

July 17, 1923.

C. B. FOSTER

1,461,979

CONVERTIBLE SINK AND WASHING DEVICE

Filed Dec. 8, 1917

3 Sheets-Sheet 1

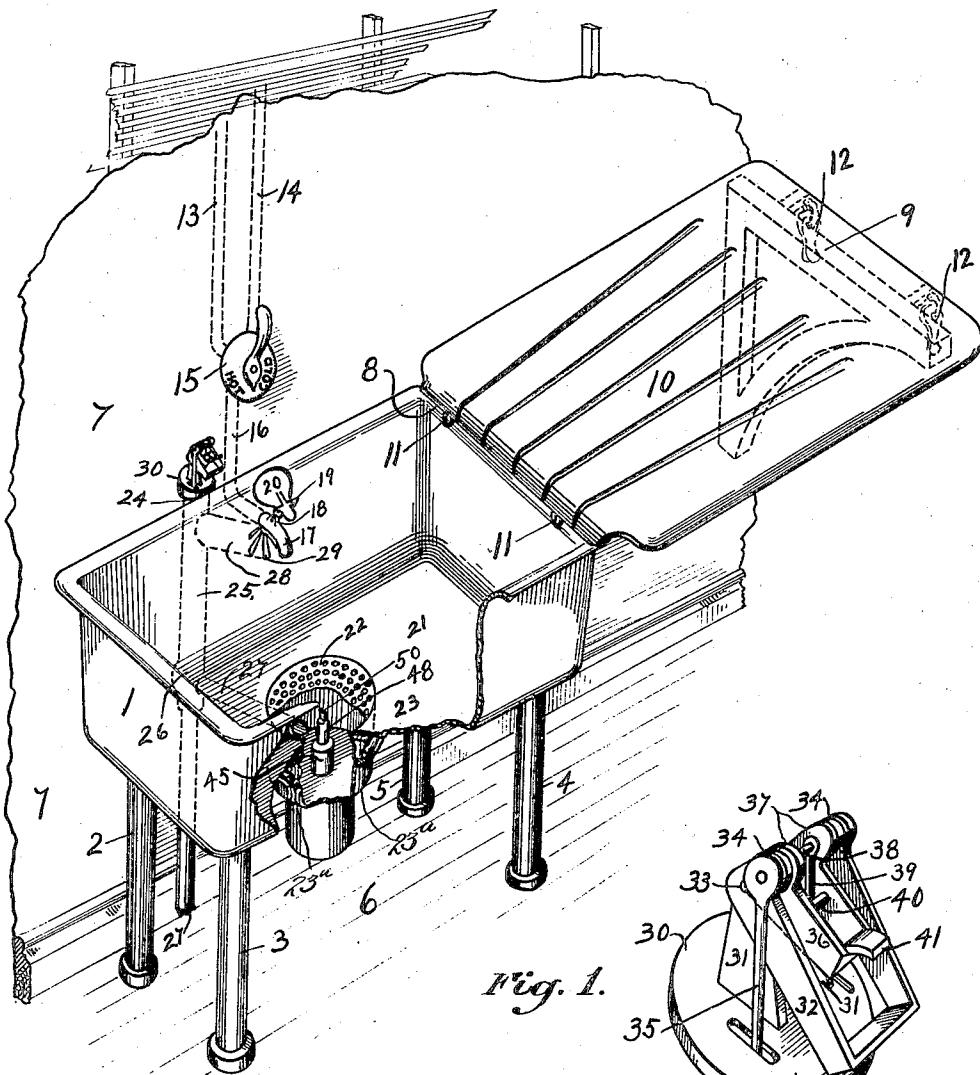


Fig. 1.

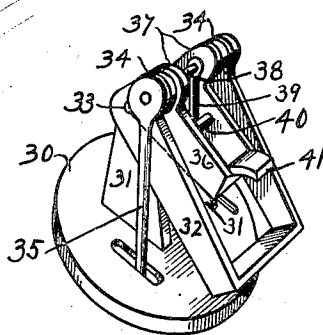


Fig. 8.

