Nov. 29, 1960 S. A. YOUNG 2,961,914

ADJUSTABLE NUT AND SHOULDER UNIT FOR PIPE TO PLATE JOINT

Filed Dec. 21, 1956

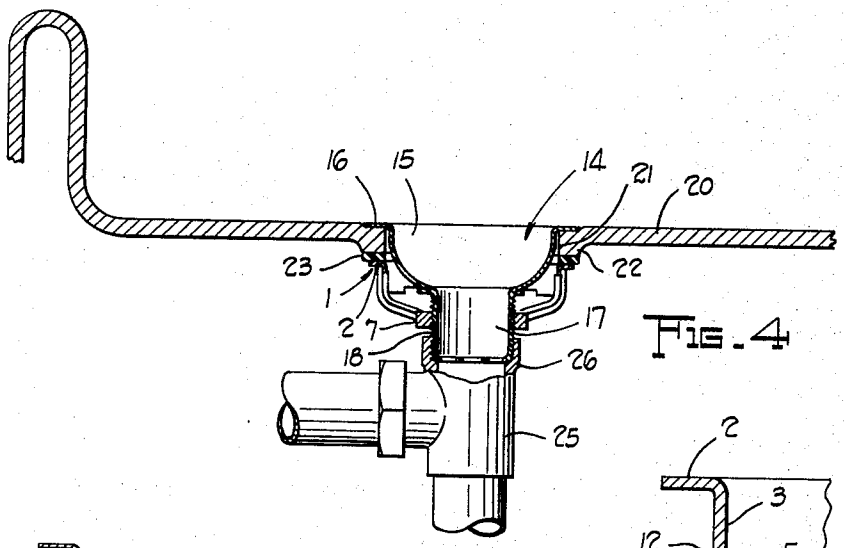


FIG. 4

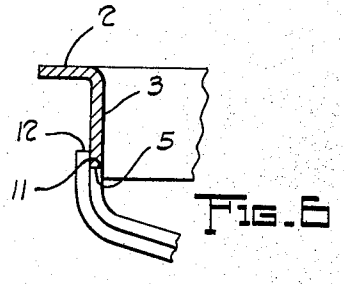


FIG. 6

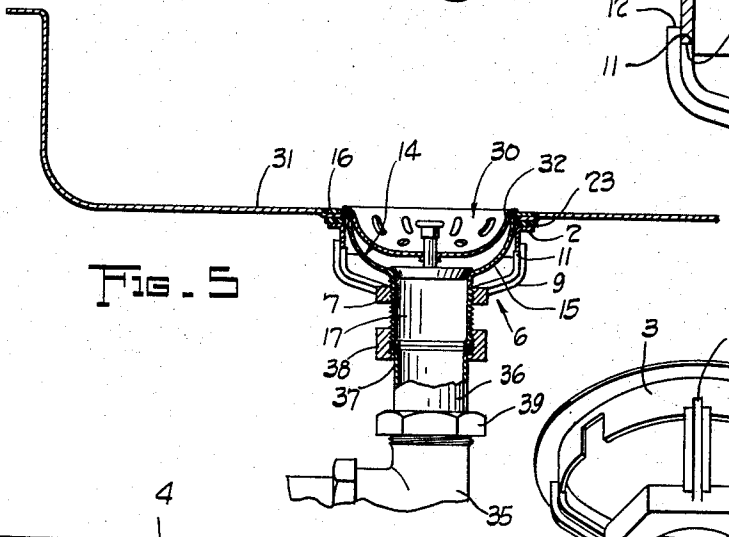


FIG. 5

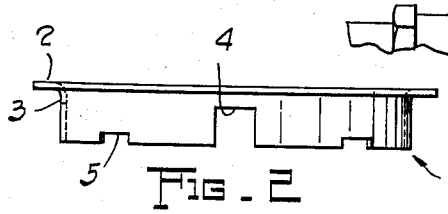


FIG. 2

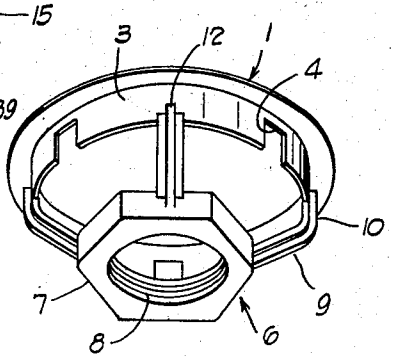


FIG. 1

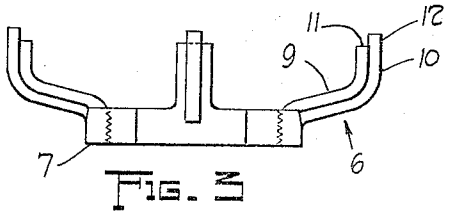


FIG. 3

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ADJUSTABLE NUT AND SHOULDER UNIT FOR PIPE TO PLATE JOINT

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3 Claims. (Cl. 85—32)

This invention relates to plumbing fixtures primarily and more particularly to sink strainers and the mounting of the same in drain openings.

Still more specifically the invention relates to means for mounting the strainer in sinks of different types and provides for connection to different types of waste fittings obviating the usual provision of several separate specially formed parts.

Broadly speaking the mounting means hereof essentially provides a single device which makes possible the mounting of sink strainers of fixed form in different types of sink having different critical dimensions, and necessarily connected to widely varying kinds of waste piping.

Essentially the invention comprises a two piece device in which the parts are readily arranged to compensate for extremes of thickness of material at the sink outlet and quite different piping elements and connections.

In this latter contemplation the connections including the elbows and T's as the case may be, are under some conditions connected directly to the strainer body, at the threaded outlet thereof, which results in limiting space in which the workman may manipulate wrenches or the like and would be virtually impossible to connect without in many cases necessitating a special strainer body. On the other hand even though ample room for access is available, the device hereof is equally useful and as is apparent provides a substantially universally useful mounting means for the purposes set forth in all types of sinks.

