

W. S. QUIGLEY.
MANHOLE COVER FASTENING.
APPLICATION FILED MAR. 25, 1915.

1,165,804.

Patented Dec. 28, 1915.

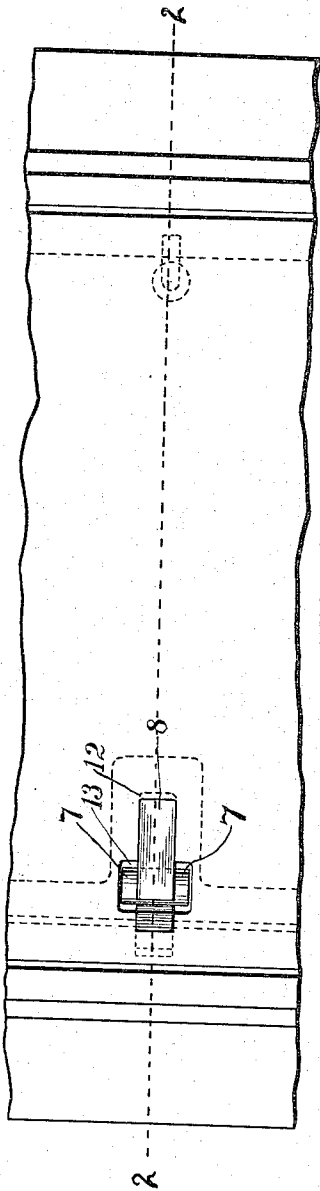


Fig. 1.

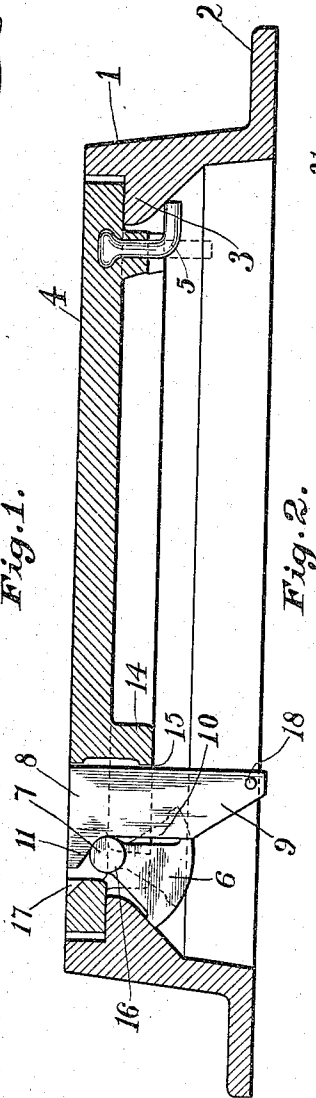


Fig. 2.

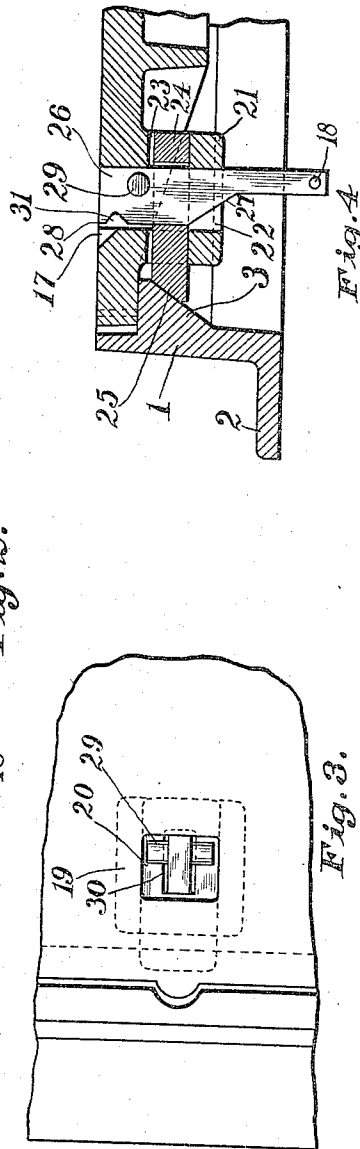


Fig. 3.

Fig. 4.

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MANHOLE-COVER FASTENING.

1,165,804.

Specification of Letters Patent.

Patented Dec. 28, 1915.

Application filed March 25, 1915. Serial No. 16,965.

