

J. W. CALHOUN.
METER BOX, MANHOLE, AND LIKE COVER.
APPLICATION FILED MAR. 20, 1919.

1,408,982.

Patented Mar. 7, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

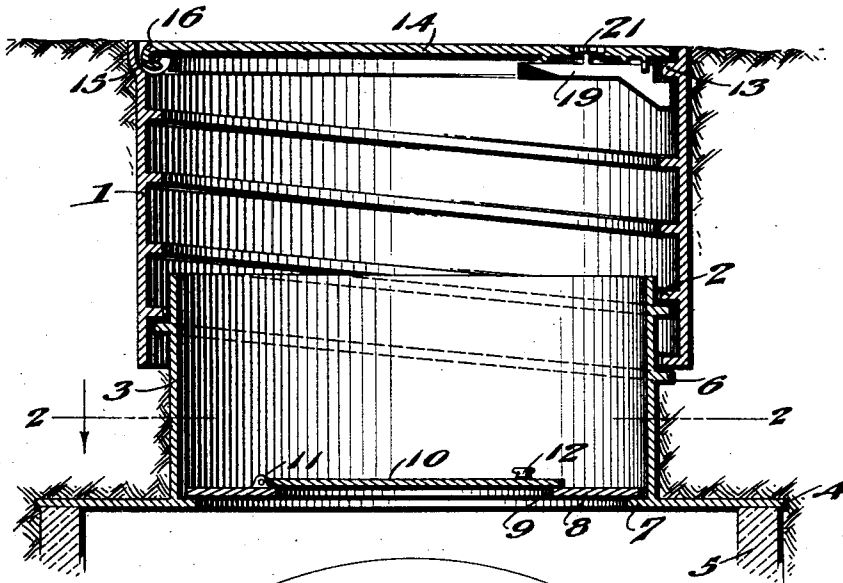
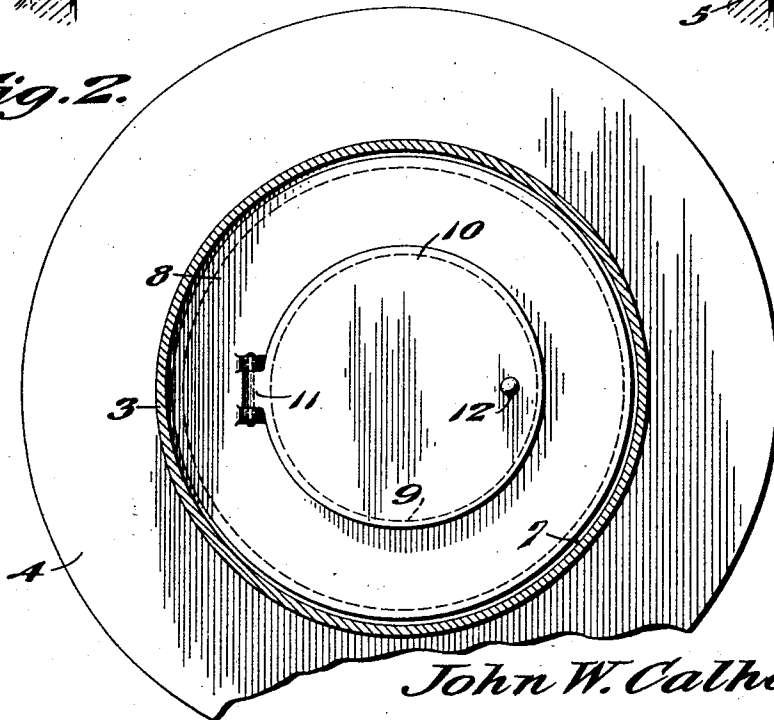


Fig. 2.



Inventor

John W. Calhoun

By

Lloyd W. Patch
his Attorney

J. W. CALHOUN.
METER BOX, MANHOLE, AND LIKE COVER.
APPLICATION FILED MAR. 20, 1919.

1,408,982.

