

July 18, 1967

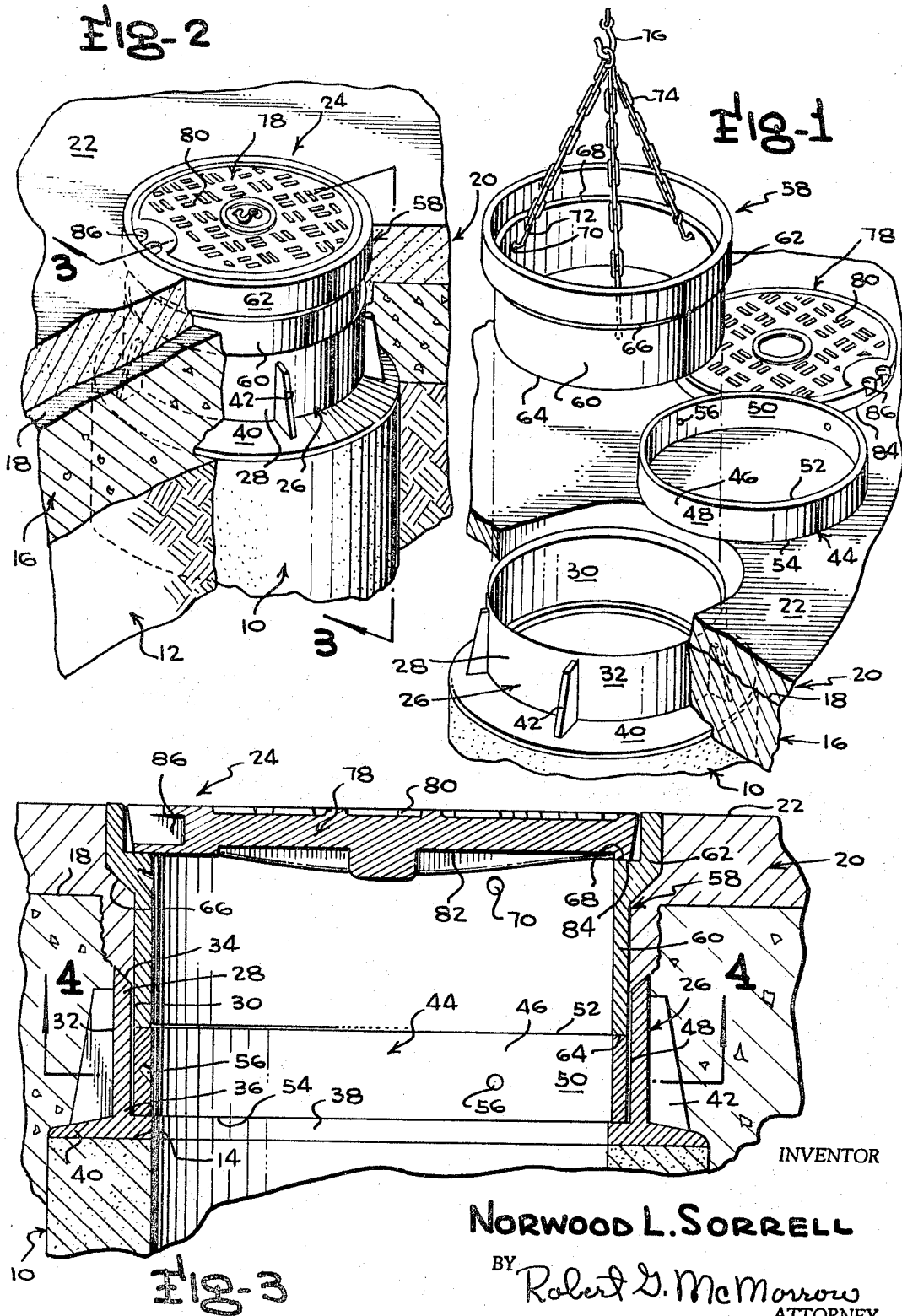
N. L. SORRELL

3,331,295

COVER ASSEMBLY

Filed Oct. 20, 1965

2 Sheets-Sheet 1



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Fig. 4

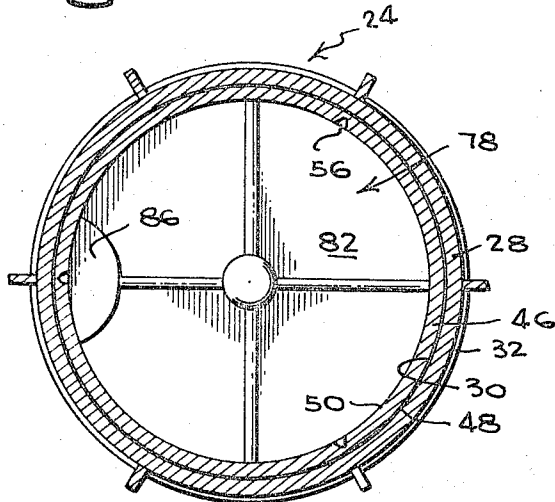


Fig. 5

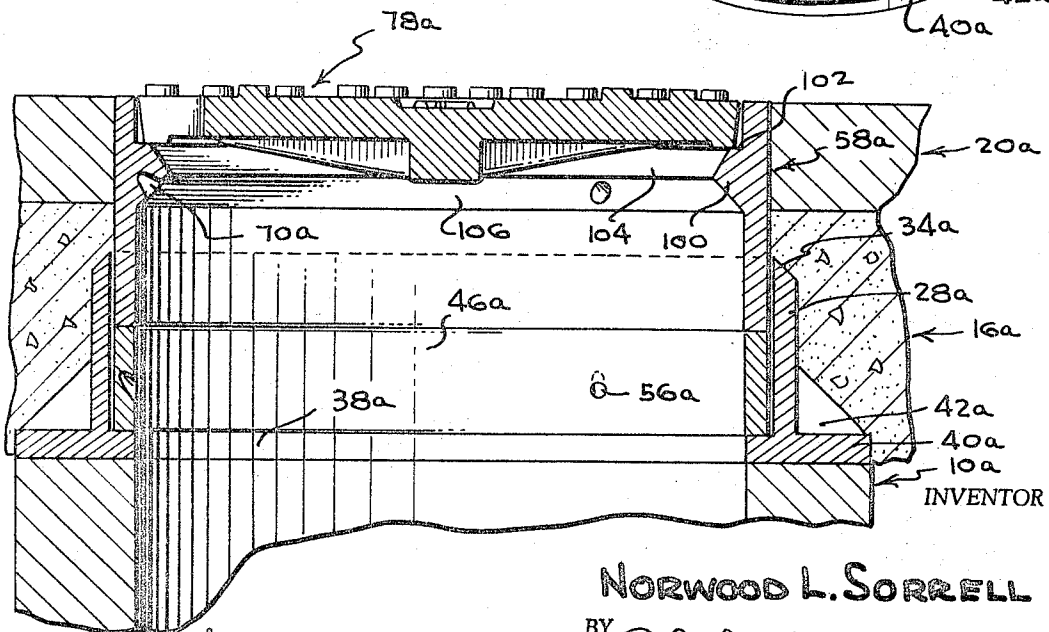
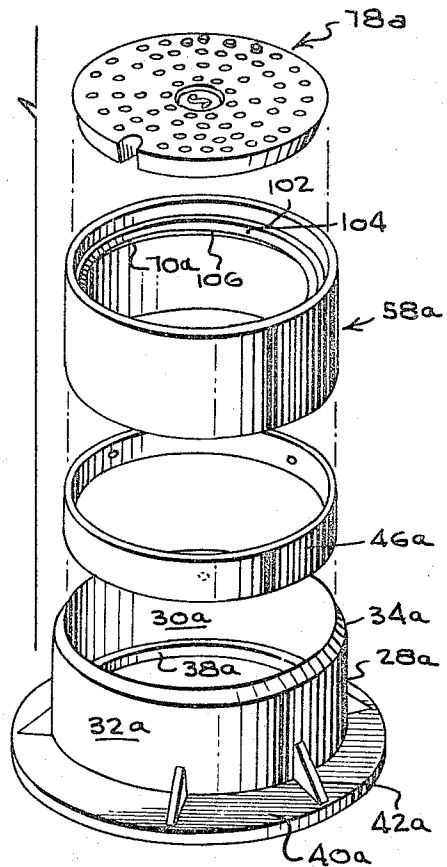


Fig. 6

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COVER ASSEMBLY

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 3 Claims. (Cl. 94—34)

ABSTRACT OF THE DISCLOSURE

A manhole or utility access cover assembly including a lid and support walls with interchangeable height variance rings interposed between the walls and the lid, and having lift means adopting portions of the wall for vertical lifting.

This invention pertains generally to improved cover assemblies, and more specifically, to covering assemblies of changeable height adaptable to be effectively raised from an original height to succeeding increased heights.

