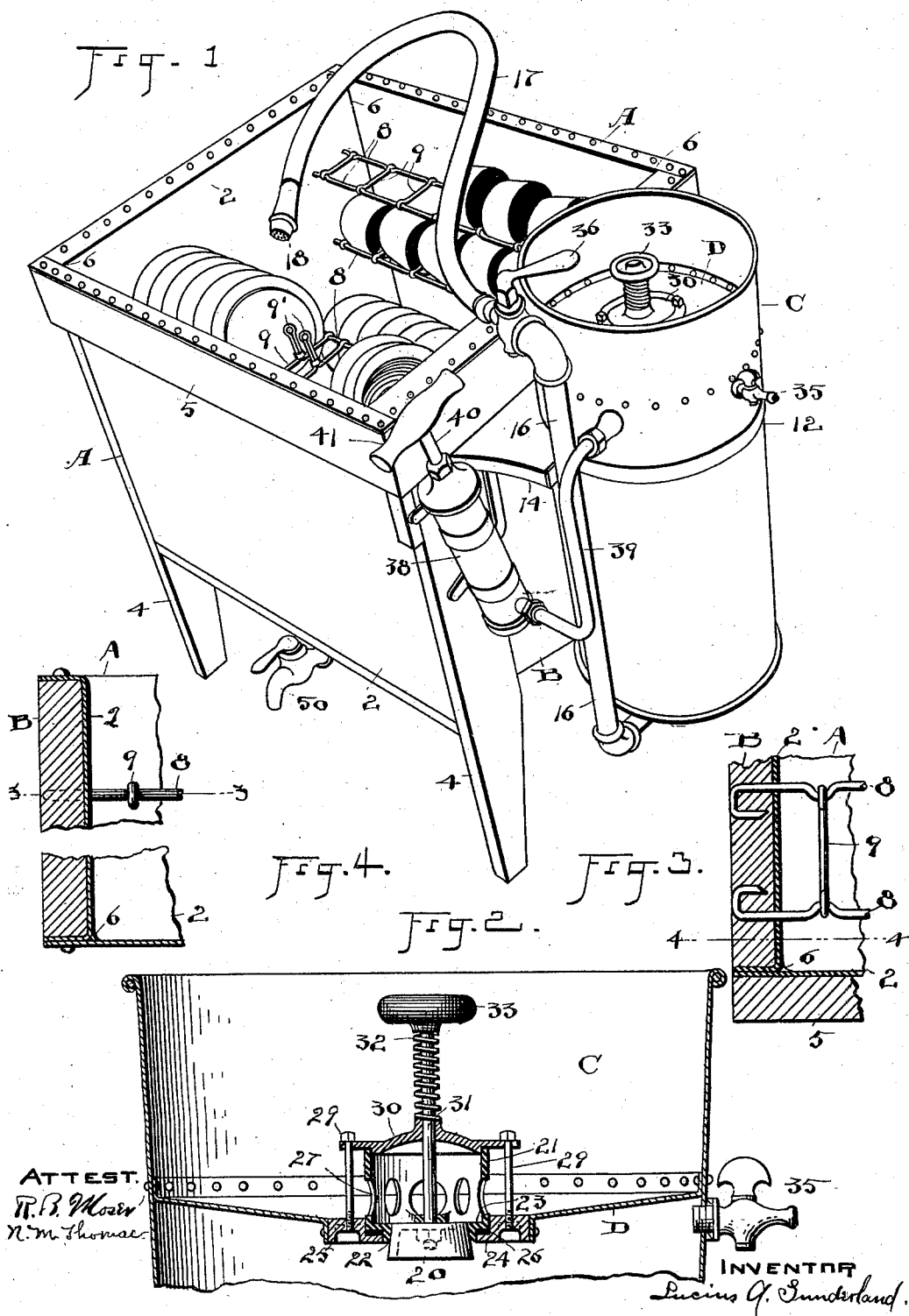


(No Model.)

