rigidly beneath the floor b of a railway or other car. Neatly fitted in this cylinder A are two pistons c, each having securely attached thereto a piston-rod D, which is connected with a lever e, adapted to operate the brake (not shown) of an ordinary car. At each side of this cylinder A, and integral therewith, are two smaller cylinders f, each having a port or opening g communicating with the interior of the large cylinder A. Operating in each of these small cylinders f is a valved piston h, similar to those in use in an ordinary air-pump. Connected to each of these valved pistons h is a rod i, extending separately to each end of the car b, at which point they are attached to a vertically-pivoted hand-lever k, projecting above the floor of the car. At a suitable point on one of the small cylinders f is placed a relief-valve l, which can be operated by means of a wire cord m and small foot-lever o from either end of the car. This valve l serves to relieve the vacuum, and

thereby release the brakes. A check-valve r in each of the small cylinders prevents the air from escaping from the large cylinder A through the port g.

In operation the hand-lever k, at either end of the car, is operated, which action moves the valved piston h horizontally in the small cylinder f and pumps the air from between the two pistons c, thereby forming a vacuum. The pressure of the atmosphere on the other side of the pistons c forces the same toward the center of the cylinder A, thereby moving the brake-levers e and setting the brakes.

When it is desired to release the brakes, the small lever o is moved forward, which operates the relief-valve l, thereby admitting air to the cylinder A, which instantaneously relieves the brakes.

I am aware that it is not new to provide the cylinder of an automatic air-brake with a movable inlet-valve, a discharge-valve connected to and movable with said inlet-valve, a bell-crank lever connected to said valves and having a rod or cord which is connected to a treadle or lever at one end of a car, and a spring connected to said bell-crank lever for normally closing the inlet and opening the discharge valves, whereby the bell-crank lever can be rocked by a pull on the cord or rod to open the inlet-valve and admit compressed air to the cylinder; but such is not my invention.

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

In a device for manually operating car-brakes, the combination, with a main cylinder and two pistons arranged in opposite ends thereof, of two supplementary cylinders f f, arranged on opposite sides of said main cylinder and each communicating at one end with said main cylinder at a point between the two pistons therein, and having a check-valve r, a valved piston h, operating in each of the supplementary cylinders and connected with a hand-lever at the end of a car, a relief-valve l, communicating with said main cylinder at a point between the pistons thereof and having an axially-turning body, and a

treadle *o*, connected with said relief-valve by an intermediate connection *m*, whereby air may be admitted to the brake-cylinder through the relief-valve and operate the pistons in the main cylinder to release the brake-shoes, substantially as and for the purpose described.
In testimony that I claim the foregoing I

hereunto affix my signature this 24th day of April, A. D. 1888.

ROBERT A. KISKADDEN. [L. S.]

In presence of—

JAMES H. PORTE,
M. E. HARRISON.