Patented Mar. 7, 1922.
2 SHEETS—SHEET 2.

Fig. 3.

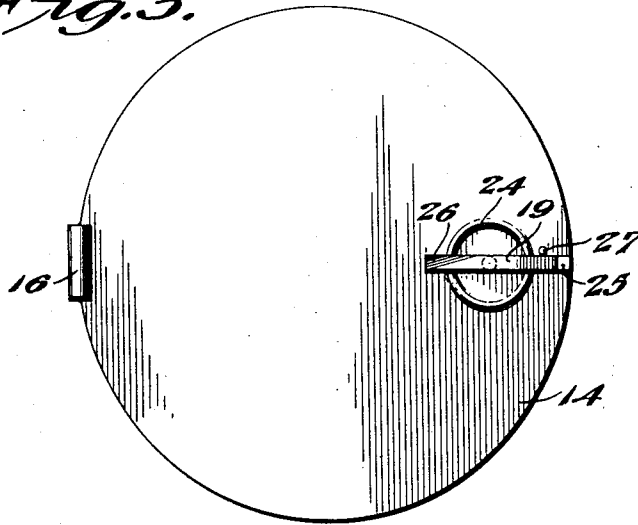


Fig. 4.

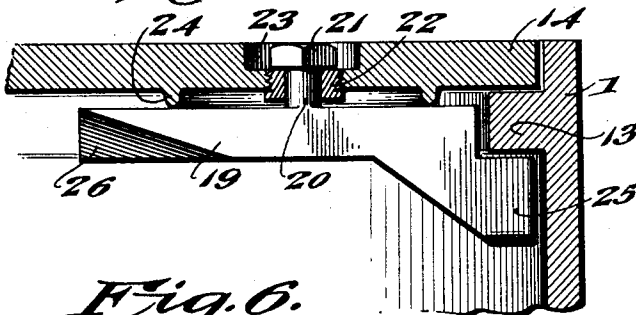


Fig. 5.

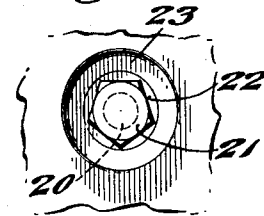


Fig. 6.

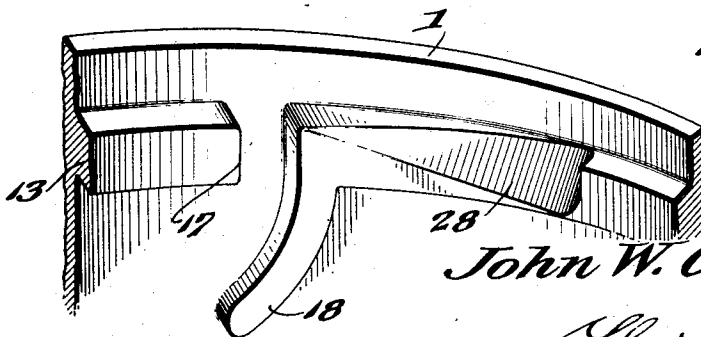
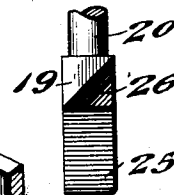


Fig. 7.



Inventor
John W. Calhoun
By *Lloyd W. Patch*
his Attorney

UNITED STATES PATENT OFFICE.

JOHN W. CALHOUN, OF CHESTER, PENNSYLVANIA.

METER-BOX, MANHOLE, AND LIKE COVER.

1,408,982.

Specification of Letters Patent.

Patented Mar. 7, 1922.

Application filed March 20, 1919. Serial No. 283,713.

To all whom it may concern:

Be it known that I, JOHN W. CALHOUN, a citizen of the United States, and residing at Chester, in the county of Delaware and State of Pennsylvania, have invented new and useful Improvements in Meter-Box, Manhole, and like Covers, of which the following is a specification.

