United States Patent [19]

Bowman

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[45] **Nov. 20, 1973**

[54] **ADJUSTABLE MANHOLE COVER SUPPORT**

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[73] Assignee: **National Utility Products Company**

[22] Filed: **Mar. 12, 1971**

[21] Appl. No.: **123,650**

[52] **U.S. Cl.** **404/26**

[51] **Int. Cl.** **E02d 29/14**

[58] **Field of Search** 94/34, 35

[56] **References Cited**

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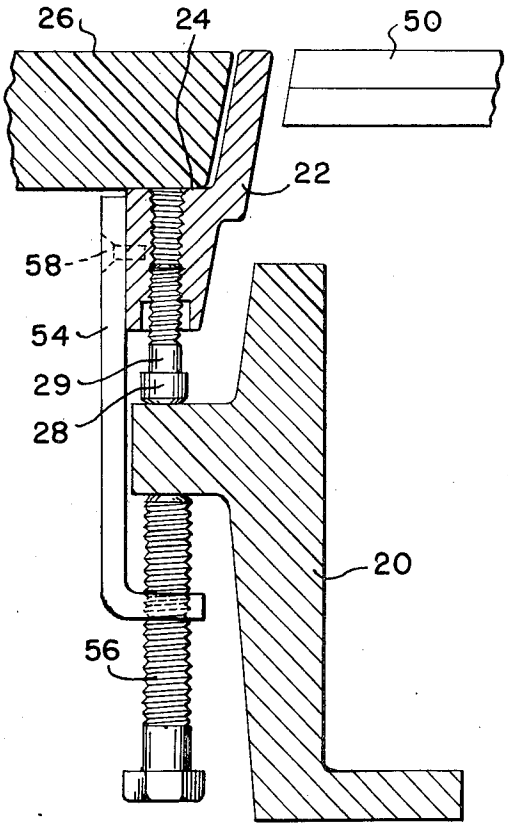
Primary Examiner—Nile C. Byers, Jr.

Attorney—Baldwin, Egan, Walling & Fetzer

[57] **ABSTRACT**

An adjustable manhole cover support including a peripheral frame adapted for placement in the opening of a manhole housing, and a peripheral manhole adjusting ring disposed on the frame. The ring has a peripheral inner seat for receiving the manhole cover. Adjustment means is provided between the frame and the ring to adjust the height therebetween and thus adjust the height of the manhole cover as may be needed when the roadway is resurfaced. The adjusting means may be set screws, stepped inserts or spacers contained in a U-bracket.

