

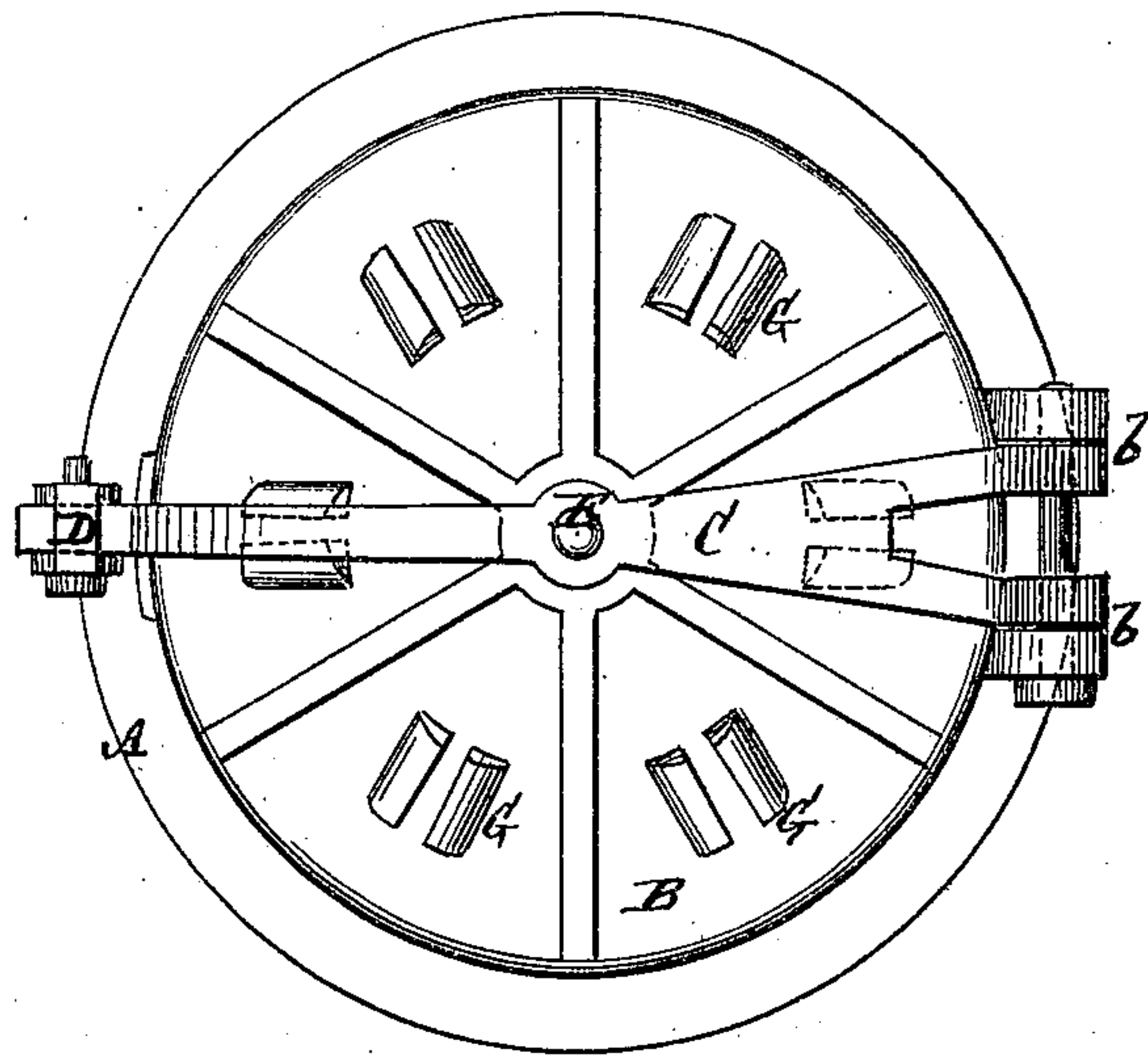
P. W. MACKENZIE.

SELF-SEALING HEADS FOR GAS RETORTS.

