

Dec. 9, 1930.

M. F. SMITH

1,784,551

METER BOX LID

Filed Nov. 26, 1927

Fig. 1.

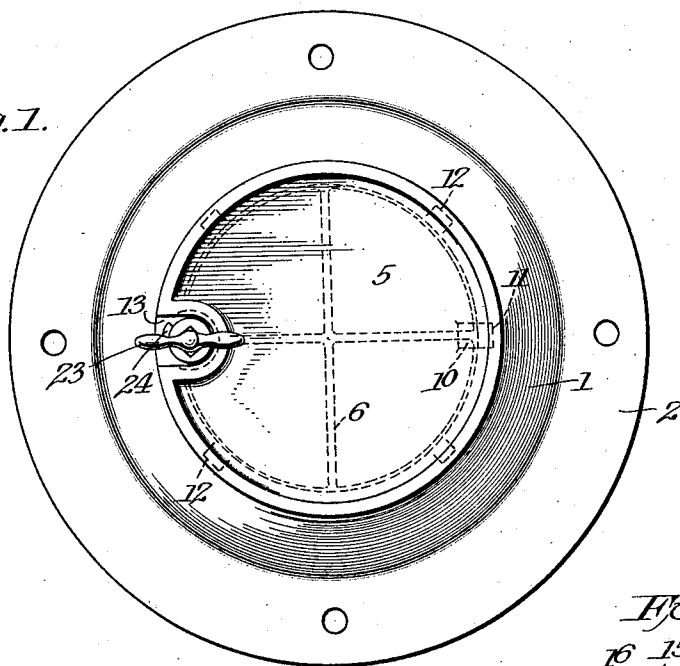


Fig. 3.

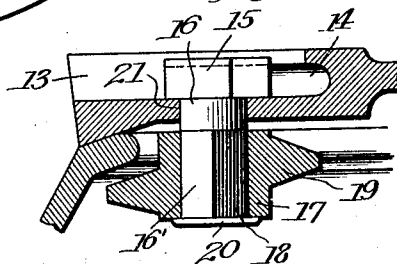
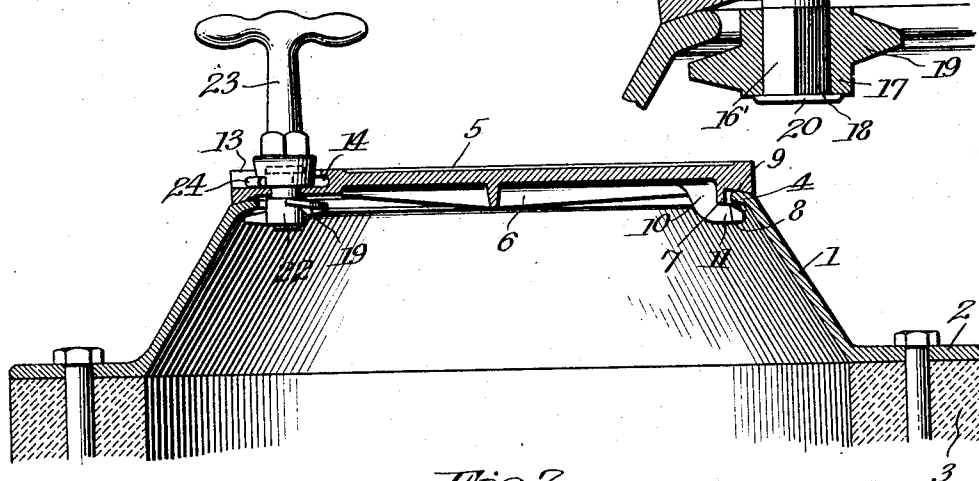


Fig. 2.

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METER-BOX LID

Application filed November 26, 1927. Serial No. 235,932.

This invention relates to a meter box lid structure and its principal object is to provide an effective means for attaching and securing the lid in position upon the top member.

A further object of the invention is to support the lid in position upon the top member in a manner which will prevent the entrance of undesirable matter and to combine with the structure for this purpose a novel means for centering the head in position and preventing its lateral displacement.

It is also an object of the invention to so construct the lid and top member that the lid may slide upon the top member when raised or lowered on one side due to the cooperation of the lid structure and the structure of the top member.

