

Nov. 15, 1966

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3,285,289

ADJUSTABLE CLEAN-OUT MEANS

Filed April 20, 1964

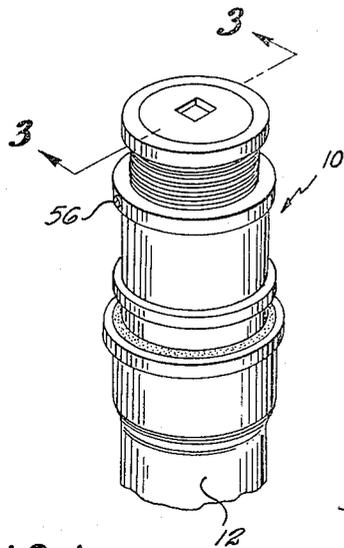


FIG. 1

FIG. 2

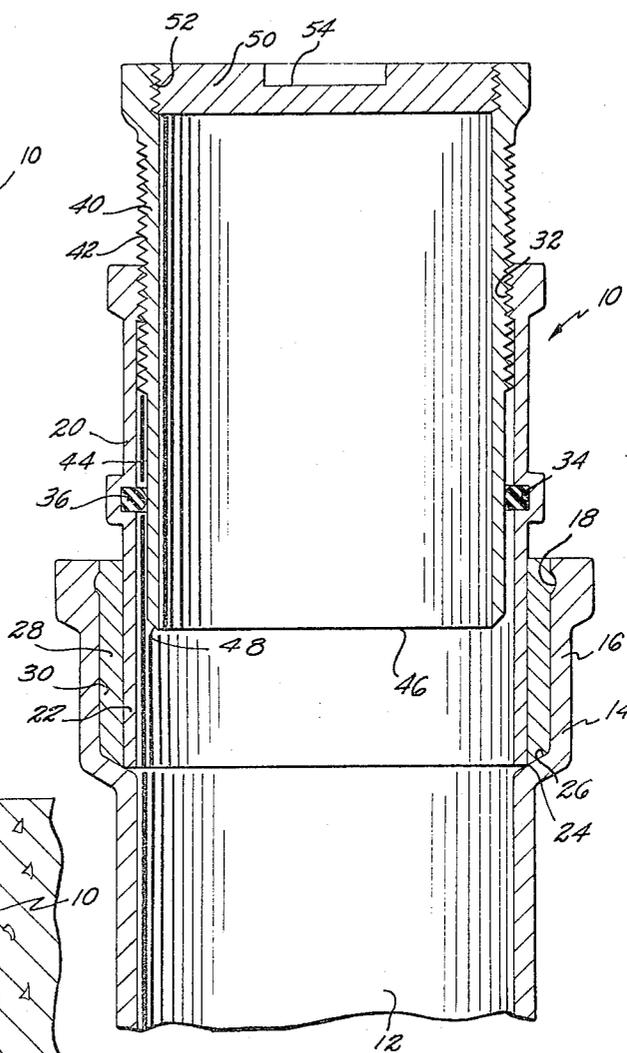
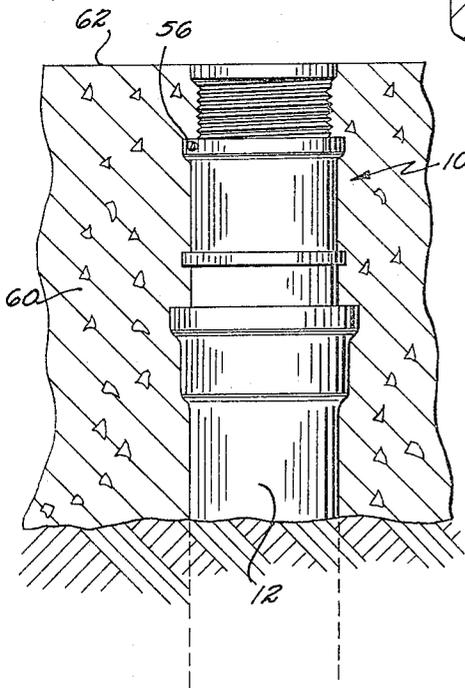


FIG. 3

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**ADJUSTABLE CLEAN-OUT MEANS**

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Filed Apr. 20, 1964, Ser. No. 360,975

3 Claims. (Cl. 138—89)

The present invention relates generally to clean-out means, and more particularly to clean-out devices for use in a sanitary plumbing system.

