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[54] **QUICK RELEASE SAFETY TRAP**

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[51] **Int. Cl.**[2] **E03C 1/284**

[58] **Field of Search** ..... 4/206, 207, 1, 8, 10, 2-5, 4/95, 166, 187, 188, 191, 197, DIG. 7, 255, 4/257, 252 R; 285/157, 252, 253, 423, 93, 285/DIG. 12, DIG. 14, 4; 138/106, 107, 118, 138/121, DIG. 2, 7, 8, 11; 137/247.41, 247.49

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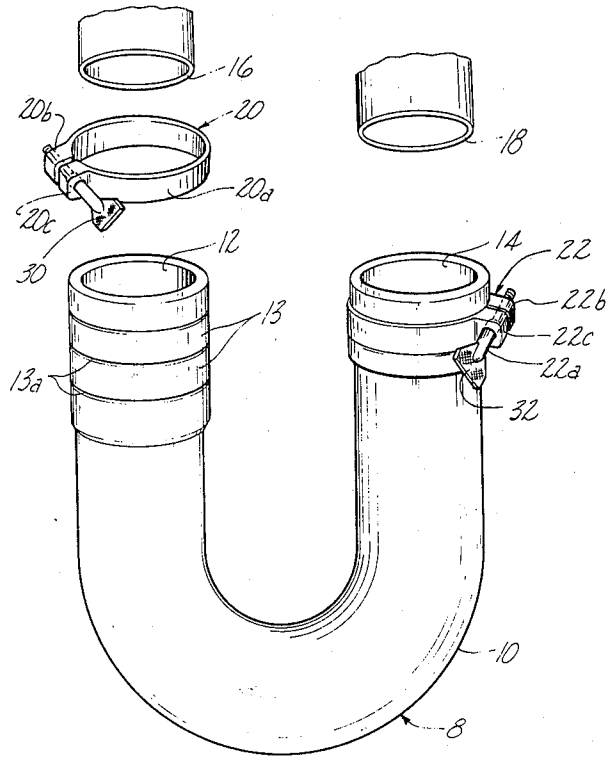
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[57] **ABSTRACT**

The plumbing line trap provided is fabricated from a deflectable type of plastic material and is easily cleaned once removed and placed in the cleaning position. Removal is facilitated by the construction of the two free ends of the return bend of the trap each of which includes a collar for retaining in place a resilient clamp which is loosened or tightened through the operation of an associated threaded fastener. The material from which the return bend is fabricated is preferably a high density polyethylene of a clear or transparent type which admits light and thus permits the home owner to readily determined whether or not cleaning is necessary or impending.

