Nov. 28, 1944. H. W. BLAKEMAN 2,363,567

COVERPLATE

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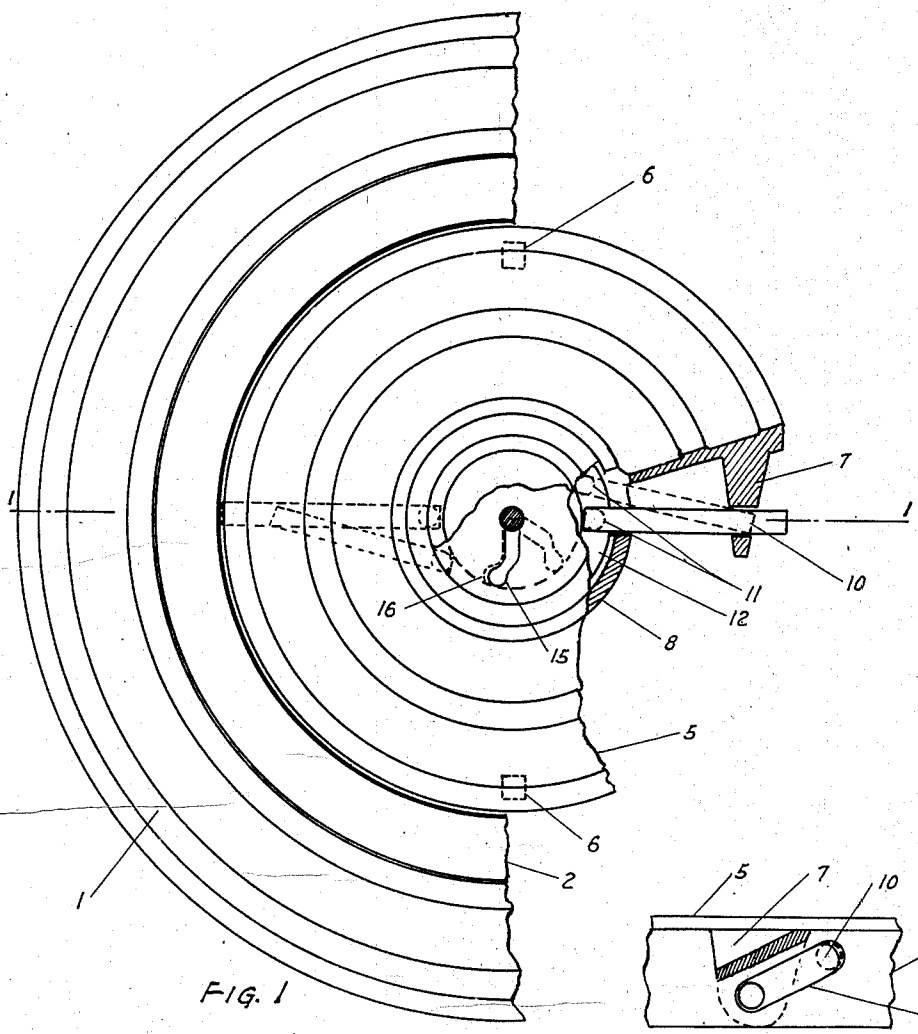


FIG. 1

FIG. 3

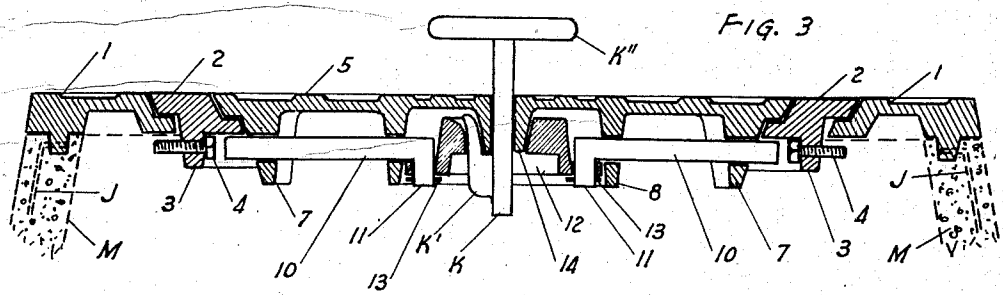


FIG. 2

Inventor

Henry W. Blakeman

By

A. F. Flournoy

Attorney

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COVER PLATE

Henry W. Blakeman, Rayville, La.

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8 Claims. (Cl. 292—6)

My invention relates to coverplates in general and more especially to locking type coverplates for submerged meter boxes, valve boxes, manholes and the like.

An object of my invention is to provide a coverplate with a locking means that is operated by a key which serves also as a means for lifting the coverplate.