9 Claims, 12 Drawing Figures



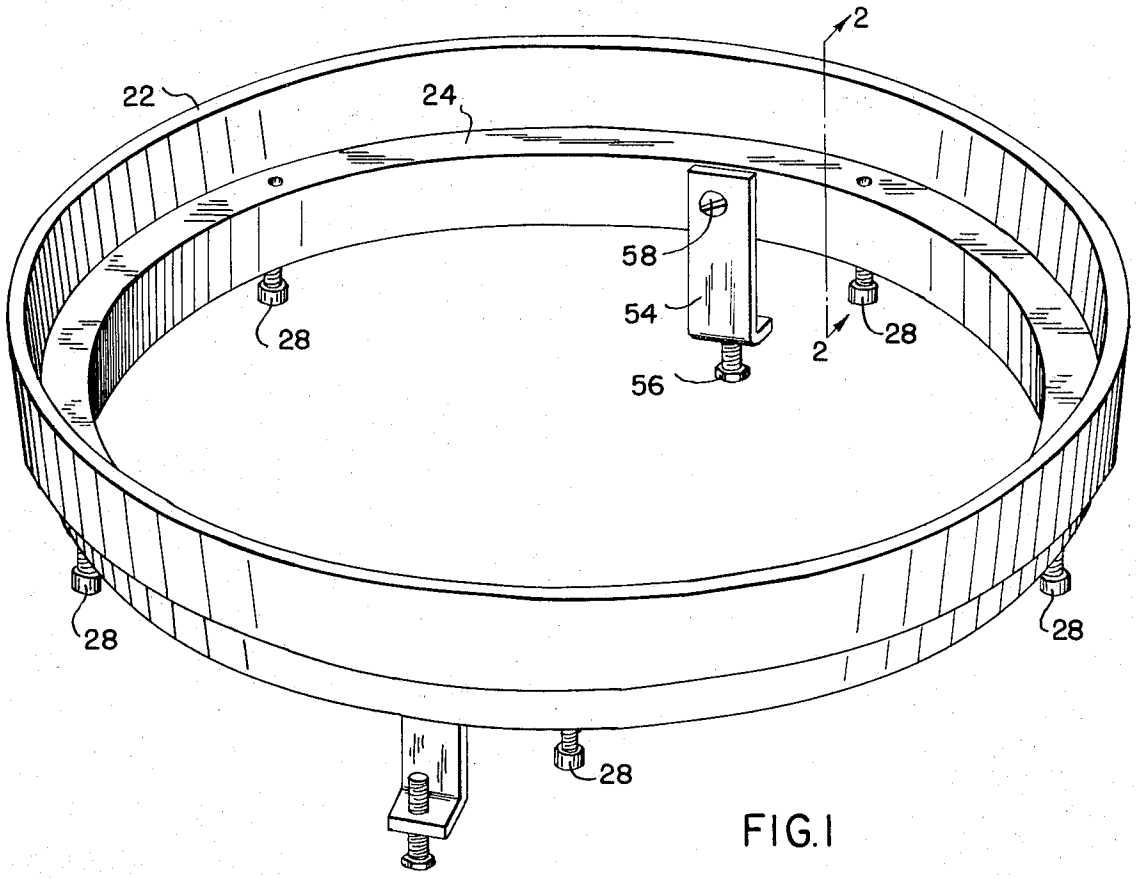


FIG.1

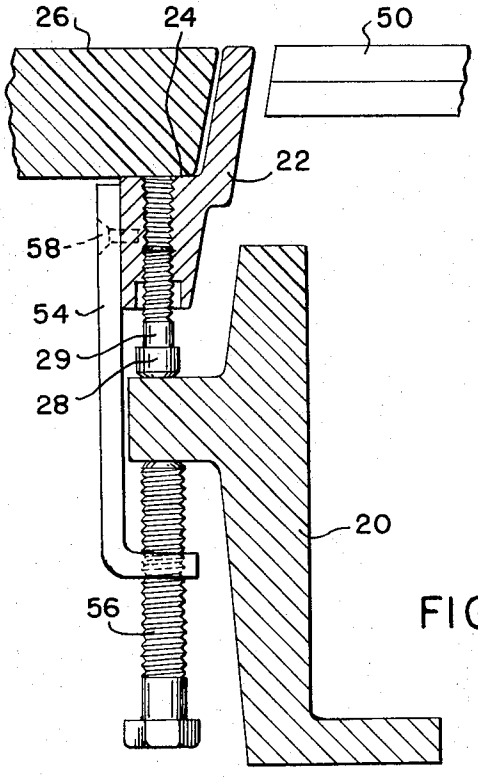


FIG.2

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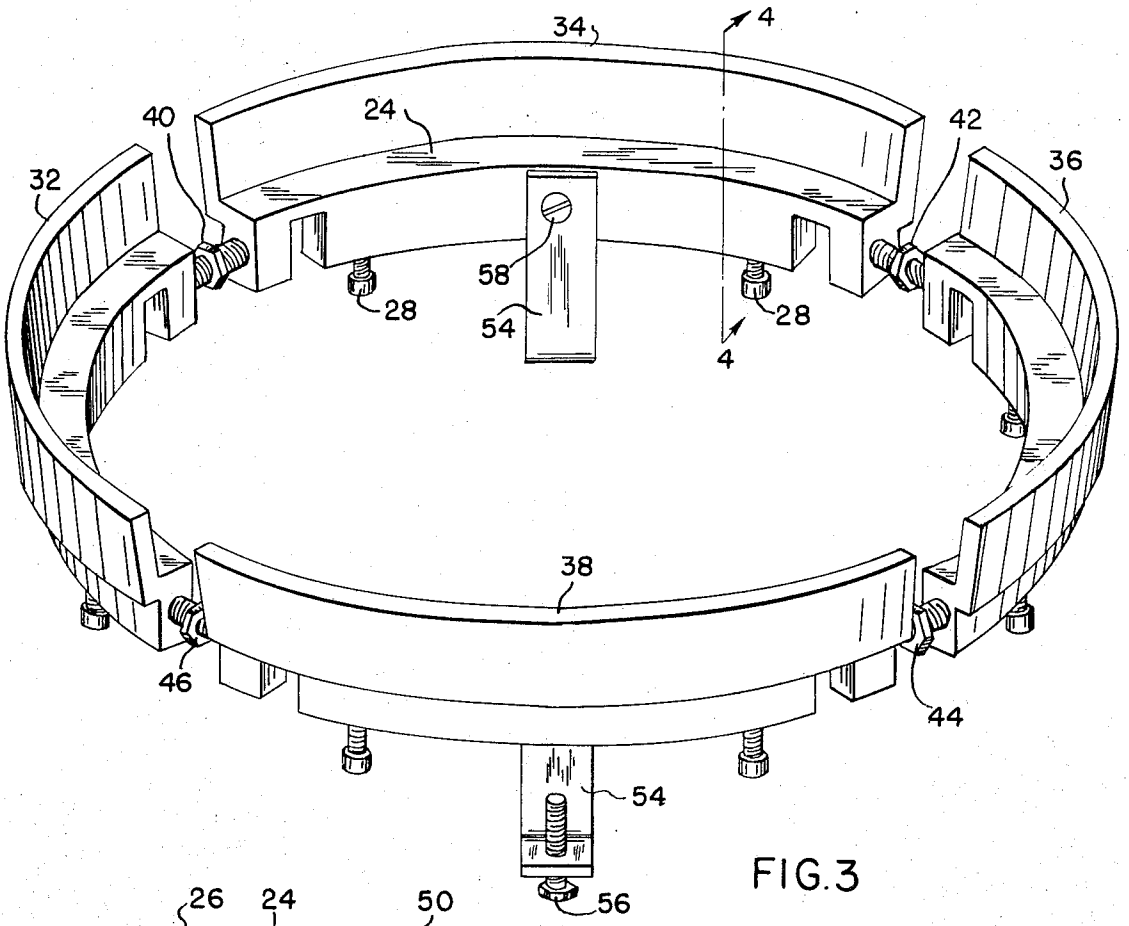