To all whom it may concern:

Be it known that I, WIRT S. QUIGLEY, a citizen of the United States of America, residing at Springfield, county of Hampden, State of Massachusetts, have invented certain new and useful Improvements in Manhole-Cover Fastenings, of which the following is a specification.

My invention relates to locks for manhole and other covers and is designed to produce a simple, but secure fastening which can be easily operated without employing a key or special tool, does not require accurate fitting of parts, and produces no excrescence on the upper surface of the cover. The lock proper consists of but two parts, an engaging member or latch and a keeper therefor.

The best form of apparatus at present known to me embodying my invention, and one modification thereof, are shown in the accompanying sheet of drawings in which:

Figure 1 is a plan view of a portion of manhole frame and cover therefor, with my invention applied thereto. Fig. 2 is a vertical section on line 2—2 of Fig. 1, the latch and keeper being shown in full. Fig. 3 is a similar plan view of a modification and Fig. 4 is a vertical section on line 4—4 of Fig. 3.

Throughout the drawings like reference characters indicate like parts.

1, is a portion of the frame, of square, or other form, adapted to be set in the pavement around the pipe or opening extending down to the sewer or other subterranean structure. This frame has the outer flange 2, and the inner flange or beveled shoulder 3. On the upper surface of flange 3, rests the cover 4, which is provided at one side with one or more sprags 5, formed of malleable metal pins cast in the cover 4. These project downwardly far enough so that when bent over, as shown in Fig. 2, by a hammer blow or other force, the projecting end of the sprag will engage the under side of flange 3, and prevent lifting of that edge of the cover. Near the other edge of the cover, opposite the sprag shown, is a locking device. In the preferred form shown in Figs. 1 and 2, there is a latch sector 6, provided at its upper end with laterally extending pivot pins 7, which are journaled in bearings 16, in the upper face of boss 14, cast on the under surface of the cover. This boss has a slot 15, down through which the sector 6, and the keeper 8, project.

The cover proper has a slot over the boss, the narrow part 12, of which is an upward extension of slot 15, while its wider part 13, leaves the journal bearings 16, exposed so that when the latch sector is dropped down through slot 15, the pivot pins 7, may drop into these bearings. These slots extend at right angles to the adjacent edge of the cover. The keeper 8, is a flat piece of metal having one edge straight (the right edge, as shown in the drawings) and the other composed of the lower beveled face 9, the medial straight face 10, and the upper beveled face 11. Preferably a beveled notch 17 is formed in cover, 4, in line with the narrow portion 12, of the slot before described. 18, is a small cross pin in the lower end of the keeper.

The operation of this form of device is as follows: The cover 4, usually comes from the shop with sprag 5, straight. This is bent on the job so as to hook under the flange 3. In assembling the lock the latch sector 6, is dropped into its bearings 16, hanging in the position shown in dotted lines in Fig. 2. The keeper 8, is then shoved down through slots 12, and 15, in which it fits closely, and lower cross pin 18, is inserted. As the keeper is forced farther down the lower, beveled face 9, forces the pivoted latch sector 6, over to the left into the position shown in full lines, *i. e.*, into engagement with the under side of flange 3, and the medial straight face 10, on the keeper then coming into action, locks the sector in such position of engagement with the flange 3. The cover is thereby securely fastened in closed position. The upper beveled face 11, comes to a bearing on the upper end of latch sector 6, thus holding the keeper in position such that its upper end is in the plane of the upper surface of the cover 4, and nearly closes the opening to the slot 12—13. If any force tends to lift the manhole cover it is resisted by the outwardly swung sector 6, and sprag 5, both wedging under flange 3. When the manhole is to be opened a pinch bar, lever, or other suitable tool is slid through notch 17, under upper beveled face 11, of keeper 8, and the keeper is pried upward far enough so that its projecting head can be grasped and the keeper withdrawn farther so that the lower, beveled face 9, will come behind the sector 6, and permit it to swing back-

ward into the position shown in dotted lines, *i. e.*, out of engagement with flange 3. The retaining cross pin 18, (inserted after the parts have been assembled) striking under boss 14, prevents any complete withdrawal of the keeper and disassembling of the parts.

