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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Combination Sink Unit

We, LOUIS JOSEPH SCHAVERIEN, of 12 Wessex Gardens, London, N.W. 11, a British Subject, and BERNARD MARKS of Gloucester Drive, London, N.W.11, a British Subject, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 The invention relates to domestic sinks and washing machines. At the present time, when domestic kitchens are restricted as to size, it is difficult to accommodate all the appliances required in the one room and furthermore satisfactory apparatus can be very expensive. It is the object of the present invention to overcome both these difficulties.

20 The invention consists in a domestic sink having a waste and also an agitator for agitating water in the sink for washing clothes or crockery therein, and in which the agitator is adapted for the driving of supplementary appliances.

25 The invention further consists in a sink as set forth in the preceding paragraph in which the agitator is adapted to drive a flexible drive attached thereto and to one of said supplementary appliances.

30 The invention still further consists in a sink as set forth above provided with an adaptor having means thereon which co-operates with means on the sink to locate the adaptor relative to coupling means upon the agitator and to secure it to the sink, the said adaptor having means thereon for attaching a supplementary appliance thereto in such a position as to be driven by the agitator by way of said coupling means.

40 The accompanying drawings show, by way of example only, a number of embodiments of the invention in which:—

Figure 1 is a cross section of a sink having an agitator in the side thereof adapted to

drive the flexible drive;

Figure 2 shows a section through a connector on one end of the flexible drive of figure 1;

Figure 3 is a section through the side of the sink showing the agitator, connector means and one form of adaptor;

Figure 4 shows in perspective a coffee mill adapted to be driven from the agitator by the flexible drive of figure 1;

Figure 5 shows in perspective a tin-opener adapted to be driven from the agitator by the flexible drive of figure 1;

Figure 6 shows a cross section of the sink having thereon a clothes wringer adapted to be driven from the agitator by way of the adaptor of figure 3;

Figure 7 shows in part section and part elevation a grater adapted to be driven from the agitator by way of the adaptor of figure 3;

Figure 8 shows in part section and part elevation a mincing machine adapted to be driven from the agitator by way of the adaptor of figure 3;

Figures 9 and 10 show principally in elevation and in vertical section respectively an elbow drive to which numerous mixing, sieving and other tools can be attached for driving from the agitator by way of the adaptor of figure 3;

Figure 11 shows a cross section of the sink showing in elevation a washer and tumbler drier driven from the agitator by way of the adaptor of figure 3;

Figure 12 shows in part section and part elevation details of the washer and tumbler drier of figure 11;

Figures 13 and 14 show plan and elevation respectively of a further adaptor positioned in the sink;

Figure 15 is a vertical section through the adaptor of figures 13 and 14;

Figure 16 shows alternative means for posi-

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tioning the adaptor in the sink;

Figure 17 shows a spin drier supported in the sink on and driven by way of the adaptor of figures 13 and 14;

5 Figure 18 shows a potato peeler supported in the sink on and driven by way of the adaptor of figures 13 and 14;

Figure 19 shows a juice extractor supported in the sink on and driven by way of the 10 adaptor of figures 13 and 14; while

Figure 20 shows a coffee mill supported in the sink on and driven by way of the adaptor of figures 13 and 14.

Figure 1 shows a simple arrangement in 15 which the sink 1, which is preferably constructed in the known manner of sheet steel, is recessed at the back, for example, under the position usually occupied by the taps, not shown, seeing that they do not necessarily 20 form part of the sink. This recess 2 is occupied by the agitator 3, driven by an electric motor 4 by way of a pulley 5, belt 6 and pulley 7. A sink so constructed serves the purpose of use as a normal kitchen sink and 25 as a clothes washing machine, the sink being filled with hot or cold water in the normal manner from the usual taps for both purposes. The agitator can be covered, if desired, by a cover plate provided for the purpose, or 30 the adaptor hereinafter described with reference to figure 3 may be used for this purpose.

There is also shown in figure 1 a flexible drive 8 which is adapted at one end to be connected to the centre of the agitator and at the 35 other end to receive one of a number of tools such as the mixer 9. Any material spilled from the mixing bowl 10 is confined to the sink and is easily washed away down the 40 waste 11.

One convenient way of connecting the flexible drive 8 to the agitator is to provide a squared shaft 12 (Fig. 2) on the flexible drive and a squared recess 13 in the boss of 45 the agitator 3, see figure 3, and a screw-threaded cap 14 for fastening upon the threaded end 15 of the boss to hold the two together. It is found that, although the sleeve of the flexible drive is not held stationary 50 by attachment to the sink, no difficulty is found when it is held in the hand due to its relative rigidity.

