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REMOVABLE CAPS FOR CURB BOXES

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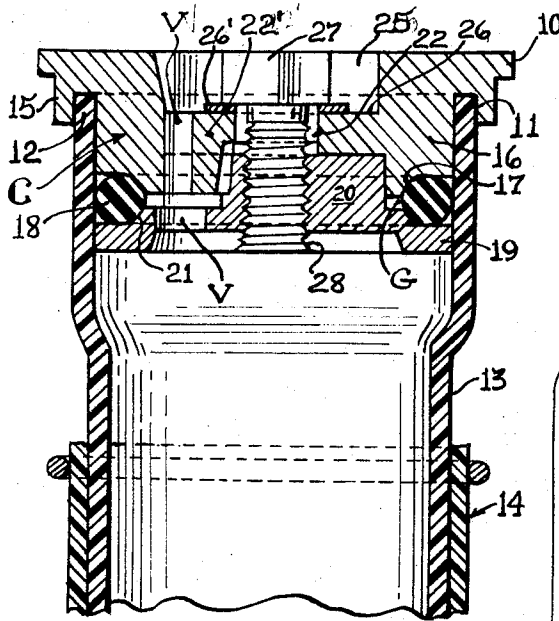


Fig. 1.

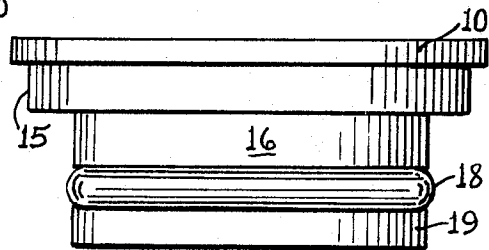


Fig. 2.

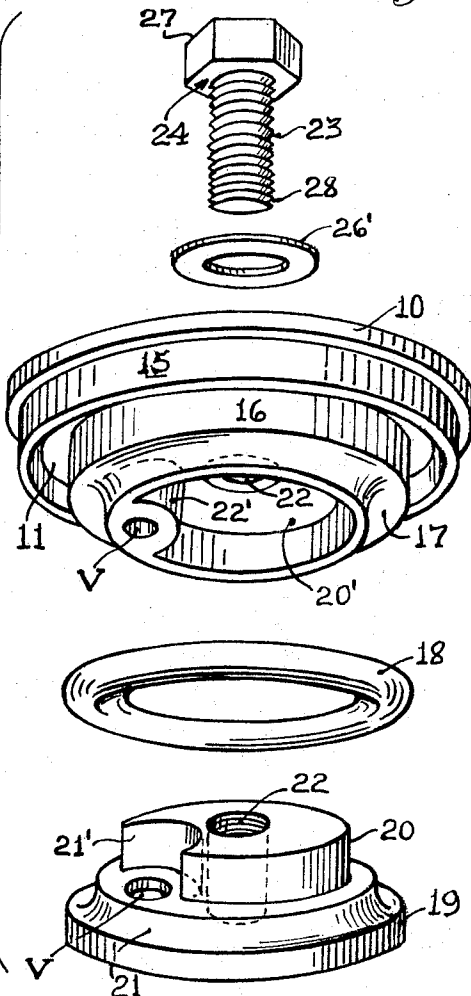


Fig. 4.

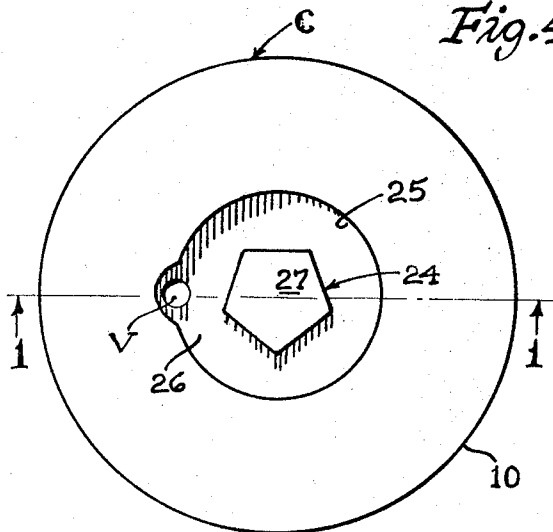


Fig. 3.

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REMOVABLE CAPS FOR CURB BOXES

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6 Claims. (Cl. 220—24.5)

My invention relates to new and useful improvements in removable caps for curb boxes such as used by public utility companies or the like to provide access to underground valves, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

One of the objects of this invention is to provide a removable cap for a curb box, which cap is of substantial simplicity, thereby resulting in economical manufacture, without affecting its efficiency.

Another and equally important object of this invention is to provide such a cap with a highly effective seal between the cap and the curb box and which seal is of such material as is resistant to corrosion, thereby eliminating the usual rust formation between the cap and the sleeve of the curb box as presently exists in constructions now commercially in use.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is a fragmentary sectional detail view of a curb box showing my improved cap incorporated therein and taken substantially on line 1—1 of FIG. 3;

FIG. 2 is a side elevational view of my improved cap;

FIG. 3 is a top plan view of the cap;

FIG. 4 is a perspective view of the parts of the cap showing the same in exploded relation with respect to each other.

