(No Model.)

W. HEISER.

MAN HOLE COVER.

No. 390,595. Patented Oct. 2, 1888.

Fig. 1.

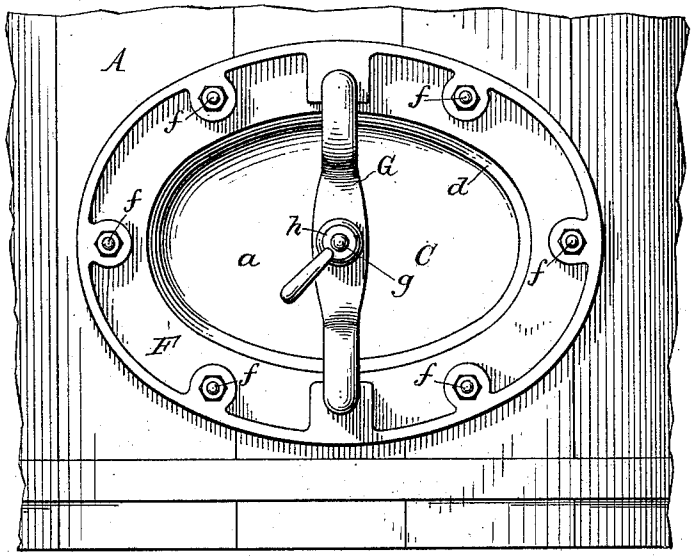


Fig. 2.

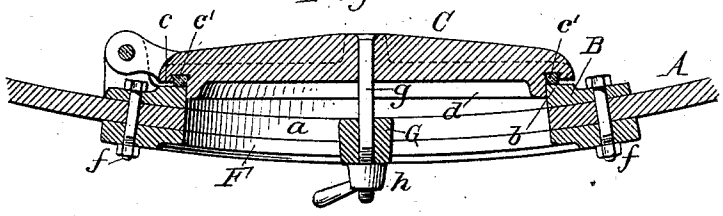


Fig. 4.

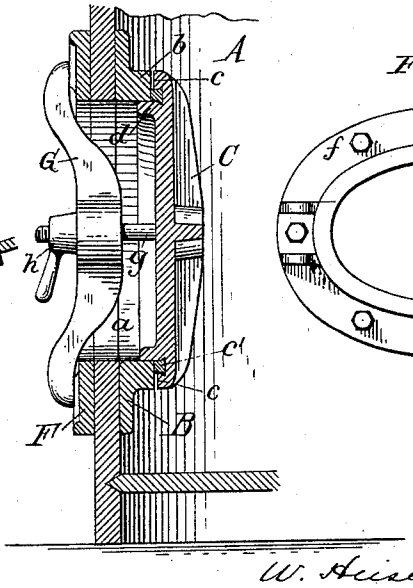


Fig. 3.

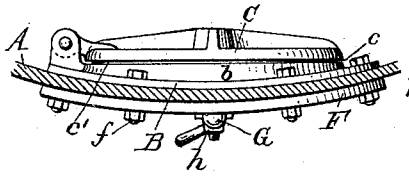
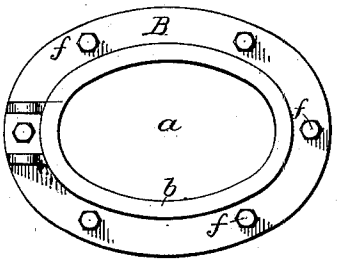


Fig. 5.



Witnesses:
Theo. L. Popp.
Geo. J. Buchheit Jr.

W. Heiser Inventor.
By Wilhelm Bonner
Attorneys.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM HEISER, OF BUFFALO, NEW YORK.

MAN-HOLE COVER.

SPECIFICATION forming part of Letters Patent No. 390,595, dated October 2, 1883.

Application filed February 21, 1888. Serial No. 264,794. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HEISER, of the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Man-Hole Covers, of which the following is a specification.

This invention relates to the hinged covers which are applied to man-holes of storage vats or tanks used in breweries and other establishments.

The object of my invention is to provide the hinged cover with a straight and rigid seat which will form a tight joint, and which will firmly retain in place the ends of the staves around the man-hole.

