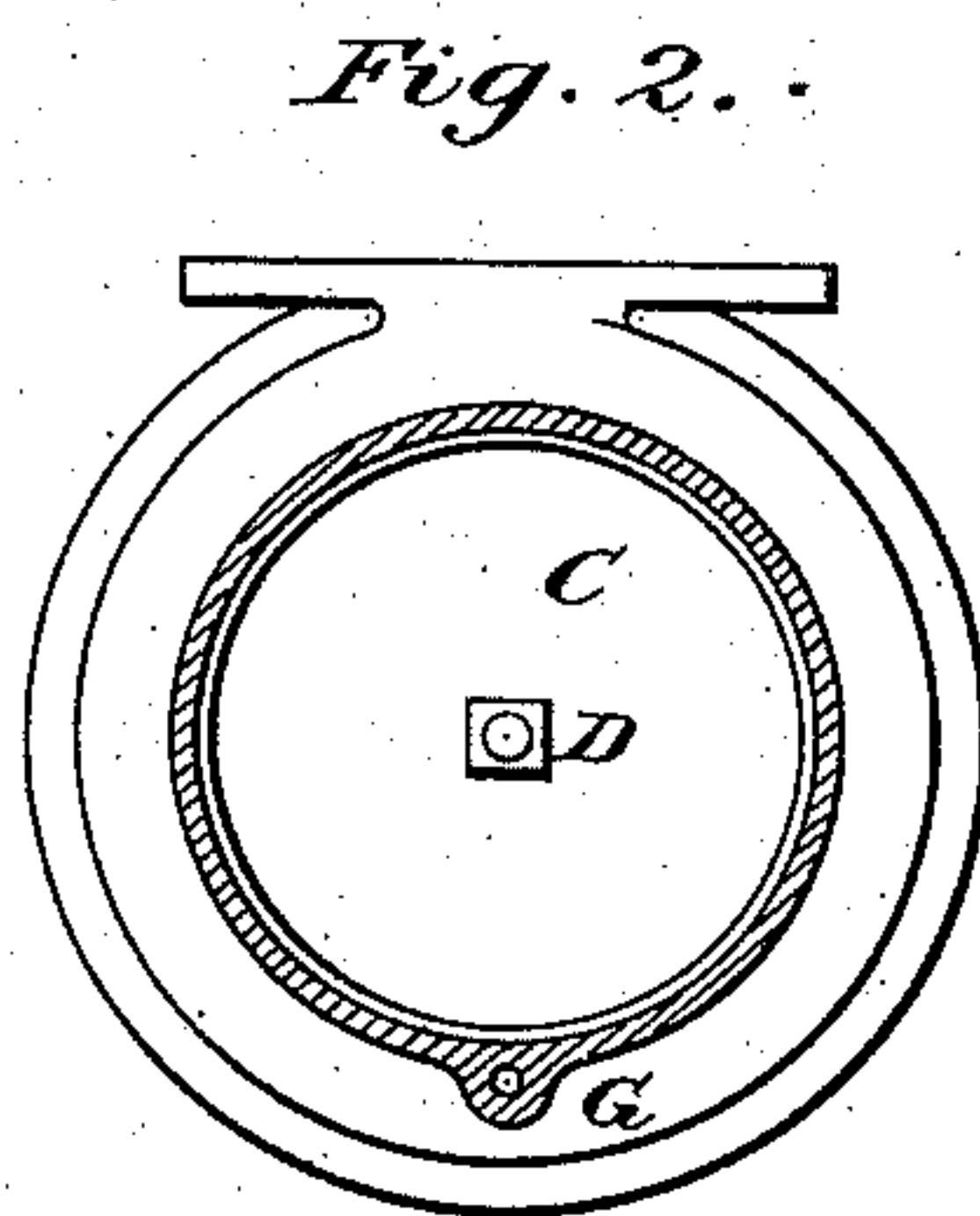
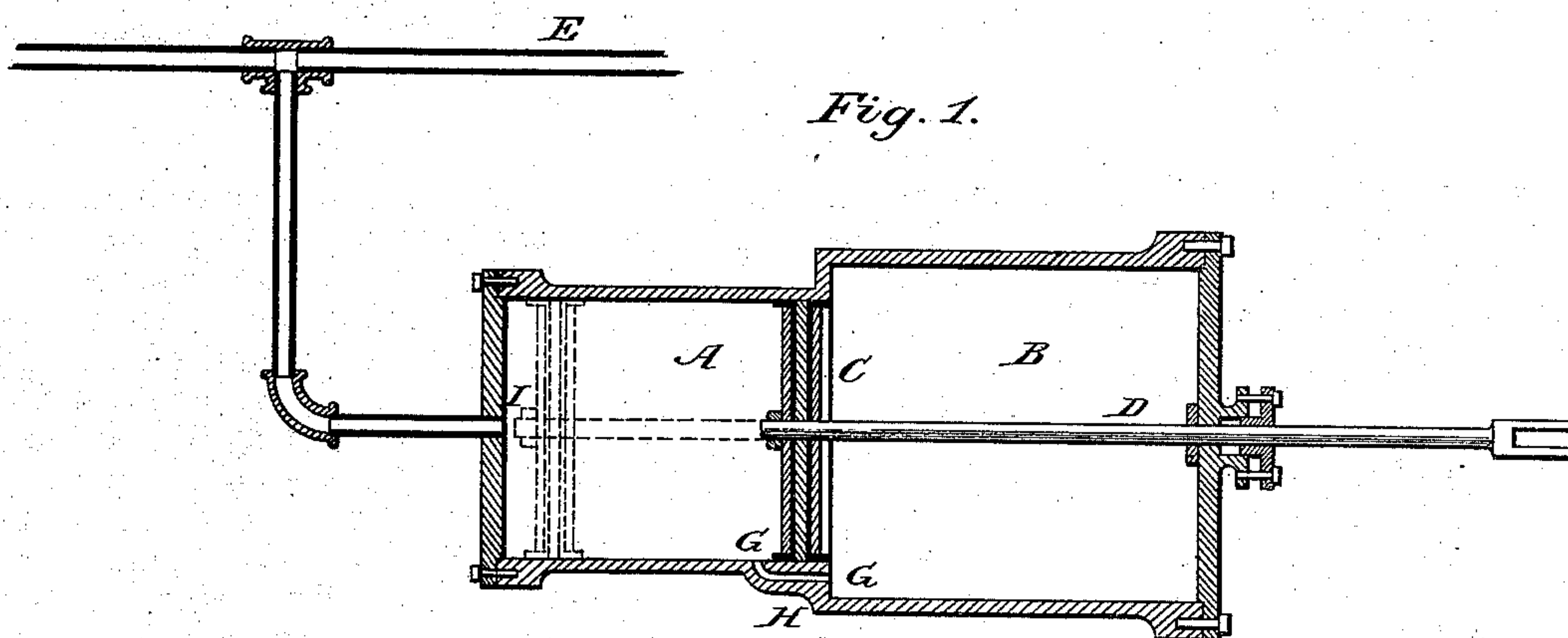