The adaptor plate 16 shown in figure 3 is not used with the flexible drive above described, and is referred to specifically as to its purpose hereinafter.

Figure 4 shows a small coffee mill comprising a supporting base 17, which can be secured to the wall or some fitting adjacent the 60 sink, a receptacle 18 for ground coffee, and a connector means to which the end of the flexible drive 8 is attached by a member 19.

Figure 5 shows a tin opener which also is adapted to be screwed to the wall or some 65 fitting adjacent the sink, and is provided with

a connector means for attaching the flexible drive 8.

It will be understood that the appliances shown in figures 1, 4 and 5 are merely 70 examples of the use of the flexible drive and that the drive may be used with other appliances such as shoe brushes, scouring brushes and so on, as desired.

In an alternative arrangement brushes and the like can be connected directly to the agitator, i.e. without a flexible drive: 75

The coupling to the agitator may be by means of a screw-threaded rod entering a screw-threaded bore in the agitator or by any other suitable coupling means. 80

The motor 4 may also be used to drive a clothes wringer 27 of the kind shown in figure 6 supported upon a member 20 bridging the sink 1 and driven by way of a belt enclosed in a casing 21. For this and other purposes 85 there is provided an adaptor plate 16, shown in section in figure 3, which is a close fit in the circular agitator recess 2 so as to be accurately located in respect of the agitator 3, and is provided below with an arcuate peripheral projection 22, or a pair of such projections, which hook into corresponding depressions in the recess 2 and is provided with a 90 catch 23 which is rotatable by means of a lever 24 to lock the adaptor plate securely in position. The adaptor plate 16 is also provided with a screw-threaded attachment ring 25 and a pair of locating bushes 26 below. 95

The drive for the wringer 27 of figure 6 is provided with a squared driving shaft like 100 that shown in figure 2, which enters the squared recess 13 in the boss of the agitator, while the casing is secured to the attachment ring 25 by a rotatable screw-threaded member 28 operated by a lever 29. For details refer to the description relating to figures 7 and 8. 105

The wringer may be provided with the usual reversing gear and operating lever 30, so that being able to pass the clothes in both 110 directions, the wringer can be used on sinks with a draining board either to the right or the left of the sink.

Figure 7 shows the use of the adaptor plate 16 for the attachment of the grater 31 to the 115 agitator 3. The adaptor is secured in the manner described by the locking members 23, 24, while the grater is provided with a rotatable screw-threaded member 28 operated by the lever 29 which screws upon the attachment ring 25. The thread upon both members is 120 either coarse or there are several parallel threads so that complete connection is made by merely rotating the member 28 through 90°. 125

There is provided upon the casing of the grater 31 a pair of locating legs 32 which register with the bushes 26 upon the plate 16 to ensure that the squared shaft 12 of the grater is co-axial with the recess in the boss 130

of the agitator. The grater 31 may have the usual cup-like perforated member 33 and the feed channel 34 or be of other construction, as desired.

5 Figure 8 shows a mincing machine 36 attached to the sink and driven in a similar manner to the grater of figure 7.

75 The adaptor plate 16 may be provided with a screw-threaded cup which can be screwed upon the attachment ring 25 to cover the hole when in use and prevents contact with the agitator accidentally and which can be easily removed when connecting the grater, mincing machine and so on when required.

80 15 Figures 9 and 10 show an elbow drive which is adapted to be attached to the agitator in the same manner as the grater and mincer and has a casing 37 in two parts hinged together at the hinge 38 and is provided with a dog-type clutch 39 by which the drive is broken when the casing parts are hinged. It is preferred to provide saw tooth type dogs so that the carving parts may be brought together and locked in position by the catch 40
90 25 whatever the relative positions of the parts of the driving shaft.

The output shaft 41 is driven by the bevelled gears 42 and 43 and carries a connector 44 into which a variety of tools may be inserted alternatively. The hinge 38 allows the tool to be removed from a basin 45 for changing or for removal of the basin.

100 35 Figure 9 shows a basin 45 supporting a sieve 46 while the tool is a paddle 47 which, upon rotation, urges the material placed in the sieve 46 to pass through the mesh 48.