1 Claim, 2 Drawing Figures



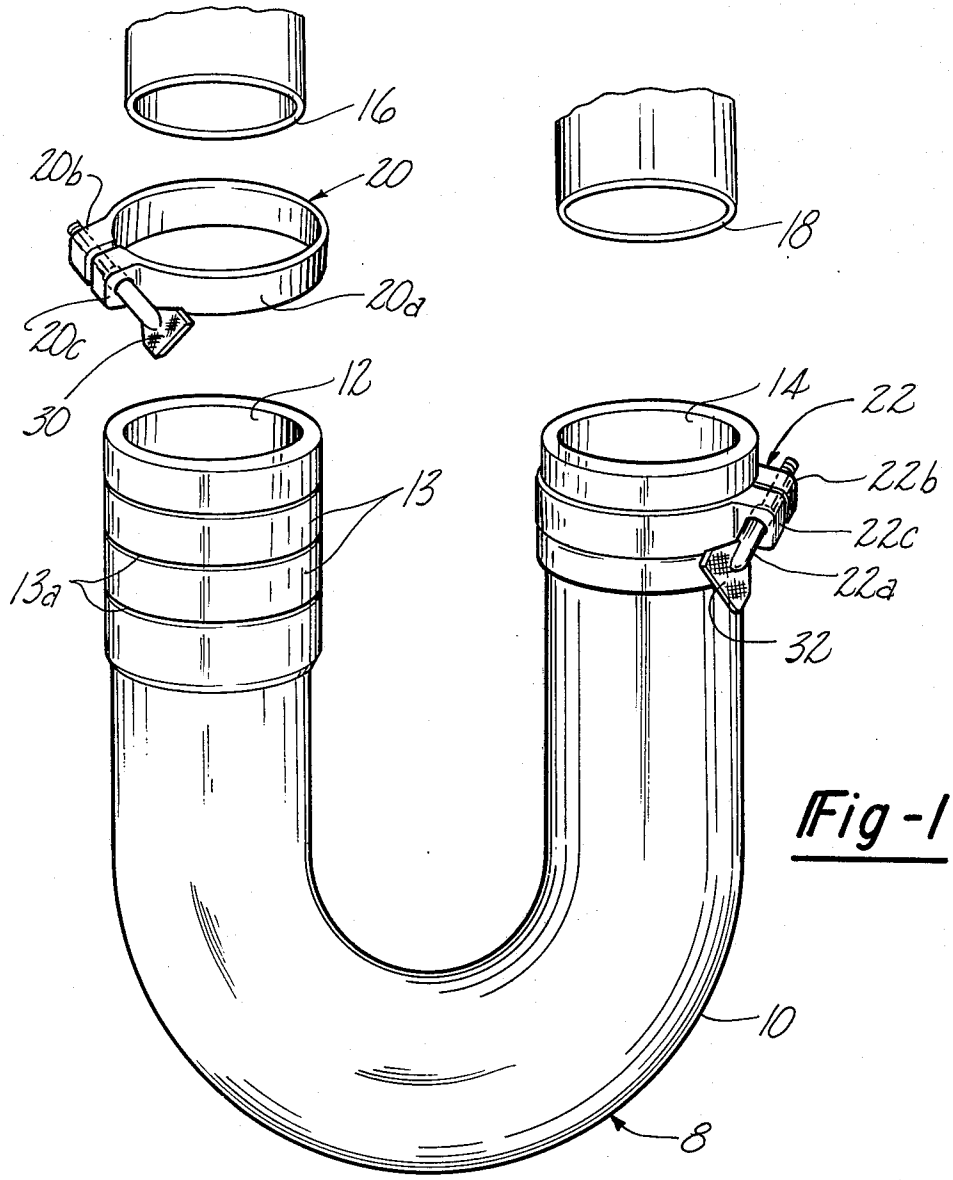

16
18
20b
20
20a
20c
30
12
14
22
22b
22c
22a
13
13a
32
10
8

Fig-1

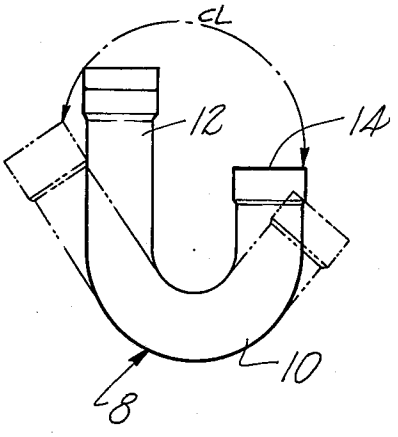

CL
12
14
10
8

Fig-2

QUICK RELEASE SAFETY TRAP

BACKGROUND OF THE INVENTION

The present invention relates to an improvement in traps and is particularly adapted for use in kitchen sink traps, bathroom sink traps, and bathtub traps, all of which receive waste water and along with the waste water a solid sediment or partially insoluble substances which tend to clog the piping system so as to require periodic cleaning. When the traps become clogged, since the trap sections are generally connected by semi-permanent or sealed fasteners, they may well require the work of a professional plumber with the attendant high cost and time delay involved.

The great majority of return traps used are fabricated from a metallic pipe, being most commonly of cast iron, steel, copper or lead. In order to make a leak-proof connection, even in return lines where the fluid pressure drop is relatively low, it is necessary to achieve a tight connection, either through bell and spigot type joints, flanged joints, or in some cases through threaded and doped joints. Once the trap has been removed it is necessary to have a professional type reinstallation to prevent leaking of the connections.

An alternative used by some home owners is to periodically douse the kitchen sink drain with caustic type cleaners which are intended to dissolve accumulated waste in the trap so that it will be carried away by later flow of liquids. The grease clogging associated with the kitchen sink requires frequent use of the highly toxic caustic substances. It is well known that such substances when kept in the house and within the reach of children are exceedingly harmful and dangerous to life if misused. In addition, such substances tend to corrode and erode the metallic pipe parts. The present invention eliminates the need for such cleaners.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

The present invention, as will become apparent from the following description and explanation, is related to a quick release trap which is particularly useful in a home plumbing system in which the trap itself may be bought as a replacement item to replace the standard troublesome trap in the plumbing system. Alternately and in accordance with recent code revisions in a number of locales, this type of trap may be incorporated as a part of the original plumbing installation.

Further advantages are afforded by the present invention since it may be unclamped, disconnected, cleaned and reclamped in place without the use of wrenches or other tools. Indeed, the entire operation may be performed by a housewife without assistance of technically skilled people. It is possible to view the condition of the trap without disassembling it by reason of the clear plastic pipe incorporated as the return bend in the trap construction. An additional advantage afforded by the improved trap is that the material used to fabricate the return bend pipe in the trap is readily deflectable over a distance sufficient to permit passage of a length of common hose through it to accomplish a cleaning operation. No specialized "snake" or flexible tubing is needed to pass through and clear the obstruction in the bend.

