H. D. KELLY.

HAND HOLE PLATE FOR BOILERS.

APPLICATION FILED JAN. 19, 1914.

1,226,080.

Patented May 15, 1917.

FIG. 1.

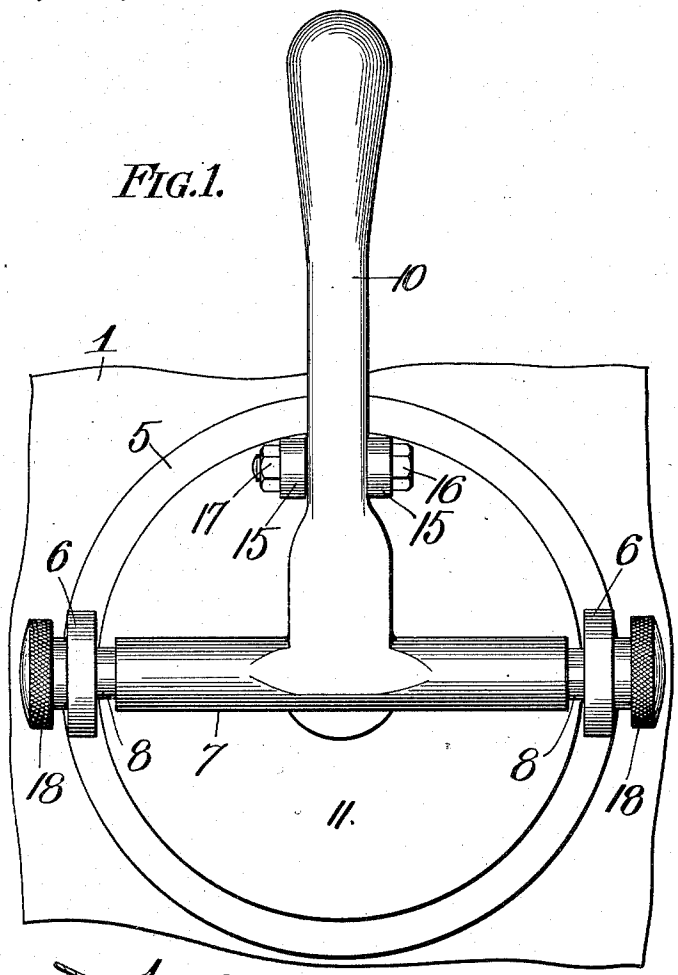


FIG. 2.

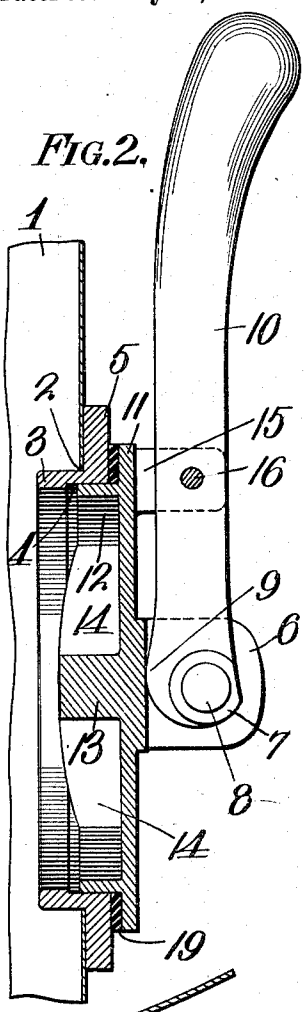
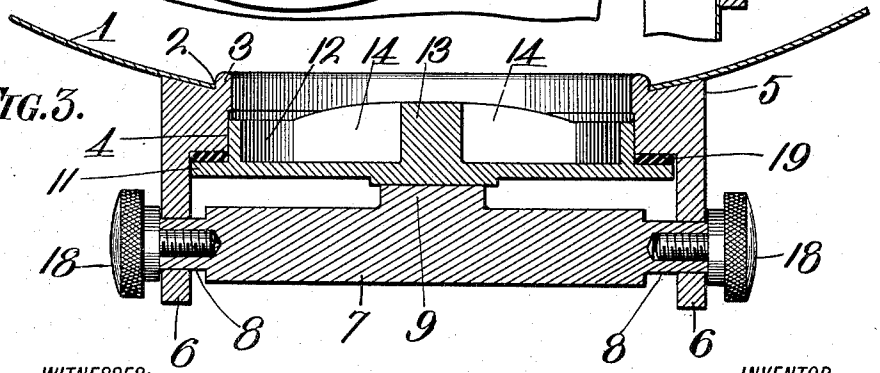


FIG. 3.



WITNESSES:

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HAND-HOLE PLATE FOR BOILERS.

1,226,080. Specification of Letters Patent. Patented May 15, 1917.

Application filed January 19, 1914. Serial No. 813,055.

To all whom it may concern:

Be it known that I, HENRY D. KELLY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Hand-Hole Plates for Boilers, of which the following is a specification.

