Aug. 24, 1926. 1,596,969

P. HEDSTROM

DISHWASHING MACHINE

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Fig. A.

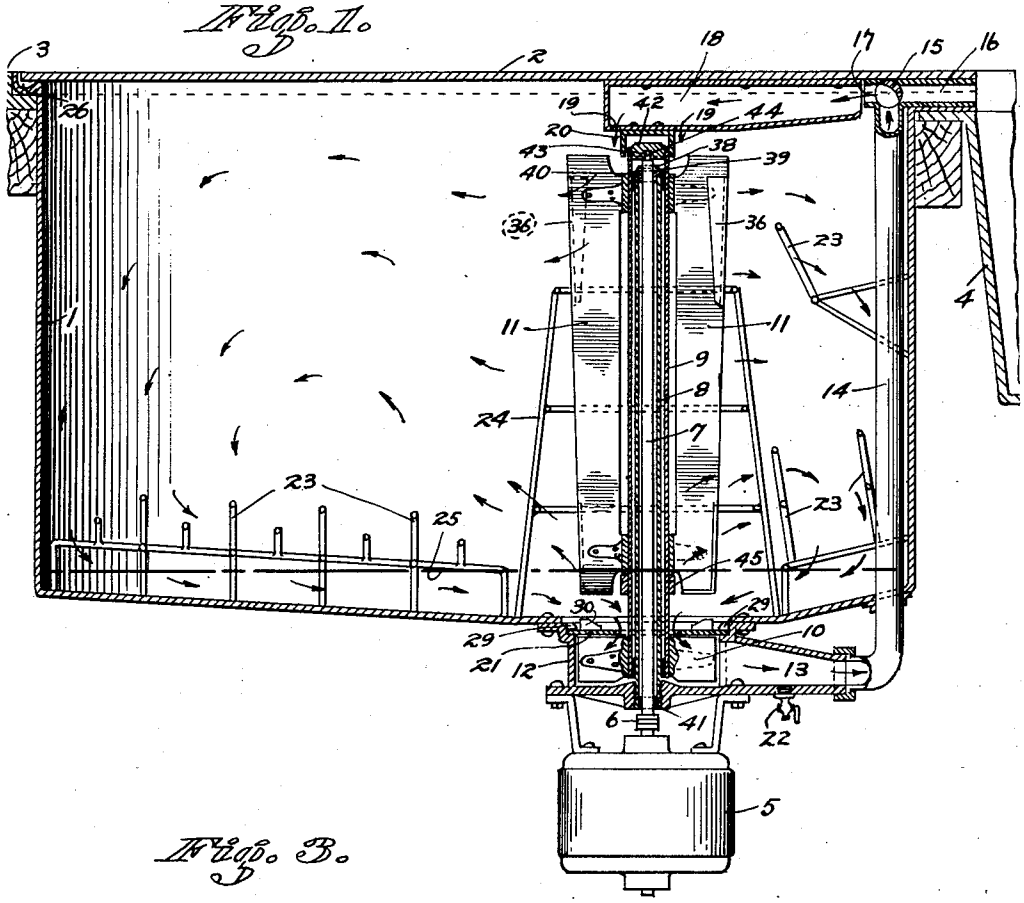
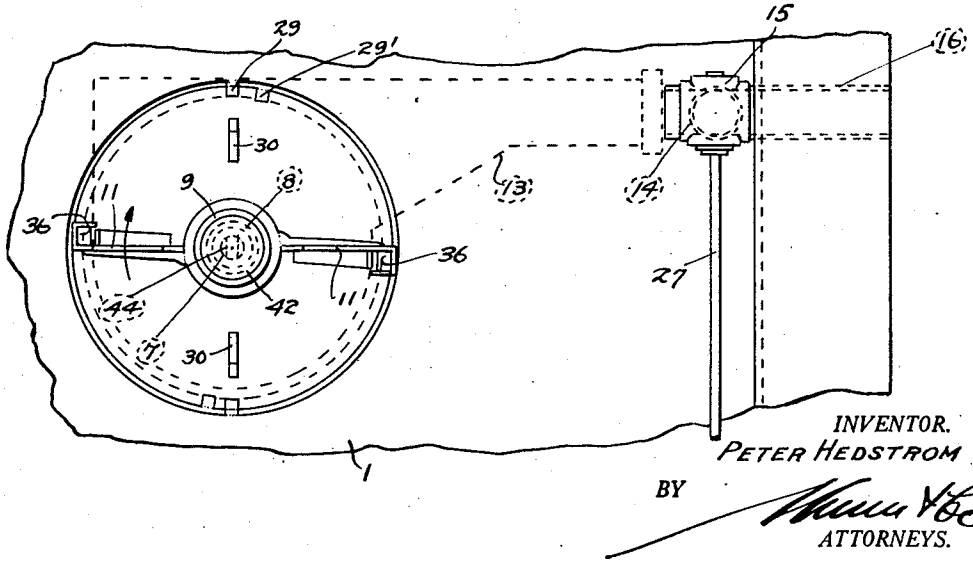


Fig. B.



