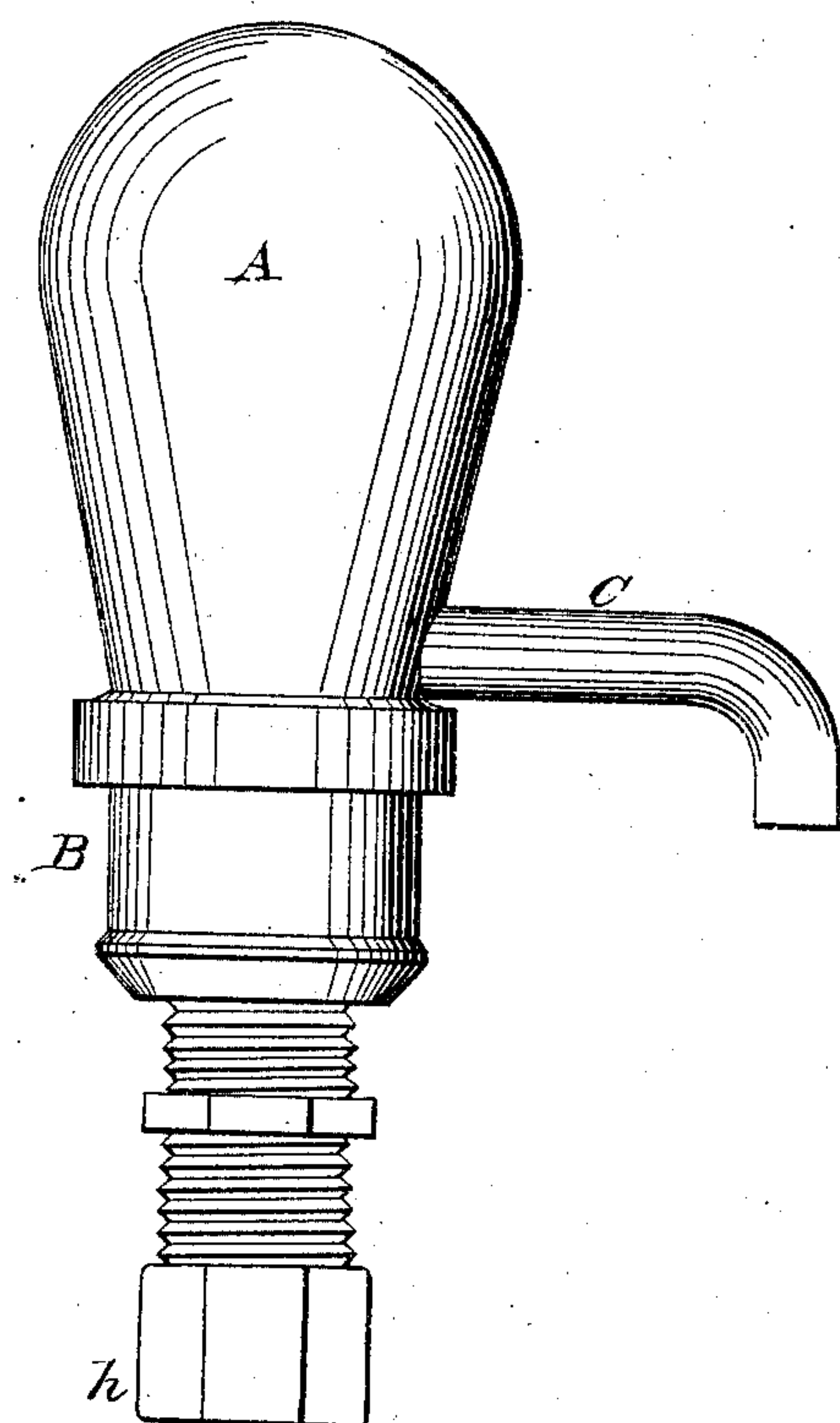


J. E. BOYLE.  