105 40 As an alternative to the wringer of figure 6, there may be provided a tumbler dryer as shown in figures 11 and 12 comprising a cylindrical perforated container 49 having a hinged door 50 held closed by the catches 51, and mounted for rotation co-axially with the agitator. One way of supporting the cylinder is to provide a recess 52 in the side of the
110 45 sink, opposite to the agitator for supporting a bearing member 53, containing a ball bearing upon which the tumbler dryer rotates. The tumbler dryer is supported adjacent the agitator upon a ball bearing in another bearing member 53 attached to the agitator plate 16 by the screw-threaded member 28. The outer ends of the rotatable part of the tumbler dryer are supported in the ball bearings, the one adjacent the agitator being provided with
115 50 a squared shaft 12 which engages in the squared recess 13 in the boss 15 on the agitator.

120 55 In order that the dryer can be easily assembled in, and removed from the sink, the container is provided with diametrically positioned key members 56, which fit into diametrically positioned slots in the outer ends of the rotatable part, the keys being parallel to one another, so that, when the latches 55 are
125 60 opened, and the members 54 covering the

ends of the slots are hinged out of the way, the container may be lifted out of the sink.

It is also proposed to provide hot air from a blower-heater to assist in drying the clothes in the tumbler drier.

70 With such an arrangement an automatic sequence of operations may be provided in which the clothes in the perforated container are immersed in hot soapy water, the container rotated by means of the agitator, the water drained away, the sink filled with clean rinsing water, drained again and then the clothes tumbler dried with hot air.

80 The sink is provided with a lid 57, preferably of transparent plastic, to prevent the water being thrown out and to protect the operator.

85 Where a vertical drive from the bottom of the sink is desired it is proposed to provide an L-shaped adaptor of the kind shown in figures 13 to 20, having a base part 58 and a vertical part 59, the latter having attachment means which co-operate with the adaptor plate 16, or alternatively may be made to co-operate and be attached directly to the rim of the recess 2 in like manner to the adaptor plate 16. The base rests on the bottom of the sink and is held in position by, for example, rubber buffers 60 at the back and adjustable buffers 95 61 at the front either supported upon adjustable screw-threaded bolts 62 as shown in figure 15 or toggle levers 63 as shown in figure 16, while the sink may be recessed as shown to receive them.

100 There is provided in the base 58 bearings 64 and 65 which support a short shaft 66 having a squared recess to receive a squared shaft, and driven from the agitator by way of the pulley 67, the belt 68, the pulley 69 105 and an intermediate pulley.

110 In figure 17 there is shown a perforated container 70 of a spin drier supported upon a squared driving shaft 71 which fits into the short shaft 66 of the L-shaped adaptor and is rotated about a vertical axis by the agitator motor. A lid 57 is provided to prevent water being thrown out and to protect the operator, and may be associated with a switch which prevents the spin drier working except when
115 the lid is in position.

120 Figure 18 shows the use of the L-shaped adaptor for supporting and driving the potato peeler comprising a bowl 72 and a rotatable plate 73 of the usual kind and having funnel 120 74 into which water from a swan-neck upon the taps may be poured, while the water and debris pass out of the spout 75 into the waste 11. It will be observed that in this construction the waste is at the front of the sink and away from the agitator, and this position is preferred if the waste plug is provided with a chain, as the latter is thereby kept away from the agitator, but the exact position of the waste is optional. This as well as the con- 130

structions of figures 19 and 20 are driven from the L-shaped adaptor by a vertical squared shaft passing into the short shaft 66. Figure 19 shows a juice extractor of the normal kind while figure 20 shows a coffee mill. The bodies of the potato peeler, juice extractor and coffee mill do not need to be attached to the base 58, merely located in relation thereto, for example, by means of a protrusion 76 on the base.

The examples hereinbefore illustrated are to be understood to be only a few of a number of alternative arrangements by which different forms of appliances may be driven by the agitator.

It is also within the scope of the invention to provide a basket for the support of crockery and other utensils in which they may be lowered into and supported within the sink, so that, by operating the agitator the articles are washed in a most convenient manner, subsequently being lifted out and placed on the draining board to drain and dry.

Alternatively provision may be made for passing of the air from a blower-heater over the crockery while still in the sink, to dry it.

It is also within the scope of the invention to provide heating means below the bottom of the sink by means of which the water may be raised to boiling point while clothes are being washed.

