2 Sheets—Sheet 1.

H. COLLINSON.

LIDS FOR GAS RETORTS.

No. 169,960. Patented Nov. 16, 1875.

Fig. 1.

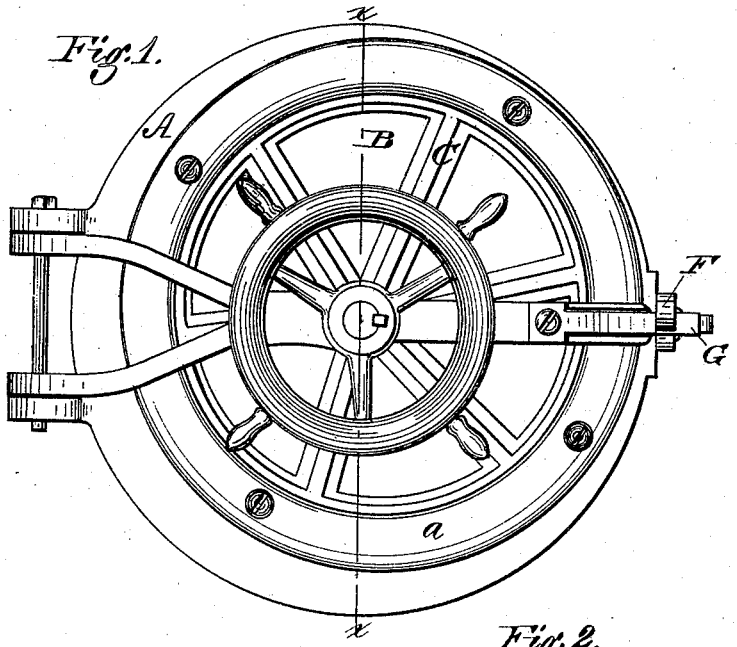


Fig. 2.

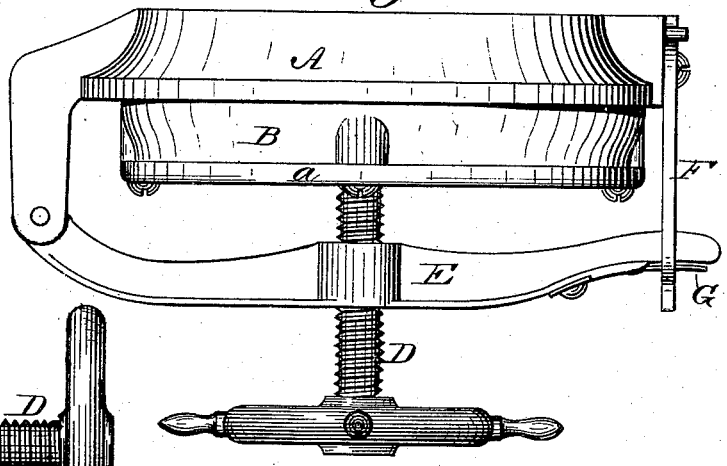
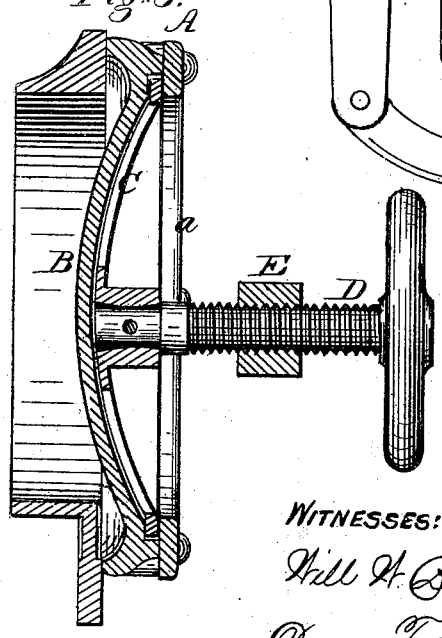


Fig. 3.



WITNESSES:

Will A. Dodge

Donn Twitchell.

INVENTOR:

Henry Collinson

By his attys

Dodge & Son.

2 Sheets—Sheet 2.

H. COLLINSON.

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Fig. 4.

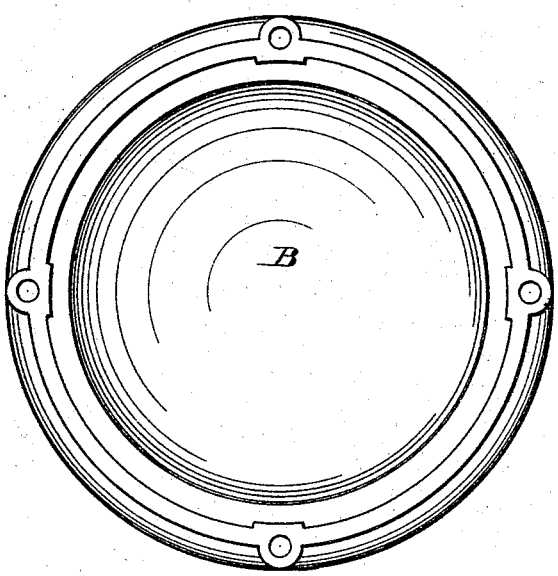
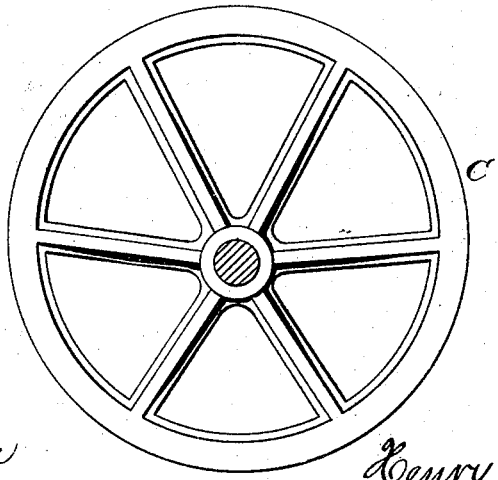


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY COLLINSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LIDS FOR GAS-RETORTS.