The present invention relates particularly to the closures for meter boxes, manhole covers, and the like, and embodies adjustable structure whereby the cover is raised to the level of the surrounding earth or sidewalk when the cover is installed on old boxes or manholes, and which also permits elevation of the cover to the proper level without digging the entire box out and resetting the same in case the box settles with the earth.

An object of the invention is to provide such a cover including upper and lower sections adjustably fitted together and each having a cover or door so that a double closure is made.

A further object is to arrange the inner cover to be removable to leave a full opening through the member by which it is supported, and to so construct the same that it will not be likely to be displaced in use and that it will form an effective inner closure.

A still further object lies in providing with the upper cover or door, movable locking means which is automatically locked when the cover is closed and which will lift the cover when moved to an unlocking position.

With the foregoing and other objects in view which will be apparent from the following disclosure, my present invention includes novel features of construction and combinations of parts which will now be set forth.

In the drawings:

Figure 1 is a vertical sectional view through a cover constructed after the manner of my invention.

Fig. 2 is a transverse sectional view on line 2—2 of Fig. 1 showing the inner cover or door.

Fig. 3 is a view in elevation of the lower side of the top cover or door.

Fig. 4 is a fragmentary sectional view illustrating in detail the locking means for the outer door and the cooperative arrangement of said means.

Fig. 5 is a detail view showing the operating head for the locking means.

Fig. 6 is a broken fragmentary view to illustrate the outer door supporting flange and the lock operating structure.

Fig. 7 is a view in end elevation of the movable locking member.

An upper casing 1, of cast iron or other suitable material is of tubular form and has a spiral flange 2 on the inner wall thereof forming substantially a thread. A lower casing member 3 has a base flange 4 which is made sufficiently wide to rest upon the upper edge of a meter box 5 or of other structure to which the cover is fitted. This lower casing member is of a diameter to fit within the upper casing member and clear the spiral flange, and a spiral flange 6 is provided externally on member 3 to mesh with flange 2. By this arrangement of parts the lower casing member can be set with the base flange thereof supported on a meter box or the like and upper casing member 1 is then placed over the lower casing member with the spiral flange 2 thereof resting upon flange 6. By turning upper casing 2 this member is raised or lowered due to the engagement of the spiral flanges and adjustment may thus be made to bring the top of casing 1 to the proper level. Further, through this adjustment, in case the box settles with the earth, the casing and cover can be raised to the level of the surrounding earth or sidewalk without digging out the entire box or cover and building up to compensate for the settling.

The casing member 3 has a supporting flange 7 at the lower end thereof and substantially in line with base flange 4, upon which flange 7 the inner cover is supported. The inner cover is made up of a ring 8, of a diameter slightly less than casing 3, which rests upon flange 7, and this ring has a central opening 9. A door 10 is mounted by a hinge 11 to swing down to close opening 9, a handle 12 being provided on the door for opening the same.

Adjacent its upper edge casing member 1 is provided with a supporting flange 13, and an outer door 14 is provided to shut down upon this flange and close the top of said upper casing. The flange is recessed at one side and the casing carries a hinge pin 15 which receives the hinge bearing 16 of door 14, the door being thus mounted to swing to opened and closed positions.

At a point substantially diametrically opposite to pin 15 flange 13 is slotted through

at 17, and a curved lock operating guide 18 is provided on the casing at one side of the slot and is shaped to curve across beneath the same. A movable locking member 19 has a bearing 20 which at its outer end terminates in an operating head 21, and by means of a bushing 22, preferably of brass or other non-corrosive metal, this locking member is mounted on the lower side of door 14 in proximity to the edge thereof and located adjacent slot 17. Door 14 is preferably recessed at 23 to receive operating head 21 so that this head offers no projection above the door, and on its lower side has a bearing ring 24 formed concentrically around the opening in which bushing 22 is fitted. By this construction and arrangement of parts the movable locking member is swung upon bearing 20, and as this bearing cannot rust tight in bushing 22 and only slight contact is had with bearing ring 24, the locking member is turned with comparative ease and by the use of only slight force to revolve operating head 21.

