J. McKEON.

MANHOLE COVER.

APPLICATION FILED MAR. 1, 1913.

1,102,422. Patented July 7, 1914.

Fig. 1.

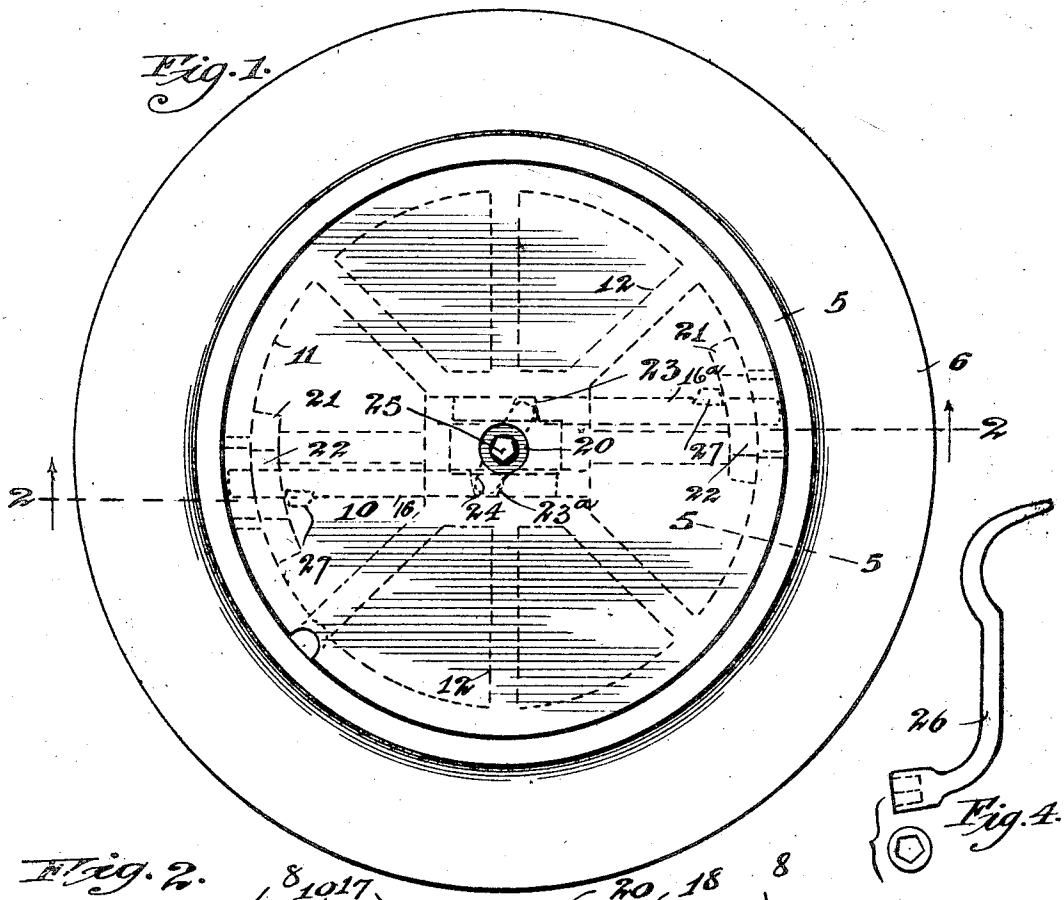


Fig. 4.

Fig. 2.

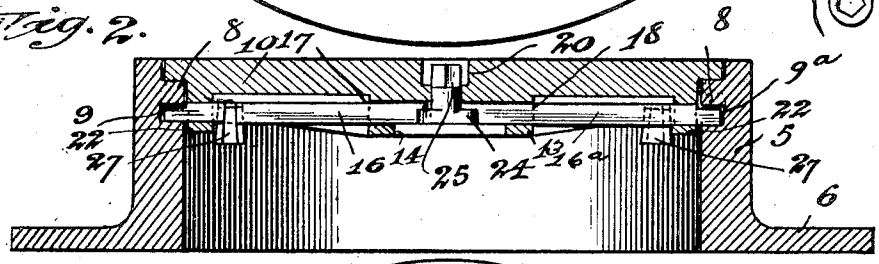
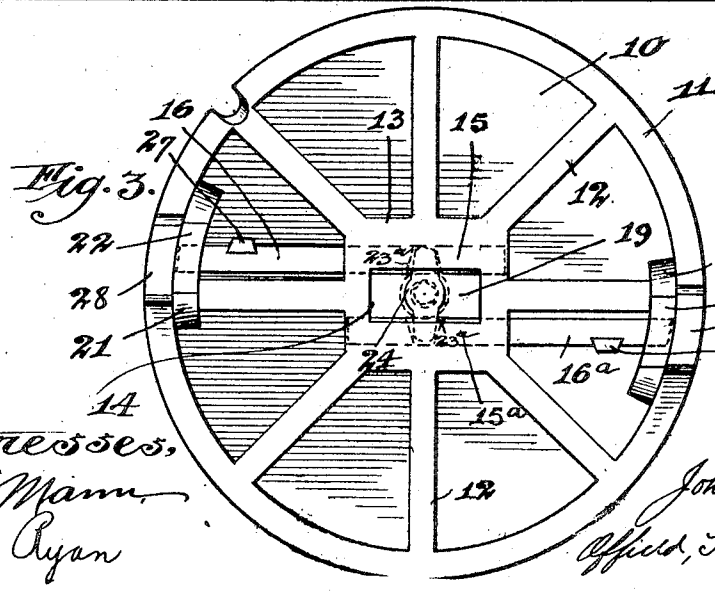