Another object of my invention is to provide an auxiliary extension ring to adapt my coverplate for use as a closing means for openings that are wider than my coverplate.

Another object of my invention is to provide a coverplate that incorporates a locking means so designed that the force of gravity assists in the locking operation and further assists in holding the locking means in locked position.

Another object of my invention is to provide a coverplate with a key type locking means having its key contacting portions adapted to be aligned in position with the keyhole by means of the key.

Other objects and advantages of my invention will appear from a reading of my detailed description to follow of an embodiment of my invention illustrated by my drawing in which:

Figure 1 is a broken plan view of a coverplate in closing position embodying my invention,

Figure 2 is a cross sectional view of the coverplate taken on line 1—1 of Figure 1, and

Figure 3 is an enlarged fragmental view of a portion of the coverplate illustrated by Figures 1 and 2.

The principal use that I now see for my invention in a coverplate is its use as a cover for a meter box in which the cover is designed to fit a flange on the top of the box which will correspond to the combination of the curb 1 and curb extension ring 2 illustrated in the drawing, but for the purpose of illustrating the auxiliary ring extension broadly mentioned as one of the objects of my invention, I am showing my coverplate 5 as a manhole closing means. The curb 1 is permanently anchored into the manhole wall M by means of the hooks J shown embedded in the manhole wall M. The curb extension ring 2 is provided with two or more depending curb ring attaching lugs 3 through which extend threaded attaching bolts 4 of lengths sufficient to extend under the curb 1 to prevent the curb extension ring 2 from being lifted upwardly. The coverplate 5 rests on the curb extension ring 2 and is prevented from being lifted upwardly from the same by means of the locking bars 10 forming a part of my locking means which I shall now describe.

I provide two or more wedge shaped centering lugs 6 on the lower face of my coverplate 5 in the curb extension ring 2. I provide also an additional pair of guide lugs 7 which serve both as centering means and guides for the locking bars 10. The locking bars 10 extend also through a central depending guide wall 8 through the slanting guide slots 9 as best shown in Figure 3. The rounded studs 11 are pivotably connected to the throw cylinder 12 and secured in place by cotter keys 13. The throw cylinder 12 fits loosely around the depending boss 14 extending centrally downwardly from the center of the coverplate 5. I here wish to point out to the reader that the weight of the throw cylinder 12 is supported solely by the two locking bars 10.

I illustrate my locking means in the locked position, that is with the locking bars 10 shoved outwardly as far as they can go and resting on the bottom of the guide slots 9 as shown by the solid lined positions of the locking bars 10, as best seen in Figure 3. In the open position of my locking mechanism the locking bars 10 are drawn inwardly to the angular dotted lined positions, as best seen in Figure 1. In Figure 3 the locking bar 10 is illustrated in its retracted position by the dotted circle as having been lifted to the top of the guide slot 9. It is easily seen that by this arrangement the force of gravity pulling on the locking bars 10 with the added weight of the throw cylinder 12 supported by them tends to pull the locking bars 10 down to the bottom of the slots to the locking position illustrated in the drawing. It is also easy for the reader to appreciate that the force of gravity acting on the assembly of the two locking bars 10 and the throw cylinder 12 would tend to keep the locking bars 10 in the outward position or locking position as said above.

While the assembly of the two locking bars 10 and the throw cylinder 12 could be made heavy enough to automatically throw themselves into locking position with a steep slanted slot being used, I do not depend upon the source of gravity alone to lock my cover. I use a key K as a means for closing and opening my locking mechanism and as a handle for lifting the coverplate.

When the locking bars 10 are in the closed position, the flared mouth key slot 16 is in alignment with the keyhole 15. In this aligned position the key K may be shoved through the keyhole 15 and into the key slot 16 where it may be

turned in the counter-clockwise direction, shown by the arrow in Figure 1, to withdraw the locking bars 10 as described above. The key K cannot be turned to the right at all in the closing position of the locking bars 10 because they are down at the bottom of the guide slots 9. When the locking bars 10 are withdrawn, the blade K' of the key K while still remaining in the key slot 16 is revolved around the underneath side of the coverplate 5 and cannot be withdrawn.

As a convenience in lifting the coverplate 5 I provide my key K with a transverse extending lifting bar K'' at its top. These coverplates are generally made out of cast iron and are made very rugged and are therefore very heavy. The curb 1 and extension ring 2 are generally made of cast iron also. The anchor bolts J would preferably be made of steel. The manhole wall M illustrated as a masonary construction might also be made out of cast iron if desired.