L. A. SUNDERLAND.
DISH CLEANER.

No. 542,430.

Patented July 9, 1895.



ATTEST.
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LUCIUS A. SUNDERLAND, OF MADISON, OHIO.

DISH-CLEANER.

SPECIFICATION forming part of Letters Patent No. 542,430, dated July 9, 1895.

Application filed January 18, 1895. Serial No. 535,356. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS A. SUNDERLAND, a citizen of the United States, residing at Madison, in the county of Lake and State of Ohio, have invented certain new and useful Improvements in Dish-Washing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to dish-washing machines; and the invention consists in a machine of the variety in which hot water under pressure is used to wash the dishes, the means in this case comprising flexible hose and a nozzle for directing the water on the dishes and a water-tank with a pump to produce atmospheric pressure therein, all substantially as shown and described, and particularly pointed out in the claims.

Figure 1 is a perspective view of a dish-washing machine embodying my invention. Fig. 2 is an enlarged vertical central sectional elevation of the upper part of the water-tank. Fig. 3 is a vertical section of a portion of one of the dish-washing tanks, taken on line 3, Fig. 4, showing the manner of supporting the rack. Fig. 4 is an edge elevation of a portion of one end of the dish-washing tank or receptacle, taken on line 4 4, Fig. 3, and showing the manner of securing the plate-lining therein, all as hereinafter more fully described.

A represents the dish-washing tank or receptacle, shown here as rectangular in form, but it might have any other suitable form or shape, the shape of the tank in itself not being a matter of material consequence. In said tank as constructed by me I employ wooden ends or heads B, sheet-metal sides and bottom, and top border pieces connecting the ends and legs, as shown. The lining 2 is of zinc or galvanized iron or other suitable sheet metal which is durable and easily kept clean. This metal plate or lining is formed usually in three parts, of which one covers each end B of the tank and overlaps the edges thereof at bottom and sides, and the other part covers or forms the sides and bottom of the tank and is made to overlap the overlapping edges of the lining at the ends of the tank, and the whole is fastened to said ends by nails. It

follows, then, that I need only to solder the tank in the angles or meeting edges 6 at the four corners and along the bottom, and then it is made perfectly water-tight and exceedingly durable. The legs 4 and border 5 form part of the general frame of the tank.

The rack for the dishes is made of wire, and each rack consists of two longitudinal pieces of wire 8 and the cross-wires or bars 9, substantially as shown in Fig. 1, where the wire 8 is bent slightly at intervals and the cross-wires are looped at their ends over the bent portions. These racks are made of a size between the respective wires to correspond to the size and style of the dishes they are to hold, and are adapted to support cups and saucers, plates, and other dishes of different sizes, and are arranged from top to bottom along the sides of the tank, so that a tank for domestic purposes which will hold, say, one hundred dishes, need not be excessively large nor occupy much space. I have devised novel means of securing these racks in the tank, as plainly shown in Fig. 3. The wire 8 is beveled slightly at its extremity, so as to give a point to drive into the wood. Then to place the rack in position I bore holes through the end B of the tank at such places where the wire 8 is to enter and then insert the same before it is bent into the hook form shown in Fig. 3. After the wires have been thus inserted, I bend them by means of suitable tools to the hook shape, substantially as shown, and drive the hooks to their place flush with the outer surface of the ends B, a transverse groove or channel and a suitable bore being first made to bury the said hooks, substantially as shown in Fig. 3. The wires 8 are thus formed to support the racks firmly in the tank, and they are immovably and permanently secured and of course are soldered at the point where they pass through the lining 2, so as not to leak at that point.