J. R. RENIFF.
Steam and Air Brake.

No. 160,955.

Patented March 16, 1875.



Witnesses.
Rufus Reniff.
Edmund B. Cleveland

Inventor.
James R. Reniff.

UNITED STATES PATENT OFFICE.

JAMES R. RENIFF, OF BLOOMINGTON, ILLINOIS.

IMPROVEMENT IN STEAM AND AIR BRAKES.

Specification forming part of Letters Patent No. **160,955**, dated March 16, 1875; application filed November 28, 1874.

To all whom it may concern:

Be it known that I, JAMES R. RENIFF, of Bloomington, in the county of McLean and State of Illinois, have invented certain Improvements in Automatic Steam and Air Brakes for Railway-Cars, of which the following is a specification, reference being had to the drawing.

Figure 1 represents a sectional view of cylinder and piston. Fig. 2 shows sectional view of cylinder through H.

My invention relates to the peculiarly-constructed cylinder, at both ends of which are formed, by the position of the piston C, two air-chambers, A and B, one being larger than the other, the pressure coming through pipe E and port I in chamber A, and passing under piston, through port or passage G G, into chamber B, filling both chambers A and B, and keeping a constant pressure on both sides of the piston C, so that when the supply-pipe E is broken, or the cars are uncoupled by accident or otherwise, the pressure confined in the smaller chamber A instantly escapes, and the piston C is forced forward and over the

port or passage G G by the pressure in chamber B, and thus preventing the escape of pressure through port G G from chamber B, and applying the brakes. To release the brakes the pressure is admitted through supply-pipe E, port I, into chamber A, and against piston C, as represented by dotted lines, forcing it back and over the port or passage G G to its original position, and at the same time compressing the air to its original pressure, thus being ready at all times for applying the brakes, the port or passage G G allowing the pressure to become equalized on both sides of piston.

I claim—

The air-chambers A B of unequal diameters, and communicating with each other through a suitable air passage or port, G, in combination with the piston C, acting as a valve in closing and opening said port or passage, substantially as and for the purpose set forth.

JAMES R. RENIFF.

Witnesses:

EDMUND O. CLEVELAND,
RUFUS RENIFF.