Numeral 16 designates as stated above a flared mouth key slot which is extended through the throw cylinder 12. It is here pointed out that the slot does not necessarily have to extend entirely through the key slot 16 if the key blade K' is made shorter. Under normal working conditions the key slot 16 is brought into neat alignment with the keyhole 15 in the closed position of the lock in which case there would be no need of providing the key slot 16 with a flared mouth. But due to inaccuracies in the manufacture of a cast device and due to inaccuracies of alignment that would be brought about by the wearing of parts, I have provided the key slot 16 with a flared mouth so that should it at any time in the closed position of the locking means be brought into slight misalignment with the keyhole 15, it can be easily realigned by merely shoving the blade K' of the key K down into the flared mouth of the key slot 16.

Having thus described my invention, I claim:

1. A cover provided with a locking means attached to its lower side, said locking means including a locking bar loosely reciprocally mounted in a guide depending from the cover, said guide being provided with an upwardly slanting slot through which the locking bar extends, the inner end of the locking bar being pivotably mounted on a rotatable locking bar moving means, said locking bar moving means being rotatably mounted on the cover and being adapted to move the locking bar through the slanting slot while the locking bar moves across the slanting slot whereby the force of gravity acting on the locking bar when the locking bar is in an elevated position in the slanting slot assists the movement of the locking bar through the slanting slot.

2. A cover provided with a locking means attached to its lower side, said locking means including a locking bar loosely reciprocally mounted in a guide depending from the cover, said guide being provided with an upwardly slanting slot through which the locking bar extends, the locking bar being pivotably mounted on a rotatable locking bar moving means, said locking bar moving means being loosely mounted on the cover and being supported by the said locking bar and being adapted to move the locking bar through the upwardly slanting slot while the locking bar moves across the slanting slot whereby the force of gravity acting on the locking bar and the locking bar moving means supported by it assists the movement of the locking bar through the slot when the locking bar is in an elevated position in the slot and a means for rotating the locking bar moving means.

3. A cover provided with a locking means attached to its lower side, said locking means including a locking bar loosely reciprocally mounted in a guide depending from the cover, said locking bar being extended also through a second guide provided with an upwardly slanting slot through which the locking bar extends, the inner end of the locking bar being pivotably mounted on a rotatable locking bar moving means, said locking bar moving means being rotatably mounted on the cover and being adapted to move the locking bar through the slanting slot while the locking bar moves across the slanting slot whereby the force of gravity acting on the locking bar in an elevated position in the slanting slot assists the movement of the locking bar through the slanting slot.

4. A cover provided with a locking means attached to its lower side, said locking means including a locking bar loosely reciprocally mounted in a guide depending from the cover, said locking bar being extended through a second guide provided with an upwardly slanting slot through which the locking bar extends, the inner end of the locking bar being pivotably mounted on a rotatable locking bar moving means, said locking bar moving means being rotatably mounted on a boss depending from the cover adjacent to the second mentioned guide, said locking bar moving means being adapted to move the locking bar through the slanting slot while the locking bar moves across the slanting slot whereby the force of gravity acting on the locking bar in an elevated position in the slanting slot assists the movement of the locking bar through the slanting slot.

5. The device as claimed in claim 4 wherein the locking bar moving means is loosely mounted on the boss and is supported by the locking bar whereby the force of gravity acting on the locking bar moving means assists the movement of the locking bar through the slanting slot.

6. A cover provided with a locking means attached to its lower side, a cylindrical boss extending below the cover, a keyhole slot being extended through the cover and the depending boss, a locking bar reciprocally mounted in a guide depending from the under side of the cover, the locking bar being pivotably mounted on a locking bar moving means, said locking bar moving means being rotatably mounted on the boss and being provided with a key slot positioned for alignment with the key slot extended through the cover and the boss whereby a key extended through the cover and the boss may be placed in the slot in the locking bar moving means for turning the same.

7. The device as claimed in claim 6 wherein the key slot in the locking bar moving means is flared at its top opening to assist the alignment of the slot in the locking bar moving means with the slot in the depending boss.

8. A cover provided with a locking means attached to its lower side, said locking means including a plurality of locking bars reciprocally mounted in guides depending from the cover, the inner ends of said locking bars being pivotably connected to a rotatable locking bar moving means provided with a key slot, each of said locking bars being also extended through an

additional guide provided with an upwardly slanting slot through which the locking bar extends whereby the force of gravity acting on the locking bars in elevated positions in the slanting slots assists the movement of the locking bars through the slanting slots, the locking bar moving means being rotatably mounted on a boss depending from the lower side of the cover, a keyhole slot being extended through the cover and the boss depending from the cover, the keyhole slot in the locking bar moving means being positioned for alignment with key slot extended through the cover and the boss whereby a key extended through the cover and the boss may be placed into the keyhole slot in the locking bar moving means to turn the same.

HENRY W. BLAKEMAN.