Now, in order that my invention may be carried out in spirit and purpose and rendered effective, I have made an improvement in the means for delivering the washing-water to the tank. These means consist in a water-tank C, shown here as secured by a band 12 to the end of the tank, a bracket or yoke-piece 14 fixed to the tank serving to engage the said tank at its sides and steady it in po-

sition. This tank is designed to have sufficient capacity to hold all necessary water for washing the dishes, and may carry three or more gallons, according to need. It is furthermore designed as a storage or pressure tank for air over the water to force the water by atmospheric pressure or its equivalent through the nozzle upon the dishes. To this end I have formed the said tank of such strength as to withstand whatever pressure may be needed to do the work and to contain the necessary water as well, and have connected therewith a delivery-pipe 16, flexible hose 17, and a spraying-nozzle 18. The top or cover proper D of the said tank is set down from the upper edge or top of the tank about one-third its elevation, so as to afford room above the said top or cover to pour in a pailful of water or more at a time without waiting for it to pass through the valve mechanism in said cover. The said cover D is inclined somewhat to its center, so as to drain itself dry, and it has a valve 20 set centrally therein. Over and about this valve is a cylindrical part 21, having the valve-seat 22 at its bottom and shouldered inward at right angles at 23 to rest on the flange 24 of the annular bottom piece 25, which itself is permanently secured in the opening in the cover D. A gasket or packing 26 is placed between the opposite flanges 23 and 24 to avoid leakage at this point, and the valve-seat and valve 20 are slightly converged toward their top portions, so that the valve will seat from the bottom upward. The cylindrical part 21 which has the valve-seat at its bottom has also a series of openings 27 about its side to enable the water to flow in freely through the valve-opening, and the said cylinder is held down upon its seat on the annular ring 25 by threaded rods 29 through the cap 30 and the annular ring 25 below. The valve 20 has a stem 31, shown here as encircled by the spring 32 and handle portion 33 above to operate the valve. When a spring is used as shown the valve itself may be held down by hand until the water flows into the tank or there may be some mechanical contrivance employed to hold the valve temporarily down. If no spring be used, the valve may be pressed down and left open while the water is being poured in and then drawn up by hand to its seat, and it will usually remain there without any other means of supporting it than the pressure afforded by the atmosphere in the tank and its own close seating. Obviously, this valve mechanism is only one form of several which may be used for this purpose, and I do not wish to limit myself to the exact con-

struction here shown nor to the details thereof, and the valve might seat downward instead of upward. When the valve 20 is raised, the tank is perfectly closed and the atmosphere which is forced into it cannot escape. The relief or rest valve 35 is shown as immediately beneath the cover D and may be opened when necessary.

Now, in order that the desired pressure of air may be obtained in the tank C to force the water through the nozzle 18 when the cock 36 is opened, I employ a suitable air-pump 38. This pump is connected with the water and air tank C by the pipe or hose 39 and has a suitable piston and piston-stem 40 and handle 41 to operate it.

A cock or faucet 50 is provided to draw the water from the tank. At the left in Fig. 1, I show the rack adapted to hold plates. In this case the cross-wires 9 are bent centrally to form an upwardly-projecting tongue or tongues 9' of such height as will touch the plate at about its center and thus keep it substantially upright.

What I claim is—

1. As a new article of manufacture, a dish receptacle, a combined water and air tank fixed to the side of the said receptacle and having a fixed cover set below the top edge thereof and provided with a valved opening in its center, the rigid pipe—16—fixed to the bottom of the water tank and the valve—36—therein, the flexible hose connected to the said pipe to deliver the water upon the dishes, and an air pump connected with said air and water tank above the water line in said tank, substantially as set forth.

2. The machine described, consisting of the dish washing receptacle, a hot water tank having its cover set inward below its upper end and a valve seated in said cover, an air pump to force air into said hot water tank and a flexible hose and nozzle to deliver the water to the dishes under pressure, substantially as set forth.

3. The combined water and air tank described with the cover D—below its upper edge substantially as shown and inclined to its center, a hollow perforated cylinder—21—set into said cover and having a valve in its bottom seated from below and having a stem extending above the part—21—and supported thereon, substantially as set forth.

Witness my hand to the foregoing specification this 9th day of January, 1895.

LUCIUS A. SUNDERLAND.

Witnesses:

M. G. NORTON,
H. T. FISHER.