In an alternate embodiment of the invention, the return bend portion of the trap has one vertically upstanding leg somewhat shorter than the other to admit its connection in a waste return system where this pipe connection requirement exists. Here again, this ready deflection of the return bend of the trap expedites the cleaning of the trap and the passage of the cleaning hose or instrument through the bend.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described with reference to the attached description in which like numerals are used to refer to like parts where they may appear throughout the several views, and wherein:

FIG. **1** is a perspective view of the trap according to the present invention with one of the two end clamping devices removed; and

FIG. **2** is a partial view of an alternate embodiment of the pipe bend portion of the trap showing the end pieces in their deflected or spread cleaning position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As is shown in FIG. **1** of the drawings, the trap **8** includes a return bend portion **10** which typically extends downwardly when the trap is installed in the plumbing line system. The two free ends **12** and **14** of the trap are sized to receive a standard OD pipe such as is used in sink waste water return lines. To properly illustrate the invention, a pair of pipes **16** and **18** are shown in their normal position above the free ends **12** and **14** of the trap **8.** A pair of metallic clamps **20** and **22** are incorporated as part of the quick release trap to provide for a rapid release of the trap when clean-out is required. Included in the clamping devices **20** and **22** are a pair of substantially circular clamps **20***a* and **22***a*, respectively. The bent-over ends, **20***b* and **20***c*, 22*b* and **22***c*, are threaded or adapted to receive the threaded stem of an extended end T-shaped end tightening screw, **30, 32,** respectively. The structure of the clamping devices **20** and **22** will thus be seen to allow for ready loosening and tightening of the trap **8** in place even by an unskilled person.

A particular advantage in the present invention has been noted with respect to fabrication of the central pipe return bend **10** from a substantially transparent plastic material, such as, for example, from a high density polyethylene substance. Such substances are now readily available in commercial form and are resistant to temperatures through the range of **200°–240°F.**, which temperatures are, of course, highly in excess of those which would be encountered in exhaust fluids as they exit from household or even from most commercial sink systems.

An alternate substance from which the pipe return bend **10** of the trap **8** might be constructed or cast are polypropylene copolymers which, while they may not be available in clear or substantially transparent versions, are such they they will admit light to a sufficient degree to determine whether or not the bend **10** is becomming filled with sediment, grease or dirt so that it is in a condition requiring removal and cleaning. These latter described substances are resistant again to the temperatures of the water passing through them through a range of **190°** to approximately **240°F,** likewise safely allowing for the passage of any typical exhaust liquids used in most sink installations.

FIG. **1** also shows one of the two leg or end portions **12** predivided into a plurality of segmental break-off

portions **13** along precast or scribed frangible lines **13***a*. This permits breaking the leg portion **12** to a predetermined length to match the length of an opposed drain pipe **16.**

The FIG. **2** drawing illustrates an alternate embodiment of the present invention in which the upwardly extending end **12** of the pipe bend **10** is shorter than the other end **14** to provide for installation in a plumbing pipe line where this condition exists with respect to the mating stationary pipes **16** and **18.** The FIG. **2** drawing further shows in phantom outline the manner and proportional degree to which the legs may be deflected, one relative to the other, once the trap **8** has been removed and is placed in a cleaning position when the cleaning is accomplished by the passage of water from a hose and/or by the hose itself. The possible extent of radial movement of the parts is illustrated and shown by the letters CL., which designation relates to the cleaning deflection condition of the trap **8.** Once the cleaning operation has been completed, the above described two types of material are such that the pipe bend **10** returns at once to its initial solid line designated condition and the unit is ready for quick reinstallation in the plumbing pipe waste water return system.

It will thus become apparent that I have provided an improved waste return trap which is both novel and substantially advanced over the prior art with respect to its removal, its cleaning, its resistance to corrosion and galvanic wear, and the manner in which it may be simply checked before disassembly through visual inspection.

The present invention thus achieves a meritorious advance which not only elminates the use of dangerous drain cleaning caustics in the home but, at the same time, operates to reduce resultant pollution to our rivers, lakes and streams.

What is claimed is:

1. A quick release trap for use in connection with waste water return plumbing lines, comprising:

an arcuately curved pipe bend portion having a pair of upwardly disposed leg portions sized to receive a corresponding one of a pair of mating downwardly oriented pipes;

each of said leg portions having a plurality of segmented and frangible end portions;

a pair of clamps engageable over individual ones of said segmented end portions for attaching each respective leg portions to the opposed pipe;

a threaded fastener engageable with opposed extending lips from each of said clamps for tightening each clamp about the associated segmented end portion for holding the bend portion tightly attached at both leg portions to the mating pipes;

said bend portion and said leg portions all being constructed of a high density polyethylene substance for admitting light through their walls to make possible a visual inspection of the condition of the pipe bend preparatory to removal for cleaning, and

each of said leg portions being readily and separately detachable from its opposed pipe and deflectible over a substantial distance whereby a water hose or other like cleaning instrument may be inserted for removing and dislodging clogging material from the bend portion.

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