It will be understood by one skilled in this art that the different appliances described and illustrated do not all require to be operated at the same speed, and therefore it is proposed to adopt one of the following alternative arrangements, as is most convenient, namely, to provide a change-speed gear between the electric motor and the agitator, so that the appropriate speed may be chosen dependent upon the appliance being used, or to incorporate in an appliance an appropriate set of gears to provide the required operating speed or to provide such gearing in the L-shaped adaptor as may be required. Alternatively a multi-speed motor may be provided.

The agitator may be driven by way of a friction drive as distinct from a belt-drive if desired. Also more than one agitator may be fitted if increased turbulence is desired, for example in opposite sides of the sink.

It will now be appreciated that by providing means by which the appliances may be operated by a common motor in a domestic sink much room can be saved in the kitchen besides a substantial saving in cost.

It is to be understood that the above description is by way of example only and that details for carrying the invention into effect may be varied without departing from the scope of the invention claimed.

WHAT WE CLAIM IS:—

1. Domestic sink having a waste and also an agitator for agitating water in the sink for washing clothes or crockery therein, and in

which the agitator is adapted for the driving of supplementary appliances.

2. Sink as claimed in claim 1 in which the agitator is adapted to drive a flexible drive attached thereto and to one of said supplementary appliances.

3. Sink as claimed in claim 1 provided with an adaptor having means thereon which co-operates with means on the sink to locate the adaptor relative to coupling means upon the agitator and to secure it to the sink, the said adaptor having means thereon for attaching a supplementary appliance thereto in such a position as to be driven by the agitator by way of said coupling means.

4. Sink as claimed in claim 3 in which the means upon the adaptor which co-operates with means on the sink comprises a circumferential rim having projections thereon which coincide with depressions in the annular rim of a circular depression in which the agitator is located.

5. Sink as claimed in claim 4 in which a projection is movable upon the adaptor to allow the insertion within and withdrawal of the circumferential rim on the adaptor from the circular depression.

6. Sink as claimed in claim 3 in which the means upon the adaptor for attaching a supplementary appliance thereto comprises a screw-threaded ring upon the adaptor to receive a rotatable screw-threaded cup-like member upon the said appliance.

7. Sink as claimed in claim 6 in which the supplementary appliance is a mincing machine, a grater, a mixer, tumbler drier, clothes wringer or such like domestic appliance having a horizontal input drive.

8. Sink as claimed in claim 3 or 7, in which the supplementary appliance has locating means thereon which co-operates with locating means upon the adaptor.

9. Sink as claimed in claim 6 in which the supplementary appliance includes a pair of bevel pinions by means of which a driven shaft, which rotates one of a number of detachable tools, is positioned at an appropriate angle to the input drive, which is driven by the agitator.

10. Sink as claimed in claim 9 in which the pinions are housed in a casing hingeable in respect to the means upon the said appliance for attachment to the adaptor.

11. Sink as claimed in claim 7 in which the supplementary appliance is a tumbler drier comprising a rotatable perforated cylindrical container mounted in the sink co-axial with the agitator and removable from said sink.

12. Sink as claimed in claim 11 provided with a blower-heater for drying the clothes in the tumbler drier.

13. Sink as claimed in claim 3 in which the adaptor is of L-shape the base of which is adapted to stand on the bottom of the sink



structions of figures 19 and 20 are driven from the L-shaped adaptor by a vertical squared shaft passing into the short shaft 66. Figure 19 shows a juice extractor of the normal kind while figure 20 shows a coffee mill. The bodies of the potato peeler, juice extractor and coffee mill do not need to be attached to the base 58, merely located in relation thereto, for example, by means of a protrusion 76 on the base.

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Alternatively provision may be made for passing of the air from a blower-heater over the crockery while still in the sink, to dry it.

It is also within the scope of the invention to provide heating means below the bottom of the sink by means of which the water may be raised to boiling point while clothes are being washed.

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The agitator may be driven by way of a friction drive as distinct from a belt-drive if desired. Also more than one agitator may be fitted if increased turbulence is desired, for example in opposite sides of the sink.

It will now be appreciated that by providing means by which the appliances may be operated by a common motor in a domestic sink much room can be saved in the kitchen besides a substantial saving in cost.

It is to be understood that the above description is by way of example only and that details for carrying the invention into effect may be varied without departing from the scope of the invention claimed.

WHAT WE CLAIM IS:—

1. Domestic sink having a waste and also an agitator for agitating water in the sink for washing clothes or crockery therein, and in

which the agitator is adapted for the driving of supplementary appliances.

