H. COLLINSON.

Man-Hole Cover for Steam-Boilers.

No. 161,934. Patented April 13, 1875.

Fig. 1.

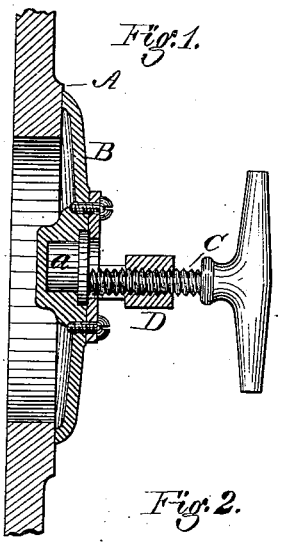


Fig. 2.

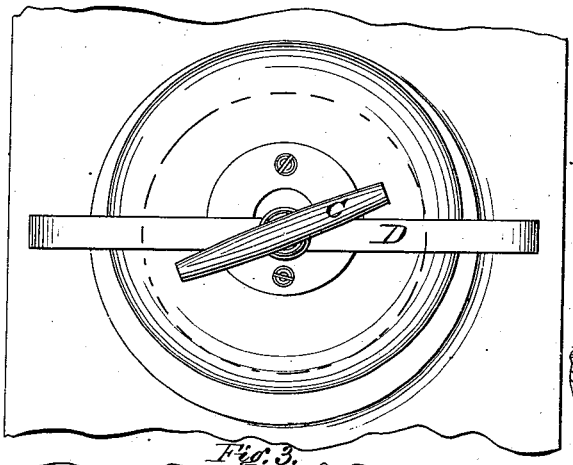


Fig. 4.

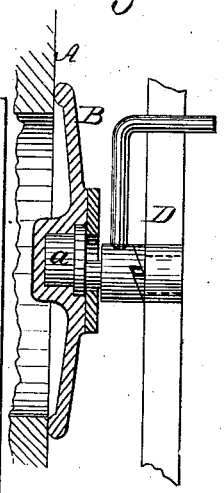
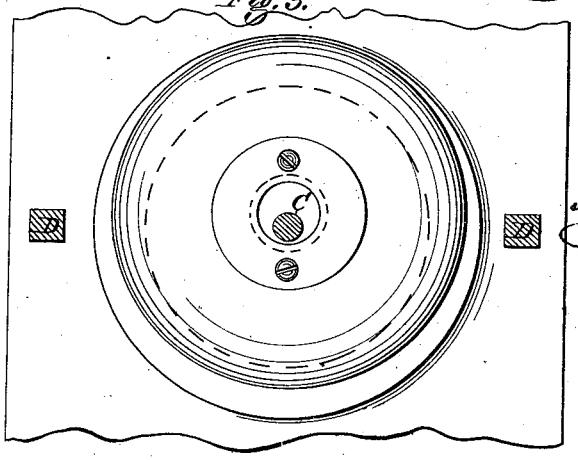


Fig. 3.



WITNESSES:
Hill & Dodge.
J. T. Dodge

INVENTOR:
Henry Collinson

UNITED STATES PATENT OFFICE.

HENRY COLLINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSIAH B. KENDALL, OF SAME PLACE.

IMPROVEMENT IN MAN-HOLE COVERS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **161,934**, dated April 13, 1875; application filed March 18, 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 Closing Man-Holes of Steam-Boilers and other openings, of which the following is a specification:

The object of my invention is to provide a means of hermetically closing, without the use of luting or packing, all openings which require to be sealed air and water tight—such, for example, as the man-holes of steam-boilers, the side lights of ships, the tops of fire-extinguishers, the mouths of gas-holders, and the mouths of fruit-cans and sugar-filters.

The invention consists in a lid or cover with a true flat face arranged in such manner that, while being forced home against a flat seat, it receives a sliding and rotating motion thereon.

Figure 1 represents a vertical central section of my device; Fig. 2, an outside face view of the same; Fig. 3, a face view of the cover and its seat, with the screw and its support removed, showing the eccentric attachment of the screw; Fig. 4, a vertical central section of a modified form of the device, with a cam-lever substituted for the screw.

In carrying out my invention I form around the opening to be closed a flat true face, A, to form a seat for the lid or cover B, which has its face formed flat and true, and as smooth as possible, so that, when fitted and held snugly against the seat B, an air-tight joint exists between them.

In order to insure the proper seating of the plate, I arrange it in such manner that, while being forced up against the seat, it receives a sliding and rotating motion thereon. This may be accomplished in a variety of ways, two of which are illustrated in the drawing.

In Fig. 1 a screw, C, passing through a suitable support, D, has its inner end provided with an eccentric head, *a*, which is seated in a recess in the center of the lid, as shown in Fig. 3, so that, upon turning the screw inward, it forces the cover directly against the seat, while at the same time, by means of the eccentric head, it slides or shifts the cover about over the face of the seat A, the eccentric moving the center of the cover about in a circular path, so that the friction on the cover causes it to rotate more or less about its own center. The action of the parts is such that the cover is caused to fit or grind itself closely to its seat. In case of there being adhering particles of any kind upon the face of the seat or cover, they will be removed by the sliding and rotating motion of the cover, which will in every instance obtain for itself a smooth clean seat. In case of the faces being untrue the cover will, by reason of its peculiar movement, turn or shift until a tight joint, or the nearest possible approximation thereto, is obtained. The movement of the cover is such, however, that it rarely seats itself twice in the same position, the result of which is that the wear on the faces of the two is rendered uniform at all points, and the parts thus kept true and smooth.

In the modified form of the device shown in Fig. 4, the construction of the seat and cover, and the movement of the latter, are the same as above described; but an eccentric lever is used in place of the screw to support the cover, and force it home to its seat. The lever is journaled or pivoted to a supporting-bar, and provided with an eccentric journal entering the center of the cover, and also provided with inclines *d*, which bear upon corresponding inclines upon the supporting-bar, as shown, so that when the lever is moved in the proper direction the inclines cause it to force the cover against the seat, while at the same time the eccentric journal imparts to the cover the required sliding and rotating motion. The essential feature of the invention is, giving to the cover the peculiar movements described, and, as stated above, this may be accomplished by a device arranged in different ways.

It is obvious that the form of the parts is immaterial, and that they may be varied as circumstances may require or fancy dictate, provided their operation remains unchanged.

As stated above, my method of closing openings is applicable in a great variety of places, among which may be mentioned the man-holes of boilers and other closed vessels, the tops of chemical fire-extinguishers, the mouths of vessels containing gases, chemicals, or fruits, vault-

covers, the side lights of vessels, gas-meter valves, and sugar-filters. Among the other purposes for which my lid or cover may be applied is that of closing the mouths of gas-retorts; but as it is necessary to mount the cover for that purpose in a peculiar manner, and to employ parts not shown in the accompanying drawings, I have made such application the subject of a separate patent.

Having thus described my invention, what I claim is—

1. In combination with a seat or bearing, A, a plate or cover, B, fitting against the face of the same, and having a sliding and rotating movement, substantially as shown and described.

2. In combination with the flat seat A and the plate or cover B, the screw C, or its equivalent, mounted in a support, D, and provided with the eccentric head seated in the center of the plate, substantially as shown and described.

HENRY COLLINSON.

Witnesses:
P. T. DODGE,
DONN TWITCHELL.