I contemplate accomplishing the several objects of my invention by the form of construction shown in the accompanying drawings. In this connection, the cap, generally indicated at C, comprises an annular top plate 10 having a peripheral edge portion providing an annular groove 11 into which engages the outer edge portion 12 of a sleeve 13 of the curb box generally indicated at 14. This groove 11 is provided by a depending flange 15 formed as an integral part of the plate 10 and a hub portion 16 which is of a length substantially greater than the flange 15 and is adapted to project into the end portion 12 of the sleeve 13. The inner end portion of the hub 16 provides a tapered seat 17 against which is positioned an elastic non-corrosive sealing ring 18. The hub 16 has a diameter such that it affords easy removal of the cap.

The cap C further includes an annular disc 19 which provides a central hub portion 20 providing at its peripheral edge portion a seat 21 into which the sealing ring 18 engages, as shown in FIG. 1. The hub 20 projects into a counterbore 20' formed in the hub 16. Such hub 20 at one side thereof provides a notched-out portion 21' which receives a boss 22' provided by the hub 16. When the boss 22' is projected into the notched-out portion 21', the plate 10 and disc 19 when arranged in interfitting relation as shown in FIG. 1, are prevented from rotating relative to each other.

From the foregoing description, it is seen that the disc 19 and hub 16 of the plate 10 provide an annular groove G within which the sealing ring 18 is positioned.

The plate 10 and the hub 16 and the hub 20 of the disc

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19 are provided with aligned openings 22 threaded to receive the threaded shank 23 of a head-bearing bolt 24.

The plate 10 has a counterbore 25. Between the base 26 of the counterbore 25 and the head 27 of the bolt 24, there is positioned a washer 26'. The washer 26' and bolt 24 including its head 27 and shank 23, are preferably formed of a non-corrosive material, such as brass or the like. This prevents any rust corrosion between the bolt 24 and the plate 10 which would otherwise render it difficult to remove the bolt 24 and consequently the plate 10.

The threads at the inner end portion 28 of the shank 23 are deformed by swaging or the like so as to prevent the bolt 24 from becoming completely unthreaded from the disc 19. Such an arrangement holds the parts making up the cap, in assembled relation so that they may be conveniently placed in or removed from the sleeve 13 of the curb box.

When the bolt 24 is rotated in a clockwise direction, the disc 19 and the cap 10 will be drawn toward each other, with the result that the sealing ring 18 will be compressed within the groove G and be expanded radially against the adjacent walls of the sleeve 13, thereby to accomplish the two-fold function of providing an effective seal between the cap C and the sleeve 13 and to firmly connect the cap in position with respect to the sleeve 13 as shown in FIG. 1. To remove the cap C, it is only necessary to rotate the bolt 24 in an anticlockwise direction, thus removing the expansion of the sealing ring 18 against the inner surfaces of the sleeve 13 of the curb box, with the result that the cap C can be lifted from connection with the sleeve 13.

As is customary in curb box caps, a suitable vent V is formed in both the disc 19 and the plate 10. In the instant case, the vent in the plate 10 is formed in the boss 22'.

From the foregoing, it will be obvious that I have provided a simple and effective arrangement for connecting the cap of a curb box to the curb box sleeve and for preventing the admission of dirt, debris and the like into the sleeve, thus providing an effective seal between the sleeve and the cap.

A cap embodying my invention comprises relatively few parts, as compared to caps of curb boxes presently in use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A curb box cap comprising

(a) an outer annular plate having a flange extending from one side thereof and a hub portion in spaced relation with respect to said flange to provide a groove to receive the edge portion of a sleeve of a curb box,

(b) said hub at its inner end portion providing a seat,

(c) a circular disc having on one side thereof a seat providing together with the seat of said hub an annular groove,

(d) a sealing ring mounted between said hub and said disc, in said groove,

(e) said disc and said plate having an aligned threaded opening formed therein,

(f) and a nut-bearing bolt threaded in said opening for adjustably connecting said plate and said disc together,

(g) the inner end portion of said bolt having its threads

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deformed to prevent complete unthreading of the bolt from said disc.

2. The curb box cap defined in claim 1 wherein the sealing ring is formed of compressible non-corrosive material and is adapted to be pressed between the plate and the disc and to be expanded radially against the adjacent walls of said sleeve.

3. The curb box cap defined in claim 1 in which the hub of said plate extends beyond the flange and is adapted to project into the open end of said sleeve.

4. The curb box cap defined in claim 2 in which the hub of said plate extends beyond the flange and is adapted to project into the open end of said sleeve.

5. The curb box cap defined in claim 1 wherein said disc is provided with a hub projecting into a counterbore formed in said plate, the hub of said plate having a boss

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and the hub of said disc having a recess into which said boss projects when the plate and the disc are arranged in interfitting relation within the end of said sleeve.

6. The curb box cap defined in claim 5 wherein the sealing ring is formed of compressible non-corrosive material and is adapted to be pressed between the plate and the disc and to be expanded radially against the adjacent walls of said sleeve.

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JAMES B. MARBERT, *Assistant Examiner*.