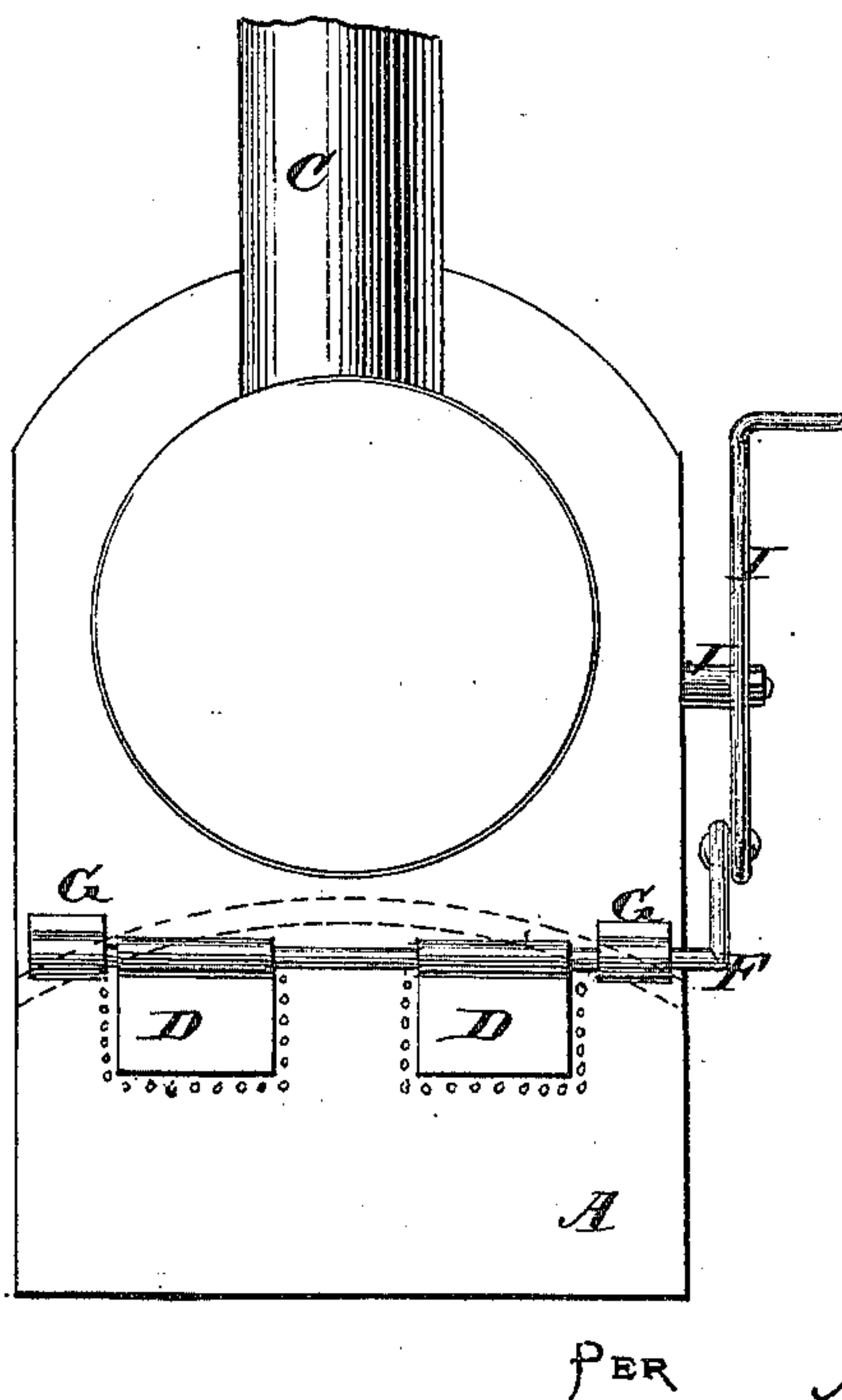
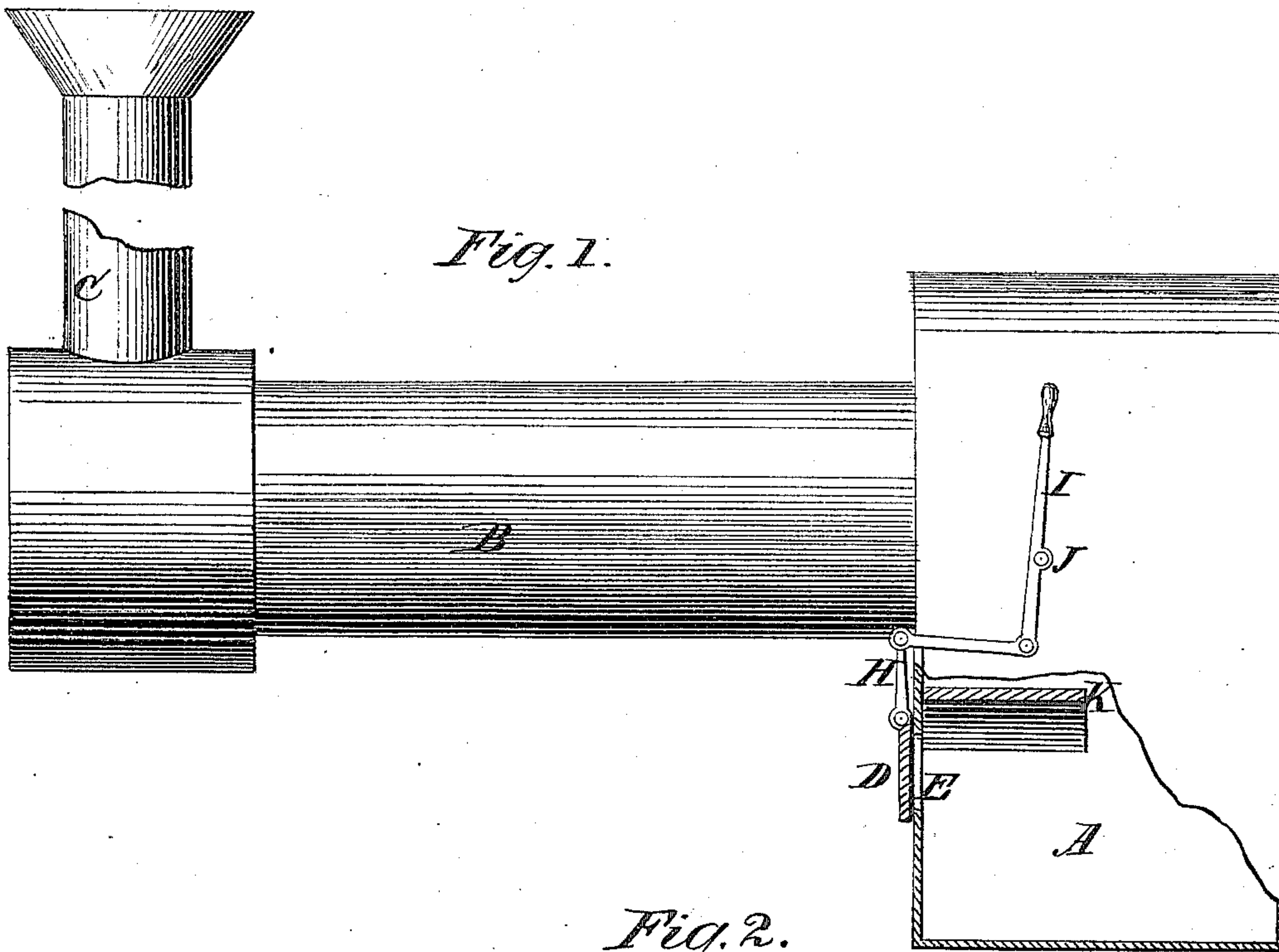