By reason of the two piece construction mentioned, the parts may be simply formed and as is often advantageous, even made of widely different materials, even finishing of the same being subject to considerable variation.

While the principal objects hereof are generally suggested in the foregoing, it is noted that one of them is to provide a generally applicable mounting device which will enable the positioning of a sink strainer in sinks of different construction and connection to various kinds of piping.

Yet another object of the invention is to provide a mounting device of the class described comprised of two parts, both of which afford adjustment for positioning action in conjunction with suitably formed sink strainer elements, whereby the strainer is mounted in a drain opening or the like.

A further object of the invention is to provide a mounting device for sink strainers which is comprised of a nut unit and a shoulder unit, the nut unit including elements for adjustment of the same with respect to appropriately formed portions of a sink strainer body, and the shoulder unit being adjustable with respect to the elements for separate adjustable positioning of said shoulder unit.

Other and further objects of the invention will be understood from a consideration of the specification appended hereto and shown in the drawing wherein:

Figure 1 is a bottom view in perspective, showing the mounting device of the invention.

Figure 2 is a view in elevation showing one of the parts of the device.

Figure 3 is a view in elevation showing another part of the device.

Figure 4 is a sectional view showing the device mounted in conjunction with a strainer and the strainer in turn mounted in a sink outlet.

Figure 5 is a view like that of Figure 4 showing the strainer mounted in a sink outlet of another type of sink with other connections therefore.

Figure 6 is a fragmentary view, and somewhat enlarged showing the interengagement of the nut unit and shoulder unit.

Referring now to the drawing, Figure 1 discloses the device of this invention which may as has been indicated, generally be denoted as a mounting device or under some conditions as an adjustable lock nut, the same being a composite or two piece device as has been heretofore generally described.