A general objective of the invention resides in the provision of a cover assembly for a manhole, meter box, or like street opening, the assembly including an access lid, and means for varying the height of the lid with respect to other portions of the assembly. In the construction of streets, sidewalks, and the like, it is necessary to provide access to various subterranean equipment. In conventional practice, such access is made available through cover assemblies comprising embedded walls with cover lids thereon, the cover lids being mounted in substantially flush relationship to the top surface of the adjacent paving. When streets or the like are thereafter re-surfaced, it is current practice to fully remove and re-position the existing covers in order to raise the cover lid to the desired flush relation to the new street level. In the prior art, various means have been proposed to permit raising of the level of such covers to the level of successive layers of paving without excavation, such as by stepped groove arrangements, but prior proposals have failed to find general acceptance. It is therefore an object of this invention to provide non-complex, relatively inexpensive means to permit raising of the level of cover lids for an access opening in paving. A related objective is to supply a means as aforesaid in which the gradient gradient of height increase is substantially without limit.

Yet another object of importance is to provide a cover assembly of the type hereinbefore described wherein a basic portion of the assembly is embedded in the adjacent paving and telescopically receives a second portion of changeable height. In this connection, the invention provides effective means to permit change in the positioning of the assembly with a minimum of labor and difficulty.

A further objective hereof is to provide a construction permitting salvage of certain components of existing cover assemblies.

Still another object resides in the provision of a system amenable to a wide variety of shapes of openings and styles of existing covers.

Other and further objects and advantages of the invention will become more apparent to those skilled in the art upon consideration of the following specification, when read in conjunction with the annexed drawings, in which:

FIGURE 1 is a disassembled perspective view of a first form of cover assembly constructed and assembled in accordance with the teachings of this invention;

FIGURE 2 is an assembled perspective view of the assembly of FIGURE 1, shown with paving broken away for illustration;

FIGURE 3 is an enlarged vertical cross sectional view taken substantially on line 3—3 of FIGURE 2, looking in the direction of the arrow;

FIGURE 4 is a detail sectional view of the line 4—4 of FIGURE 3, looking in the direction of the arrows;

FIGURE 5 is an exploded perspective view of a modified form of the invention; and

FIGURE 6 is an enlarged vertical cross sectional view of the form of the invention shown in FIGURE 5.

Referring to the drawings in more detail, the invention is therein shown in an exemplary form and in an environment of use which is also shown as an example only and not by way of limitation. This environment is that of a roadway or the like area in which is located a tubular manhole standard 10 extended through subterranean earth 12. The standard 10 has a top edge 14, and first layer of paving 16 of aggregate material overlies the earth about the edge 14. This layer of paving has an upper surface 18, which is initially the street surface, and an overlying layer 20 has been subsequently applied. The layer 20 has an exposed surface 22 comprising the street level following the overpaving. Thus, the environment of use comprises an aggregate ground covering structure with an opening therein above a device to which access is required.

A first form of cover assembly 24 hereof, as shown in FIGURES 1 through 4 of the drawings, comprises an embedded wall means 26. Means 26 includes an upstanding tubular wall 28 having inner and outer faces 30, 32, respectively, and upper and lower edges 34, 36. The upper edge 34 is inwardly tapered to provide a guide means for seating of elements placed within the wall 28, while the lower edge 36 is integrally joined to unitary inward and outward flanges 38 and 40 which project from the wall faces. As best shown in FIGURE 3, the flanges are supported on the top edge 14 of the standard 10, and a plurality of gusset plates 42 extend between the flange 40 and wall 28 and are embedded in the first layer 16 of paving.

For the selective height variance of the overall assembly 24, ring means 44 is supplied, and includes at least one annular ring 46, of any selected height. The particular height selected is dependent upon the thickness of the overlying layer 20 of paving, as appears in more detail below. Each ring 46 has proximal and distal surfaces 48, 50, and top and bottom edges 52, 54 respectively. The ring 46 is telescopically received within the wall 28 in closely spaced concentric relation thereto, and the bottom edge 54 (in the case where one ring is used) rests on and is supported by the inward flange 38. The entire assembly 24 is constructed of heavy material, such as cast metallic substances often of ferrous base, and hence, removability of the closely fitted rings 46 from the wall 28 requires a straight, rectilinear lift action. Means to accomplish such lift is provided by the invention and includes substantially equidistantly spaced lift points. The ring 46 has, as shown, at least three upwardly inclined openings 56 formed therein at substantially equidistantly spaced locations, opening on its distal surface. These openings receive pins of a lift system, described below, to permit lifting of the ring in non-tilted, rectilinear fashion substantially parallel to the wall 28. As implied above, as successive layers of paving are added to the layer 20, additional rings 46 may be supplied within the limits of the wall height or extensions thereof. Thus, following initial placement of the embedded wall portion 26 it is thereafter unnecessary to excavate such section in order to maintain the cover at its desired flush relation with street level.