FIG. 3

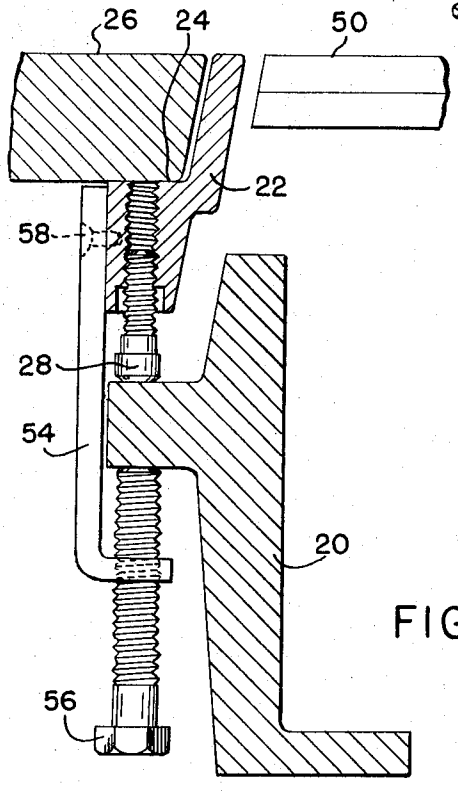


FIG. 4

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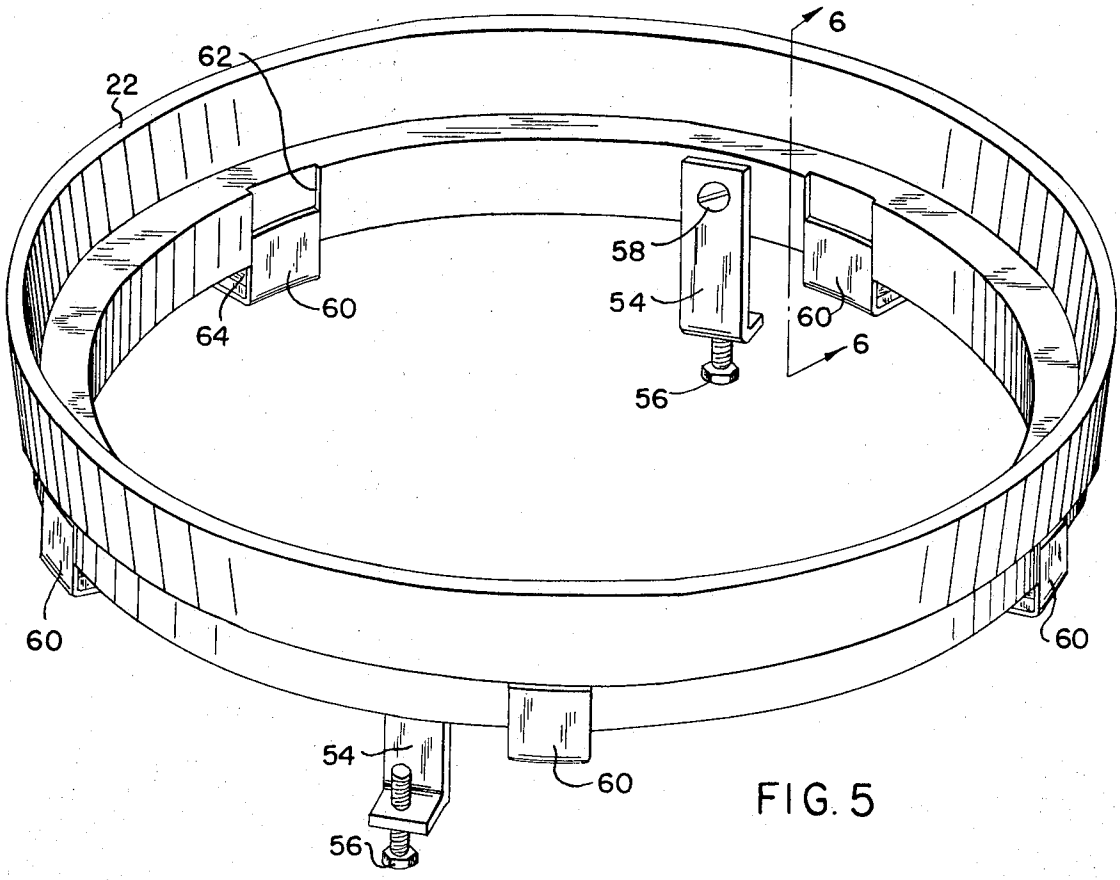