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3 Sheets-Sheet 2

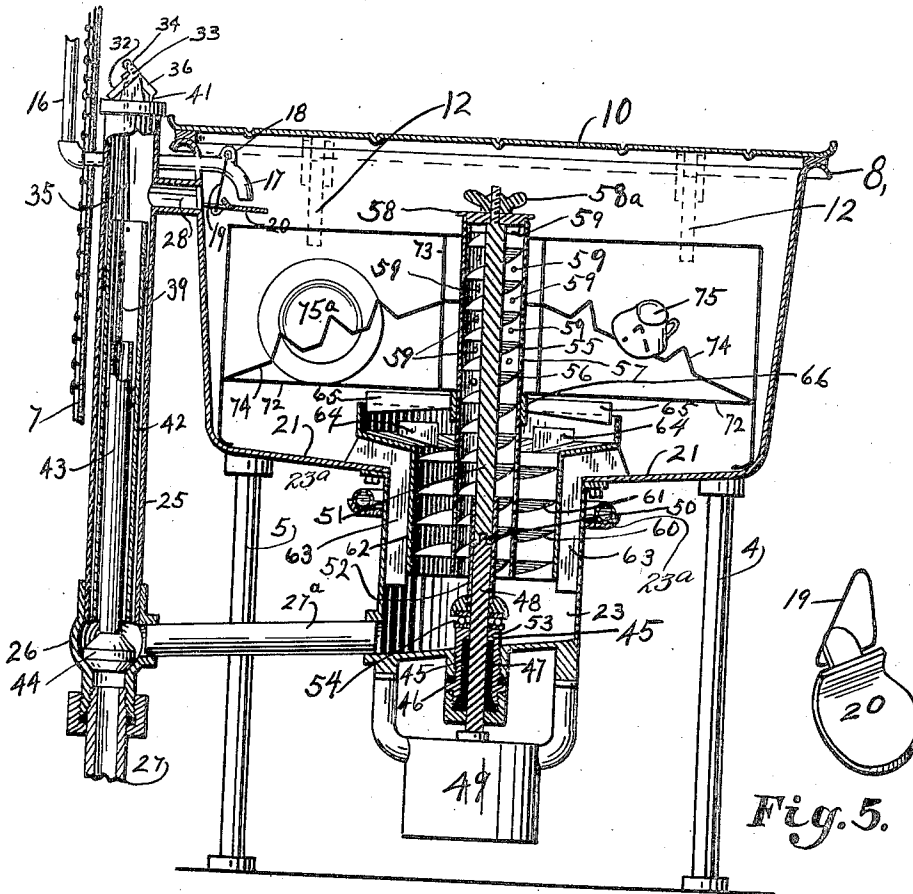


Fig. 2.

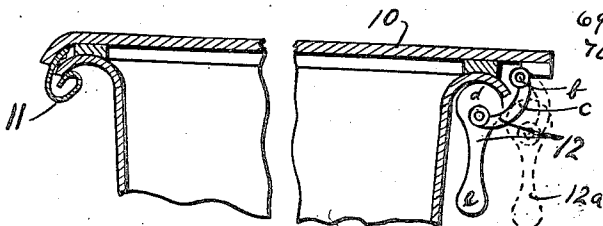


Fig. 3.

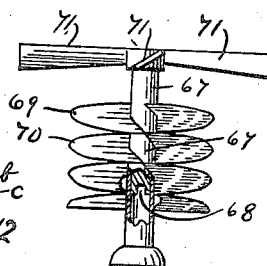


Fig. 4.

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3 Sheets-Sheet 3

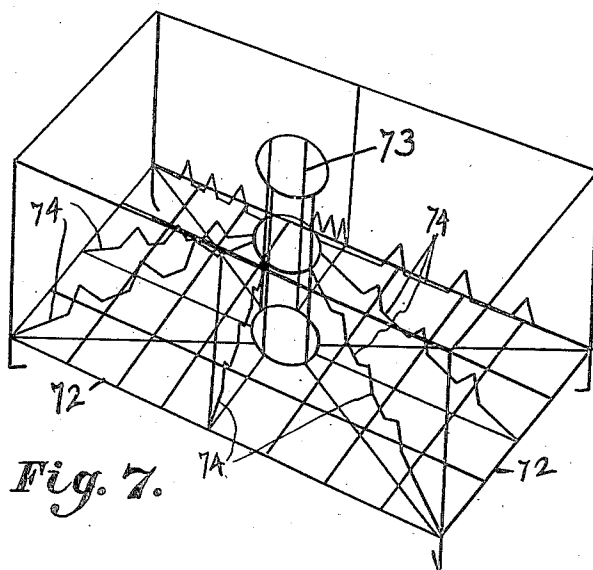


Fig. 7.