The movable locking member is shaped at one end to provide a locking hook 25, and at the remaining end to provide a releasing wedge 26, and a pin 27 is provided to limit turning movement of this member about bearing 20.

When door 14 is to be closed, locking member 19 is swung to the position shown in Fig. 3 where further movement is stopped by pin 27; the door is then lowered or is dropped to swing to the closed position, and as the hook end 25 of locking member 19 is in line with slot 17 this end passes through the slot and engages with the lock operating guide 18. Due to the curved formation of guide 18, locking member 19 is pushed over to swing around its bearing and end 25 thereof is guided to hook or catch beneath flange 13 and lock door 14 in the closed position.

Adjacent slot 17 flange 13 is cut away or formed to provide a tapered cam portion 28, and when door 14 is to be unlocked and opened, a wrench or other tool is fitted upon operating head 21 and locking member 19 is turned to swing hook portion 25 from beneath flange 13 and to bring the wedge-like end 26 into engagement with cam portion 28 of the flange. This engagement of the two tapered faces causes door 14 to be lifted from its support on flange 13 and sufficiently above the casing member that its edge can be grasped and the door can be thrown open.

By constructing the inner cover as described above, and by providing the inner door, the meter or other instrument protected by my improved cover can be examined without the trouble and effort of removing the cover ring, although the entire inner cover may be removed when full access is

to be had to the meter for removing or changing the same. By the arrangement of inner and outer covers or doors, a dead air space is provided therebetween and the warmth of the earth and instrument is stopped and held in the box or housing, while cold air is prevented from entering. Through the difference in temperature on the inner side of the inner door, due to leakage of air around the outer door, a film of frost or ice will form between ring 8 and flange 7, and the ring and door 10 so that the inner cover is sealed, however when the door is to be opened or the entire inner cover removed, the thin film of ice or frost can be easily broken.

As the uses and the manner of applying my improved cover have been outlined above, it is not thought that recapitulation need here be indulged in.

However, it might be pointed out that while I have set forth only specific embodiments and have particularly mentioned certain materials which might be used, I do not limit myself to these specific details, but may resort to practical modifications embraced within the scope of the appended claims.

I claim:

1. A cover for meter boxes and the like including with a suitable casing structure open to give access to said box, said casing structure having a supporting flange and said flange being recessed and slotted at opposite points, a door hinged to said casing within the recess of the flange to close down against said flange, a locking member carried at the free edge of said door mounted for turning movement and provided with a hooked locking end shaped to pass through the slot in the flange of said casing, and said casing having a curved lock operating guide located adjacent said slot to engage said locking member and swing the same to catch beneath said flange.

2. A cover for meter boxes and the like including with a suitable casing structure open to give access to said box, said casing structure having a supporting flange and said flange being recessed and slotted at opposite points, a door hinged to said casing within the recess of the flange to close down against said flange, a locking member carried at the free edge of said door mounted for turning movement and provided with a hooked locking end shaped to pass through the slot in the flange of said casing, said casing having a curved lock operating guide located adjacent said slot to engage said locking member and swing the same to catch beneath said flange, and an operating head associated with said movable lock member by which said member is turned to be disengaged from said flange.

3. A cover for meter boxes and the like

including with a suitable casing structure open to give access to said box, said casing structure having a supporting flange and said flange being recessed and slotted at opposite points, a door hinged to said casing within the recess of the flange to close down against said flange, a locking member carried at the free edge of said door mounted for turning movement and provided with a hooked locking end shaped to pass through the slot in the flange of said casing, said casing having a curved lock operating guide located adjacent said slot to engage said locking member and swing the same to catch beneath said flange, and an operating head associated with said movable lock member by which said member is turned to be disengaged from said flange, said flange being cut away adjacent said slot to a tapered cam formation, and said locking member being made of wedge shape at one extremity to ride up on said cam portion and raise said door from the supporting flange when said locking member is turned.

In testimony whereof, I affix my signature.

JOHN W. CALHOUN.