This invention relates to handhole plates for boilers and has for its object the provision of a handhole plate which will efficiently seal the handhole opening and yet be susceptible of easy and quick removal at frequent or infrequent intervals, a further object being to produce a construction in which the handhole plate cannot be accidentally removed from operative position and which embodies the desirable features of simplicity, strength, durability and cheapness of construction.

To these ends the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and pointed out in the appended claim, and in order that it may be fully understood reference is to be had to the accompanying drawing, in which:—

Figure 1, is a side elevation of a part of a coffee urn, equipped with a handhole plate embodying my invention.

Fig. 2, is a central vertical section with the clamping lever member in elevation.

Fig. 3, is a central horizontal section.

In the said drawing, 1 indicates a boiler, 2 an opening therein and 3 a cast metal ring fitting in said opening and forming the hand-hole, the bore of the ring having a ground surface 4, for a purpose which will hereinafter appear, and to secure the ring firmly in position, it is provided with an outwardly projecting marginal flange 5 fitting against the outer side of the boiler and molded or otherwise properly and reliably secured thereto.

6 is a pair of oppositely disposed perforated ears projecting outwardly from the flange of the ring, and journaled in said ears are the reduced ends 8 of the head 7 of a T-shaped clamping lever, the said head at its junction with the stem 10 having a cam portion 9 for a purpose which hereinafter appears, and in this connection it will be noted that one reduced portion 8 of the head of the clamping lever is of sufficient length to permit the same to be slid endwise through its respective ear 6 until the other end 8 is withdrawn from engagement with its respective ear, the said ends fitting with sufficient looseness or play in the ears to enable the lever to be readily withdrawn therefrom as is necessary in effecting the removal of the handhole plate 11, as hereinafter appears.

The plate 11 is of greater diameter than the bore of the ring and is provided near its margin with a circular flange 12 having its external surface ground so as to fit the ground surface 4 of the ring with a watertight relation. The said plate is also provided internally with a central boss 13 and with ribs 14 reaching from the boss to the flange 12, the boss and ribs thus serving to strengthen and stiffen the plate and flange 12.

Projecting outwardly from the plate 11 is a pair of lugs 15 adapted to receive between them the stem or handle end 10 of the clamping lever, and to lock the lever between said lugs and thus guard against its accidental operation, a bolt 16 is fitted through said lugs and the said stem and is retained in position by a nut 17, it being understood that the clamping lever is thus secured when the cam portion 9 is bearing against the central portion of the plate 11 to hold the same firmly in place.

To guard against any possibility of the accidental dislocation of the clamping lever at any time, screws 18 are fitted in opposite ends of the head of the lever and engage the outer sides of the ears 6, and to make the joint between the handhole plate and the ring absolutely air-tight, a rubber or equivalent washer 19 is fitted around the flange 12 between the handhole plate and the flange 5.

Heretofore the handhole plates of coffee urns and other similar boilers have almost invariably been threaded into plates and if not removed at comparatively frequent intervals would become cemented in place through the incrustations upon the threads of an alkali scale produced by the boiling of the water in the boiler. My object is to provide a construction in which the actual joint between the handhole ring and plate is so isolated and protected from the boiling water that it cannot be affected, and I have accomplished this by establishing a ground joint relation between the ring and the flange 12 of the handhole plate. As a result the plate can be readily removed if left in place for any period of time.

In practical operation, the handhole plate is fitted to the ring by hand and then the lever is fitted in the perforated ears 6 with the handle in approximately a horizontal position. The handle is then swung upward as to bring the cam surface 9 to bear with continuously increasing pressure on the center of the plate 11, this action continuing until the crest of the cam has about attained the horizontal plane of the center of the plate, so that there will be no tendency, due to the resiliency of the washer, of the plate moving outward and throwing the clamping lever to inoperative position even though the latter is not fastened to the lugs 15, such fastening means being provided solely as a precautionary measure against one accidentally pulling or pushing the lever to inoperative position. After the lever is turned to inoperative position it is moved laterally to withdraw one of its reduced ends from the bearing ears and then oscillated slightly to enable its other end to be withdrawn from the other bearing ear, after which the clamp plate can be withdrawn from position, it being obvious that it is impractical to withdraw the clamping plate as long as the clamping lever is in engagement with the ears 6.

From the above description it will be apparent that I have produced a handhole plate for boilers, embodying the features of advantage enumerated as desirable, and I wish it to be understood that while I have illustrated and described the preferred embodiment of the same, I reserve the right to make all changes falling within the scope of the appended claim.

I claim:

A fastener for hand-hole plates for boilers comprising perforated ears rigid with the boiler, a T-shaped lever having a head portion of greater diameter than said perforations and formed with a cam at an intermediate point; said head being provided at its ends with reduced cylindrical extensions of unequal length, respectively engaging the perforations of said ears, and screws engaging said reduced portions of the lever head and provided with heads of greater diameter than the perforations of said ears and bearing against the outer sides of the same.

In testimony whereof, I affix my signature, in the presence of two witnesses.

HENRY D. KELLY.

Witnesses:
G. W. DUVALL,
K. M. THORPE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."