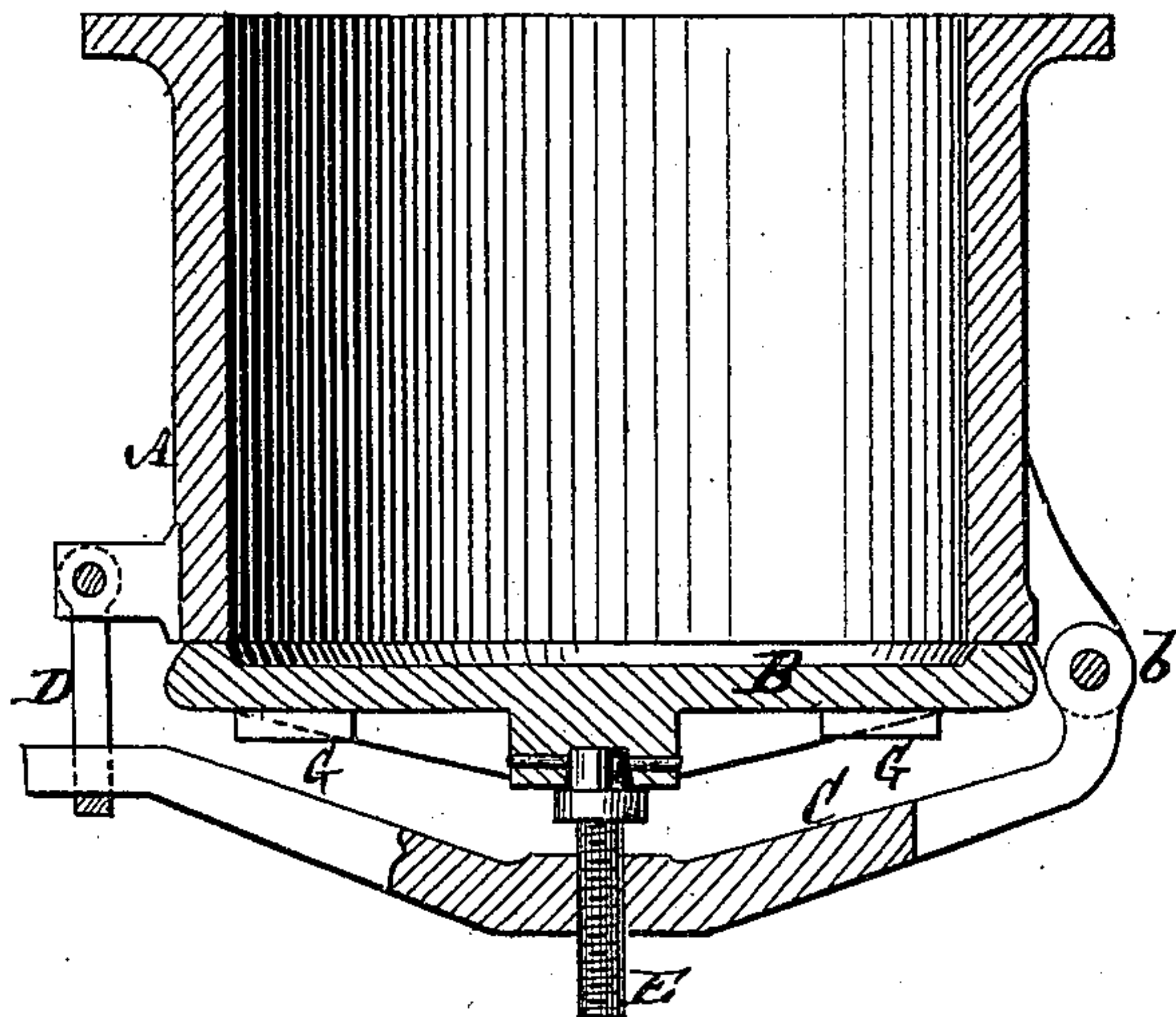
No. 174,830.

Patented March 14, 1876.

*Fig. 1.*



*Fig. 2.*



Witnesses

John Becker

Wm. J. Haynes

P. W. Mackenzie  
by his Attorneys  
Brown & Allen



# UNITED STATES PATENT OFFICE.

PHILIP W. MACKENZIE, OF BLAUVELTVILLE, ASSIGNOR TO THE SMITH & SAYRE MANUFACTURING COMPANY, OF NEW YORK, N. Y.

## IMPROVEMENT IN SELF-SEALING HEADS FOR GAS-RETORTS.

Specification forming part of Letters Patent No. **174,830**, dated March 14, 1876; application filed January 4, 1876.