FIG. 5

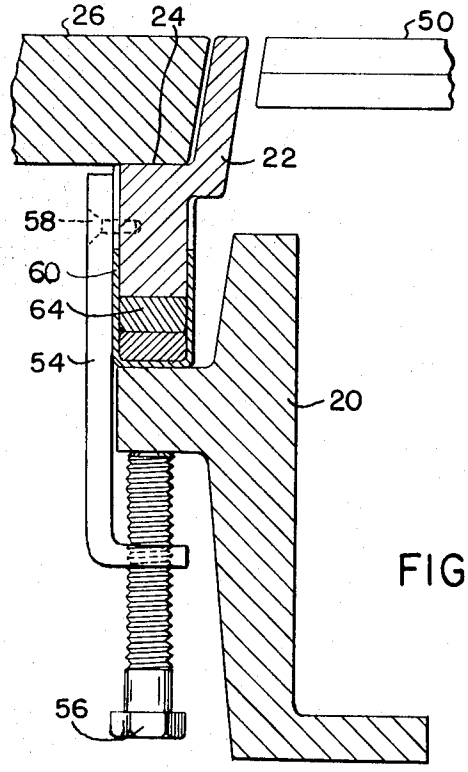


FIG. 6

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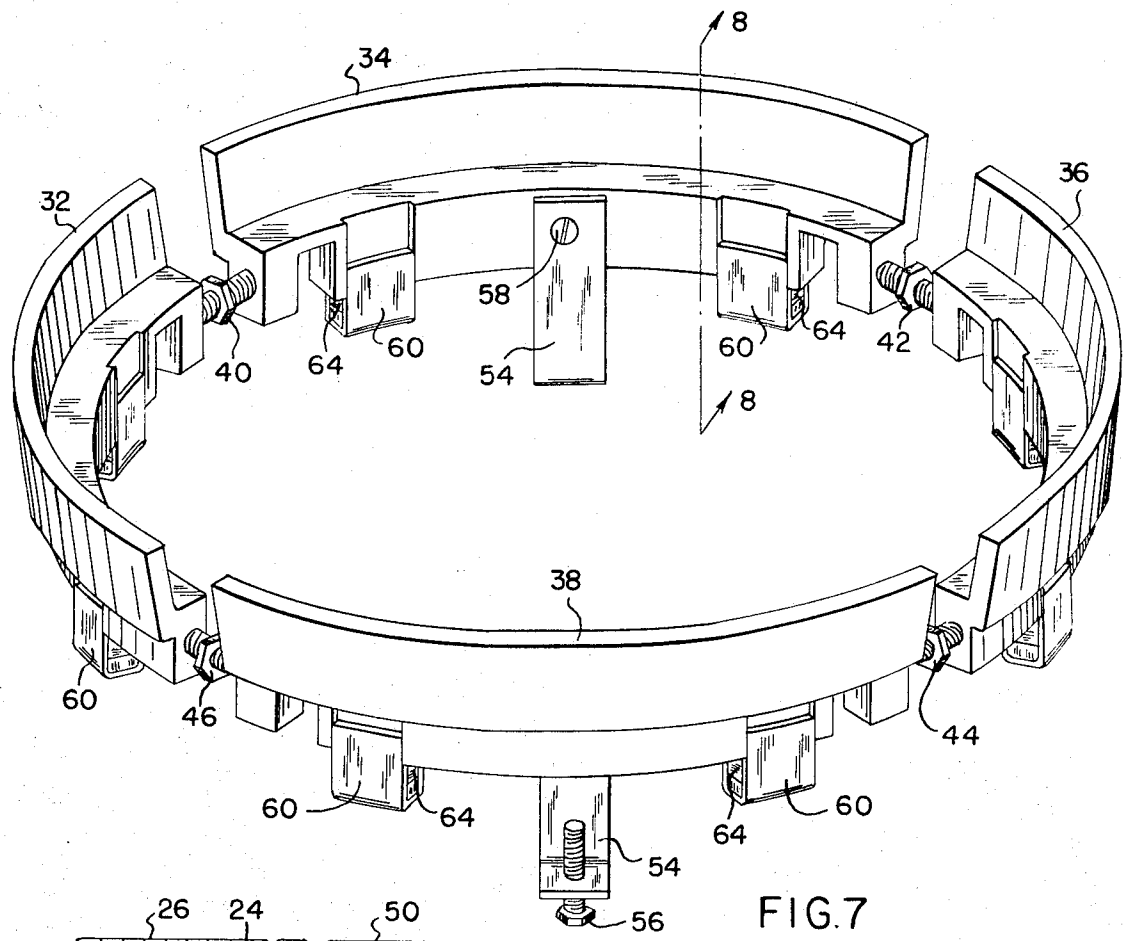