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Fig. 5.

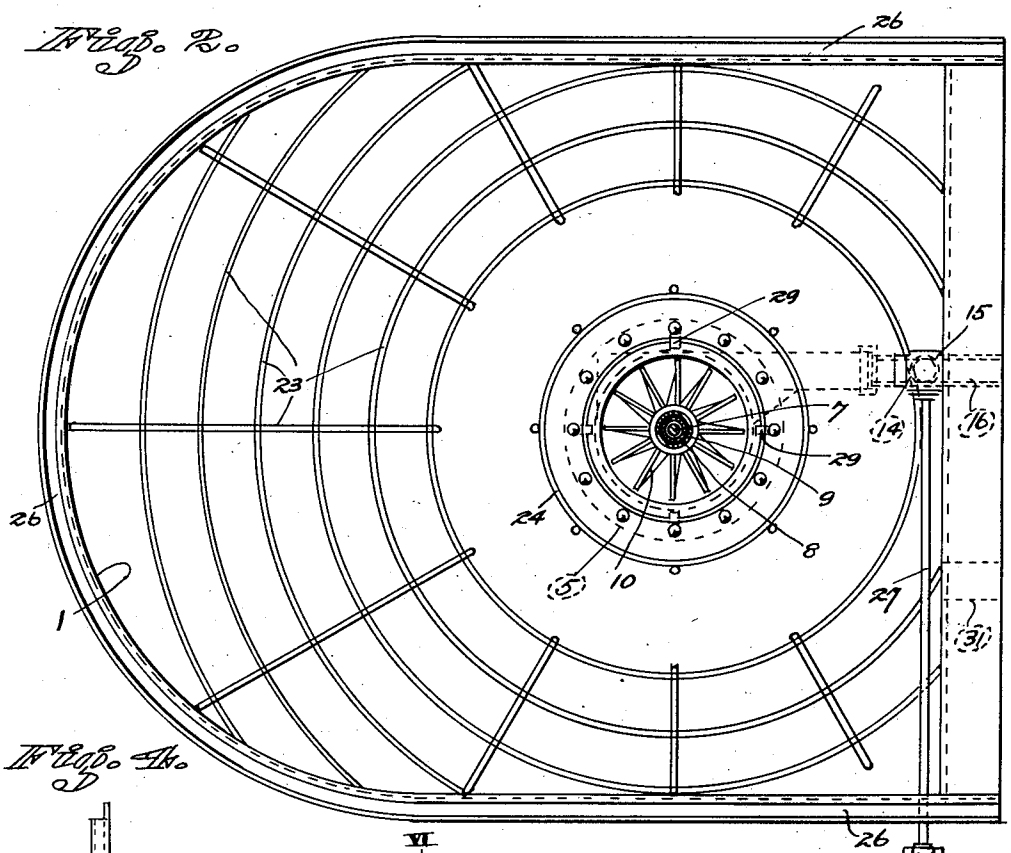


Fig. 4.

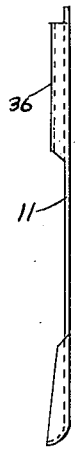


Fig. 6.

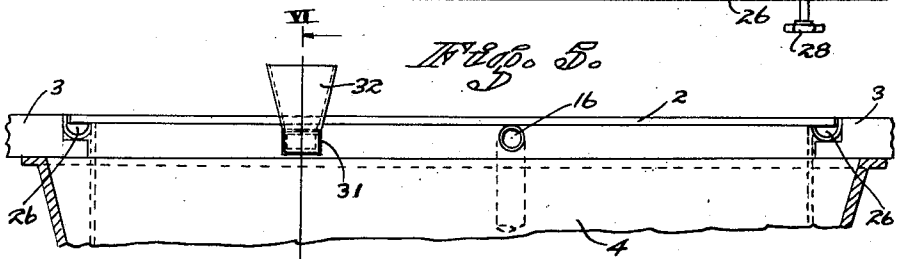
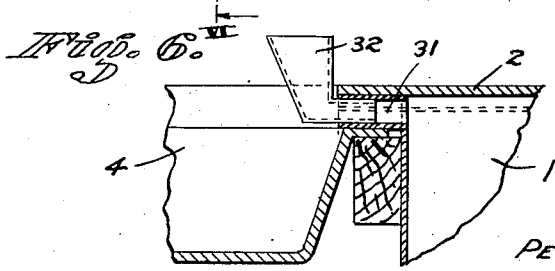