*To all whom it may concern:*

Be it known that I, PHILIP W. MACKENZIE, of Blauveltville, in the county of Rockland and State of New York, have invented a new and useful Improvement in Self-Sealing Heads for Gas-Retorts; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to a novel mode of closing and tightening the lid against the mouth-piece of the retort; and consists in certain means for such purpose, including sockets or projections on the outer face of the lid, for the convenient and diversified attachment of a lever, by which the lid is rotated in connection with a screw applied to its center. This screw, which turns with the lid, is attached in a free manner thereto, so as to admit of the independent rocking of the lid, and works through a cotter-bar, which may be hinged at its one end to the mouth-piece, and be secured by a swinging shackle at its other end. By this invention not only is the lid made to readily accommodate itself to the edge of the mouth-piece, and in case of any dirt or obstacle getting between said edge and the lid, the latter, which has a grinding action, is caused to rub off said dirt, and is tightened by rotating the screw in the cotter-bar, which retains the lid against the mouth-piece, but the power to turn the lid is directly applied to the latter, and not to the screw, free from any perforation of the lid, and whereby torsional strain is taken off the screw, and there is no cumbrous or inconvenient handle required on the latter.

Figure 1 represents an outside end or face view of the lid as applied to the mouth-piece of a retort, together with the connections for securing and working the lid. Fig. 2 is a longitudinal section of the same.

A is the mouth-piece of the retort, and B its lid. C is the cotter-bar, hinged at *b* to the one side of the mouth-piece, and secured, when closed, at the other side by a swinging shackle, D. E is the screw for tightening up the lid after the cotter-bar has been closed and secured by the shackle. This screw has an angular

head, which fits loosely within the lid B, and is secured to the latter by a cross-pin or otherwise, so that the turning of the lid rotates the screw; yet the lid is free to rock to adjust itself to any irregularity in the edge of the mouth-piece A, for the purpose of securing a tight joint. Said screw works through the cotter-bar as a nut or box, the latter having a female thread in it for the purpose. After the lid B has been brought over or against the edge of the mouth-piece A, to close the latter by the swinging of the cotter-bar C into its closed position, and adjustment of the shackle D over the free end of the cotter-bar, said lid is tightened to its place, and the hold of the shackle tightened on the cotter-bar by suitably turning the lid, with its attached screw E as a center of motion, the working of the screw in an inwardly direction through the cotter-bar effecting such tightening. In thus tightening up the lid, however, it is free to rock or adjust itself to any irregularities on the meeting surfaces of the lid and mouth-piece, and in being turned to bring it home against the edge of the month-piece, said lid is much more effectually closed than if brought up against the edge of the mouth-piece by a straight action—that is, one in which the lid is not turned in common with the screw. Furthermore, the turning of the lid will serve to reduce or remove any dirt or foreign matter adhering to the meeting surfaces of the lid and mouth-piece, and this may be very effectually done, and said meeting surfaces be kept clean and in close-fitting condition by slightly turning the lid to unscrew it from the mouth-piece, without, however, making any thorough break or opening, and afterward turning the lid backward and forward repeatedly. The unscrewing of the lid loosens the hold of the shackle on the cotter-bar, but does not release the latter. The mouth-piece, however, may then be readily opened by simply swinging the shackle from off the free end of the cotter-bar.

The lid is turned, when in its place against the mouth-piece, by means of a lever constructed to enter or lock with sockets or projections G, arranged in a series on and around the outer face of the lid, whereby not only is the power applied directly to the lid and at

different points without any interference by the cotter-bar, thus giving it a diversified attachment, but torsional strain is removed from the screw, and there is no permanent projection or lever on the outside of the latter, nor is there any perforation of the lid, allowing of the escape of gas, to provide for the turning of the lid with its attached screw.

I claim—

1. The lid B, provided with a series of sockets or projections, G, arranged around its outer surface, for the attachment of a lever to turn the lid, in combination with the mouth-piece A of the retort, substantially as specified.

2. The combination, with the mouth-piece A and lid B, having a series of lever-fitting sockets or projections, G, arranged around its outer surface, of the concentric screw E, attached to said lid in a free manner, to admit of the independent rocking of the latter, but so as to turn with the lid, and the swinging or hinged cotter-bar C, through which the screw works, essentially as described.

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Witnesses:

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