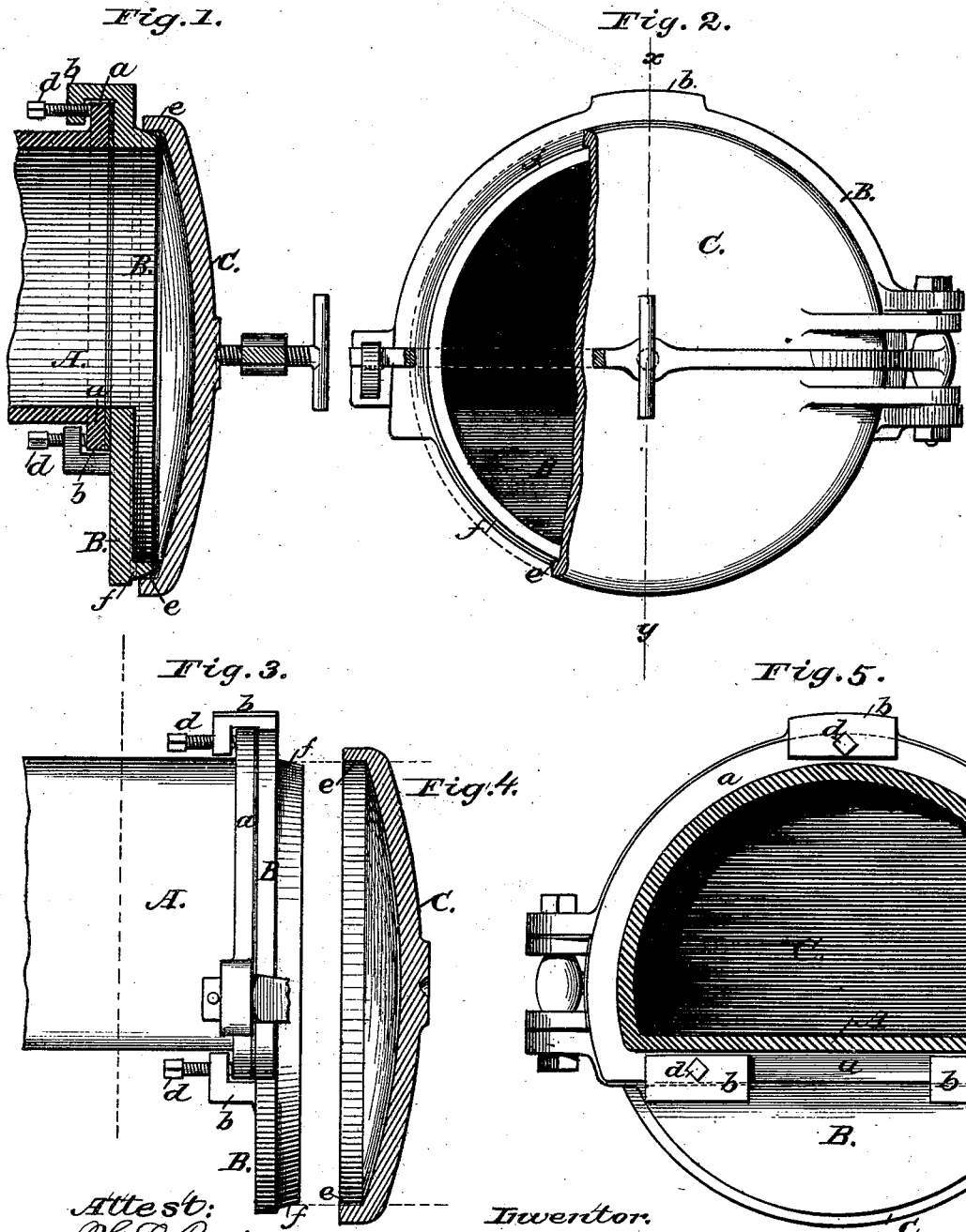


J. BALMORE.

CAPS OR COVERS FOR CLOSING GAS RETORTS.

No. 180,104.

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## IMPROVEMENT IN CAPS OR COVERS FOR CLOSING GAS-RETORTS.

