United States Patent [19]

Pepper

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[54] **PLUMBING FITTING**

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[73] Assignee: **Genova Products,** Davison, Mich.

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[52] **U.S. Cl.** ..... **4/252 R,** 4/68, 285/56, 85/1 H

[51] **Int. Cl.** **E03d 11/13,** F16l 5/00, F16l 15/00

[58] **Field of Search** ..... 4/68, 170, 252; 285/56, 285/57, 58, 59, 60; 85/1 H

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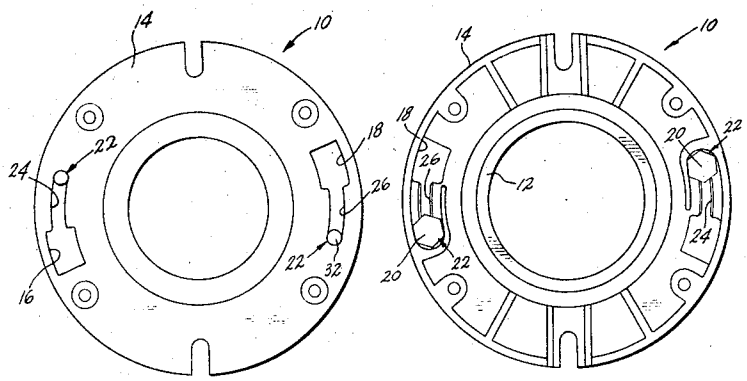
Primary Examiner—Henry K. Artis

Attorney, Agent, or Firm—Olsen and Stephenson

[57] **ABSTRACT**

A water closet flange for connecting a water closet to drain piping. The closet flange includes slots for the water closet mounting bolts, the slots having feathered edges adapted to receive the stems of the bolts and to hold the bolts in an inverted position when mounting the water closet on the closet flange.

