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MANHOLE STRUCTURE

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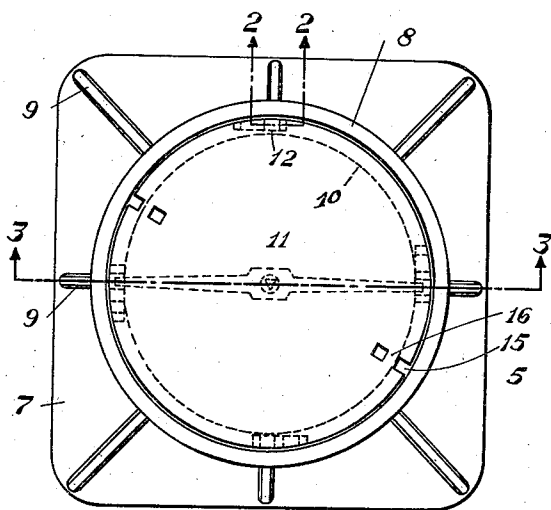


Fig. 1

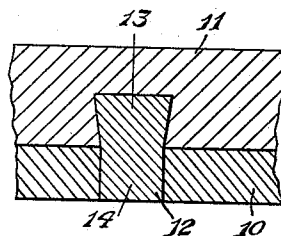


Fig. 2

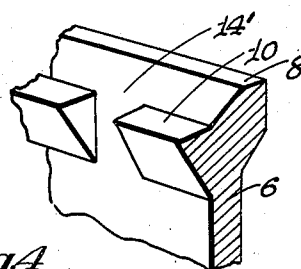


Fig.4

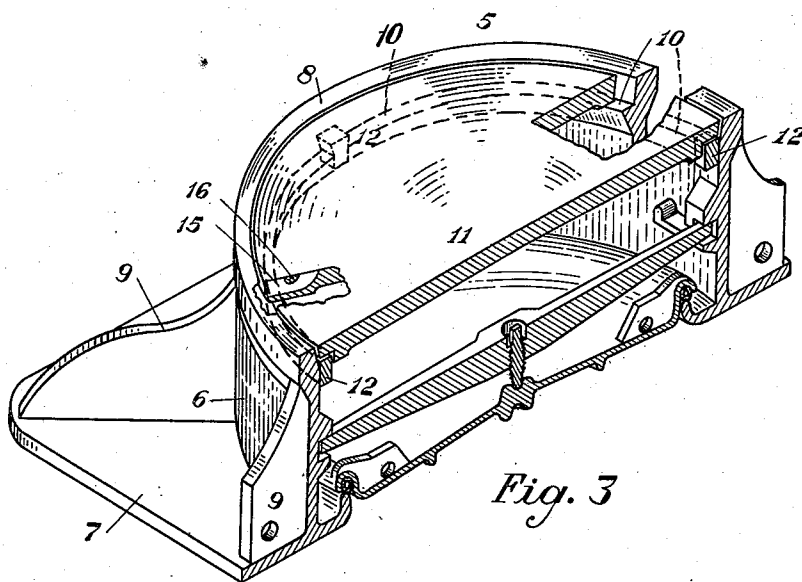


Fig. 3

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MANHOLE STRUCTURE

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1 Claim. (Cl. 94—34)

This invention relates to manholes through which access may be had to underground conduit systems and the like, and more particularly to covers for such manholes.

Vehicular traffic passing over manhole castings in the streets and highways produce a movement on the outer cover of a manhole which causes an accelerated wear between the cover and its seat in the frame. As this wear continues the extent of movement of the cover in the frame increases and the noise made by the cover as it strikes the rim correspondingly increases. This traffic also produces rotative movement and a rocking movement of the cover which accelerates the wear thereon and increases the noise.

Accordingly it is one of the objects of this invention to provide a manhole structure in which the rotation and rocking movement of the manhole cover is substantially prevented and noise is consequently practically obviated.

Another object is to provide improved means for handling manhole covers in their removal and replacement on the frames.