Specification forming part of Letters Patent No. **169,960**, dated November 16, 1875; application filed October 13, 1875.

To all whom it may concern:

Be it known that I, HENRY COLLINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Lids for Gas-Retorts, of which the following is a specification:

My present invention relates to improvements on the invention for which Letters Patent were granted to me on the 13th day of April, 1875, No. 161,934, whereby the said invention is especially adapted for application to gas-retorts; and the improvements consist in the use of a yielding or spring support or bearing for the screw or other devices by which the lid is forced home, and in constructing and arranging the eccentric head by which the lid is supported, so that it bears only upon the outer edge of the lid, and that it at the same time admits a circulation of air over the outer face of the lid.

As will be seen by reference to the patent, my former invention consisted, essentially, in imparting to the lid or cover a sliding or grinding movement on its seat while being forced against the same, and in the patent I represented two methods of accomplishing such result—an eccentric head carrying the lid being in the one case formed on the end of a pressure-screw, and in the other on a rotating pressure-cam.

In practice I have found that these arrangements are deficient in this, that they bring the lid to a firm bearing almost instantly after it comes in contact with the seat, thereby rendering the grinding action so brief as to be often ineffective. It is to remedy this difficulty that the first part of my invention is intended; and it consists in so applying a spring that after the lid comes in contact with the mouth it will yield and allow the devices to impart a longer grinding movement to the lid before it is brought to a firm bearing.

I have also found in practice that when the screw or other devices for applying the pressure to the lid has only a small central bearing thereon great difficulty is occasionally experienced in obtaining a tight joint. The second feature of my invention is designed to overcome this evil; and to this end consists in constructing and arranging the eccentric so that it bears upon the outer edge of the lid only, and also in making the eccentric of a skeleton form, and constructing its seat in a peculiar manner, for the purpose of admitting a free circulation of air between the lid and eccentric, in order to prevent them from being overheated, and being thereby caused to bind.

Figure 1 is a front elevation of a retort having my improved devices applied thereto; Fig. 2, a top-plan view of the same; Fig. 3, a vertical central section of the same; Fig. 4, a back view of the lid, showing the seat for the eccentric; Fig. 5, a back view of the eccentric.

A represents the seat or bearing on the mouth of the retort, and B the lid or cover, arranged so that it may be moved or shifted edgewise thereon, and adapted to form a tight joint therewith without the use of luting or packing. C represents the skeleton eccentric, seated in the back of the lid, and secured firmly on the end of a screw, D, mounted on a cotter-bar, E, which is hinged to the mouth-piece at one end, and secured at the other by a latch, F, pivoted on the side of the mouth. G represents a flat spring, attached to the back of the swinging end of the cotter-bar, with its end raised therefrom, in such manner that when the hook engages over the bar it also engages over the spring, as shown in Figs. 1 and 2.

Upon turning the screw after the lid is swung against the mouth and the catch engaged over the spring, the spring, holding the bar, causes the lid to bear upon the seat with an easy yielding pressure while it receives the grinding movement from the eccentric; but as the motion continues, the bar, being forced outward by the screw, comes in contact with the end of the spring and receives a solid support from the hook, so that the lid is immediately forced down firmly and immovably upon the seat. By employing the spring the grinding action of the lid is not only continued a greater length of time, but is also rendered more effective in other respects.

It is obvious that the play of the spring may be increased or diminished and the grinding action rendered of longer or shorter duration. It is also obvious that the spring may be applied in many ways, and in connection with different operating devices, for accomplishing the same end, and that its form and arrange-

ment are immaterial provided it exerts a yielding pressure on the lid while it is being shifted on the seat.

The eccentric disk is made of a diameter nearly equal to that of the lid, and is seated in a recess or cavity in the back thereof, and secured by an annular ring or plate, *a*, screwed to the lid and overlapping the edge of the eccentric, as shown in Figs. 1 and 3.

As shown in Fig. 4, the seat or recess in the lid has on its edge or periphery small ribs, which form the only bearing on the edge of the eccentric, so that an air-space is left around the periphery of the eccentric and the parts prevented from bearing.

The front and back faces of the eccentric may have a full flat bearing, or they may have simply narrow points of bearing, similar to those on the periphery. The parts are also shaped in such manner that a clear air-space exists between the central portion of the eccentric and the back of the lid. By the use of the eccentric bearing only at the outer edge of the lid I am enabled to secure a better action of the lid than otherwise, and by making the eccentric in the skeleton form and otherwise providing for the circulation of air, the parts are prevented from overheating and binding.

Instead of using the screw to support and operate the skeleton eccentric any equivalent device may be used—as, for example, the cam-lever shown in my original patent for operating the solid eccentric.

By the above-described improvements my patented invention is perfectly adapted for application to gas-retorts, and a means provided by which the retorts may be always sealed perfectly tight without luting, and at the same time opened and closed with facility.

Having thus described my invention, what I claim is—

1. The combination, substantially as shown and described, of a seat or bearing, A, and a lid, B, having a spring-pressure against, and a sliding motion upon, the seat while being fastened in place.

2. The combination of the seat A, lid B, eccentric C, screw D, bar E, spring G, and hook F, substantially as shown.

3. In combination with the lid A, constructed and operating as described, the skeleton eccentric C, mounted on the screw or its equivalent, and bearing on the edge of the lid.

HENRY COLLINSON.

Witnesses:
P. T. DODGE,
WILL W. DODGE.