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ADJUSTABLE FLOOR CLEAN-OUT EXTENSION

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Fig. 1

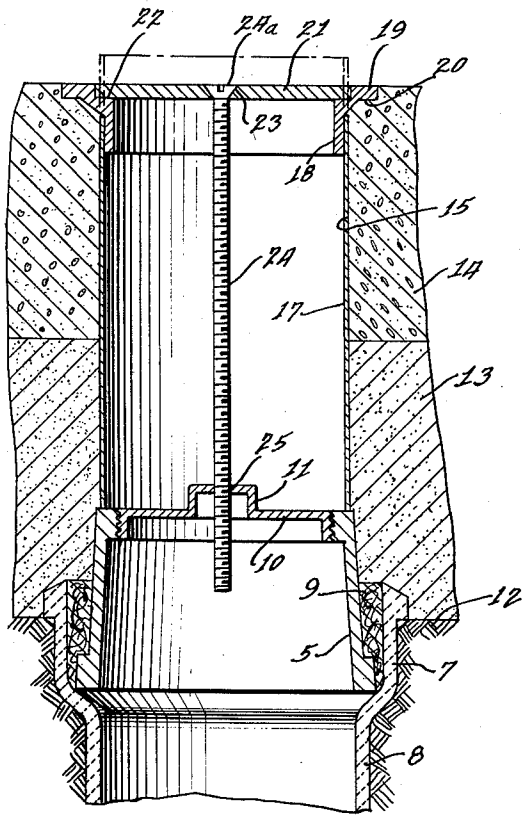
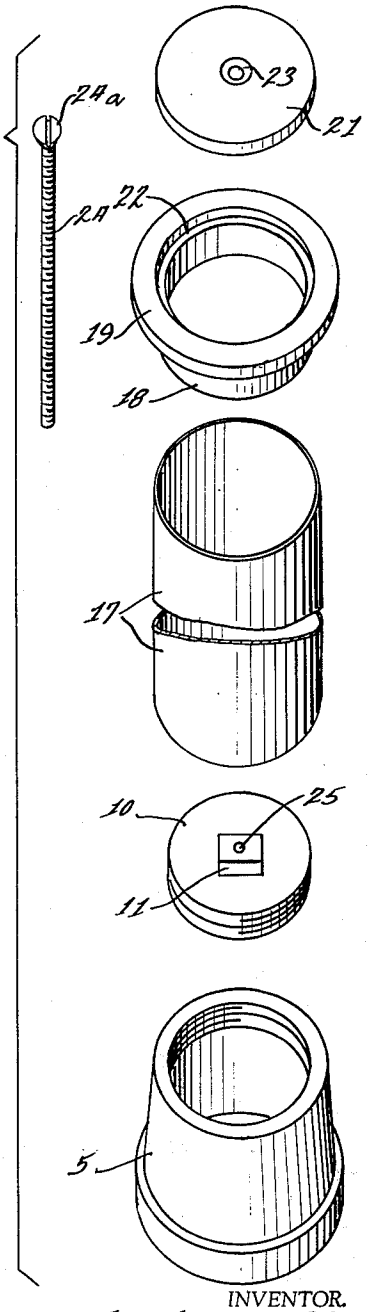


Fig. 2



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ADJUSTABLE FLOOR CLEAN-OUT EXTENSION

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The present invention relates to improvements in floor clean-outs of the access closure type on sewer pipes and generally located in a basement or utility room floor. More particularly, the invention relates to such a clean-out structure which is especially adapted for installation in concrete floors of substantial variations in thickness or elevation in respect to the top of the clean-out opening of the pipe.

All prior clean-out structures with which I am familiar or which have come to my attention have entailed time-consuming labor to effect proper adjustment of the top of the clean-out with the floor level. For example, cast iron clean-out extensions provided with peripheral scorings to enable cutting off rings of the extension tube for adjustment as to height require substantial handling and labor to effect proper height adjustment, involving cutting off of the unwanted rings of the tube. Furthermore, such prior devices have been unduly expensive.

Another deficiency of prior devices has resided in inability to effect adjustment of the top of the clean-out assembly for variations in grade or pitch of the floor level. This has generally resulted in one side of the top of the clean-out projecting above grade and thus producing an undesirable hump in the floor, or one side depressed below grade and thus producing an undesirable depression in the floor.

It is accordingly an important object of the present invention to provide a clean-out assembly which will overcome the foregoing and other deficiencies of the prior art and which will satisfactorily meet all requirements for installation and service.

Another object of the invention is to provide a new and improved clean-out construction providing novel means for effecting accurate adjustments for elevation throughout a substantial range and infinitely incremental within such range.

A further object of the invention is to provide a new and improved clean-out assembly which enables installation and pouring of a concrete floor without labor in setting the top of the assembly to grade.

