

1,038,933.

Fig. 1.

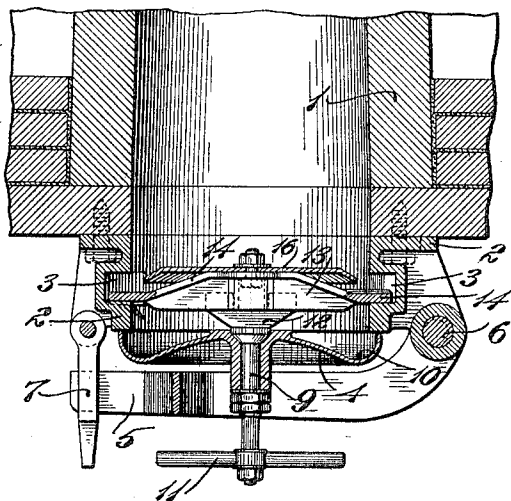


Fig. 2.

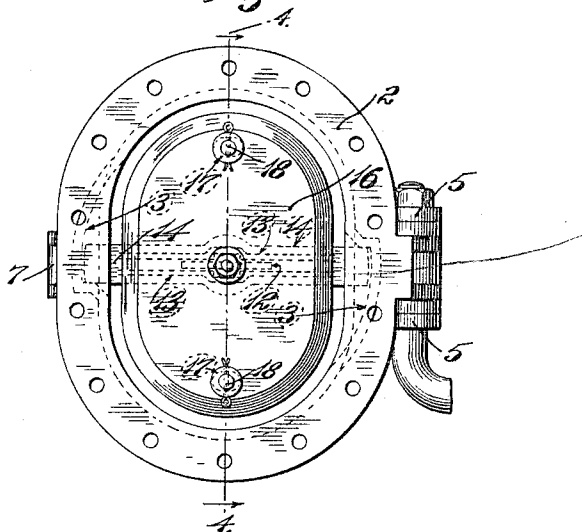


Fig. 3.

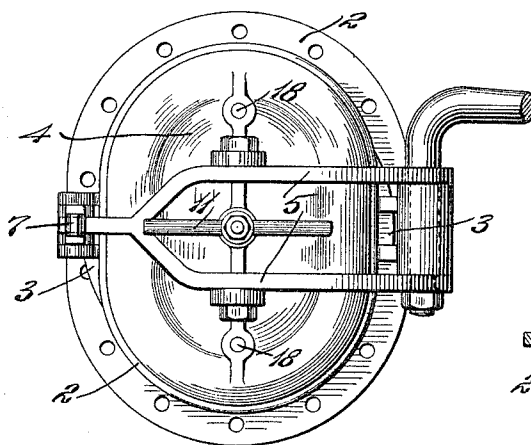


Fig. 4.

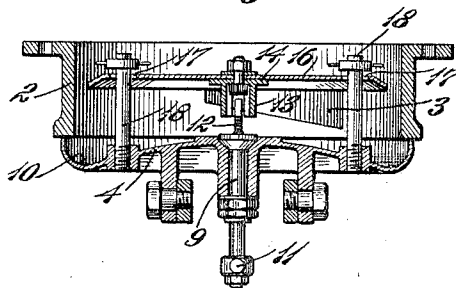
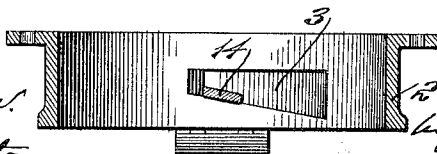


Fig. 5.

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UNITED STATES PATENT OFFICE.

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CLOSURE FOR RETORTS.

1,038,933.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed April 22, 1912. Serial No. 692,462.

To all whom it may concern:

Be it known that I, THOMAS D. MILLER, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Closures for Retorts, of which the following is a specification.

My invention relates particularly to vertical bench gas retorts. In the operation of such retorts, the bottom thereof has to sustain the heavy weight of the charge, together with the pressure of the gas generated therefrom, and it is liable to be warped by the burning of the gas resulting from imperfect sealing of the self-sealing door or closure.

The purpose of the present invention is to ameliorate the above mentioned conditions and provide for the more certain closing of the bottom opening.

To this end the invention consists principally in relieving the bottom closure of the weight of the charge and in making provision whereby the self-sealing bottom door or closure may be reseated after the retort is discharged, and in the parts and in the arrangement and combination of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur, Figure 1 is a vertical sectional view showing the lower portion of a retort equipped with my invention; Fig. 2 is a top plan view of the mouth-piece ring with the closure applied thereto; Fig. 3 is a bottom plan view of the mouth-piece ring with the closure applied thereto; Fig. 4 is a vertical section on line 4-4 of Fig. 2; and Fig. 5 is a cross section of the mouth piece showing a recess therein and the end of the cross beam in such recess.

The lower end of the retort shell 1 is provided with the usual ring or mouth-piece 2 of elliptical or other suitable form, which is bolted thereto in the usual manner. In the inner wall of this ring or mouth piece at diametrically opposite points, are recesses 3 whose bottoms slope upwardly at a slight inclination, forming, in effect, short helices. These recesses are located at or near points where the diameter of the ring or mouth-piece is least. The bottom door or closure

4 of the retort is pivotally mounted in the usual way; that is, it is pivotally mounted on a yoke 5 pivoted on a horizontal eccentric shaft 6 on the side of the mouth-piece opening, and the shaft is provided with means for actuating it. The yoke 5 is arranged to extend lengthwise of the mouth-piece opening and its front end is supported by a suitable fastening device such as a clevis 7 pivotally suspended from the mouth-piece ring. The construction and arrangement hereinbefore described are a well-known construction, whereby, when the yoke is disengaged from the clevis, the closure may be swung downwardly to dump the charge, and may be swung back to position and then sealed by a final movement due to the manipulation of the eccentric shaft.