In the construction or remodeling of buildings, both residential and commercial, it is often desirable, if not necessary, to provide clean-out devices which afford access to the plumbing system itself. Such clean-out means is generally installed in the floor of the lower level of the building, as for instance in the basement floor which usually is made of concrete or the like.

Such clean-out means must provide a hermetic seal between the plumbing system and the interior of the building, to prevent sewer gases and the like from seeping into the building. As such, metal clean-out plugs or plates are threadedly positioned in the end of a clean-out pipe by means of tapered pipe threads which provide the necessary hermetic seal.

Prior clean-out devices have been of such construction that it has been extremely difficult, time consuming and expensive to properly align the clean-out device with the floor during installation. That is, on new construction for instance, the plumbing system, including the clean-out device, is installed before the concrete floor is poured. At the time that the clean-out means is installed, it is necessary for the workman to estimate the probable level of the completed floor and to adjust the clean-out device so that the upper end thereof is flush or even with the floor after the latter has been poured or formed.

Heretofore, to correct for any misalignment, it has been necessary for the clean-out devices to be disassembled from the sanitary plumbing system by awkward and time consuming means such as the melting of leaded connections. Also, such prior clean-out devices have necessitated the cutting of certain lengths of pipe whenever it was necessary to alter the elevation or level of a clean-out device.

It is an object of the present invention to provide clean-out means for a sanitary plumbing system which is adjustable by ordinary mechanical means.

Another object of the present invention is to provide adjustable clean-out means for a sanitary plumbing system whereby the elevation of a clean-out plug can be easily and quickly adjusted as desired.

Another object of the present invention is to provide adjustable clean-out means as characterized above which is self-sealing throughout the adjustment of the elevation or height of the clean-out plug.

Another object of the present invention is to provide adjustable clean-out means as characterized above which, in addition to the adjustment means, comprises locking means whereby the adjusted height or level of the plug can be fixed.

A further object of the present invention is to provide adjustable clean-out means as characterized above which comprises an O-ring formed of resilient sealing means between two telescopically adjustable pipes.

A further object of the present invention is to provide adjustable clean-out means as characterized above which is simple and inexpensive to manufacture, and which is rugged and dependable in operation.

The novel features which I consider characteristic of my invention are set forth with particularity in the appended claims. The device itself, however, both as to its organization and mode of operation, together with

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additional objects and advantages thereof, will best be understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

5 FIGURE 1 is a perspective view of adjustable clean-out means according to the present invention, shown connected to a portion of a sanitary plumbing system;

FIGURE 2 is a side elevational view of such clean-out means within a concrete floor; and

10 FIGURE 3 is a longitudinal sectional view through the clean-out means of FIGURE 1, taken substantially along line 3—3 thereof.

Like reference characters indicate corresponding parts throughout the several views of the drawings.

15 Referring to FIGURE 1, there is shown therein a preferred embodiment for illustration of the present invention. The adjustable clean-out means 10 is shown connected to a pipe or conduit 12 which is part of a much larger sanitary plumbing system. As shown most clearly in FIGURE 2 of the drawings, the pipe 12 may be vertically positioned beneath the dwelling or building, the major portion of the plumbing system extending underground and having connection with the main sewage system.

25 As shown most clearly in FIGURE 3, the upper end portion of pipe 12 is generally flared as at 14 to provide an annular hub 16. The pipe 12, of course, is tubular in nature and circular in cross section. An annular depression or cutout 18 is formed on the internal surface of hub 16.

30 Clean-out device 10 is connected to the upper end of pipe 12 and comprises a pipe section 20, the lower end portion 22 of which is leaded within the hub 16 of pipe 12. That is, the lower end portion 22 is inserted within the hub 16 so that the lower end 24 thereof engages or abuts the annular shoulder 26 which is formed between the main portion of pipe 12 and the hub 16.