In the modification shown in Figs. 3 and 4, the manhole cover 4, has a wider rectangular opening 20, cast in it, while the under boss 21, has a vertical slot 22, and a horizontal slot 23. In the latter is mounted a latch bolt 24, which has a beveled end 25, for engaging the beveled shoulder or flange 3, on the frame. This latch bolt 24, is slotted at 19, in line with slot 22, when the latch bolt is in locking position, as shown in Fig. 4. The keeper 26, fits closely in slots 19, and 22. It has a reduced lower end, connected with the straight face 28, of its full body, by beveled face 27. In the upper end of the keeper 26, is a cross pin 29, and in its lower end a cross pin 18. The operation is similar in principle to that of the form shown in Figs. 1 and 2 except that the horizontal swinging motion of the locking sector 6, becomes the horizontal sliding motion of a lock bolt or latch 24. When the cover is to be unlocked the pinch bar or other pointed tool is inserted under pin 29, and the keeper 26, is pried up until the lower, reduced portion below beveled face 27, permits the latch 24, to be forced back by action of flange 3, on its beveled end 25, as the cover is pulled up. On the other hand, when the cover is replaced, the latch 24, is first withdrawn, the keeper 26, being raised until the cover settles into position. Then any downward pressure as of the operator's foot, will force down the keeper and drive the latch outward into engagement with flange 3, as shown in Fig. 4.

If it is desired to take the lock apart to replace any elements, or for other purposes, this can be easily done after knocking out pin 18.

The advantages of my invention comprise its simplicity and cheapness, only two elements being employed, its positiveness and ease of action, and the facility of replacement and adjustment of parts.

Various changes could be made in the shape and proportions of parts and the manner of mounting them in the cover, so long as their general relation and principle of operation, as above described be preserved.

Having described my invention, I claim:

1. In a manhole cover fastening, the combination with the manhole frame and cover, provided with a vertically extending slot, set therein, of a horizontally movable latch set in the cover and adapted to engage the frame when in operative position, and a vertically movable keeper mounted in the slot

in the cover for moving said latch into, and holding it in, locking position, said keeper having a lower beveled face and a medial vertical face adapted to successively engage the latch for the purposes above recited.

2. In a manhole cover fastening, the combination with the manhole frame and cover, provided with a vertically extending slot, set therein, of a horizontally movable latch set in the cover and adapted to engage the frame when in operative position, and a vertically movable keeper mounted in the slot in the cover for moving said latch into, and holding it in, locking position, said keeper having a lower beveled face and a medial vertical face adapted to successively engage the latch for the purposes above recited, and projecting means near its upper end to facilitate its withdrawal in an upward direction.

3. In a manhole cover fastening, the combination with the manhole frame and cover, provided with a vertically extending slot, set therein, of a horizontally movable latch set in the cover and adapted to engage the frame when in operative position, and a vertically movable keeper mounted in the slot in the cover for moving said latch into, and holding it in, locking position, said keeper having a lower beveled face and a medial vertical face adapted to successively engage the latch for the purposes above recited, and a retaining pin set in its lower end.

4. In a manhole cover fastening, the combination with the manhole frame and cover set therein of a downwardly extending latch pivoted in the cover and adapted to engage the frame when swung outwardly and a vertically sliding keeper mounted in the cover behind the latch, said keeper having a lower beveled face and a medial vertical face adapted to successively engage the rear of the pivoted latch so as to first swing the latch outwardly and thereafter lock it in the position so assumed.

5. In a manhole cover fastening, the combination with the manhole frame and cover set therein of a downwardly extending latch pivoted in the cover and adapted to engage the frame when swung outwardly and a vertically sliding keeper mounted in the cover behind the latch, having an upper beveled face adapted to rest on the upper end of the pivoted latch when the keeper is in its lowermost position.

6. A cover for manhole and similar openings having a slot located near one edge, and at right angles thereto, which slot is laterally recessed at the end nearest the edge of the cover, combined with a downwardly extending locking sector pivoted in said recessed portion, and a vertically movable keeper located in the slot behind said sector.

7. A cover for manhole and similar openings having a slot located near one edge, and at right angles thereto, which slot is

laterally recessed at the end nearest the edge of the cover, combined with a downwardly extending locking sector pivoted in said recessed portion, and a vertically movable 5 keeper located in the slot behind said sector, said keeper having a lower beveled face, and a medial vertical face, consecutively engaging the rear of the locking sector.

8. A cover for manhole and similar openings having a slot located near one edge, and 10 at right angles thereto, which slot is later-

ally recessed at the end nearest the edge of the cover, combined with a downwardly extending locking sector pivoted in said recessed portion, and a vertically movable 15 keeper located in the slot behind said sector, said keeper having a lower beveled face, consecutively engaging the rear of the locking sector, together with an upper beveled face engaging the upper end of the sector 20 when the keeper is in its lowermost position.

WIRT S. QUIGLEY.

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