A very important object of this invention is to provide a locking means which will serve to tightly clamp the lid to the top member of the box and prevent the surreptitious opening of the box by unauthorized persons.

A further and important object of the invention is to so construct the lid that any debris collecting about the external operating means for the locking device may be easily removed from the lid and the locking device operated by the authorized party.

Another object of the invention is to provide a construction wherein the locking means will have a wedging engagement with the top member to clamp the parts together.

An additional object resides in constructing the lid with means to receive the operating member or key for operating the locking device in such a way as to act as a thrust receiving element when the key is rotated to lock or unlock the box.

Another object is to be found in using the locking means to initially raise the lid when it is being unlocked so that a tool or the fingers may be used for further lifting the lid.

The invention has a particular object in providing a construction which may be cheaply manufactured and will not become broken or constitute a temptation for unlawful tampering with the meter.

In the drawings:

Figure 1 is a top line view.

Figure 2 is a view in section.

Figure 3 is a detailed view in section.

The top member of my invention is illustrated at 1, and is provided with a bottom lateral flange 2, which is connected with the cement or other wall of the box 3. At its upper end the top member is provided with an upwardly and inwardly inclined flange indicated at 4.

The lid is preferably cast and is indicated as a whole at 5. It is provided with radial downwardly projecting ribs or reinforcements indicated at 6. An annular downwardly extending flange or ring 7 is formed on the lid inwardly of the peripheral edge thereof and between this rim and the edge of the lid, the upper wall of the recess 8 so formed in inclined downwardly and outwardly as shown at 9 in a manner complementary to the inclined flange 4 of the top member. Cast on the lid or secured thereto in any desired manner is a downwardly projecting member or lug 10. This member, it will be observed, has a lateral extension 11.

The top member is provided with one or more spaced inwardly opening slots 12 formed in the flange 4 and when it is desired to position the lid, the member 10 is aligned with one of these slots through which it will pass to bring the lid to rest upon the flange and upon turning the lid slightly the lateral extension 11 will clear the walls of the slot and be disposed beneath the flanges 4, as shown in Figure 2.

It will be noted that by reason of the inclined flange 4 and the corresponding inclination of the top wall of the recess in the lid, no dirt or foreign matter can find its way into the box, since the overlying relation of the lid to the top member will overcome any possibility of this.

By the construction just described, the ring 7 and the inclined wall 9, together with the lug 11, provide the female member of a hinge receiving and enclosing the flange 4 whereby when the lid is raised or lowered, the inclined wall 9 may slide up and down upon the flange 4.

It will be noted that the annular ring 7

serves as a centering and guiding means for positioning the lid and, moreover, prevents any lateral displacement of the lid with respect to the top member.

5 The lid 5 is cut away in its top portion to provide a recess 13, which opens upon the peripheral edge of the lid. This recess is provided with a grooved rear wall, as shown at 14 in Figures 2 and 3.

10 The locking device comprises a stem having an enlarged squared head 15 forming a nut and a smooth cylindrical intermediate portion 16. The other end of the stem is squared as at 16' and receives a member 17 having
15 a squared opening 18 and provided externally with a spiral or screw 19. The extreme end of the stem 15 is upset as at 20 to maintain the member 17 in position.

It will be seen upon reference to Figure
20 3 that the stem extends through an opening 21 in the cut away portion of the lid, which opening is cylindrical to receive the cylindrical portion of the stem to permit rotation of the stem therein as well as to permit the
25 stem to move slightly up and down as the locking member is operated.

The head 15 of the stem, while described as squared, may be of any desired configuration and structure and the spiral member may
30 be connected to the lower portion of the stem by a keyed arrangement or any other means which will insure that rotation of the stem will rotate the spiral member, in lieu of the squared stem and recess engagement shown.

35 In placing the locking device in position, the stem so formed is passed through the opening 21 in the lid and the spiral member is then applied, whereupon the end is upset as shown at 20 to support the spiral member
40 upon the stem.

This makes a very simple arrangement, and permits the locking member to be assembled upon and carried by the lid.

45 The spiral does not extend entirely about the member 17 and a free portion is left in the member indicated at 22 in Figure 2. In order to operate the locking device, a key indicated at 23 is applied to the squared end 15, and this key has an outwardly extending lug 24 of a shape and size to pass
50 within the groove 14 of the rear wall of the recess 13 in the lid. In this manner the groove 14 will act as a thrust receiving element in the turning of the locking member.

