FOOD WASTE GRINDER

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2 Claims. (Cl. 241—100.5)

This invention relates to a food waste grinder, and more particularly to an improved supporting structure by means of which the grinder can be suspended from the bottom wall of a sink at the drain opening therefor. The invention is applicable to grinder supporting structures of the type wherein the grinder housing is secured to a supporting ring encompassing a tubular adapter sleeve depending from a sink outlet, and wherein the supporting ring is supported on the sleeve by means of a retaining ring encompassing the lower end of the sleeve and resting on a shoulder provided on the sleeve. Prior assemblies of this type required the person installing the grinder to slide the supporting ring, together with other elements of the assembly, over the sleeve projecting from the bottom wall of the sink and to hold the supporting ring against falling off the sleeve while assembling the retaining ring to the sleeve. The retaining ring, being, generally, an expandable snap ring, was difficult to assemble in view of the fact that one hand of the assembler was occupied in temporarily holding the supporting ring in place. The assembly task was frequently further complicated by the cramped working space surrounding the grinder in the usual locations where grinders are installed, such as below an enclosed kitchen sink.

This invention contemplates equipping the supporting ring portion of the assembly with resilient means for frictionally engaging the adapter sleeve, so that once the supporting ring is assembled on the adapter sleeve it will be retained in the position where it is placed. The hands of the assembler are thus freed to manipulate the retaining ring and assemble it to the adapter sleeve for retaining the supporting ring on the sleeve. The assembly operation of the supporting structure is thus facilitated and simplified. Other features, objects and advantages of the invention will be apparent from the following detailed description thereof, of which the attached drawings form a part, and wherein:

Fig. 1 is an elevational view showing a food waste grinder attached to a sink by means of the improved supporting structure of this invention;

Fig. 2 is an enlarged vertical sectional view through the improved structure;

Fig. 3 is a horizontal sectional view taken along the line II—Ill of Fig. 2;

Fig. 4 is an enlarged fragmentary sectional view taken as indicated by the line IV—IV in Fig. 3; and,

Fig. 5 is an elevational view, partly in section, illustrating one stage in the assembly of the improved supporting structure.

Referring to the drawing in detail, Fig. 1 illustrates a food waste grinder having a housing 11 supported beneath the bottom wall 12 of a sink by means of the improved supporting structure of this invention, identified generally by the numeral 13. The grinder proper is of heretofore known construction and includes a motor driven comminuting device (not shown) for grinding food waste deposited in the housing 11 and for discharging the waste through a drain pipe 16. The supporting structure is shown in detail in Figs. 2, 3 and 4 and includes an adapter sleeve 17 projecting through the drain outlet or opening in the sink bottom wall 12. The adapter sleeve 17 comprises a vertical tubular portion 18 and an outwardly extending flange 19 at its upper end which rests on the sink wall 12. Encircling the tubular portion 18 of the adapter sleeve 17 is a supporting ring 20 to which the grinder housing 11 is secured by means of stud bolts 21 and nuts 22. A resilient gasket is preferably interposed between the housing 11 and the ring 20. The stud bolts 21 are threaded to the supporting ring 20 and extend upwardly therefrom to engage and hold a clamping ring 23 against the under surface of the sink wall 12. The clamping ring 23 also encompasses the tubular portion 18 of the adapter sleeve 17 and cooperates with sleeve flange 19 to clamp and form a seal with the sink wall 12 surrounding the sink outlet.

The supporting ring 20 and the grinder, which has its housing 11 bolted to the supporting ring 20, are supported and retained on the adapter sleeve 17 by means of a retaining ring 24 encompassing the lower end of the tubular portion of the sleeve 18 and resting on an upwardly facing shoulder provided by the lower surface of an annular groove 25 on the outer surface of sleeve 17. The retaining ring 24 is a resilient or snap ring which is split, as indicated at 26, to permit the ring to be expanded and slipped over the lower end of adapter sleeve 17.