35 Molten lead 28 is then poured into the annular recess 30 between hub 16 and pipe section 20. Such lead is prevented from running into the pipe 12 by the aforementioned engagement between the lower end 24 of pipe section 20 and the shoulder 26. The annular depression or cutout 18 of hub 16 permits the lead to form an enlargement which prevents it from leaving the annular recess 30. Thus, the pipe section 20 is hermetically sealed in contiguous relation with the pipe 12 of the sanitary plumbing system.

40 Pipe section 20 is formed, at its upper end, with internal fastening threads 32. Near the intermediate portion of pipe section 20 there is provided an annular recess 34 internally of said pipe section. As shown in FIGURE 3, such annular recess 34 is generally square in cross section for receiving a complementally formed O-ring 36.

45 O-ring 36 is formed of any appropriate resilient sealing material, such as rubber, plastic or other synthetic materials which are capable of being formed into an endless ring and provide sufficient resiliency for sealing purposes.

50 As shown in FIGURE 3, the outer periphery of O-ring 36 is provided with corners approximating right angles to conform to the generally square cross-section of the annular recess 34. Such arrangement, as will hereinafter become more apparent, prevents the ring 36 from being pushed or rolled out of the annular recess upon adjustment of a tubular clean-out member 40 within stationary pipe section 20.

55 Member 40, in similar fashion to pipe section 20, is circular in cross-section. It is formed with external fastening threads 42 of such size and shape as to effectively and threadably mate with the internal fastening threads 32 of member 20. Immediately adjacent the threads 42, tubular clean-out member 40 is formed with

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a relatively smooth, cylindrical outer surface 44 for sliding engagement with O-ring 36.

The lower end 46 of clean-out member 40 is provided with an annular beveled surface 48. Such surface is formed at approximately 45 degrees to the longitudinal access of clean-out member 40 and facilitates insertion of the member 40 within the O-ring 36 upon initial assembly of member 40 and pipe section 20.

A clean-out plug 50 is provided at one end of clean-out member 40, there being mating pipe threads 52 for facilitating removal and replacement of plug 50 in member 40. Any appropriate tool-receiving formations, as shown at 54, may be provided in plug 50 for facilitating such removal and replacement.

The upper end portion of clean-out member 20 is provided with a suitable threaded opening for receiving a locking device or set screw 56 which is operable transversely of the adjustable movement of member 40. Set screw 56 is operable to firmly engage adjustment member 40 so as to rigidly secure the same in fixed position relative to stationary pipe section 20.

In the construction of a building, the sanitary plumbing system, of which pipe 12 is a part, is positioned in the ground beneath the building. This is done before the concrete as shown at 60 in FIGURE 2, is poured to form the lower level floor surface 62.

To install the subject clean-out means, pipe section 20 is leaded within the hub 16 of pipe 12 as hereinbefore explained. Thereafter, O-ring 36 is positioned within the annular recess 34 of pipe section 20. The adjustable clean-out member 40 is then telescopically threaded within the pipe section 20, the beveled surface 48 at the lower end 46 thereof permitting the member 20 to expand the O-ring 36 so as to be positioned therewithin. Such expansion causes the O-ring 36 to be forced firmly into the annular recess 34 so as to sealingly engage the stationary member 20. Also, the surface 44 of adjustable member 40 firmly engages the O-ring 36 by virtue of the difference in size between the O-ring and the member 40.

The result of the foregoing is that the O-ring 36 provides a strong hermetic seal between the movable member 40 and the stationary member 20 to prevent objectionable sewer gases from passing therebetween.

Throughout the aforementioned assembly of member 40 on pipe section 20, the set screw 56 is positioned out of engagement with member 40. Also, such initial assembly operation may be performed away from the job site so that the pipe section 20, O-ring 36 and the adjustable clean-out member 40 are connected together as shown in FIGURE 3 prior to delivery of the clean-out means 10 to the job site.

After clean-out device 10 has been connected to the sanitary plumbing system, the adjustable member 40 is rotated until the upper surface of the clean-out plug 50 is aligned with the probable floor surface to be provided. The set screw 56 is then locked in place in engagement with member 40 so that the latter is held in fixed position.