According to the present invention, the bottom closure 4 is mounted on the yoke 5 and has its marginal portions arranged to engage the bottom of the ring in conformity with former practice. The middle portion of this closure has a downwardly extending boss to furnish a bearing for a shaft 9, and the portion between the central bearing and the margin is formed into an annular depression 10. The upper end of the bore is flared or coned, to afford a thrust bearing for a conical shoulder formed on said shaft 9.

The downwardly projecting portion of the shaft 9 is provided with a T-handle 11 or other suitable device whereby it may be turned. The upper end of the shaft is provided with a cross-head 12 which fits between the down-turned flanges 13 of a beam 14. The length of this beam is such that its ends may rest on the bottoms of recesses 3 provided therefor in the inner face of the mouth-piece ring at or near the point of least diameter of said ring. The bottom of each of these recesses slopes upwardly at a slight inclination and the recesses are of sufficient length to permit the beam to be turned far enough for its ends to become disengaged from said recesses. Obviously shoulders or other equivalent devices may be used instead of such recesses.

Mounted on the beam is a false bottom 16 of sufficient strength to sustain the weight of the charge. This false bottom has elon-

gated slots 17 through which bolts 18 extend downwardly into the bottom door or closure, said bolts being preferably provided with heads large enough to cover the entire slot. The elongation of the slots allows a movement of the false bottom horizontally or parallel with the closure, and the mounting of the false bottom in the closure allows a movement in a vertical direction or at right angles to said closure. In consequence of this capacity of the closure for movement independent of the false bottom, it is possible to tighten the closure even when the retort is charged. This is an advantage of very great importance in so far as it enables the operator to stop a leakage occurring during the operation and which not only causes waste but also tends to warp the closure by burning at the edge thereof.

20 The operation of the device is as follows: Before the retort is charged, the bottom of the retort is sealed by the usual mechanism hereinbefore mentioned; and the T-handle is turned so as to bring the ends of the beam into the recesses and thence cause said beam to ride up the slope thereof and thereby take the weight thereof off of the closure. The retort is then charged and closed and the heat generates and drives off the gas. During this operation the weight of the charge is sustained directly by the false bottom whence it is transmitted to the mouth-piece or ring, the closure being entirely relieved of such weight. At the end of the operation the T-handle is turned to disengage the ends of the beam from the recesses and the contents of the retort are dumped or discharged by swinging down the bottom closure. On account of the shape of the closure and the arrangement of the parts associated therewith, the closure and all associated parts swing entirely clear of the bottom opening of the retort. Likewise, on account of the annular recessing of said closure, the pitch and tar resulting from the manufacture of gas accumulate therein and drain therefrom without fouling the bearing of the shaft to any considerable extent. Likewise, on account of the coning of the bearing of the shaft, all weight on the shaft is adequately taken care of, and there is a tendency for the parts to regrind their surfaces to fit properly; which feature is an important advantage in connection therewith.

Obviously, the device hereinbefore described admits of considerable modification without departing from my invention and I do not wish to be restricted to such details of construction.

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

1. A retort having an open bottom, a closure therefor pivotally mounted at the side of said opening, a false bottom mounted

on and movable with said closure, and means whereby the closure may be relieved of the weight of said false bottom in service.

2. A retort having an open bottom, a closure pivotally mounted on horizontal axis at the side of the bottom opening, a false bottom mounted on said closure and capable of slight vertical movement relative thereto, and means whereby the weight of said false bottom may be transferred from said closure to the wall of said retort.

3. A retort having an open bottom, a closure pivotally mounted on a horizontal axis at the side of the bottom opening, a false bottom mounted on said closure and capable of slight vertical movement relative thereto and means on the wall of the retort for engaging and supporting said false bottom.

4. A retort having an open bottom, a closure therefor pivotally mounted on a horizontal axis at the side of the opening, said closure having an annular depression, a shaft rotatably mounted in the central portion of said closure, a beam operatively connected to said shaft to be turned thereby and a false bottom on said beam, the inner surface of the retort having means for supporting the ends of the beams.

5. A retort having an open bottom, a closure therefor pivotally mounted on a horizontal axis at the side of the opening, said closure having an annular depression, a shaft rotatably mounted in the central portion of said closure, a beam operatively connected to said shaft to be turned thereby, and a false bottom on said beam, the inner surface of the retort having recesses with inclined bottoms in position for the ends of the beams to engage.

6. A retort having an open bottom, a closure therefor pivotally mounted on a horizontal axis at the side of said bottom opening, a false bottom mounted on said closure so as to have vertical movement relative thereto, and means for engaging the mounting of said false bottom with the wall of the retort and raising it clear of its support on said closure.

7. A retort having an open bottom, a closure therefor pivotally mounted on a horizontal axis at the side of said bottom opening and a false bottom mounted on said closure so as to have vertical movement relative thereto, and means for engaging the mounting of said false bottom with the wall of the retort and disengaging it therefrom, and means for tightening the closure independently of said false bottom.

8. A retort having an open elliptical ring at its lower end, a closure pivotally mounted on a horizontal axis at the side of the bottom opening, said closure having a rotatable shaft mounted at the middle thereof, a supporting member operatively connected to

said shaft to be actuated thereby, and a false bottom mounted on said supporting member, said supporting member and said ring having coacting shoulders adapted to
5 constitute inclined planes for raising the ends of the supporting member when rotated, and the connection between the false bottom and the supporting member permitting a turning movement of the supporting member independent of said false bottom. 15

Signed at St. Louis, Missouri, this 20th day of April, 1912.

THOS. D. MILLER.

Witnesses:

JAMES A. CANN,
MARTHA A. SHELTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."