C. W. ISBELL.

Heads and Lids of Gas-Retorts.

No. 212,940. Patented Mar. 4, 1879.

Fig. 1.

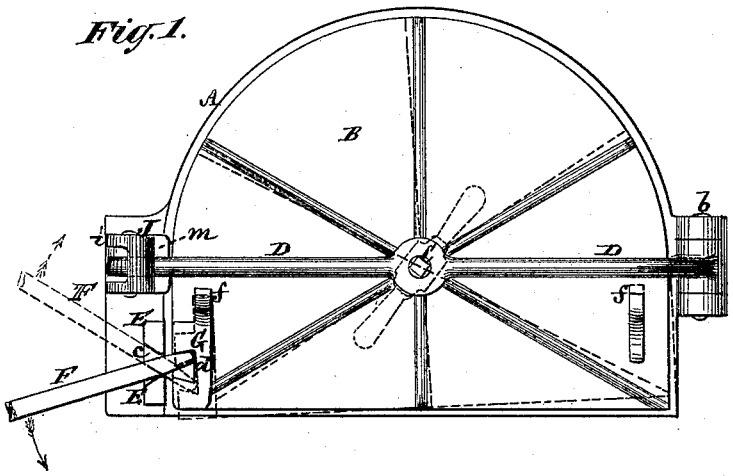


Fig. 2.

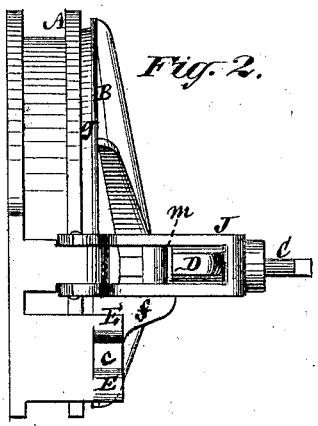


Fig. 3.

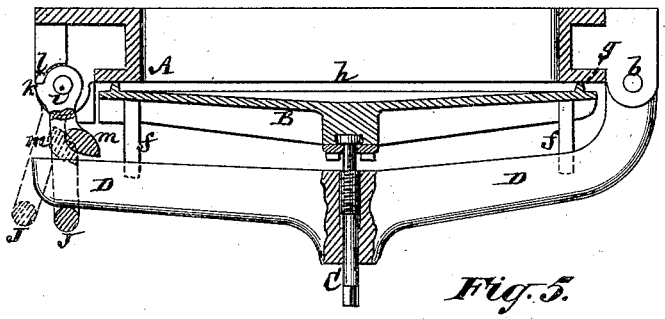


Fig. 4.

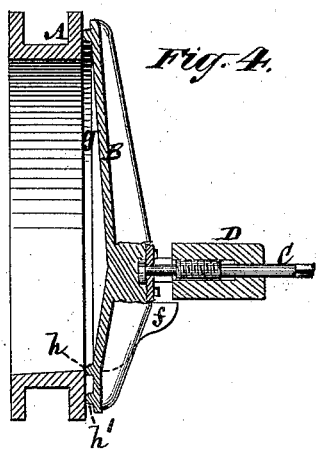
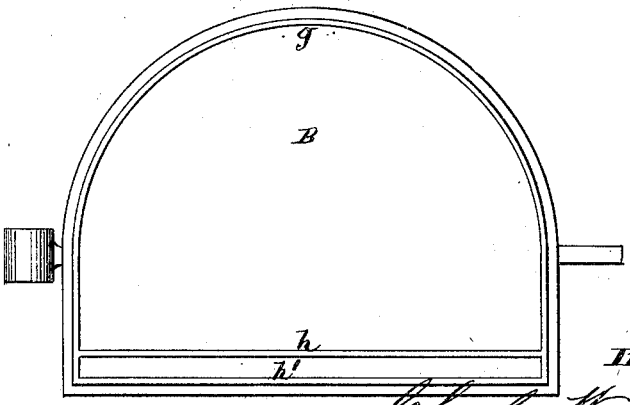


Fig. 5.



Witnesses

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CHARLES W. ISBELL, OF NEW YORK, N. Y.

IMPROVEMENT IN HEADS AND LIDS OF GAS-RETORTS.

Specification forming part of Letters Patent No. **212,940**, dated March 4, 1879; application filed June 8, 1878.

To all whom it may concern:

Be it known that I, CHARLES W. ISBELL, of the city, county, and State of New York, have invented new and useful Improvements in the Heads and Lids of Gas-Retorts, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention more particularly relates to the heads and lids of gas-retorts, whereby said heads are made self-sealing, and the lids are made capable of an oscillating motion, to effect the close fit of them against the heads.

The invention consists in a novel construction and combination of parts whereby a lever of the first order may be used to advantage in oscillating the lid.

It also consists in a self-closing locking-link for the hinged bar of the lid of the retort, and whereby said link is made to assist in opening the lid.