SAFETY VALVE.

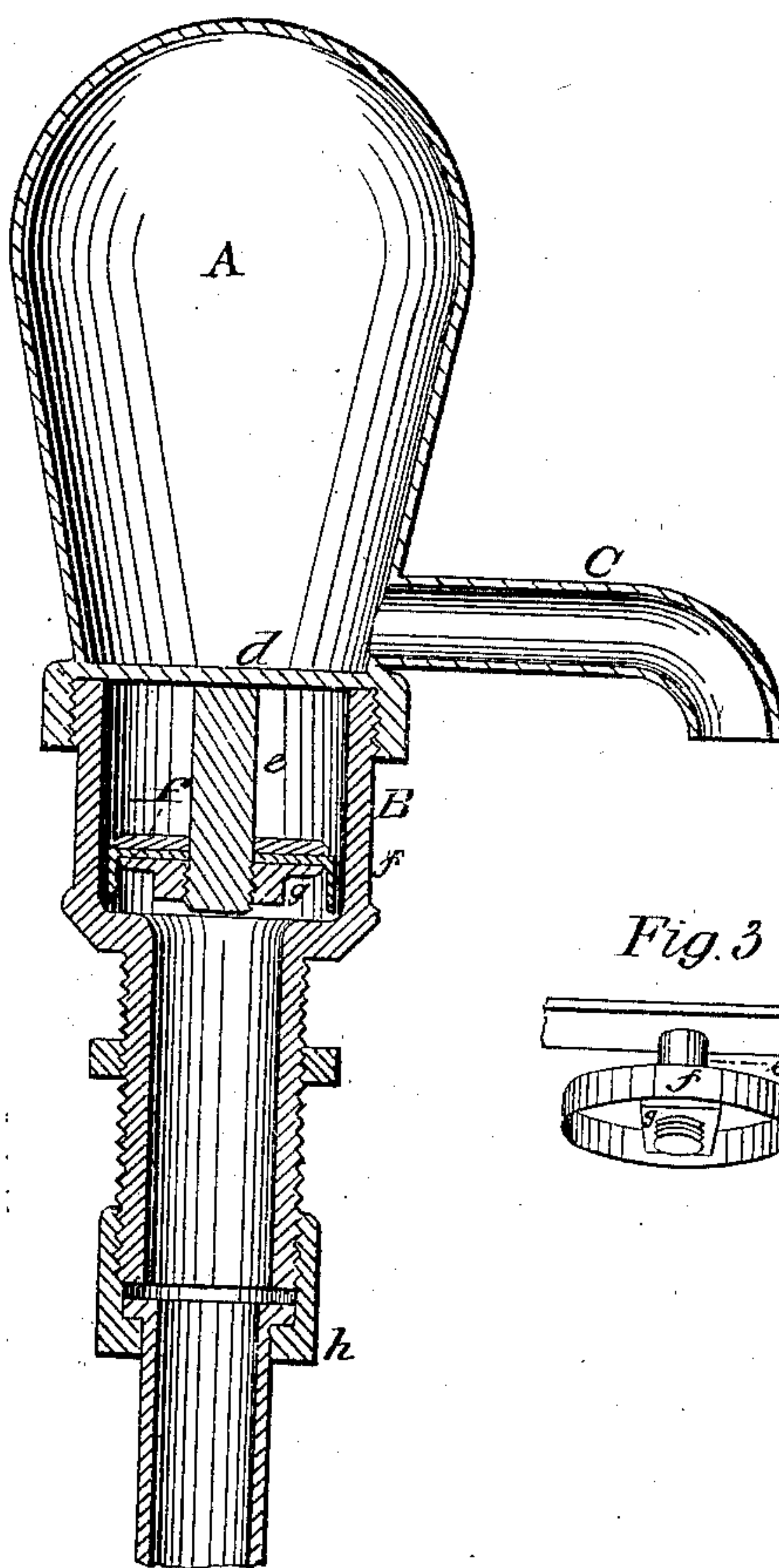
No. 28,058.

