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LOCKING RISER RING FOR MANHOLE COVERS

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2 Claims. (Cl. 94—34)

The present invention relates to improvements in a locking riser ring for manhole covers, and it consists in the combination, construction, and arrangement of parts as hereinafter described and claimed.

It is necessary to resurface streets from time to time and a ring-shaped extension is mounted on the manhole casting in the street and has an annular portion projecting above the top of the casting to a height which will be equal to the thickness of the resurfacing layer of asphaltic concrete. The manhole casting has an annular shoulder for receiving and supporting the annular depending flange on the ring-shaped extension. Usually three screws are mounted in three angularly-spaced and radially-extending threaded bores provided in the annular depending flange and these screws are tightened against the inner annular wall surface of the ring-shaped extension that lies adjacent to the casting shoulder for holding the extension on to the casting.

This inner annular wall surface of the casting is slightly conical in shape and flares outwardly from the annular shoulder and upwardly. The ring-shaped extension has an annular recess in its top for receiving the manhole cover. The three screws are tightened in place and they will contact with the slightly conical wall of the manhole casting for securing the ring-shaped extension to the casting. This is the only connecting means between the extension and casting. The top of the resurfacing layer of asphaltic concrete lies flush with the top of the ring-shaped extension and with the top of the manhole cover that is supported by the extension. After the resurfacing layer has set, the street is opened to vehicular traffic.

If now a bus, truck or other vehicle travels over the top of the ring-shaped extension and over the top of the manhole cover, the vehicle wheels will first strike one side of the extension and cover and the weight of the vehicle will tend to depress both and tend to tilt the free opposite sides of the extension and cover upwardly. This upward tilt of the momentarily free portion of the ring-shaped extension will move the one or two screws in this portion, upwardly, and the screws will ride upon the outwardly flared conical wall of the casting. The screws will tend to remain in their raised position on the conical wall after the vehicle has passed over the cover and ring-shaped extension. Other vehicles in passing over the extension and cover will rock both of them and it will not be long until the extension ring and cover will be inclined with respect to the manhole casting and will leave an opening into the top of the casting. A serious accident could now take place should another vehicle in trying to pass over the cover have its front wheels drop into the partially uncovered opening in the manhole casting.

An object of my invention is to provide a locking riser ring for the manhole casting which will take the place of the ring-shaped extension and which has simple securing means that becomes embedded in the resurfacing layer of asphaltic concrete so that when the resurfacing layer hardens and is ready to support vehicular traffic, the embedded securing means will be so anchored to the resurfacing layer that it will prevent any movement between the locking riser ring and the manhole casting. The manhole cover cannot be tilted as vehicles pass over it and neither can the locking riser ring. The result is that the cover and ring cannot be rocked into a position for partially uncovering the manhole casting and no accidents can take place because of this.

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A further object of my invention is to provide a locking riser ring in which the securing means comprises outwardly extending and angularly-spaced integral lugs that become embedded in the resurfacing layer when the asphaltic concrete is applied onto the old street level. The subsequent setting of the asphaltic concrete will anchor the embedded lugs to the resurfacing layer and prevent any movement between the locking riser ring and the manhole casting.

A further object of my invention is to provide a locking riser ring which is simple in construction, can be cast as a single unit and which is durable and efficient for the purpose intended.

Other objects and advantages will appear as the specification continues. The novel features of the invention will be set forth in the appended claims.

Drawing

For a better understanding of my invention, reference should be made to the accompanying drawing, forming part of this specification, in which:

FIGURE 1 is a top plan view of the device with portions shown in section to illustrate how the lugs on the locking riser ring are embedded in the resurfacing layer.

FIGURE 2 is a transverse vertical section taken along the line 2—2 of FIGURE 1, and shows the locking riser ring being mounted on the manhole casting.

FIGURE 3 is an enlarged section of the dot-dashed circled portion 3 of FIGURE 2 and illustrates the locking riser ring seated on the top of the manhole casting.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the spirit thereof.

Detailed description

In carrying out my invention I make use of a standard manhole casting indicated generally at A in all three figures. The casting has a base flange 1, a vertical cylindrical portion 2 that is integral with the base flange, and an inner annular shoulder 3 disposed adjacent to the top of the cylindrical portion. An upwardly extending circular rim of flange 4 constitutes the outer wall for the shoulder 3. The casting A may be reinforced by radially-extending and spaced apart ribs 5 that are integral with the cylindrical portion 2 and lie between the rim 4 and the base 1.

The manhole casting A rests on the top of a brick-walled manhole indicated generally at B and is mounted in a concrete layer G which is the old street. The manhole may be cylindrical in shape as illustrated in FIGURE 2, or it may be rectangular or any other desired shape. The manhole B communicates with a street sewer pipe C. The parts thus far described are of standard construction and form no part of my invention except insofar as they cooperate with the parts now to be described.