In the accompanying drawings, Figure 1 represents a front end view of the head or mouth-piece of a gas-retort with lid thereon, and showing my invention applied to the same. Fig. 2 is a side view thereof. Fig. 3 is a horizontal section of the same, and Fig. 4 is a vertical section thereof. Fig. 5 is an inside view of the lid detached.

A is the head of the retort, which may either be a simple mouth-piece or, as in the case of an old retort, it may be a door-frame, secured in position by bolts. B is the lid, which is closed on the mouth of the retort by the usual screw C, arranged to pass through a hinged bar, D, as in other retort-heads, *b* being the hinge or pivot of the hinged bar. Said lid is so fitted or carried by the screw as to admit of its being oscillated about the screw as a center of motion, for the purpose of grinding the lid to its seat, or, in other words, of working out any tar that may prevent the close fit of the lid when screwing the same up to its seat, said lid being again screwed up after it has been oscillated to work out or level any intervening tar. The connection of the screw C with the lid B may be as represented in Figs. 3 and 4. The means for thus oscillating the lid are substantially as follows: Attached to the mouth-piece or door-frame, at or forming the head A of the retort, and occupying a lateral position relatively to the lid B, is a fulcrum, E, for a lever, F, by which the lid is or may be oscillated. This lever is of the first order, and the power to work it is applied to its longer and outer portion, while its shorter and inner end is made to enter or engage with a projection, G, on the lid. This gives an extended leverage to oscillate the lid and a firm and fixed fulcrum for the lever outside of the lid.

It is preferred to construct the fulcrum E with a recess, *c*, against the opposite walls of which the lever bears when being vibrated, and to construct the projection G of separated lugs or with a recess, *d*, for reception of the inner end of the lever, such construction of said parts facilitating the entry and removal of the lever.

To provide for the oscillation of the lid B within the hinged bar, but at the same time to prevent it on either side of its center of motion from rising too high to close the mouth of the retort, said lid is provided with lugs or projections *f*, which, striking the hinged bar, restrict the oscillating movement of the lid to always maintain a closing position relatively to the mouth of the retort.

The inner surface of the lid B is provided with facing strips or lips *g* and *h h'*, to make joint with the face of the retort-head. To avoid excessive friction when oscillating the lid, it is desirable that these strips or lips should not be any wider on their face than is necessary to make the joint. The two lower lips, *h h'*, are straight, corresponding with the shape of the base of the mouth of the retort, and in the oscillation of the lid cross said base, or move in a crosswise relation thereto. The upper one, *h*, of said lower lips is arranged to be above or even with the edge of the base of the mouth of the retort when the lid B is properly and fully closed, so that tar condensed on the inner surface of the lid will run down or over the upper surface of the lip *h*, which is inclined for the purpose, and down the inclined bottom of the mouth of the retort. But as, by reason of the shifting of the lid (see dotted lines in Fig. 1) consequent on the provision which is made for oscillating it, said lip *h* cannot be absolutely depended upon to close the joint, the lower lip, *h'*, is fully to be relied upon for such purpose, and only being narrow

it does not materially add to the friction when oscillating the lid.

J is the link which receives within it the opening end of the hinged bar D, to keep the latter closed when it is not required to remove the lid. This link is pivoted at its inner end, as usual, but otherwise is of peculiar construction. Thus its joint *i* is made with a shoulder, *k*, which, striking a fixed shoulder, *l*, restricts the back movement of the link to a distance but little, if at all, exceeding what is necessary to clear the hinged bar when releasing the latter, and said link is furthermore constructed on its inner face with a lateral extension of the inner end of the slot in the link which the hinged bar D enters. This lateral extension, forming a lip, *m*, constitutes a means for making the link J self-closing over the hinged bar when the latter, with the attached lid, is shut to its place. Thus, supposing the link J to be thrown back, as shown by dotted lines in Fig. 3, then, on closing the lid and bringing the hinged bar against the lip or projection *m*, said bar, by its pressure on the laterally-arranged lip *m*, causes the link to be swung forward over the hinged bar, whereby the locking-link is self-closing. But this is not all, inasmuch as when opening or throwing back the link the self-closing lip *m* of it also serves to start the hinged bar in case it should stick when it is required to remove the lid from the mouth of the retort.

I claim—

1. In means for securing a tight joint between the heads and lids of gas-retorts, the combination, with the lid B and its tightening-screw C, of the frame or mouth-piece at or forming the head of the retort, having an attached lateral fulcrum, E, and the lateral projection G on the lid, for oscillation of the lid about or around the screw C as a center of motion by a lever, F, working on or in the fulcrum G, substantially as specified.

2. The pivoted locking-link J, provided with an inner lip or projection, *m*, in combination with the hinged bar D and its attached lid B, whereby said link is not only made self-closing by the pressure of the hinged bar on said lip, but the lip operates to start the hinged bar when opening it to remove the lid, essentially as described.

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