Patented May 1, 1860.

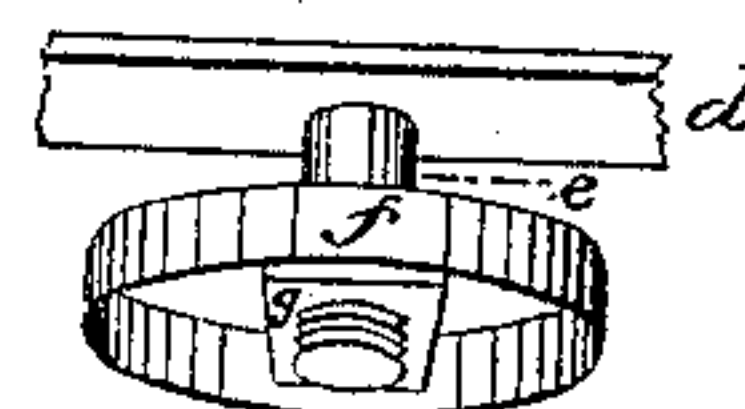
*Fig. 1*



*Fig. 2*



*Fig. 3*



Witnesses  
*Jeremiah Kelly*  
*Gas. G. Morgan.*

Inventor  
*J. E. Boyle*

# UNITED STATES PATENT OFFICE.

JAMES E. BOYLE, OF BROOKLYN, NEW YORK.

## VACUUM-VALVE FOR WATER-HEATING APPARATUS.

Specification of Letters Patent No. 28,058, dated May 1, 1860.

*To all whom it may concern:*

Be it known that I, JAMES E. BOYLE, of the city of Brooklyn, Kings county, and State of New York, have invented a new and Improved Mode of Preventing Close Kitchen-Boilers from Collapsing; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of references marked thereon.

The nature of my invention consists in attaching to the supply pipe of an ordinary close kitchen-boiler a cup-leather valve in such a manner as to prevent the escape of water from the pipe, and to admit air to said pipe whenever there may be a tendency to form a vacuum either in the pipe or boiler.

In the drawings Figure 1 represents a front view of the valve and its appurtenances, Fig. 2 a section of the same, Fig. 3 a perspective view of the valve; like letters refer to like parts in each drawing.

(A) is a cap that screws on to the cylinder (B) and has a cross bar (d) to which is securely attached the valve rod (e); (g) is a nut screwed to the lower end of the valve rod and against the cup-leather (f) holding it secure between the nut and the flange on the valve rod; the cylinder (B) forms the valve chamber, and has its lower end diminished, and has a screw cut thereon to receive the coupling (h) that couples it with the supply pipe.

(C) is a discharge pipe to discharge any water that may leak past the valve before it becomes saturated; and also to supply air to the pipe whenever there may be a tendency

to the formation of a vacuum in the pipe or boiler.

The operation of the valve is as follows, to wit: The supply leading from the street main to the boiler is connected near the boiler by means of a branch pipe to the lower end of the valve chamber; the water being let on to the house, fills the pipe and the lower portion of the valve chamber, pressing the edge of the cup leather against the side of the valve chamber; in case the water should at any time be shut off from the district for the purpose of repairing the mains; where the water is drawn from the houses and the suction reaches the branch pipe it draws the air in past the cup leather and prevents exhaustion of the water in the boiler. Without a safety valve, or its equivalent, the drawing of the water from the house (into the main) would siphon the water from the boiler, steam supplying its place, the steam would soon condense thereby forming a partial vacuum, and the pressure of the air on the outside of the boiler would collapse it.

What I claim as my invention and desire to secure by Letters Patent, is—

The application to close-kitchen (or house) boilers of a cup leather valve, substantially as described, for the purpose set forth.

Dated this 2d day of April 1860.

J. E. BOYLE.

Witnesses:

JAS. G. MORGAN,  
JEREMIAH KELLY.