Inasmuch as the device is shown in separate detail in Figures 2 and 3, those figures will be initially used in reference to a description thereof, the portion in Figure 3 being generally denoted a shoulder unit, comprised of a flange portion 2 and a skirt 3. The flange 2 and the skirt 3 may be formed preferably at right angles and the entire shoulder unit 1 be of metal such as a metal stamping or the like.

The skirt 3 is in turn provided at spaced intervals, with series of notches denoted 4, these notches being further more specifically described as deep notches and a further series of notches 5, these latter notches being conversely described as shallow notches. The series of notches 4 and 5 may be said to lie in groups, in this instance being four of each and spaced suitably in the skirt 3 as will be readily understood, particularly when the disclosure in Figure 1 is likewise considered.

Turning now to a discussion of the Figure 3 disclosure, this unit is denoted a nut unit and generally indicated by the numeral 6, which nut unit is comprised of a nut element 7, which as indicated in Figure 1 may be formed with a hexagonal body having the threads 8 interiorly thereof, which threads 8 are generally of fairly coarse pitch for adjustment in a manner to be set forth hereinafter.

The nut element 7 including the threaded portion or threaded section 8 therein may in turn be formed integrally with a series of arms the series of arms denoted 9, there being in this disclosure four of such arms. Each of the arms extends radially from the nut element 7 for a certain distance and thence substantially axially as indicated at 10, the extremities of the arms terminating in shoulders 11 and being provided with centering members extending beyond the shoulders as indicated by the numeral 12.

It should be explained if it is not already clear that the shoulders 11 are adapted to engage or interengage with the notches 4 or 5 as the case may be and thus the position of the shoulder unit 1 as a whole may be varied with respect to the nut element 7 as will be ap-

parent by shifting the shoulder rotatively for example so that while initially the notches 4 may be engaged with the shoulder 11, thereafter the notches 5 are positioned in conjunction with such shoulders and thus the range of movement is afforded. It will be readily observed that the centering members 12 are arranged so that they extend along the outer surface of the skirt 3 to maintain the shoulder unit in its located position with respect to the arms 9, which arms 9 are also designated as shoulder unit engaging instrumentalities in some cases. The exemplification of this condition is clearly apparent from a consideration of Figure 6, which is a fragmentary disclosure but in enlarged condition.

Turning now to a discussion of Figure 4, there is shown here the manner of use of the device previously described in detail, in conjunction with a sink strainer which is generally denoted 14 and comprises a hemispherical body designated 15 having a peripheral flange 16 extending therefrom at the upper end and a drain outlet section 17 formed integrally with such body 15 and in turn having the threads 18 thereon. The outlet section 17 may be of fairly substantial extent and of suitable size so as to receive thereon the nut element 7 of the nut unit 6 previously mentioned as will be explained.

The sink, shown in section and fragmentary is of the standard type and may be for example what is known as a cast iron sink indicated at 20 which sink is provided with a suitable drain opening 21 therein the portion of the sink at the opening 21 being of relatively great thickness so as to afford a shoulder 22 at the upper portion of which the flange 16 previously mentioned is seated.

In order to maintain the strainer body 15 in position in the drain opening, the device of this invention is availed of and may therefore be designated as a strainer mounting device, arranged as shown in Figure 4 with the shoulder unit 1 in the position indicated, whereby the flange 2 thereof is adjacent and in contact with a suitable ring washer 23.

The arms 9 of the nut unit 6, extending from the nut element 7 as they do, will be engaged in this example with the notches 4, denoted as the deep notches and thus the nut element 7 may be in the general location as indicated in the Figure 4 on the threaded portion 17. It will be explained that by reason of the fact that the length of the threaded section or drain outlet section 17 is desirably as short as will be able to be accommodated in the various types of sinks and by reason of the adjustment which is possible between the nut element 7 and the flange 2 of the shoulder unit 1, the location of the nut element 7 farther up on the threads 17 so to speak is feasible. Thus if it is desired to connect a T 25 of the drain piping directly to such threaded section 17, this may be done since the nut element 7 is as stated sufficiently far from the end to permit such connection and permit a substantial engagement of the threads 17 with the corresponding threads in the portion 26 of the T 25.