Still another object of the invention is to provide a novel clean-out assembly which is constructed and arranged to be mounted permanently on a sewer pipe clean-out flange, and after a concrete floor has been poured and set is easily conformed to the floor grade quickly and accurately.

It is also an object of the invention to provide a new and improved clean-out assembly which is adapted to be supplied as a complete unit ready for installation.

A yet further object of the invention is to provide a new and improved clean-out assembly which affords substantial economies both in the structure involved and in installation costs.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description of a preferred embodiment taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a vertical sectional detail view showing a clean-out assembly according to the present invention as it appears when installed; and

FIGURE 2 is an exploded detail view of the clean-out assembly.

According to the present invention, a clean-out assembly includes a caulking ferrule 5 of generally inverted cup shape having on one end, herein its lower end as

shown in FIG. 1, a means comprising an anchor flange dimensioned to be engaged in the upwardly opening mouth flange 7 of a standard form of sewer pipe clean-out inlet 8. Within the flange 7, the lower anchor flange end portion of the ferrule 5 is adapted to be secured in sealed relation by suitable caulking 9.

On its opposite, upper end, the ferrule 5 terminating in a generally planar crown surface having an opening therethrough in which is a threadedly interengaged clean-out plug 10 having a hollow head embossment 11 provided with wrench faces, being in this instance square in outline.

Inasmuch as the top of the access pipe flange 7 is generally maintained near or only slightly above ground level 12 and within or below the level of a fill bed 13 of gravel, cinders or sand, in any event substantially below the floor grade provided by poured concrete floor 14, means are provided for maintaining an access well 15 in the floor over the clean-out plug 10. For this purpose, a tubular, in this instance cylindrical, frame member 17 is provided of larger inside diameter than the plug 10 and smaller outside diameter than the outside diameter of the crown surface of the ferrule 5. The frame member 17 has, as shown, rectilinearly smooth inner and outer longitudinal surfaces and opposite terminal surfaces transverse to the inner and outer longitudinal surfaces. One terminal surface of the tubular frame member 17 (the lower one as shown in FIGURE 1) abuts the planar crown surface of the ferrule 5 in a manner to enable ready access to and manipulation of the plug 10 as required. In the floor construction, as shown, the tubular frame member 17 extends to adjacent the top of the well 15, but sufficiently short of the grade level of the floor 14 to accommodate a tubular collar member 18. This tubular collar member 18 has a longitudinally extending first portion with a smooth external surface in slidable contact with the inner surface of the tubular frame member 17 adjacent the remaining terminal surface of the frame member.

On its upper end, the collar member 18 has a second, lateral annular flange portion 19 which is mounted flush with the floor grade in a suitable groove 20 defined about the upper end of the well 15 to accommodate the flange. At least in the assembly prior to installation in the floor, the flange portion 19 contacts said remaining terminal surface (the upper end surface as shown in FIGURE 1) of the frame member 17. An access cover member 21 is seated closingly but removably marginally in a complementary seating groove 22 provided at the upper end of the collar member 18 at juncture of the flange portion 19. Centrally the cover member 21 has an upwardly flaring tapered hole 23 within which is engaged a head 24*a* on a retaining screw 24 which is of a length to extend down through the collar member 18, the framed access well 15 within the frame member 17, and engages threadedly through a tapped central hole 25 in the crown of the wrench boss 11 of the clean-out plug 10.

An important advantage of the clean-out assembly of the present invention resides in that it affords by virtue of the clamping together of all parts by the screw 24 a compact, unitary assembly adapted to be sold and handled as a complete unit ready to be installed. Thus, all that the installing workman need do is to place the fully assembled unit, having all parts secured together as shown in FIG. 1, with the ferrule 5 in the throat flange 7 of the access sewer pipe member 8 and apply the caulking 9. Everything is now ready for the customary leak test wherein, of course, the caulking 9 provides a leakproof seal between the ferrule 5 and the pipe mouth flange 7, the threaded interengagement of the clean-out plug 10 with the crown flange of the ferrule 5 effects a sufficiently

watertight union of those two members, and the threaded interengagement of the screw 24 in the tapped hole 25 of the clean-out plug boss effects a sufficiently watertight connection between those members.

After installation of the clean-out unit as thus described, everything is in readiness for laying of the floor 14 which then proceeds without further attention to the clean-out unit. At this point another salient advantage of the clean-out structure of the present invention manifests itself. It is exceedingly difficult to predetermine the exact thickness or elevation of the floor 14 about the access well 15. Considerable latitude must be permitted in laying of the sewer pipe and the eventual elevation of the clean-out opening pipe mouth, necessarily liberal structural tolerances, and substantial tolerances allowed for floor thicknesses and drainage pitch or grade. Accommodation or adjustment throughout a substantial range of elevation heights between the clean-out plug and the floor grade are provided for by the novel structure of the tubular frame member 17 which permits infinite adjustment of the height of the flanged collar member 18 and thus of the access cover 21 relative to the clean-out plug 10 throughout substantially the length of the frame member. For this purpose, the tubular frame member 17 is constructed of a thin material having sufficient rigidity to withstand normal handling as well as compression forces encountered during the laying of a floor and more particularly during pouring of concrete thereabout in the laying of such a floor, but easily severable by means of sheet metal trimming shears or other suitable tool. Thin sheet metal on the order of that employed in tin cans or sheet metal stove pipes and the like has been found suitable. Suitable extruded plastic tubing of sufficient rigidity may also be employed.