FIG.7

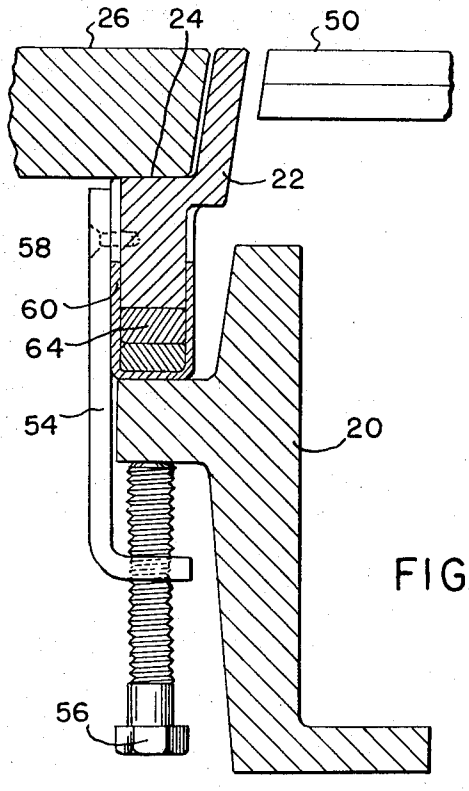


FIG.8

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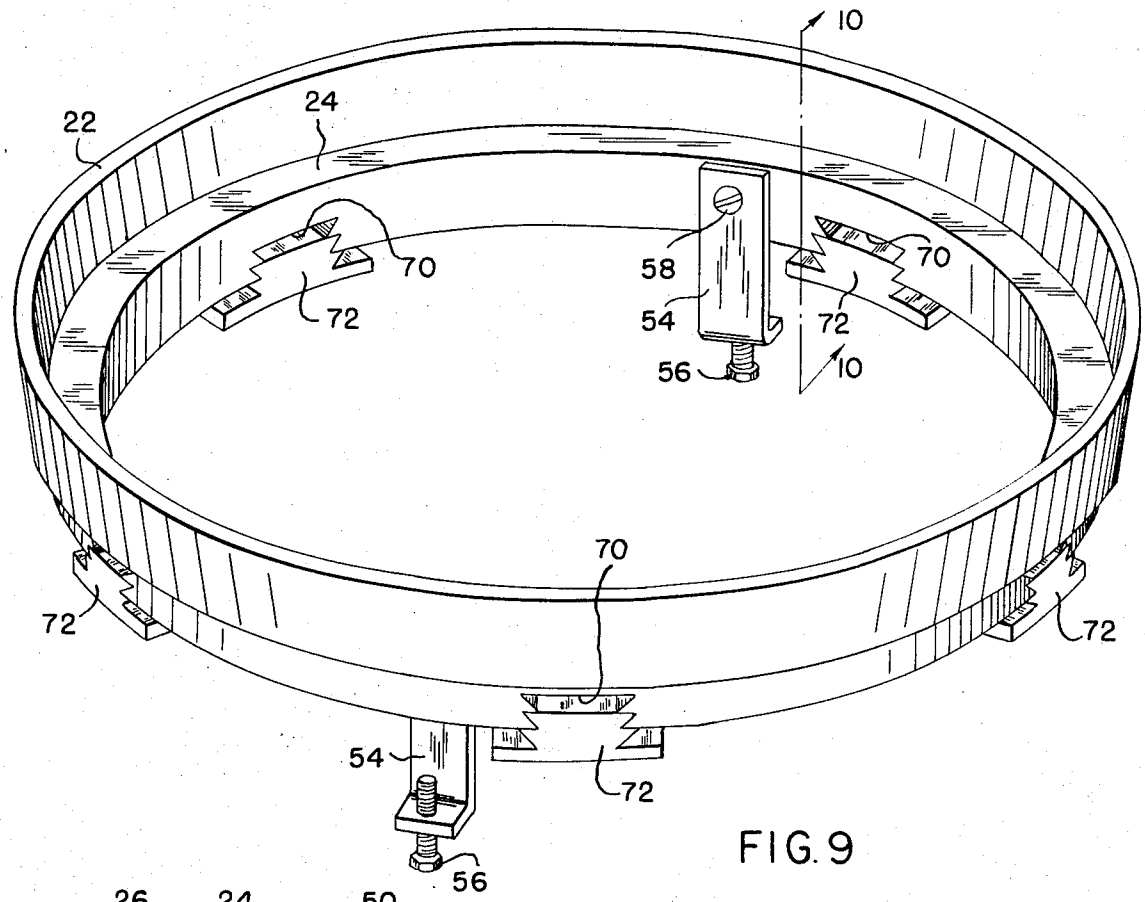