Fig. 3.



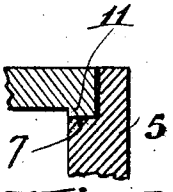


Fig. 5.

Witnesses,
S. D. Mann
S. M. Ryan

Inventor,
John McKeon
Offield, Towle, Graves & Offield.
Attys.

UNITED STATES PATENT OFFICE.

JOHN McKEON, OF CHICAGO, ILLINOIS.

MANHOLE-COVER.

1,102,422. Specification of Letters Patent. Patented July 7, 1914.

Application filed March 1, 1913. Serial No. 751,424.

To all whom it may concern:

Be it known that I, JOHN McKEON, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Manhole-Covers, of which the following is a specification.

Man-hole covers generally consist of a base ring in the form of a casting that is embedded in various kinds of material and which is provided with a cover that lies flush with the top surfaces of the base and street or sidewalk in which the base is embedded. These man-hole covers are usually in exposed places and are subject to heavy traffic. It is therefore highly desirable to provide some form of locking means between the cover and the ring so as to prevent the cover from becoming accidentally displaced. Furthermore, man-hole covers are used in large numbers and it is, therefore, highly important that they be produced most economically.

The primary object of my invention, therefore, is to so form the base that it may be economically molded or cast and to form a cover provided with a locking mechanism so simple that the parts thereof may be all molded or cast and without the necessity of expensive machine work upon such castings to make the various parts accurate.

To these ends I have designed a structure that is simple and economical to manufacture and which will prevent the cover from being accidentally displaced.

In the accompanying drawing I have shown the preferred form of my device and in which drawing—

Figure 1 is a top plan view of my complete man-hole cover; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a bottom plan view of the cover; Fig. 4 is a detail view of the wrench for operating the locking mechanism. Fig. 5 is a section on the line 5—5 of Fig. 1.

Referring now more particularly to the drawing, the base or ring 5 is provided with an integral flange 6 and an annular shoulder 7 is formed on the inner side of the base upon which the cover is designed to rest. Stop blocks 8 are integrally formed with the base and project slightly above the upper surface of the shoulder 7 and beneath these stop blocks recesses 9 and 9ª are formed to receive the ends of the locking bars which will be hereinafter described. The base is preferably annular in cross-section and it is to be noted that the entire structure is so designed that it may be cast or molded very simply.

The cover 10 consists of a disk-like section of metal that is preferably cast or molded, the diameter of which is substantially the same as the internal diameter of the base at its top. The cover is provided with an annular flange 11 and integrally formed with the cover are a plurality of strengthening ribs 12 terminating at their inner ends in a guide box 13 which is formed with an opening 14, but the construction of the box is such that the width of the opening 14 is shorter than the width of the box. The box is divided into two guide-ways 15 and 15ª in which the locking bars 16 and 16ª slide. The box is provided with an opening 17 at one end and an opening 18 at its other end through which the locking bars 16 and 16ª, respectively, slide. A guide block 19 is formed integral on the under side of the cover and in line with the opening 14 and an opening 20 is formed centrally of the cover and extends through the cover and guide block 19. The locking bars are guided at their outer ends by the guides 21, which are formed with suitable apertures 22 through which the bars 16 and 16ª slide.