After the concrete floor 14 has been poured and troweled to a smooth finish about the access well 15 which has been formed about the frame member 17 serving as a mold or form for this purpose, suitable adjustment of the flange collar 18 can readily be effected to bring the flange 19 flush with the floor grade, assuming, as is often the case, that the finished floor level turns out to be lower than the top of the clean-out unit as it was initially installed. Accordingly, the tubular frame member 17 is provided in a more or less standard length long enough to take care of the highest floor level reasonably to be anticipated but actually longer than the usual floor level with which it will be associated. In other words, the frame member 17 is supplied with extra length to enable adjustment through a substantial range.

After the concrete floor 14 has set, but before it has cured hard, any necessary adjustment to reduce the height of the clean-out extension unit is effected to bring the collar flange 19 flush with the floor surface. It may be assumed that the over extension of the frame member 17 is to a height as indicated in dot dash outline in FIGURE 1. First, the screw 24 is released by threading it free from the clean-out plug boss 11, thereby enabling removal of the access cover 21, and also removal of the flange collar 18 from the frame member 17. If the flange-receiving groove 20 has not been provided for, such groove is roughly routed out, which can be easily effected in the relatively green cement. The excess upward extension portion of the tubular frame member 17 is then trimmed off as by means of a sheet metal hand shear or nipper to the level of the bottom of the groove 20. Where the frame member 17 is made of sheet metal there may be some unevenness or rough portions of the nipped edge and that can be hammered down if necessary. Of course, where the tubular frame member is made from a plastic material a nipper or knife may be utilized to trim off the excess length. After such trimming off, the flanged collar 18 is replaced by fitting it into the now trimmed down upper end portion of the tubular frame member 17 until the upper face of the flange 19 is flush with the floor 14, and any space between the flange 19 and the floor can then be filled in with suitable grout to provide a smooth unbroken joint. Replacement of the cover 21 and running down of the screw 24 through the threaded opening 25 in the clean-out plug boss 11 until it is tight completes the installation.

It will be observed that since the boss 11 is hollow, the lower end portion of the screw is free to extend below the clean-out plug 10 and thus no concern as to the length of the screw 24 or the extent to which it may variably depend through the clean-out plug 10 need be had. Moreover, by anchoring the cover 21, the screw 24 also serves to anchor the flange collar 18 against unintentional displacement.

By virtue of the readily effected trimming of the upper end portion of the tubular frame member 17, adjustment of the level of the flange 19 and the cover 21 to the grade pitch is easily effected. Since the screw 24 is of substantial length and thin, that is small diameter, it will readily accommodate itself to the adjusted pitch of the cover 21, and this is further implemented by the tapered form of the screw head recess 23 and the tapered head 24*a* of the screw.

Any time access into the clean-out pipe 8 is desired, removal of the screw 24 and then the cover 21 enables access to the clean-out plug 10 which can readily be removed, and subsequently replaced, and the clean-out well reclosed by replacement of the cover 21 and tightening down of the screw 24.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. An adjustable floor clean-out extension assembly comprising,

a caulking ferrule having one end provided with a means for engaging with a mouth flange of a clean-out pipe and terminating at its opposite end in a generally planar crown surface having an opening therethrough with clean-out plug secured therein,

a tubular frame member of larger inside diameter than said plug and smaller outside diameter than the outside diameter of said crown surface, said tubular frame member having rectilinearly smooth inner and outer longitudinal surfaces and opposite terminal surfaces transverse to the inner and outer longitudinal surfaces,

said frame member being made from relatively thin material capable of being easily severable by means of sheet metal trimming shears,

one terminal surface of said tubular frame member abutting said planar crown surface,

a tubular collar member having a longitudinally extending first portion with a smooth external surface in slidable contact with the inner surface of said tubular frame member adjacent the remaining terminal surface of said frame member and having a lateral annular flange second portion with a surface in contact with said remaining terminal surface of said frame member,

said tubular collar member having a removable cover member closingly received therein,

and a headed screw extending through said cover member with the head engaging the cover member and the screw extending longitudinally through the collar member and the frame member and being threadedly secured to said clean-out plug clamping all parts of the assembly in unitary relation.

2. An adjustable floor clean-out extension as defined in claim 1, wherein the clean-out plug has a threaded opening extending entirely therethrough and the screw is threaded through such opening with its free terminal projecting beyond the clean-out plug.

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