8 Claims, 6 Drawing Figures



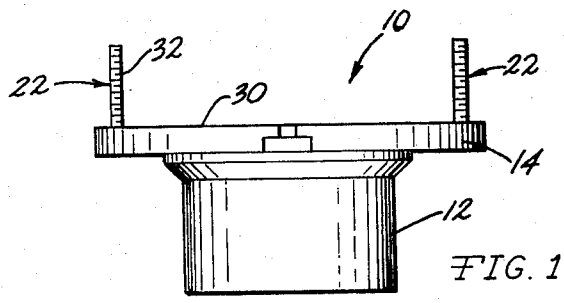


FIG. 1

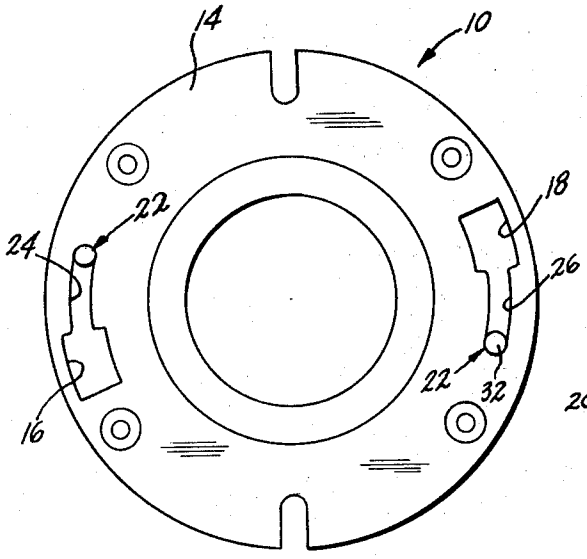


FIG. 2

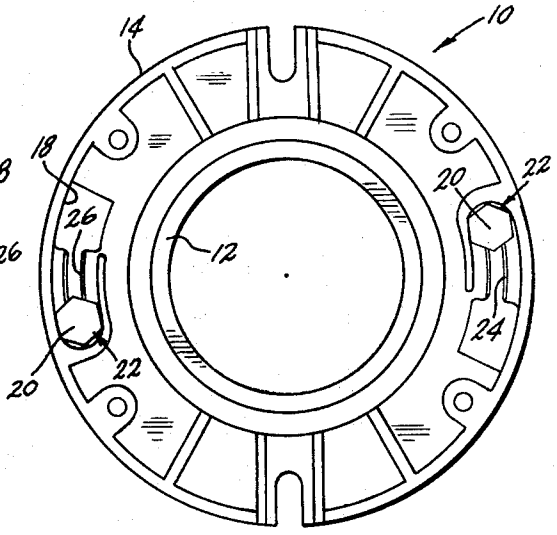


FIG. 3

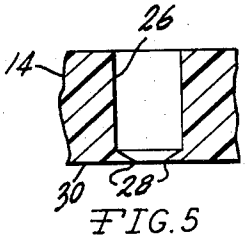


FIG. 5

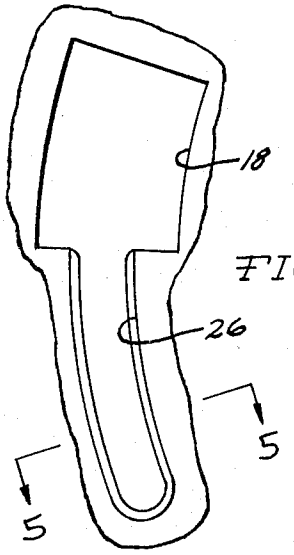


FIG. 4

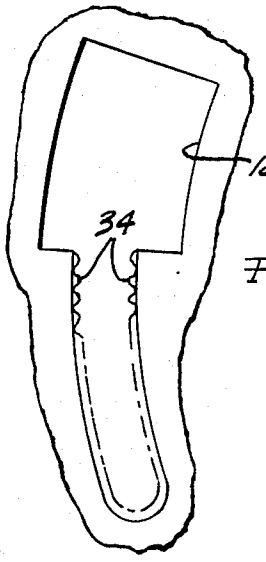


FIG. 6

PLUMBING FITTING

BACKGROUND OF THE INVENTION

One of the problems which confronts the plumber when installing water closet systems is that of securing the closet flange to the water closet in a simple and easy manner. Normally, there is no convenient way of retaining the fastening bolts in position during assembly. The bolts must be passed through the closet flange in an inverted position which makes it difficult for the plumber to align the bolt holes of the water closet on the ends of the fastening bolts.

SUMMARY OF THE INVENTION

The present invention has overcome the deficiencies of the prior art and has provided a plumbing fitting in the form of a closet flange which will enable the plumber to insert the fastening bolts readily in an inverted position with respect to the closet flange after which the water closet can conveniently be aligned with the inverted bolts and mounted on the closet flange.

According to one form of the present invention, a plumbing fitting is provided comprising an integral one-piece fitting molded from organic plastic material, said fitting including a tubular portion having a radial flange projecting outwardly from its upper end, said radial flange having bolt holes on diametrically opposite sides for passage of the heads of bolts and short circumferentially directed slots of narrower dimension in communication with said bolt holes for accommodating the stems of the bolts. The radial flange has relatively thin inwardly projecting feathered edges at the slots which are of narrower dimension than the remainder of the slots and of the stems of the bolts. The bolts can be pressed into the slots in an inverted position and the feathered edges will yield to accommodate the stems and will retain the stems of the inverted bolts so as to hold the bolts in place during assembly of the water closet on the closet flange.

According to another form of the present invention the feathered edges are corrugated so as to provide smoothly radiused peaks and valleys, thus enabling bolts of a plurality of sizes to be used with a standard plumbing fitting.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawing forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a front elevational view of a closet flange embodying the present invention, and showing two fastening bolts retained in place for securing a water closet to the closet flange;

FIG. **2** is a top plan view of the closet flange;

FIG. **3** is a bottom plan view of the closet flange;

FIG. **4** is an enlarged fragmentary bottom plan view of one of the bolt holes and its associated slot;

FIG. **5** is a fragmentary sectional view taken on the lines **5—5** of FIG. **4**; and

FIG. **6** is a fragmentary sectional view similar to FIG. **5**, showing a modified form of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring now to the drawing, the form of the invention shown in FIGS. **1–5** will be described in greater detail. The closet flange or plumbing fitting **10** is an integral one-piece fitting molded from organic plastic material and it includes a tubular portion **12** and a radial flange **14** projecting outwardly from the upper end of the tubular portion **12.** The radial flange **12** has bolt holes **16** and **18** on diametrically opposite sides for passage of the heads **20** of the fastening screws or bolts **22.** Short circumferentially directed slots **24** and **26** open at their one end to the bolt holes **16** and **18** so as to be in communication therewith. The slots **24** and **26** have a width corresponding to or slightly larger than that of the stems of the bolts **20** so that the bolts can be passed into the slots **24** and **26** to the positions shown in FIGS. **2** and **3.** The head **20** has a greater transverse dimention than the width of the slot so that the bolts, when in the inverted position shown in FIG. **1** can be used for fastening the water closet (not shown), to the closet flange **10.**