FIG. 9

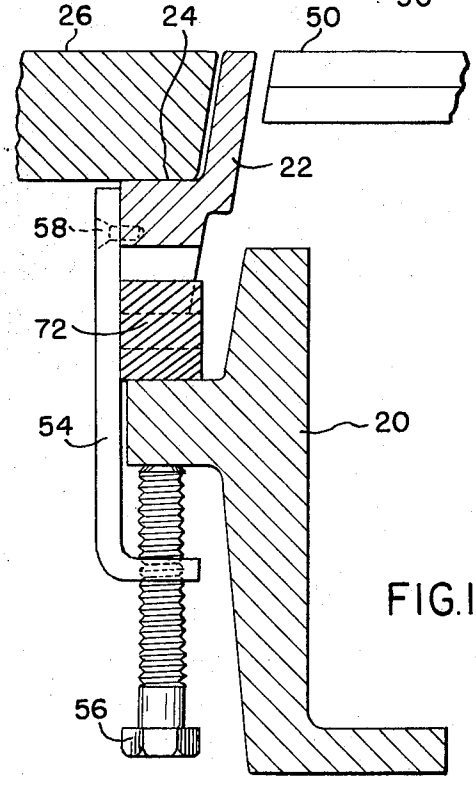


FIG. 10

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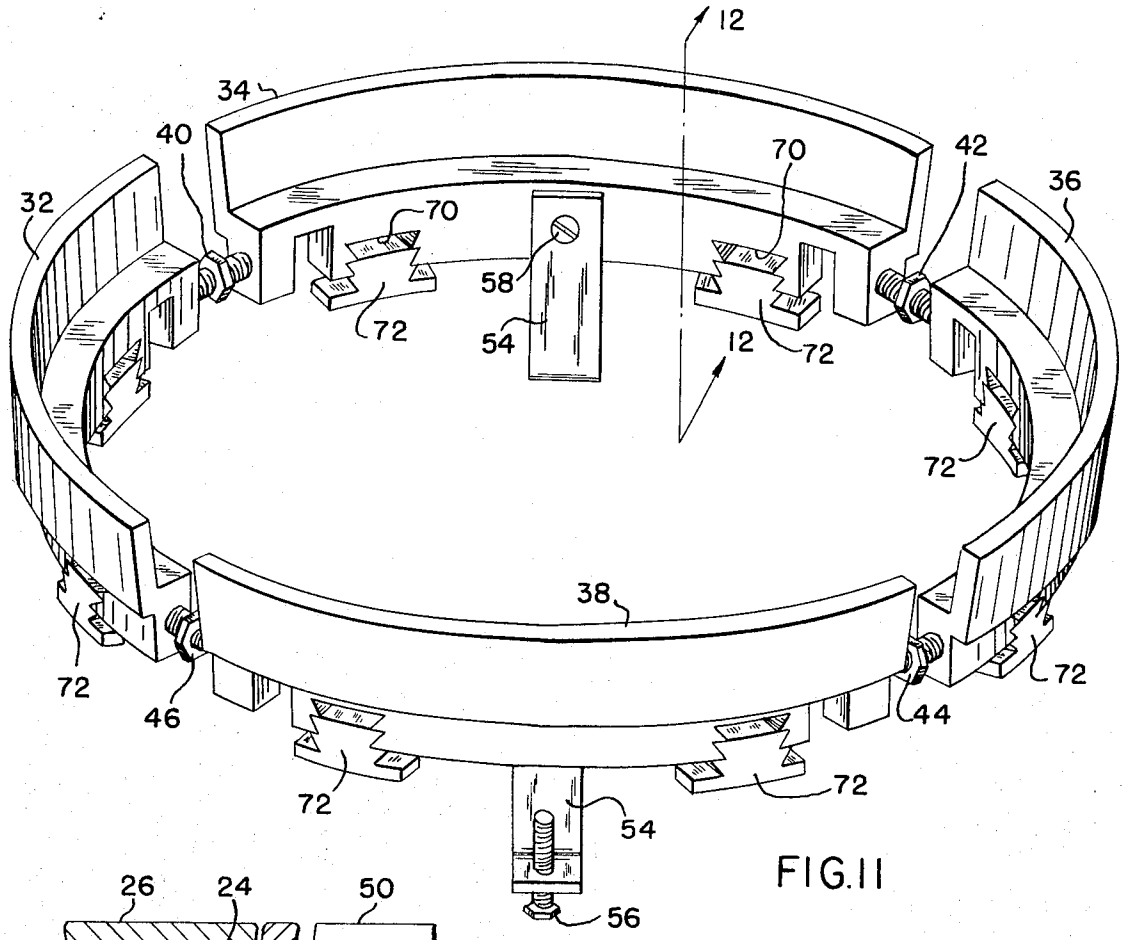


FIG.11

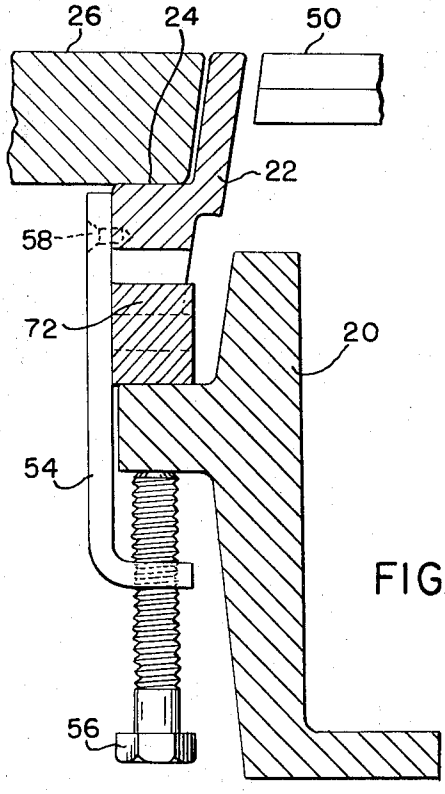


FIG.12

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ADJUSTABLE MANHOLE COVER SUPPORT

This invention relates to manhole cover supports and more particularly to an adjustable support for varying the height of the cover.