It may be pointed out that ordinarily the strainer 14 may have positioned therewithin the usual crumb cup or basket 30 generally so denoted in Figure 5, although not disclosed in such location in Figure 4.

Turning now to the Figure 5 disclosure, it will be seen that the sink 31 hereof is of substantially less thickness than the sink 20 previously mentioned and in this instance the strainer 14, is shown as similarly mounted with the flange 16 thereof overlying the drain opening 32 in the sink 31. The corresponding figures of reference will be used to designate the corresponding parts in this Figure 5 disclosure as was true in Figure 4, and thus the body 15 is shown as positioned in conjunction with the flange 16 and the threaded outlet section 17 depends from such body 15.

In this disclosure, the nut unit 6 as generally denoted, is shown as having been threaded farther up the outlet section 17 so to speak and the arms 9 of the nut unit, are positioned with the shoulders 11 thereof engaged in the notches 5, in a manner similar to the disclosure of Figure 6, the flange 2 being maintained in engagement with a suitable gasket or washer 23 as was true in the Figure 4 disclosure.

It will be readily understood that in view of the substantial amount of adjustment which is possible as between the threaded portion or nut element 7 of the nut unit 6, and the shoulder unit, a wide range of thicknesses at drain outlets may be accommodated. In this instance a different kind of connection of the main outlet or threaded section 17 with a T 35 is provided, as by a slip joint connection involving a tail piece 36 with the flange portion 37 engaged by a suitable flange nut 38 whereby the tail piece 36 is maintained in position, the lower portion of the tail piece 36 in turn being engaged with the T as by common slip nut 39 which may be provided.

In view of the foregoing it will be readily apparent that a wide range of sink outlet thicknesses is accommodated by reason of the mounting device hereof to be both threadedly adjustable on the outlet portion of a sink strainer and likewise to have substantial adjustment between a shoulder engaging unit and the said nut portion to compensate for the various thicknesses as generally indicated. The actual limits are substantially greater than those heretofore contemplated in a single device of this nature even though it is comprised of two parts which are for all intents and purposes one part in position to carry out the functions thereof.

It should be further understood that whereas the notches 5 are shown as being formed in the skirt 3 of the shoulder unit 1, the notches 5 may under some circumstances be omitted or if desired the shoulders 11 may engage the lower extremity of the skirt 3 for example and thus provide a further adjustment if needed.

I claim:

1. In strainer mounting means of the class described, in combination, a nut unit having a section formed with threads for engaging corresponding threads of a strainer for movement therealong, said unit also including shoulder unit engaging instrumentalities comprising a series of arms extending from the threaded section, and a shoulder unit adapted to be positioned for cooperation with the mounting flange of a strainer to locate such strainer in a drain opening, said shoulder unit having portions formed to interengage with the instrumentalities in different circumferential and axial positions, said portions comprising a series of notches of different depths, to vary the distance between the threaded section and said shoulder unit.

2. In strainer mounting means of the class described, in combination, a nut unit comprising a nut element having threads for engagement with and movement along corresponding threads of a strainer, and shoulder unit engaging instrumentalities comprising a series of radially extending arms extending from said nut element, and a shoulder unit including a flange section for cooperation with a mounting flange of a strainer to maintain such strainer in the outlet opening of a sink or the like, and a skirt extending from said flange, said skirt having a series of positioning portions comprising notches therein, for engagement with the instrumentalities aforesaid, whereby the distance between the nut element and the flange section may be varied.

3. The combination as claimed in claim 2 wherein the arms are provided at their extremities with shoulders and centering members, and the series of notches include a group of deep notches and group of shallow notches, the arm shoulders being engageable with either group to vary the distance as stated.

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