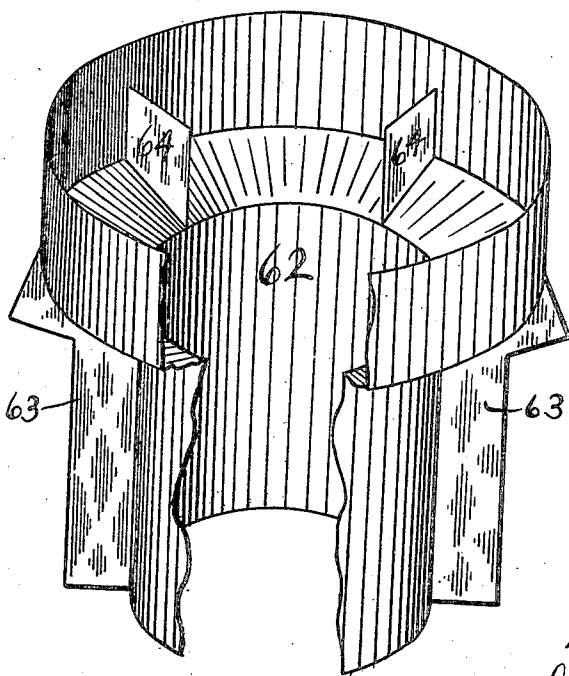


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES B. FOSTER, OF BUFFALO, NEW YORK.

CONVERTIBLE SINK AND WASHING DEVICE.

Application filed December 3, 1917. Serial No. 203,291.

To all whom it may concern:

Be it known that I, CHARLES B. FOSTER, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Convertible Sink and Washing Devices; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which forms part of this specification.

Like figures of reference refer to like parts.

This invention relates to convertible sink and washing devices.

One of the objects of this invention is to partially modify the construction of a slop sink, of ordinary construction, and so adapt the same for the releasable attachments of a water circulating apparatus, including a pump, for washing dishes, vegetables and other articles, automatically, by means of power, and also to add these features to a sink, without depreciating the uses of the receptacle as a sink, upon the removal of the said apparatus.

Another object of this invention is to provide a pumping apparatus, having no valves, which shall be simple in construction.

Another object is to provide a special draining apparatus to the sink that will enable the operator to either retain water or washing fluid at different heights within the sink, during a continued inflow of fluid into the sink, or to hold the water therein, when filled with a given quantity, or to allow it all to drain off.

A further object is to provide a portable drain board to the sink, that shall be so constructed as to be used as a cover to the same to be clamped on, when the sink has been converted for automatic washing purposes.

And a further object is to provide a splashing appliance for scattering incoming water from a faucet over the articles placed in the sink to be automatically washed.

A still further object is to provide means for holding articles in certain fixed positions within the sink while water or washing

fluid is automatically circulated therebetween.

With these and other objects in view, my invention consists in certain construction, one embodiment of which is illustrated in the drawings, is hereinafter described, its operation is explained and what I claim is set forth.

In the drawings,

Figure 1 illustrates, in perspective, a slop sink, with drain board, having the sink modified for the reception of my automatic washing attachments, showing the sink ready for ordinary washing purposes.

Figure 2 is a sectional elevation of the sink shown in Figure 1, having the automatic attachments for washing in position for use, and also shows the draining apparatus.

Figure 3 is a fragmentary section of the top of the sink showing parts for holding the cover onto the sink.

Figure 4 is an alternate form of spiral pump to be used when washing vegetables.

Figure 5 is a perspective view of a splasher to be used in connection with the faucet.

Figure 6 is a fragmentary view of the pump casing adapted to set into the well below the sink bottom.

Figure 7 is a perspective view of a form of wire basket used to hold dishes in radial position about the spiral pump within the sink.

Figure 8 is a perspective view of the drain levers for adjusting the drain tubes in fixing the level of the washing fluid within the sink.

In the figures, referring particularly to Figure 1, there is shown a sink 1, standing upon legs 2, 3, 4 and 5, upon a floor 6 against a wall 7. Resting upon the rim 8 of the sink 1 and upon the bracket 9, fixed to the wall 7, is a drain board 10, having spring grips 11, at one end and clamps 12, at the other end thereof. Behind the wall 7 are hot and cold water pipes 13 and 14, connecting with a three way valve 15 of ordinary construction, from which leads the pipe 16 terminating in the downwardly bent nozzle 17. Journaled upon the lug 18 is a bail 19, which is fixed to sheet metal splasher 20, shown thrown up out of service in Figure 1, and down for service in Figure 2.

