70. LOCKS, ... CATCHES,
168

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B. T. LETTS.

LOCK FOR MANHOLE COVERS.

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Fig. 1

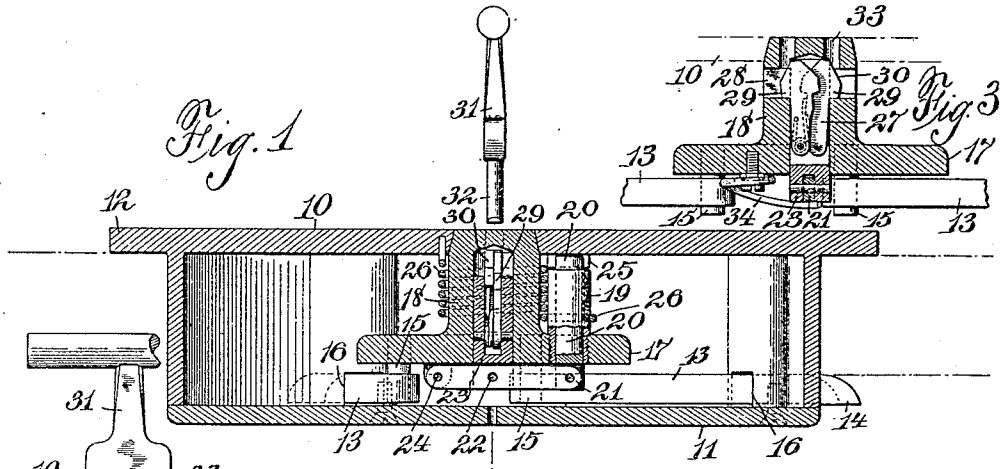


Fig. 3

Fig. 4

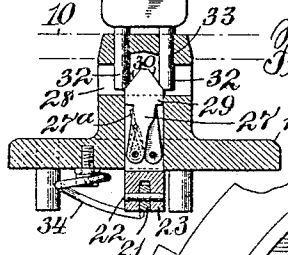


Fig. 2

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LOCK FOR MANHOLE-COVERS.

No. 845,182. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed May 31, 1906. Serial No. 319,486.

To all whom it may concern:

Be it known that I, BENJAMIN T. LETTS, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Locks for Manhole-Covers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention is designed to furnish a cover for manholes that can be locked in place, and is adapted for use in the opening of coal-chutes on the decks of boats and in any other similar position where security of the cover is desired.

The cover is designed with radially-projecting arms or catches that can be withdrawn into the casing of the cover, which when extended fit underneath the support of the cover and prevent the cover being raised.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section on line 1 1 in Fig. 2. Fig. 2 is a bottom view with the bottom broken away, while Figs. 3 and 4 are sections on line 3 in Fig. 2, showing the locking mechanism in its inoperative and operative positions.

The cover is made up of the casing 10, that is provided with the bottom 11, suitably secured thereto to make up a hollow casing that in contour fits the hole to be covered. The casing 10 has a shoulder 12 around the top to support the cover and suspend it in the opening. Inside the casing on the bottom are arms 13 to move in and out radially, as hereinafter described, the ends 14 of these arms engaging the under side of the material surrounding the opening in which the manhole-cover is placed. On their inner end these arms 13 are pivoted, as at 15, onto the flange 17, which in turn has the tubular structure 18 fitting up into the top of the casing 10. Thus when this structure is turned the arms 13 pass in or out of the openings 16, according to the way the flange 17 is turned. On one side this flange 17 is provided with the sleeve 19, in which reciprocates a latch 20, the lower end of which is pivoted to one end of the lever 21; this lever being pivoted intermediate of its ends, as at 22, to the slide 23 and fastened on its other end, as at 24, to the flange 17. The normal locked position of this structure is shown in Figs. 1 and 2, this latch 20 being on one side of the lug 25 fastened or integral with the top of the casing 10. A spring 26, coiled around the tubular portion 18, having one end secured to the top of the casing 10 and the other end encircling the sleeve 19, has the tendency to keep the mechanism in this position. When it is desired to turn the flange 17 to withdraw the arms 13 within the casing, this latch 20 must be pushed down to clear the lug 25.