55 In applying the lid to the top member, the lug 10 is placed in alignment with one of the slots 12 in the flange and the lid is centered in position by this alignment and by means of the ring 7. As stated, the lid is given a slight turning movement to bring the extension 11 beneath the flange 4 and it will be noted that this engagement of itself prevents any upward movement of the lid, and
60 the ring 7 serves to prevent any lateral movement so that the lid is properly centered with

its inclined wall 9 resting on the inclined flange 4.

The locking device is turned to the right, so that as the spiral revolves, the free portion 22 will confront the flange 4 and thus
70 allow the lid to slip into position. Continued turning of the key will cause the spiral to engage the under-surface of the flange 4, and effect a wedging engagement to securely hold the lid in position. The key may now
75 be withdrawn and unauthorized persons will not be able to tamper with the lock.

To open the lid for inspection of the meter, the key is applied and turned in a reverse direction, whereby the wedging relation of
80 the parts is released and the spiral engages over the upper-surface of the flange and acts to initially raise the lid sufficiently to admit a tool or the fingers to be used in further lifting the lid.

85 The lid may be either lifted upon the hinge structure previously described, or detached by shifting the lid to bring the lid into alignment with one of the slots 12.

In having the recess 13 opening toward
90 the periphery of the lid any dirt or foreign matter which naturally will collect in the recess because it is usually exposed with the meter box in the ground, can be easily picked out and the key applied and the stem turned.
95 This has been a previous difficulty with locking devices employed in meter boxes, and since an inspector examining the meter must necessarily take time in cleaning out the slot to apply his key, the present construction is very desirable. It is merely necessary to
100 push the dirt clear of the recess and to clean it from the groove 13 when the key may be easily applied.

This is quite an advantage over the usual
105 type of key receiving recess, which in most cases is made dished enabling the dirt to tightly pack and requiring considerable time to cut it out.

Upon reference to the drawing it will be
110 seen that the ring 7 is cut away adjacent the locking structure upon opposite sides of the enlarged portion in which the recess 13 is formed.

115 It will also be noted that the rear wall of the recess as well as the side walls in which the groove 14 is formed are relatively thick, so that with a firm structure at this point, the entrance of the lug into the groove will act as a thrust receiving element for the key,
120 particularly when the lid is being released.

The groove 14 it will be also noted merges into the adjacent side walls of the recess which continue to the edge of the lid.

125 While the invention may have other adaptations, not specifically here alluded to, it will be understood that the appended claims are considered to cover changes and modifications which may be made without departing from the spirit of the invention. 130

What I claim is:

1. In a meter box, a top member, a lid resting thereon, an open ended recess in the lid having a groove extending about the wall at the opposite end of the recess, a locking
5 means for clamping the lid and top member together rotatably mounted in the lid with its operating extremity disposed in said recess, and a key for turning the locking means engaging said operating extremity and hav-
10 ing means engaging in said groove whereby the groove will act as a thrust receiving element in the turning of the locking member.

2. In a meter box, a top member having
15 an inclined flange, a lid having an inclined portion complementary to and resting on said flange, an open ended recess in the lid having a groove extending about the wall at the opposite end of the recess, a locking means for
20 clamping the lid and top member together rotatably mounted in the lid with its operating extremity disposed in said recess, and a key for turning the locking means engaging said operating extremity and having
25 means engaging in said groove whereby the groove will act as a thrust receiving element in the turning of the locking member.

3. In a meter box, a top member, having an inclined flange, a lid having an inclined
30 portion complementary to and resting on said flange, an open ended recess in the lid having a groove extending about the wall of the recess at the opposite end thereof, a locking device rotatable mounted in the lid with its
5 operating extremity disposed in said recess said locking device comprising a spiral adapted to engage beneath the flange to tightly clamp the lid and top member when
rotated in one direction and to engage and
ride over the upper surface of the flange to
raise the lid when rotated in the opposite
direction, and a key for turning the locking
device engaging said operating extremity
and having a projection engaging in said
15 groove to act as a thrust receiving element as the locking device is turned.

In testimony whereof I have hereunto set my hand.

MARION F. SMITH.