Specification forming part of Letters Patent No. **180,104**, dated July 25, 1876; application filed January 12, 1876.

### *To all whom it may concern:*

Be it known that I, JOHN BALMORE, gas-engineer, of No. 2,084 Third Avenue, New York city, (Harlem,) in the county of New York and State of New York, have invented certain new and useful Improvements in Caps or Covers for Closing Gas-Retorts; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The nature and object of my invention is to provide a means for covering and closing quickly and hermetically the mouths of vessels or retorts, more especially gas-retorts, without the use of luting; and it consists of an iron disk or frame, with an opening in it to conform to the size and shape of the mouth of the retort, and provided at its back with angular embracing flanges or lugs, perforated and threaded to receive set-screws. These flanges or lugs are so placed that they will embrace the flange or rim of the retort-mouth, and bring the opening in the disk exactly opposite the retort-mouth, so as to make a flush joint. The set screws easily and firmly fasten it to the mouth-piece. It also consists of the frame or disk, provided with a circular projecting rim or lip, the inner edge of which is a right angle, and the outer edge of which is sloped or beveled, so that the front is narrower than the back, in combination with the cover having a rigid right-angle shearing-rim.

Attached to the frame by suitable hinges is a cap or cover and a cotter-bar. This cap or cover is of circular form to conform to the frame, and is provided with a projecting lip or rim. The internal circumference of this rim is turned at a right angle, and is of such size that when it is closed the angle of this rim shall come in contact with the beveled side of the projecting lip of the frame like a pair of shears. Pressure being applied to the cover, in the usual manner, the lid finds its bearing, and a gas-tight joint is formed.

In the accompanying drawing, Figure 1 is a vertical section of my apparatus. Fig. 2 is a front view. Fig. 3 shows the beveled edges

of the lip of the frame. Fig. 4 shows the right-angle edge of the cap or cover. Fig. 5 is a rear view of the frame attached to the retort-mouth.

A is the mouth-piece of retort; *a*, the lip or projection. B is the circular frame. *b* are the lugs or ears sliding over the lip *a*, and fastened to it by set-screws *d*. C is the cap or cover. *e* shows the inner right-angle edge of the rim of the cover. *f* shows the beveled edge of the frame.

Heretofore the frames have always been bolted to the mouth-piece; but in providing my disks or frames with flanges or lugs to embrace the rim of the retort-mouth I can place them in position or remove them very quickly, and they will fit any retort of the size they are made for. By this method I obviate the necessity of drilling the retort-mouths and frames to receive bolts, and of keeping each mouth-piece and frame together, caused by the fact that no two were drilled in exactly the same place.

Heretofore the retort-lids intended to be used without luting fit into the frame and found their seat or bearing on the inner side of the rim or lip. In practice, I have found this mode attended with great disadvantage. In charging the retorts with shovels or scoops, the inner edge is often struck, which dents or fractures it. Again, the inner edge of the rim becomes choked with hard tar and coke-dust. Either or both these evils prevent the lid from making a tight joint; but by having the bearing-edge outside the rim, and that rim beveled or sloped, it is protected from contact with the tools and deposit; but should any tar or deposit find its way there, the angle of the rim of the cover, on coming in contact with the sloping side of the lip, would act like a pair of shears and pare it off. It would not pack it.

Having described my invention, what I desire to claim is—

1. A frame to receive and support a retort cap or cover, provided with angular lugs, formed to embrace the flanges on the mouth-piece, whereby it may be attached thereto, as shown and described.

2. A frame for supporting the retort cap or cover, having a lip with its outer surface beveled.

eled, in combination with the cover having a rigid right-angled shearing-rim, so that when the cover is closed the angle of the rim shall find its bearing on the sloping side of the lip, as described.

3. A frame for supporting a retort cap or cover, provided with embracing-lugs to secure it to the mouth-piece, and with a lip having its outer surface beveled, in combination with a cap or cover, provided with a rim having its inner edge at a right angle, so that when the

cover is closed the angle of the rim shall find its bearing on the sloping side of the lip, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN BALMORE.

Witnesses :

WILLIAM F. INGOLDSBY,  
E. RÉPIQUET.