The locking mechanism is shown in Figs. 1, 3, and 4 and comprises the slide-piece 23, fitting up into the tubular portion 18 and having a pair of tumblers normally thrown outward or apart by means of the spring 27^a. In Fig. 3 is shown the mechanism locked, and when these arms 27 are thrown apart the shoulders 29 engage the lower edge of the transverse opening 28. In the top of the tubular portion are a pair of perforations 33, and a key 31, with a pair of projecting fingers 32 to fit in these openings 33, is pushed down in these openings, and the tapered faces 30 are engaged with the key and forced inward until they are in line, and the key then pushes the whole slide-piece downward, as in Fig. 4, which in turn operates the lever 21, and the outer end of this lever pulls down the latch 20 to clear the lug 25, and a handle can then be used to turn the tubular part 18 and the flange 17. These in turn pull back the bars 13. When the key is withdrawn, a spring 34 throws the slide-piece 23 back into place, and this actuates the lever 21 and the latch 20 to engage the other side of the lug 25, as shown in dotted lines in Fig. 2. The manhole-cover can now be lifted off, as the ends 14 of the bars 13 are within the outer periphery of the casing 10. When it is desired to lock the manhole-cover in place, it must be sometimes done very quickly, particularly on shipboard, and when the key is inserted it is only necessary to give it a sharp blow with the hand to unlock the tumblers and force down the locking structure until the latch 20 rides under the lug 25. As soon as the latch clears the lug the spring 26 snaps the mechanism around to its normal position and the arms 13 shoot out from the casing and engage the under side of the supporting structure.

This mechanism provides a cheap arrangement for locking manholes, and slight changes

might be made in the detail in locking mechanism without departing from the scope of my invention.

Having thus described my invention, what I claim is—

1. A manhole-cover comprising a casing, arms adapted to reciprocate in and out of the casing, a flange pivoted to the inner ends of the arms, a tubular structure extending through the top of the casing, a lug on the casing, a longitudinally-moving latch on the flange to engage either side of the lug, and means for moving the latch to release it from the lug.

2. A manhole-cover comprising a casing, arms adapted to reciprocate in and out of the casing, a flange pivoted to the inner ends of the arms, a tubular structure extending through the top of the casing, a lug on the casing, a latch on the flange to engage either side of the lug, the latch having a longitudinal movement for releasing it from the lug, and means for returning the flange to its locked position.

3. A manhole-cover comprising a casing having arms to reciprocate radially therefrom, a flange inside the casing engaging the inner ends of the arms, said flange having a circular and a longitudinal movement, a tubular projection on the flange extending through the top of the casing, a slide-bar in the tubular portion, a lever pivoted to the slide, a latch on the free end of the lever, a lug on the casing with which the latch engages, a pair of tumblers within the tubular portion to lock the tubular portion, and a spring to return the flange to its locked position.

4. A manhole-cover comprising a casing, arms adapted to reciprocate in and out of the casing, a flange pivoted to the inner ends of the arms, a tubular structure extending through the top of the casing, a lug on the casing, a longitudinally-moving latch on the flange to engage either side of the lug, means for moving the latch to release it from the lug and locking means to prevent longitudinal movement of the latch.

5. A manhole-cover comprising a casing, arms adapted to reciprocate in and out of the casing, a flange pivoted to the inner ends of the arms, a tubular structure extending through the top of the casing, a lug on the casing, a latch capable of longitudinal movement arranged on the flange to engage either side of the lug, means for normally holding the latch in engagement with the lug on the casing, means for moving the latch to release it from the lug, and means for locking the latch against longitudinal movement.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of May, 1906.

BENJAMIN T. LETTS.

Witnesses:
E. A. PELL,
WM. H. CAMFIELD.