The sequence of assembly for the above described elements of the supporting structure 13 is substantially as follows: The adapter sleeve 17 is inserted into the opening in sink wall 12; supporting ring 20 and clamping ring 23 are assembled to the sleeve 17; the retaining ring 24 is snapped in place in groove 25. In accordance with this invention, means are provided for temporarily retaining or holding supporting ring 20 in place on the adapter sleeve 17 while the retaining ring 24 is being assembled to the sleeve 17. This temporary retaining means is illustrated in Figs. 3, 4 and 5 and includes resilient means carried by the supporting ring 20 for frictionally engaging and gripping the outer surface of the tubular portion 18 of the sleeve 17. The resilient gripping means preferably comprises a plurality of cylindrical rubber, or rubber like, plug members 27 disposed in recesses in the upper surface of the supporting ring 20. The plug receiving recesses are open to the inner surface of supporting ring 20 in a manner to permit a portion of each plug 27 to project inwardly of the ring 20 and engage the adapter sleeve 17.

The resilient plug members 27 flex, by engagement with adapter sleeve 17, as the supporting ring 20 is assembled on the sleeve 17, grip the sleeve and hold the supporting ring 20 in place on the sleeve. (See Fig. 5.) With the supporting ring 20 and clamping ring 23 thus temporarily held on the upper portion of sleeve 17, both ends of the assembler are freed to manipulate retaining ring 24 and snap it in place in groove 25 at the lower end of sleeve 17. What heretofore constituted an awkward assembly step is, therefore, facilitated and made easy by the temporary gripping means on the supporting ring 20.

Following assembly of the retaining ring 24 to the adapter sleeve 17, the bolts 21 are screwed upwardly to force clamping ring 23 into engagement with sink wall 12 and to clamp the sink wall between the ring 23 and the adapter flange 19 as the supporting ring is forced downwardly onto retaining ring 24. The grinder housing 11 is thereafter assembled to the supporting ring 20, and the nuts 22 are threaded onto bolts 21 and tightened.
to secure the housing 11 in place and bring the elements of the supporting structure into the relationship illustrated in Fig. 2.

From the foregoing it will be apparent this invention provides an improved waste food grinder supporting structure which may be quickly and easily assembled. It will further be apparent that the resilient members 27 on the supporting ring 20 greatly contribute to the ease with which the structure is assembled by temporarily maintaining the supporting ring 20 on the adapter sleeve and out of the way of groove 25, thereby enabling the assembler to employ both hands in expanding and assembling the retaining ring 24 onto the adapter sleeve 17.

While the invention has been shown in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof.

What is claimed is:

1. A structure for supporting a food waste grinder at a sink outlet, the combination of an adapter sleeve comprising a vertical tubular portion having an outwardly extending flange at the top, said sleeve being adapted to extend through the sink outlet opening with its flange in engagement with the sink, said sleeve having an upwardly facing, ring supporting shoulder on the exterior of the tubular portion thereof, a supporting ring encompassing the tubular portion of said sleeve, said supporting ring having a plurality of recesses in the upper surface thereof and open to the inner surface of the ring, a resilient member disposed in each of said recesses and having a portion thereof projecting inwardly of the inner surface of said supporting ring, said resilient members being adapted to frictionally engage the exterior surface of said sleeve for temporarily retaining said supporting ring on said sleeve, a retaining ring encompassing said sleeve and seated on said shoulder for durably retaining said supporting ring on said sleeve, and means for securing a food waste grinder to said supporting ring.

2. In a structure for supporting a food waste grinder at a sink outlet, the combination of an adapter sleeve comprising a vertical tubular portion having an outwardly extending flange at the top, said sleeve being adapted to extend through the sink outlet opening with its flange in engagement with the sink, said sleeve having an upwardly facing, ring supporting shoulder on the exterior of the tubular portion thereof, a supporting ring encompassing the tubular portion of said sleeve, a plurality of spaced apart, discreet, resilient elements carried solely by said supporting ring and projecting inwardly of the inner surface of said ring for frictionally engaging the exterior surface of said sleeve to temporarily retain said supporting ring on said sleeve, a retaining ring encompassing said sleeve and seated on said shoulder for durably retaining said supporting ring on said sleeve, and means for securing a food waste grinder to said supporting ring.

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