In the repair and resurfacing of streets and highways, it is frequently found that the repaired or resurfaced roadway is substantially higher than the original roadway with the result that the upper edges of numerous manhole housings are disposed substantially below the new road surface. The upper end portions of the housings carry annular, inwardly projecting flanges just below the upper edges thereof for supporting manhole covers and such covers are disposed below the resurfaced roadway, thereby creating hazardous driving conditions unless some means is provided for raising the levels of the covers.

An object of the invention is to provide a vertically adjustable manhole cover support whereby a manhole cover can be raised to the level of a newly resurfaced road.

Another object is to provide a manhole cover support of the above type having means for mounting it on a conventional manhole housing.

A further object of the invention is to provide a manhole cover support of the above type that is simple in construction, inexpensive to manufacture, and highly effective in operation.

According to one modification of the invention, it is an object to provide a sectional manhole cover support for original installation which circumferentially engages a modified manhole housing in such manner as to be subsequently vertically adjustable when the street or highway is resurfaced.

Briefly, the foregoing objects are accomplished by the provision of a manhole cover support for vertically adjusting the level of an associated manhole cover in the opening of a manhole housing including a manhole frame adapted to be fixed in the opening, and a unitary peripheral manhole adjusting ring disposed on the frame and having a peripheral seat formed in its interior peripheral surface for receiving the manhole cover. Adjustment means are disposed between the frame and the ring for vertically adjusting the height of the ring with respect to the frame. The ring may be formed of peripheral segments connected together. An adjustable locking bracket detachably connects the frame and ring.

In one form of the invention the adjustment means is a plurality of set screws threadedly disposed in the bottom surface of the ring, such screws being vertically adjustable to selectively adjust the distance between the frame and ring and thus selectively adjust the height of the manhole cover with respect to the frame.

In another form of the invention the adjustment means includes a "U" bracket and at least one spacer disposed within and at the bottom of the bracket, such bracket being detachably positioned on the ring between the frame and the ring to selectively adjust the vertical distance therebetween and thus adjust the height of the manhole cover with respect to the frame.

In a further modification, the ring contains a plurality of stepped notches formed in the lower edge of the ring, and the adjustment means includes a plurality of stepped inserts formed for selective insertion respectively in the notches for adjusting the vertical distance between the frame and the ring to thus selectively adjust the height of the manhole cover with respect to the frame.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawings wherein:

FIG. 1 is a perspective view of an adjustable manhole cover support constructed in accordance with the invention;

FIG. 2 is an enlarged view taken along the line 2—2 of FIG. 1, with the frame and portions of the manhole cover and the roadway surface being added;

FIG. 3 illustrates a modification of the support shown in FIG. 1;

FIG. 4 is an enlarged view taken along the line 4—4 of FIG. 3, with the frame and portions of the manhole cover and the roadway surface being added;

FIG. 5 illustrates a further modification of the support shown in FIG. 1;

FIG. 6 is an enlarged view taken along the line 6—6 of FIG. 5, with the frame and portions of the manhole cover and the roadway surface being added;

FIG. 7 illustrates a further modification of the support shown in FIG. 1;

FIG. 8 is an enlarged view taken along the line 8—8 of FIG. 7, with the frame and portions of the manhole cover and the roadway surface being added;

FIG. 9 illustrates a further modification of the support shown in FIG. 1;

FIG. 10 is an enlarged view taken along the line 10—10 of FIG. 9, with the frame and portions of the manhole cover and the roadway surface being added;

FIG. 11 illustrates a further modification of the support shown in FIG. 1; and

FIG. 12 is an enlarged view taken along the line 12—12 of FIG. 11, with the frame and portions of the manhole cover and the roadway surface being added.

In the drawings, like numbers refer to like parts.

Referring first to FIGS. 1 and 2, there is shown a manhole cover support including a manhole frame 20 and a unitary peripheral manhole adjusting ring 22 disposed on the frame and having a peripheral seat 24 formed in its interior peripheral surface for receiving a manhole cover 26 thereon. Suitable adjustment means are provided between the frame 20 and the ring 22 for vertically adjusting the height of the ring with respect to the frame, such adjusting means, in this instance, being a plurality of set screws 28.

FIGS. 3 and 4 are similar to the structures in FIGS. 1 and 2, respectively, except that the ring is formed of a plurality of peripheral segments 32, 34, 36 and 38 joined by suitable attaching means such as the bolts 40, 42, 44, 46 to form a unitary ring.

Accordingly, FIGS. 1–4 show the adjusting means in the form of the set screws 28 which vary or adjust the vertical distance between the frame and ring and thus vary the height of the manhole cover with respect to the frame and with respect to the roadway surface 50.

An adjustable locking bracket 54 with its attaching screws 56 and 58 is provided t secure the frame 20 to the ring.

In FIGS. 1, 5 and 9 the ring 22 is a one-piece ring. In FIGS. 3, 7 and 11 the ring is segmented.