T. DAVIES.
Furnaces for Locomotives.

No. 134,422.

Patented Dec. 31, 1872.



Witnesses:
John Becker.
C. Sedgwick

PER

Inventor:

T. Davies

Munn & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS DAVIES, OF CLEVELAND, OHIO.

IMPROVEMENT IN FURNACES FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. 134,422, dated December 31, 1872.

To all whom it may concern:

Be it known that I, THOMAS DAVIES, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Locomotive-Boiler Furnaces, of which the following is a specification:

This invention relates to a new and useful improvement in the furnaces of locomotive steam-boilers; and consists in the means employed for supplying atmospheric air to the fire-box, hereinafter more fully set forth and described.

In the accompanying drawing, Figure 1 is a sectional side view of a locomotive-boiler, and Fig. 2 is a front end view of the same.

Similar letters of reference indicate corresponding parts.

A represents the fire-box. B is the tube-section. C is the smoke-box. D D represent doors or valves, which close orifices E in the front of the fire-box. There may be one or more of these orifices E, through which atmospheric air may enter the fire-box for supporting combustion. These valves or doors are fastened to the horizontal shaft F, so that by partially revolving the shaft the doors or valves will be opened or partially opened, as may be desired. The shaft works in boxes G G, and one end thereof, H, is turned at a right angle, to which is attached the lever I, whose fulcrum is at J, by means of which the doors or valves are adjusted in any desired position. K represents an arch, made of fire-brick or any other material which will withstand a high temperature. This arch extends across the front of the fire-box, as indicated in dotted lines in Fig. 2, and extends back toward the

fire-door one-half (more or less) the depth of the fire-box, the crown of the arch being just beneath the tube-section. The doors or apertures E (one or more) are placed just below the arch. This arch confines the admitted air and forces it to mingle with the smoke and gaseous products of combustion.

When a locomotive-boiler is in motion strong currents of air may be introduced into the fire-box by opening the doors D D. These currents will enter above the fuel and mingle with the smoke and gaseous products of combustion. The carbonic oxide generated by the fuel will thus be furnished with an additional supply of oxygen and be consumed with the smoke. The quantity of air thus admitted will depend upon the quality of the coal used, some kinds requiring more air than others. The fireman will adjust the doors or valves according to circumstances. By a proper adjustment the requisite quantity of air may be admitted to consume all the fuel and not allow a portion to escape from the chimney in the form of smoke and combustible gases. The result is a great saving of fuel and an abatement of the "smoke nuisance."

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

The fire-box A having arch K and openings E E, combined with valves D D having the operative mechanism H I J, arranged substantially as and for the purpose described.

THOMAS DAVIES.

Witnesses:

JOSEPH MCGANN,
JOSEPH GREAVES.