Subsequently, when the concrete 60 is to be poured, the elevation or height of surface 62 can be accurately determined by the concrete contractor. Then, the set screw 56 can be loosened and the member 40 readjusted relative to the stationary member 20 so as to alter accordingly the position of clean-out plug 50. When the new and proper position of plug 50 is obtained, the set screw 56 is returned to its locking position in engagement with member 40. Thereafter, the concrete 60 can be poured and the floor surface 62 will become aligned with the upper surface of plug 50.

It is thus seen that the present invention provides an adjustable clean-out device for sanitary plumbing systems, such clean-out means having sealing means affording an effective hermetic seal throughout the entire adjustment operations.

Although I have shown and described certain specific

embodiments of my invention, I am fully aware that many modifications thereof are possible. My invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

I claim:

1. Adjustable clean-out means for use in a sanitary plumbing system comprising in combination, a stationary tubular pipe section having a lower end portion to be contiguously connected to the plumbing system, said pipe section also having an upper end portion formed with internal fastening threads and an intermediate portion formed with an internal annular recess having a generally square cross-section, a tubular clean-out member inserted within the upper end portion of said pipe section to extend thereabove having a generally uniform external surface at the lower end portion and formed with external fastening threads thereabove for engagement with the threads in said pipe section, a removable clean-out plug in the upper end of said clean-out member, an O-ring positioned in said annular recess of said pipe section having a portion formed complementally of said generally square cross-section of said recess, said O-ring being formed of resilient material and engageable by said clean-out member to effect a hermetic seal between said pipe section and the uniform surface of said clean-out member, said clean-out member being further formed with a beveled lower end for sliding engagement into said O-ring upon insertion of said clean-out member in said pipe section, and a set screw threadedly mounted in the side wall of said pipe section transversely of the adjustment movement of said clean-out member to engage the latter after it has been properly adjusted by operation of said fastening threads.

2. Adjustable clean-out means for use in a sanitary plumbing system comprising in combination, a stationary tubular pipe section having a lower end portion to be contiguously connected to the plumbing system, said pipe section also having an upper end portion formed with internal fastening threads and an intermediate portion formed with an internal annular recess having a generally square cross-section, a tubular clean-out member inserted within the upper end portion of said pipe section to extend thereabove having a generally uniform external surface at the lower end portion and formed with external fastening threads thereabove for engagement with the threads in said pipe section, a removable clean-out plug in the upper end of said clean-out member and an O-ring positioned in said annular recess of said pipe section having a portion formed complementally of said generally square cross-section of said recess, said O-ring being formed of resilient material and engageable by said clean-out member to effect a hermetic seal between said pipe section and the uniform surface of said clean-out member, said clean-out member being further formed with a beveled lower end for sliding engagement into said O-ring upon insertion of said clean-out member in said pipe section.

3. Adjustable clean-out means for use in a sanitary plumbing system comprising in combination, a stationary tubular pipe section having a lower end portion to be contiguously connected to the plumbing system, said pipe section also having an upper end portion formed with internal fastening threads and an intermediate portion formed with an internal annular recess having a generally square cross-section, a tubular clean-out member inserted within the upper end portion of said pipe section to extend thereabove having a generally uniform external surface at the lower end portion and formed with external fastening threads thereabove for engagement with the threads in said pipe section, said clean-out member also being formed with internal fastening threads at its upper end, a removable clean-out plug formed with external fastening threads to engage the internal threads at the

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upper end of said clean-out member to be positioned flush with the end thereof, an O-ring positioned in said annular recess of said pipe section having a portion formed complementally of said generally square cross-section of said recess, said O-ring being formed of resilient material and engageable by said clean-out member to effect a hermetic seal between said pipe section and the uniform external surface of said clean-out member, said clean-out member being further formed with a beveled lower end for sliding engagement of said clean-out member into said O-ring upon insertion of said clean-out member in said pipe section, and a set screw threadedly mounted in the side wall of said pipe section transversely of the adjustment movement of said clean-out member to engage the latter after it has been properly adjusted by operation of said fastening threads.

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