The invention consists of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a fragmentary side elevation of a vat provided with my improved man-hole cover. Fig. 2 is a horizontal section taken centrally through the man-hole. Fig. 3 is a top plan view of the man-hole cover and supporting-frame on a reduced scale. Fig. 4 is a vertical sectional elevation thereof. Fig. 5 is an inside elevation, on a reduced scale, of the frame to which the cover is hinged.

Like letters of reference refer to like parts in the several figures.

A represents the curved side of the vat or tank, and *a* is the man-hole, which is preferably of oval or elliptical form.

B represents a metallic elliptical frame secured to the inner side of the vat around the man-hole, and curved to conform to the inner surface of the vat. The frame B is provided with a raised flange or rim, *b*, extending around the frame, and having a flat or straight internal face, as represented in Figs. 2 and 3.

C is the cover closing the man-hole *a*, and which is hinged at one end to the frame B on the inner side of the vat. The cover C is provided with a flat marginal face, *c*, having a packing, *c'*, which rests against the flat face of the flange *b* when the cover is closed. The cover C is also provided with an elliptical flange, *d*, projecting into the opening of the frame B, and which holds the cover against lateral displacement on its seat. The flange *b* of the frame B also serves as a bridge or brace, which stiffens and strengthens the frame in the longitudinal direction of the man-hole. The frame B being curved, and the flange *b* being made with a straight face, the flange is of gradually-increasing thickness from the portions of the frame B which lie in the horizontal center line of the man-hole toward the upper and lower portions, which lie in the vertical center line of the man-hole, and at which latter point the greatest strength is required. The packing *c'*, of rubber or other suitable material, is seated in a depression formed in the cover C, on the outer side of the flange *d*. By providing a flat seat for the cover a secure and reliable joint is formed between the cover and its seat, and the latter can be easily turned or planed off.

F is an elliptical frame surrounding the man-hole *a*, on the outer side of the vat, and against which bear the nuts of the fastening-bolts *f*, whereby the frames B and F are secured to the side of the vat. The frame F, in conjunction with the frame B, retains the ends of the staves around the man-hole in place, and prevents the same from warping or bulging.

g is a screw-threaded shank secured to the inner side of the cover C, and passing through a smooth opening formed centrally in a cross-bar or bridge-piece, G, bearing with its ends against the face of the frame F.

h is a screw-nut applied to the outer end of the screw-shank *g*, and bearing against the outer side of the bridge-piece G. By this means the cover C is tightly clamped against its seat on the frame B. Upon removing the nut *h* from the shank *g*, the cover can be swung inwardly away from the man-hole. The bridge-piece G is depressed at its center, as shown in Fig. 4, so as to project as little as possible beyond the outer side of the vat. By arranging the hinged cover on the inner side of the vat it is held against its seat by the pressure of the gases contained in the vat, in the event of the nut *h* becoming loose.

I claim as my invention—

1. The combination, with a curved frame, B, adapted to be secured to the curved inner side of a vat or tank around a man-hole formed therein, and provided on its inner side with a

raised flange, *b*, having an internal straight face, of a cover, C, hinged to the inner side of the frame B, and having a flat face bearing against the straight face of the flange *b*, substantially as set forth.

2. The combination, with a vat or tank provided in its curved side with a man-hole, of a curved frame, B, secured to the curved inner side of the vat around said man-hole, and provided on its inner side with a raised flange, *b*, having an internal straight face, a cover, C, hinged to the inner side of the frame B, and having a flat face bearing against the straight face of the flange *b*, and a frame, F, surrounding the man-hole on the outer side of the vat, substantially as set forth.

3. The combination, with a vat or tank provided in its side with a man-hole, of a curved frame secured to the inner side of the vat and provided with a flange or bridge, *b*, having a straight face and made of gradually-increasing thickness from the ends of the frame B toward the center thereof, a flat-faced cover, C, resting against the flange *b* and provided with a screw-shank, *g*, a ring, F, surrounding the man-hole on the outer side of the vat, a bridge-piece, G, extending across the man-hole and provided with an opening through which the shank *g* passes, and a nut applied to said shank and bearing against the bridge-piece G, substantially as set forth.

Witness my hand this 10th day of February, 1888.

WILLIAM HEISER.

Witnesses:
CARL F. GEYER,
FRED. C. GEYER.