Fig. 6.



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UNITED STATES PATENT OFFICE.

PETER HEDSTROM, OF PORTLAND, OREGON.

DISHWASHING MACHINE.

Application filed November 19, 1924. Serial No. 750,903.

This invention relates to dishwashing machines in general but particularly to the type of machine adapted to be set in a sink board so as to cooperate to a certain extent with the sink.

The objects of my invention are to provide a dishwashing machine of this character which is adapted for setting into the sink board and forming, when its cover is on, a part of the board with its upper surface flush therewith, also providing for discharge of all seepage water from between the machine and board into the sink, also which will be run by a motor concealed under the sink and there accessible, also which will discharge its water into the sink, also which embodies a non-leaking joint between the water impeller and the motor through the bottom of the dishwashing receptacle, also which will provide for cleaning of silver at the upper end of the impeller shaft, also a new form of water throwing fan for projecting the hot water over the dishes stacked in the receptacle from both above and below the dishes, as well as other mechanical advantages which will appear as the description unfolds.

In the drawings accompanying this application:

Figure 1 is a sectional elevation of my machine installed in a sink board adjacent the sink and it shows most of the principal features in section.

Figure 2 is a plan view of the machine shown in Figure 1 but with the lid removed and the fan shaft and its housing cut off along the line 2—2 of Figure 1, and with the cover of the centrifugal pump housing omitted to show the pump runner.

Figure 3 is a plan of a portion of the machine showing the water throwing fan and the cover of the pump housing in place below it, also dotted in position the water trough which conveys the pumped water to the top of the fan.

Figure 4 is an elevation of one of the fan blades.

Figure 5 shows the edge of the machine overhanging the sink and reveals the water discharge openings, drains, and filling opening.

Figure 6 is a vertical section taken through the line 6—6 of Figure 5 showing an L-shaped filling funnel in place in the filling opening.

The machine is installed at either end of an ordinary sink. One end of the machine tank being up against the end of the sink and having a lip at the upper edge of the end adjacent to the sink. This lip or extension overlaps the edge of the sink as an ordinary drain board would and is the same thickness as the drain board.

In further detail the drawings show the various parts numbered as follows:

1, dish receiving tank. A little longer than wide, the end adjacent the sink 4 is square and the other end round. The upper edge is formed to receive a cover and to fasten to drain board.

2, cover for tank. To be flush with the drain board and to form part of it when it is in position on the tank.

4, sink. Any ordinary shape and design, not part of the device.

3, drain board of the sink cabinet into which the washer is set.

5, motor positioned under the drain board suspended on a bracket from the tank.

6, flexible coupling at top of motor shaft.

7, extension of motor shaft. The top of this shaft is flattened and has a pin 38 and thrust washer 39 to keep weight off motor bearings.

8, tubular shaft housing. This housing is solidly fastened at its lower end to the pump housing 12. Is bushed at top and bottom ends at 40 and 41 respectively to form bearings for the shaft 7. As the top of this pipe is well near the top of the machine and far above the water line, no packing is required to make a water tight joint where the shaft enters the tank. This reduces friction and saves power.

9, hollow shaft fitting outside of the shaft housing 8. Its upper end is closed at 42 and has a groove 43 which fits over the flattened part 44 of the shaft 7 and it rotates in unison with the shaft 7. To the bottom end of the shaft 9 is fitted a centrifugal pump runner 10 which rotates in the pump chamber 12. To the portion of the shaft inside the tank is fitted a water throwing fan 11 having long wings extending nearly to the bottom of the tank and to the top of the shaft. This fan is loosely fitted so that it can be readily lifted off and is caused to turn with shaft by a square jaw clutch 45 at its lower end.

The centrifugal pump runner 10 is fas-

tened to the lower end of shaft 9. This runner pumps the water from the tank up through pipe 14 and back into the tank or into the sink as may be desired.