One of the significant features of the present invention is the construction and arrangement which enables the plumber to retain the bolts **20** in the inverted position shown in FIG. **1** merely by inserting the bolts in the open ends of the slots **24** and **26.** Referring particularly to FIGS. **4** and **5,** it will be seen that the slot **26** has inwardly directed feathered edges **28** in the plane of the upper surface **30** of the radial flange **14.** The spacing between the inner extremeties of the feathered edges **28** is less than the dimension across the remainder of the slot **26** and less than the diameter of the stem **32** so as to provide a holding means for retaining the bolts **22** in place. The spacing between the inner edges of the feathered edges **28** is an amount less than the diameter of the stem **32** of the bolt **20** to require the bolt to be pressed manually into the slot **26** where the feathered edges **28** will maintain a holding action on the stem **32** thereby retaining the fastening bolt in the position shown in FIG. **1.**

In the preferred form of the invention, both edges of the slot **26** will be provided with feathered edges, and preferably, such edges will be in the plane of the top surface **30.**

To provide more universal application of a fitting embodying the present invention, it is preferred that the feathered edges be corrugated as is shown at **34** in FIG. **6.** A construction and arrangement utilizing corrugated feathered edges, wherein the peaks and valleys of the corrugations are smoothly radiused, enable bolts **20** of different sizes to be used most advantageously. Normally, a feathered edge such as is provided in the embodiment of FIGS. **1–5** is used most effectively with a bolt of one size only. For example, when the slots **24** and **26** are of an optimum size for receiving a one-fourth inch bolt, an undue force may be necessary to

slide a five-sixteenths inch bolt into position, and conversely, when the slots are feathered to facilitate a five-sixteenths inch bolt, a one-fourth inch bolt is retained too loosely to be securely positioned.

The embodiment of FIG. **6** has feathered edges which are essentially discontinuous, thus making it possible to grip the five-sixteenths inch bolts in the valleys, and the one-fourth inch bolts can be securely positioned by the holding actions of the peaks.

It is claimed:

1. A closet flange on which a water closet is adapted to be mounted, said flange having bolt slots in which bolts are inserted in inverted positions for securing said closet in place, each of said slots being wider at one end for initial insertion of a bolt and having a width at the other end substantially the same as that of the diameter of the bolt, the slot having an inwardly directed feathered edge at said other end of a dimension to require the bolt to be pressed therein so that a fit for the bolt is provided at said feathered edge sufficient to sustain the bolt in place.

2. The closet flange that is defined in claim **1**, wherein said feathered edge is an extension of one planar surface of the closet flange.

3. The closet flange that is defined in claim **1**, wherein said closet flange is molded of organic plastic material.

4. The closet flange that is defined in claim **1**, wherein said feathered edge is corrugated.

5. The closet flange that is defined in claim **4**, wherein the corrugated feathered edge has smoothly radiused peaks and valleys.

6. An article of manufacture for use as a water closet flange comprising an integral one-piece fitting molded from organic plastic material, said fitting including a tubular portion having a radial flange projecting outwardly from its upper end, said radial flange having bolt holes on diametrically opposite sides for passage of the heads of bolts and short circumferentially directed slots of narrower dimension in communication with said bolt holes for accommodating the stems of the bolts, said radial flange having relatively thin inwardly projecting feathered edges at said slots of narrower dimension than the remainder of said slots so that the bolts can be pressed into the slots in an inverted position and the feathered edges will engage the stems of the inverted bolts to hold the bolts in place during assembly of the water closet on the closet flange.

7. The article of manufacture that is defined in claim **6**, wherein the feathered edges are flush with the upper surface of said radial flange.

8. The article of manufacture that is defined in claim **7**, wherein said feathered edges are corrugated so as to provide smoothly radiused peaks and valleys.

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