In the bottom 21 of the sink 1 is shown

a central drain hole covered by a perforated cover 22, below which is a well casing 23 secured by screws to the bottom 21, and made water tight thereto, by means of a gasket. Between the wall 7 and the sink 1 is the draining apparatus 24, having a tubular casing 25, terminating in a valve body 26, from which leads a drain pipe 27 passing down through the floor 6 to the sewer.

10 An inclined portion of drain pipe 27^a connects the well casing 23 with the valve body 26. An overflow pipe 28 connects the grating 29 with the tubular casing 25.

The details of construction of the draining apparatus are shown in enlarged views in Figures 2 and 8. The tubular casing 25 is covered by a cap 30, upon which are fixed the posts 31. A U-lever 32 is pivoted at 33, to the outside of the respective posts 31, and is shown in Figure 8 to be resting upon the cap 30. Integral with the U-lever 32, and angularly positioned thereon, are the arms 34, to the outer ends of which are pivoted the lifting rods 35, respectively. To the inside of the top of the posts 31, is pivoted the U-lever 36, having arms 37, positioned at an angle on the body of the U-lever 36. Connecting the outer ends of the arms 37, is the cross rod 38 to which is journaled the lifting rod 39. Positioned across the legs of the U-lever 36 is the stop rod 40, resting against the lifting rod 39. A thumb piece 41 is provided with the U-lever 36 for easy manipulation.

15 The lifting rods 35, and 39 pass down through the cap 30 into the tubular casing 25 and connect with the respective auxiliary tube 42 and plug pipe 43, the rod 39 connecting with the pipe 43. The lower end of the pipe 43 is fitted with a double conical plug 44, the lower part of which fits the seat of the valve body 26, when allowed to rest thereon, to cut off direct communication between the drain pipe 27 and the valve body 26.

Referring to the pumping devices and the power connection therewith, there is shown a bearing 45, having a gland 46 with a packing 47, fixed within the bottom of the well casing 23. A shaft 48 is journaled in the bearing 45 and is directly connected with a motor within the motor casing 49. The shaft 48 terminated above in a flat central portion 50, adapted to engage a slot in another shaft 51, which serves as an extension to the shaft 48, having fixed to it a tube 52, in sliding engagement with the shaft 48.

Between the tube 52 and the part 53 of the bearing 45, is positioned a ball thrust bearing 54. Fixed to the shaft 51 and to the tube 52 are the double spiral blades 55 and 56, which are incased within the cylinder 57, open at the bottom and terminating in a cap 58, fixed thereto, through which passes a threaded portion of the shaft 51 engaged

by a thumb nut 58^a, for holding the parts together. The upper part of the cylinder is perforated with holes 59, between consecutive portions of the spiral blades, 55 and 56. Surrounding and fixed to the lower part of the cylinder 57 are the double spiral blades 60 and 61, adapted to revolve within the pump shell 62, which is spaced from the sink bottom 21 and the side walls of the well casing 23 by means of the angular fins 63, fixed to the shell 62. The upper part of the shell 62 is in the shape of a pan having radial fins 64, over which revolve the fan blades 65, fixed to a ring 66, which in turn is fixed to the cylinder 57. The purpose of the fins inside and outside of the shell 62 is to stop the whirling currents in the passing liquid and thus facilitate the action of the spiral blades, in lifting the liquid, when the pump is revolved. In Figure 4 is shown a modified form of pump to be used for vegetable cleaning, having a hollow ended shaft 67, with a slot 68, adapted to fit the flat part 50 of the shaft 48, shown in Figure 2. The spiral blades 69 and 70 are fixed to the shaft 67, which is surmounted by a set of blades 71, adapted to take the same position, as the blades 65, as shown in Figure 2, when one pump is substituted for the other.

Surrounding the cylinder 57, in Figure 2, is a wire basket having a bottom 72 and a cylindrical portion 73, positioned about the cylinder 57. Joining the mid-part of the cylindrical portion 73, with the outer edge of the bottom 72, are inclined and spurred wires 74, adapted to support cups, as 75, and between which plates, as 75^a, are positioned radial to the pump.