The fan 11 revolves with the shaft 9. The lower points of the wings are below the minimum water line and are bent forward so that they scoop up water and distribute it upwards and outwards. The top of the wings have the sides bent to form a channel or gutter 36 and the function of this channel is to keep some of the water falling on the top of the fan from being thrown off until it has reached a point some distance below the top thereby securing better distribution of the water.

12, is the pump housing.

13, the pump outlet.

14, a pipe to the top of the tank to carry the water to top of the fan.

15, is a two-way valve at top of pipe 14 whereby water is made to either discharge into the tank and to the top of fan 11 when the operation of washing dishes is going on, or into the sink as when the tank is being emptied of water.

16, outlet to sink.

17, outlet to tank.

18, a gutter or trough fastened to the underside of the cover 2 and serves to carry the water discharged from outlet 17 to a point over the fan 11. There is a small clearance 37 between the trough and outlet 17 so that the cover may easily be opened. The force of the water carries it over this space.

19, openings in 18 discharging water to the top of the fan 11.

20, bearing fastened to trough and serving to steady the top end of hollow shaft 9.

21, cover for pump housing. Has an opening in center a little larger than the shaft to allow entrance of water to the pump runner.

22, pet cock to drain pump of what little water is not driven out by the pump when emptying the tank.

23, racks for holding the dishes.

24, guard around fan may be of any shape or height desired.

25, minimum water line.

26, gutter at top of tank to carry water which may be spilled on top of drain board, and which may leak through joint between cover and edge of tank, to the sink.

27, rod from valve to the outside of the tank for operating the two-way valve 15.

28, handle at the outer end of the rod 27.

29, lugs on the pump housing and 29′ notches on the pump housing cover to hold cover in place.

30, wings on cover for lifting pump housing cover on and off.

31, opening in the lip or extension which laps over the edge of the sink and through which by the use of a special L funnel water may be poured into the washer without lifting cover.

32, removable L-shaped funnel, preferably with rectangular spout to fit into 31.

Operation: The motor 5 placed on the under side of the tank drives the shaft 7 which in turn drives the hollow shaft 9 which has on its lower end the centrifugal pump runner 10 and on its upper portion the fan 11. The revolving of this unit causes the pump runner to force the water from the tank up through the pipe 14 and through the trough 18 and out through the openings 19 and to the top of the fan 11. This fan spreads the water outwards and downwards over dishes stacked in racks 23. The lower edges of the fan 11 are below the water line and as they revolve they scoop up the water and spread it upward and outward over the dishes. To empty the washer the two-way valve 15 is given a quarter turn and the water instead of discharging into the washer is discharged into the sink. Water is put into the tank either by taking off the cover, or by pouring it in through the opening 31 by the use of the funnel. Or the faucet of the house system can be placed to discharge into funnel or piped directly into tank if desired.

Having thus described my dishwashing machine, it will be seen to have the advantages that it can be installed in existing drain boards at either end of the sink without disturbing any plumbing fixture.

That it is easy of installation as it requires no water supply pipes or drain pipes.

That it empties itself into the sink and does not require any sewer connection.

Requires no packing where drive shaft enters the tank, thereby assuring a joint which is always leak proof and which does not cause friction and absorb power, and finally that it has a double washing action as the water is sprayed on the dishes from the top and from the bottom by the revolving fan.

I claim:

1. In a dishwashing machine of the character described, a tank adapted for holding means in said tank for holding washing water, means in said tank for holding dishes a fan therein extending above the dish holding means revolvable on a vertical axis and provided with means to scoop up water from the tank and throw it on the dishes, and means for pumping water to the top of the fan to be thrown by the fan upon the dishes from above.

2. In a dishwashing machine of the character described, a dish and water holding tank provided in the bottom thereof with a sump, a motor supported beneath the tank, a power shaft extending upwardly from the motor through the bottom of the tank and through the sump and into the upper

portion of the tank, a tube surrounding the shaft and separating the same from the water holding space of the tank, a bearing at the upper end portion of the tube for the shaft and through which the shaft projects, a water throwing fan suspended from the projecting end portion of the shaft and extending downwardly into the tank and surrounding the tube, said fan having a tubular core extending into the sump, a pump runner secured to the core and disposed within the sump, and a pipe extending from the sump upward through the tank to a point above the fan for conveying the water from the pump runner to the top of the fan.

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