The invention further comprises a lid support wall 58 including a straight section 60 and an enlarged upper portion 62. The straight section 60 has a base edge 64 rested on the top edge 52 of the ring 46, or alternatively

rested on a flange 38 before application of the additional paving and ring. The section 60 is of a diameter substantially equal to the diameter of the ring and is telescopically mounted within the wall 28 of the embedded portion of the assembly. The enlarged portion 62 is of increased diameter and has a sloping wall 66 corresponding in inclination to the inclination of the wall edge 34, and further has a stepped interior providing a support ledge 68.

Adjacent the ledge and within the enlarged portion 62, the wall 58 has inwardly opening, upwardly inclined lift openings 70 formed therein at spaced locations, similar to the ring openings 56 and for a like purpose. As shown in FIGURE 1, lift hooks 72 are engageable in these openings and have chains 74 or the like jointly connected to a hook 76 of a lift means such as a lift truck boom or the like (not shown).

The assembly is completed by a lid 78 having a top 80 and re-enforced base 82, the base including a rim 84 resting on the ledge 68 of the lid support wall. The lid additionally has lift means 86 at one side.

FIGURES 5 and 6 are illustrative of a slightly modified construction necessitated in some municipalities where specifications for the openings are different from those where the first described form of the invention is employed. In the second form of the invention, like reference characters are applied to similar elements, the letter "a" being appended thereto for distinction. It will be observed that the major variance in the modification resides in the uniform diameter of the lid support wall 58a as opposed to the enlarged upper end construction of the first form. In order to provide a seat for the lid 78a of the second form of the invention, the support wall 58a has an inner ledge member 100 having a top wall 102, an inclined side wall 104, and an angular base wall 106. As shown in FIGURE 6, the lift openings 70a for the support wall 58a open on the base wall 106.

The top edge 34a of the embedded wall 28a is outwardly inclined in this construction, and the top 78a is of somewhat altered form from a design standpoint.

Operation of the second form of the invention is as described above with respect to the first form of the invention.

It is a feature of each form of this invention that the lid support walls 58 and 58a and the lids 78 and 78a are adapted for fabrication from existing cover assemblies by suitable machining of the outer wall portions thereof, thereby permitting salvage of these rather costly articles.

Having described and illustrated two forms of the invention in some detail, it will be understood that these descriptions and illustrations are offered only by way of example, and that the invention is to be limited in scope solely by the appended claims.

What is claimed is:

1. A cover assembly for use in covering an outlet extended through pavement having a substructure and at

least one overlying layer with a top surface, the cover assembly comprising:

an annular embedded wall in the substructure including an uninterrupted upright wall of a given diameter, and including a continuous inward flange;

annular ring means, including at least one ring element, each ring element having a flat top and bottom edge, the bottom edge of one ring element resting on the inward flange of the wall about the full peripheral extent thereof;

each ring having radially spaced lift openings formed therein arranged to permit linear, vertical removal of such ring from the embedded wall means and to avoid deviation from said linear, vertical removal;

the ring means being substantially equal in height to the depth of the overlying layer, and being of a diameter less than the given diameter of the embedded wall;

the flange being of a thickness substantially equal to the thickness of the rings whereby when assembled, and uninterrupted opening is provided;

a removable lid support wall of annular, uninterrupted form, having a flat annular base edge seated on a top edge of the ring means and bearing against said top edge throughout its full peripheral extent;

the lid support wall having radially spaced opening means therein to permit, linear, vertical removal of said lid support wall from the embedded wall means and to avoid deviation from said linear, vertical removal;

the lid support wall including lid support means; and a lid seated on the lid support means, the lid having an outer surface substantially coplanar with the top surface of the overlying layer.

2. The invention of claim 1, wherein: the embedded wall includes an outer flange; and gusset plates extending between the wall and the outer flange.

3. The invention of claim 1, wherein: the opening means comprise upwardly inclined, equidistantly spaced groups of openings.

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