In FIGS. 5 and 6 the adjustment means includes a "U" bracket 60 slidably disposed in a slot 62 in the ring 22 and one or more spacers 64 disposed within and at the bottom of the bracket 60. The bracket 60 is detachably positioned on the ring 22 between the frame 20

and the ring **22** to selectively adjust the vertical distance therebetween and thus adjust the height of the manhole cover **26** with respect to the frame **20** and with respect to the roadway surface **50.**

Such aforedescribed "U" bracket adjusting means construction is also shown applied to the segmented ring structure of FIGS. **7** and **8.**

In FIGS. **9** and **10** the ring **22** contains a plurality of stepped notches **70** formed in the lower edge of the ring **22,** and the adjustment means includes a plurality of stepped inserts **72** formed for selective insertion respectively in the notches **70** for adjusting the vertical distance between the frame and the ring and thus selectively adjust the height of the manhole cover with respect to the frame and with respect to the roadway surface **50.**

In FIGS. **11** and **12,** the aforedescribed stepped insert adjusting means construction is shown applied to the segmented ring structure.

Thus there is provided a manhole height adjusting means of simple, economical construction that may be very easily operated by the man in the field.

The terms and expressions which have been employed are used as terms of description, and not of limitation, and there is no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

In the set screw adjusting means structure shown in FIGS. **1–4,** many types of set screw locking means may be used to releasably retain the set screws in final adjuste d position. For example, a synthetic organic plastic covering **29** may be placed on the set screws to partially interfere with the threading of such screws and thus retain them in locked position. Lock washers may also be used.

What is claimed is:

1. A manhole cover support for vertically adjusting the level of an associated manhole cover in the opening of a manhole housing comprising, a manhole frame adapted to be fixed in the opening, a unitary peripheral adjustable ring disposed on the frame and having a peripheral seat formed in its interior peripheral surface for receiving the manhole cover, said ring being formed of peripheral segments, and means for connecting such segments together to form the unitary ring, said adjustment means being disposed in the bottom surface of the ring, said ring supporting said cover, and adjustment means disposed at least partially within the external surface of the ring and offset inwardly within the radial boundaries of the ring for vertically adjusting the height of the ring with respect to the frame.

2. The structure of claim **1** wherein an adjustable locking bracket detachably connects the frame and ring together.

3. The structure of claim **1** wherein said adjustment means is a plurality of set screws threadedly disposed in the bottom surface of the ring, said screws being vertically adjustable to selectively adjust the distance between the frame and ring and thus selectively adjust the height of the manhole cover with respect to the frame.

4. The structure of claim **3** wherein the set screws have releasable locking means for retaining the screws in final adjusted position.

5. The structure of claim **4** wherein said locking means is a covering of synthetic organic plastic.

6. The structure of claim **1** wherein said adjustment means comprises a "U" bracket and at least one spacer disposed within and at the bottom of the bracket, said bracket in coaction with the spacer being detachably positioned on the ring between the frame and the ring to selectively adjust the vertical distance therebetween and thus adjust the height of the manhole cover with respect to the frame.

7. A manhole cover support for vertically adjusting the level of an associated manhole cover in the opening of a manhole housing comprising, a manhole frame adapted to be fixed in the opening, a unitary peripheral manhole adjusting ring disposed on the frame and having a peripheral seat formed in its interior peripheral surface for receiving the manhole cover, and adjustment means disposed between the frame and the ring for vertically adjusting the height of the ring with respect to the frame, said ring containing a plurality of stepped notches formed in the lower edge of the ring, and said adjustment means including a plurality of stepped inserts formed for selective insertion respectively in said notches for adjusting the vertical distance between the frame and the ring and thus selectively adjust the height of the manhole cover with respect to the frame.

8. A manhole cover support for vertically adjusting the level of an associated manhole cover in the opening of a manhole housing comprising, a manhole frame adapted to be fixed in the opening, a unitary peripheral manhole adjusting ring disposed on the frame and having a peripheral seat formed in its interior peripheral surface for receiving the manhole cover, and adjustment means disposed between the frame and the ring for vertically adjusting the height of the ring with respect to the frame, said ring being formed of peripheral segments, means for connecting such segments together to form the unitary ring, said ring containing a plurality of stepped notches formed in the lower edge of the ring, and said adjustment means including a plurality of stepped inserts formed for selective insertion respectively in said notches for adjusting the vertical distance between the frame and the ring and thus selectively adjust the height of the manhole cover with respect to the frame.

9. A manhole cover support for vertically adjusting the level of an associated manhole cover in the opening of a manhole housing comprising, a manhole frame adapted to be fixed in the opening, a unitary peripheral adjustable ring disposed on the frame and having a peripheral seat formed in its interior peripheral surface for receiving the manhole cover, said ring supporting said cover, and adjustment means disposed at least partially within the external surface of the ring and offset inwardly within the radial boundaries of the ring for vertically adjusting the height of the ring with respect to the frame, said adjustment means comprising a "U" bracket and at least one spacer disposed within and at the bottom of the bracket, said bracket being detachably positioned on the ring between the frame and the ring to selectively adjust the vertical distance therebetween and thus adjust the height of the manhole cover with respect to the frame.

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