I provide a locking riser ring indicated generally at D in FIGURES 1, 2 and 3. The top 4a of the rim 4 of the manhole casting A lies flush with the old street level 6 of the street G, see FIGURE 2. The riser ring has a lower cylindrical portion 7 that preferably has the same diameter as the cylindrical portion 2 of the manhole casting A so that the inner cylindrical surface 7a of the portion 7 lies flush with the inner cylindrical surface 2a of the portion 2 of the casting A. The riser ring D also has an upper cylindrical portion 8 that is integral with the cylindrical portion 7 and preferably has the same diameter as the cylindrical rim or flange 4 on the casting A. When the riser ring D is supported by the casting A, the cylindrical portion 7 will be disposed directly above the cylindrical portion 2 of the casting A, and the upstanding cylindrical portion 8 will be disposed directly above the rim 4 of the casting. The cylindrical portion 7 rests on

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the annular shoulder 3 of the casting A, and the cylindrical portion 7 of the riser ring D, rests on the top 4a of the rim 4.

The street repair foreman picks the riser ring D that has the cylindrical portion 8 of a height that equals the thickness of the resurfacing layer E to be applied to the street 6, see FIGURE 2. The height of the cylindrical portion 8 is the distance between the top 8a of the portion 8 and the downwardly facing shoulder 8b of the same portion. This shoulder 8b rests on the top 4a of the circular rim 4. The riser ring D has an annular groove 9 disposed adjacent to the top edge 8a for receiving a manhole cover F. The upper surface 10 of the cover lies flush with the top 8a of the upper cylindrical portion 8 in the riser ring D.

A novel locking means for the riser ring D consists of a plurality of outwardly extending lugs 11, that are integral with the cylindrical portion 8. The undersurfaces 11a of the lugs are spaced above the downwardly facing shoulder 8b and the upper surfaces 11b of the lugs are spaced below the top edge 8a. FIGURE 1 shows the lugs 11 as being angularly spaced from each other so as to provide spaces 12 between adjacent lugs. The riser ring D shown in this figure has seven lugs 11, although I do not wish to be confined to any particular number. It will be seen from the drawing that each lug 11 will be entirely embedded in the resurfacing layer E when the layer is applied to the street 6.

From the foregoing description of the various parts, it will be seen that the riser ring D when mounted on the annular shoulder 3 will project above the top edge 4a a distance equal to the thickness of the resurfacing layer E. The old street level 6 lies flush with the top 4a of the casting A. The layer E of asphaltic concrete is applied to the surface 6 of the old street. The cover F is mounted in the annular groove 9 of the riser ring during the applying of the resurfacing layer E. A steam roller, not shown, is used for pressing down the resurfacing layer E and some of the asphaltic concrete will be forced under the lugs 11 and into the spaces 12 provided between adjacent lugs. Also, some of the asphaltic concrete of the resurfacing layer E will cover the upper surfaces 11b of the lugs 11. It will therefore be seen that each lug is individually embedded on all surfaces within the layer E of asphaltic concrete. Therefore when this layer sets and hardens, the lugs 11 will securely lock the riser ring D into the layer E.

After the resurfacing layer E has set, vehicular traffic can move over the riser ring D and cover F and the ring is held against downward or upward movement with respect to the casting A, by the embedded lugs 11 that now are anchored in the resurfacing layer. If the ring D is

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held against relative movement with respect to the casting, then the cover F can not move under the weight of moving vehicles because the ring D supports the cover.

I claim:

1. The combination with a manhole casting having an inner annular groove disposed adjacent to the upper edge of the casting, said upper edge lying flush with the level of the street in which said casting is placed; of

(a) a locking riser ring having a depending annular flange received in the groove in said casting;

(b) said riser ring having a plurality of outwardly extending and spaced apart lugs, the upper surfaces of said lugs lying below the top of said riser ring and the lower surfaces of said lugs being spaced above the top of said casting;

(c) whereby said lugs would be embedded in a self-setting resurfacing layer of material covering the old street level that has its upper surface lying flush with the top of said riser ring so that the lugs will be completely embedded in said layer and will act as anchors between said riser ring and said layer for preventing any rotation of said ring on said casting.

2. An article of manufacture comprising

(a) a riser ring for mounting on a manhole casting; said riser ring having

(b) a lower cylindrical portion of a predetermined diameter;

(c) an upper cylindrical portion of a larger diameter with an annular upwardly facing inner groove being formed adjacent to the top of said upper cylindrical portion and adapted to receive a manhole cover;

(d) said riser ring having an annular downwardly facing outer shoulder provided between the top and bottom of said ring; and

(e) a plurality of outwardly extending lugs integral with said riser ring and being spaced from each other, the upper surfaces of said lugs lying below the top of said riser ring and the lower surfaces of said lugs being spaced above said outer annular downwardly facing shoulder.

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