The locking bars are provided with suitable recesses 23 and 23ª formed on one of the sides of each bar to receive the ends of a lever 24, said lever being provided with a hexagonal stem 25 which projects through the opening 20, but terminates short of the top surface of the cover. The opening 20 is sufficiently cut away on the top surface of the cover to provide clearance for the wrench 26. To prevent the locking bars from becoming accidentally displaced the pins 27 are secured thereto to prevent the locking bars from sliding through the blocks 21. The flange 11 on the cover 10 is cut away at two points as shown at 28 so as to allow the flange 11 to rest upon the shoulder 7 and at the same time the shoulders 8 prevent the rotation of the cover relative to the base, since they extend into the cut away portions 28.

It will be seen from the foregoing description that the base is of such a simple construction that it may be easily cast or molded and that the cover with the integral box for receiving the locking bars may be also readily cast. The locking bars themselves,

as well as the lever, are intended to be also cast and the parts are assembled as follows: The locking bars are slid through the guides 21 and through the end openings 17 and 18 into the guide-ways 15 and 15ª with the recesses 23 and 23ª in the locking bars lying beneath the under surface of the box 13. The lever is then passed through the opening 14 with its long axis lying parallel to the long axis of the guide block 19 and is then turned at a slight angle so that the ends of the lever will partially enter the recesses in the locking bars. By then moving the locking bars both inwardly the lever will be moved up on its pivot to a position substantially transverse to the long axis of the opening 14, whereby the ends of the lever will be confined by the walls of the box and by securing pins 27 to each locking bar the outward movement of the locking bars is limited by the pins, thereby preventing the lever from being turned upon its pivot sufficiently far to again assume a position parallel to the long axis of the guide block 19. The locking bars may thereafter be actuated by a key such as shown in Fig. 4 engaging the nut end of the stem on the lever so as to move the outer edge of the locking bars into the recesses 9 and 9ª and to withdraw the locking bars from said recesses for the purpose of locking and unlocking the cover to the base.

Having now described my invention, I claim:

1. In a man-hole cover structure, the combination with a base forming a cover seat, a cover resting on said seat and having a central opening therethrough, a box-like structure cast on the cover at the center thereof, locking bars slidable at their inner ends radially through said box structure to carry their outer ends toward or away from said base, said base having notches for receiving the outer ends of said bars, the opposite sides of the inner ends of said bars having notches, a plate resting in said box structure with its ends engaging in said bar notches, and a polygonally ended stem cast integral with said plate and extending therefrom through said cover opening.

2. In a man-hole cover structure, the combination with a base comprising a vertical base ring forming a cover seat, a cover resting on said seat and having a central opening therethrough, a box-like structure cast integral with the cover on the lower side thereof, locking bars slidable at their inner ends through said box-like structure at the sides thereof, said base having openings for receiving the outer ends of the bars and the opposite sides of the inner ends of the bars having notches, an actuating key for the bars comprising a plate and a stem integral therewith, said box-like structure having a longitudinal slot in its base between the locking bars into which the key plate may be inserted and then turned into position transverse of the box structure to engage in the notches of the locking bars, the key stem extending through the cover opening, and projections on the outer ends of said bars for limiting the outward movement thereof to prevent turning of the key plate into parallelism with the box structure slot thereby to prevent escape of the key.

3. In a man-hole cover structure, the combination with an annular base having a cover seat, a cover resting on said seat, a box-like extension from the lower face of said cover at the center thereof, guide bars slidable through said box extension at the sides thereof, said base having slots for receiving the ends of said bars, the inner ends of the bars having notches, a key in said box extension engaging with its ends in said notches, said cover having an opening therethrough, a stem extending upwardly from said key through said opening having a polygonal end whereby a wrench may be applied to effect turning of the stem and key and thereby radial shifting of the locking bars, there being a longitudinal opening through the floor of the box extension of less width than the length of said key but of sufficient length to allow insertion of the key into the box extension, said key after insertion extending substantially at right angles with said entrance opening and locking bars.

4. The combination, with the base having recesses, of a cover to rest on said base, a box formed integral with said cover having a side opening and two end openings, a plurality of integral strengthening ribs extending from substantially the periphery of said cover to said box, locking bars slidably mounted in said box at their inner ends, guide blocks integrally formed on said cover through which said locking bars slide at their outer ends, an oblong opening in one side of said box, recesses formed in said locking bars near their inner ends, a lever of less length than the opening in said box but greater in length than the width of said box and the ends of which lever are adapted to enter the recesses in said locking bars and means for actuating said lever, substantially as described.

JOHN McKEON.

Witnesses:
JAMES R. OFFIELD,
SADIE M. RYAN.