2. Sink as claimed in claim 1 in which the agitator is adapted to drive a flexible drive attached thereto and to one of said supplementary appliances.

3. Sink as claimed in claim 1 provided with an adaptor having means thereon which co-operates with means on the sink to locate the adaptor relative to coupling means upon the agitator and to secure it to the sink, the said adaptor having means thereon for attaching a supplementary appliance thereto in such a position as to be driven by the agitator by way of said coupling means.

4. Sink as claimed in claim 3 in which the means upon the adaptor which co-operates with means on the sink comprises a circumferential rim having projections thereon which coincide with depressions in the annular rim of a circular depression in which the agitator is located.

5. Sink as claimed in claim 4 in which a projection is movable upon the adaptor to allow the insertion within and withdrawal of the circumferential rim on the adaptor from the circular depression.

6. Sink as claimed in claim 3 in which the means upon the adaptor for attaching a supplementary appliance thereto comprises a screw-threaded ring upon the adaptor to receive a rotatable screw-threaded cup-like member upon the said appliance.

7. Sink as claimed in claim 6 in which the supplementary appliance is a mincing machine, a grater, a mixer, tumbler drier, clothes wringer or such like domestic appliance having a horizontal input drive.

8. Sink as claimed in claim 3 or 7, in which the supplementary appliance has locating means thereon which co-operates with locating means upon the adaptor.

9. Sink as claimed in claim 6 in which the supplementary appliance includes a pair of bevel pinions by means of which a driven shaft, which rotates one of a number of detachable tools, is positioned at an appropriate angle to the input drive, which is driven by the agitator.

10. Sink as claimed in claim 9 in which the pinions are housed in a casing hingeable in respect to the means upon the said appliance for attachment to the adaptor.

11. Sink as claimed in claim 7 in which the supplementary appliance is a tumbler drier comprising a rotatable perforated cylindrical container mounted in the sink co-axial with the agitator and removable from said sink.

12. Sink as claimed in claim 11 provided with a blower-heater for drying the clothes in the tumbler drier.

13. Sink as claimed in claim 3 in which the adaptor is of L-shape the base of which is adapted to stand on the bottom of the sink

and is provided with a vertical shaft with driving means for co-operating with an input shaft of a supplementary appliance above the base, and driving means between the coupling means and the vertical shaft to rotate the latter when the agitator is rotated.

14. Sink as claimed in claim 13 in which the supplementary appliance is a spin drier, potato peeler, juice extractor, coffee mill or such like domestic appliance having a vertical input drive.

15. Sink as claimed in claim 14 in which the spin drier comprises a cylindrical perforated container with a co-axial shaft adapted to co-operate with the driving means upon the vertical shaft of the adaptor and to be supported thereby.

16. Sink as claimed in claim 14 in which the supplementary appliance has a stationary outer casing which is adapted to stand upon and to be located in position upon the base of the adaptor, and has a vertical input drive which co-operates with the driving means upon the vertical shaft of the adaptor.

17. Sink as claimed in claim 13 having adjustable buffer means on the base of the adaptor to rigidly locate it in position on the bottom of the sink.

18. Sink as claimed in claim 7 in which the supplementary appliance is a clothes wringer supported on a member bridging the sink and connected to the adaptor by means of a belt drive in a casing.

19. Sink as claimed in claim 1 provided with a basket for supporting crockery and other utensils in the sink for the washing thereof.

20. Sink as claimed in claim 19 provided with a blower-heater for drying the crockery in the sink.

21. Sink as claimed in claim 13 in which the speed of rotation of the coupling means and the vertical shaft are different.

22. Sink as claimed in any of the claims 1-19 in which the speed of rotation of the agitator is adapted to be changed to suit the required speed of the supplementary appliance being driven.

23. Sink as claimed in claim 22 in which the speed of rotation of the agitator is changed by means of a change speed gear.

24. A combination of a sink as claimed in claim 1 with any one of the supplementary appliances referred to in claim 7, 14 or 18.

25. A combination as claimed in claim 24 including an adaptor as referred to in any of the claims 3-6 and 13.

26. Domestic sink having a waste in the bottom and an agitator in the side thereof adapted for the driving of supplementary appliances substantially as hereinbefore described with reference to and as shown in the respective figures of the accompanying drawings.

27. Domestic sink as claimed in claim 26 combined with any one of the appliances illustrated substantially in the manner described with reference to and as shown in the respective figures of the accompanying drawings.

MARKS & CLERK, *LS*

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Agents for the Applicant(s).

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