In operating the form of my device shown in Figures 1 to 8, inclusive, let us assume that all parts of the device have been assembled for washing dishes, as shown in Figure 2, having both tubes 42 and 43 down, in which case the levers 32 and 36 upon the cap 30, will rest upon the opposite side of the standards 31. Dishes are placed inside the sink, and are positioned radially to get the best effect from the currents produced by the pump. Hot water is run in through the pipe 14 to immerse the dishes and is then shut off. The water is next charged with soap or washing powder. The electric motor within the casing 49 is started, to revolve the pump and the washing fluid is lifted by the blades 55 and 56 on the inside of the cylindrical casing 57 as well as by the blades 60 and 61, on the outside of the cylindrical casing 57. The water on the inside of the casing 57 is forced up by the rapid rotation of the pump and finds exit through the holes 59, in the form of fine streams radiating from the casing 57. The water on the outside of the casing 57, raised by the spiral blades 60 and 61 is forced up into the pan portion of the pump shell 62

where it is caught by the blades 65, and a fountain action takes place throwing the water upward. Washing liquid from the holes 59, and the fountain is forced through the dishes toward the outer wall of the sink 1, and finds its way down between the fins 63, into the bottom part of the casing 23, where it is again caught up and forced through the dishes. This action is continued for a time, and while the pump is running, the levers 32 and 36 are thrown back into the position shown in Figure 8, thereby raising the tubes 42 and 43, allowing the dishes to drain, the water running off through the pipe 27, the valve casing 26 and the pipe 27^a to the sewer. While the drain is thus open, hot water is sprayed over the top of the dishes from the nozzle 17 scattered by the splasher 20. The dishes are thus allowed to rinse for a short time, when the tubes 42 and 43 are lowered to shut off the drain and latter the water is shut off, after the dishes have again become immersed and the pump is allowed to forcibly pass the water through the dishes, after which they are drained off again and allowed to dry off before removal or they can be otherwise dried in the open air, if they are hot. In case there is no hot water supply, then the heater 23^a can be resorted to. It can also be used in heating up the receptacle 2 to dry off the dishes after they are rinsed. When it is desired to hold the level of the water in the receptacle 1 to the height of the top of the tube 42, the tube 42 is allowed to rest upon the conical plug 44, causing water to seek the top of the tube 42 into which it spills and drains into the pipe 27.

Where it is desired to wash vegetables, a different kind of a basket can be substituted for the one just described for use in washing dishes. For vegetables a basket without the inclined wires 74, having a tubular wire center to keep the vegetables from contact with the pump, will be suitable.

Before leaving the operation of the pump, I wish to call attention to the function of the fins 63, which serve to check the vortex action of the water, which would otherwise take place within the well casing 23 and tend to destroy the lifting action of the spiral blades. The radial fins 64, serve a similar purpose, in aiding the action of the fountain blades 65.

Inasmuch as modifications in the details of the one embodiment of my invention herein shown and described can be made without departing from the spirit and scope thereof I do not wish to be confined to this embodiment, hence I claim,

1. In a washing machine, a washing receptacle, a well depending therefrom and opening into said receptacle, water raising means pivotally mounted within said well to turn about a vertical axis, a motor, said water raising means comprising a vertical shaft connected with said motor, a helical blade fixed around said shaft to be within said well, a plurality of fan blades fixed to said shaft above said helical blade, a tubular casing open at the top and bottom within said well and spaced from the bottom thereof and positioned therein to be between the wall of said well and said blades, permitting said blades to revolve therein, whereby water passes down between said wall and said casing and up within said casing, and means for stopping vortex currents within said well.

2. A washing machine including a washing receptacle a well depending from said receptacle, and a pump immersed in said well said pump comprising an upright shaft positioned to revolve in said well, a spiral blade surrounding and fixed to said shaft and extending down into said well, a shell enveloping said blade, and open at its ends, the lower end of said casing being spaced from the bottom of said well, fins in said well next said pump adapted to course the liquid in a fixed path to the lower part of said well, and means for revolving said pump.

3. In a washing machine, having a well depending from the bottom thereof, a pump partially immersed in said well, comprising an upright shaft journaled to revolve in said well, a plurality of spiral blades surrounding and fixed to said shaft and extending down into said well, a plurality of fan blades fixed to said shaft above said spiral blades a shell enveloping said blades and open at its ends, fins in said well placed radial to said shaft and longitudinally thereof next said shell, and fixed with respect to said well, to course the liquid in a fixed path to the lower part of said well and means for revolving said pump.

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