These and further objects will be apparent from the following description, when considered in connection with the accompanying drawing in which one embodiment of the invention is illustrated.

Referring to the drawing,

Figure 1 is a plan view of the improved manhole.

Fig. 2 is a fragmentary section taken on the line 2—2 of Fig. 1,

Fig. 3 is a perspective view showing a section of the manhole structure taken on the line 3—3 of Fig. 1, and

Fig. 4 is a broken away section in perspective showing an opening in the ledge of the manhole frame.

In the drawing the reference character 5 designates a casting of suitable metal forming a manhole frame which is set in the ground in such manner that its top surface lies substantially level therewith. The frame 5 includes a cylindrical wall 6 on the bottom of which a flange 7 is provided. A second flange 8 is formed about the upper portion of the frame and reinforcing ribs 9, which are radially disposed about the outer surface of the wall 6, extend between the upper and lower flanges. The flange 8 is shown as being of circular formation, and an annular ledge or shoulder 10 is provided about the inner surface of this flange. This shoulder or ledge forms a seat for a top or outer circular cover 11.

Removable keys 12 are provided for the pur-

pose of preventing rotation of the cover 11 from its seated position on the manhole frame 5. While four of these keys are shown in the drawing for the purpose of illustration, it will be understood that this number may be varied as desired and three keys spaced 120 degrees apart have been found suitable. The upper or head portions 13 of these keys are of substantially tenon formation, while the lower portions 14 are of substantially rectangular formation. Corresponding cored slots 14' are provided about the perimeter and beneath the surface of the cover, and about the ledge or shoulder 10 of the frame for the respective reception of the upper and lower portions 13 and 14 of the keys. The keys are carried by the cover and are set in position in dove-tail slots which extend inwardly from the periphery of the cover. These slots are of such size as to require the keys to be inserted therein by hammer or pressure to make a force fit. The cored slots in the ledge 10 of the frame are of such size that the lower or rectangular portions 14 of the keys fit snugly therein.

The arrangement of the keys in the cover and their registration in the cored openings in the frame as just outlined will prevent rotation of the cover in the frame and will also offset any "jumping" tendency of the cover resulting from a deflection produced by a sudden load.

To lift the cover 11 from its locked position on the frame 5 cup-lift holes 15 are provided on diametrically opposite portions of the cover. These holes are formed in the upper surface of the cover and extend inwardly from its edge to form in effect radially extending slots. As the holes extend through the circumference of the cover, the vertical face of the seat at the edge of the cover is open. A bar or rod 16 forming a part of the upper surface of the cover extends across and above the slot at about its midpoint. A manhole hook of any suitable character is used to lift the cover. In this operation the hooked portion is applied to the slot and under the cross-piece 16 while the handle is applied to the flange 8. Prying action is thus simultaneously exerted on the cross-piece and flange and by pressing down on the hook it will "break" contact between the flange and cover so that the latter can be readily raised clear of the frame. When it is desired to replace the cover, it is set upon the frame and rotated upon the ledge or shoulder until the keys carried by the cover register in the cored openings in the frame and it is then dropped into position. The manhole hook is, of course, used in this latter operation.

While there is shown and described herein one preferred form of the invention by way of illustration, it is understood that it is not limited or confined to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the appended claim without departing from the spirit of the invention.

What is claimed is:

- 10 A manhole structure including a frame having an annular ledge spaced from the top of the frame and with cored openings at spaced intervals therein, a cover member seated on said ledge, and removable keys spaced at intervals around

the periphery of said cover, said keys comprising an upper portion having a flaring tenon inserted into correspondingly shaped openings in the lower peripheral edge of said cover and a lower lug portion of substantially rectangular formation depending therefrom and with its outer surface in alignment with the periphery of the cover, said keys so closely registering with the cover and with the cored openings in the ledge as to prevent rotation of the cover on the frame and offset any "jumping" tendency of the cover resulting from a deflection produced by a sudden load.

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