Aug. 31, 1948. F. J. R. KARLSTROM 2,448,490

DISH WASHER HAVING DEFLECTING RECESSES IN THE WALL THEREOF

Original Filed April 11, 1940

Fig. 1.

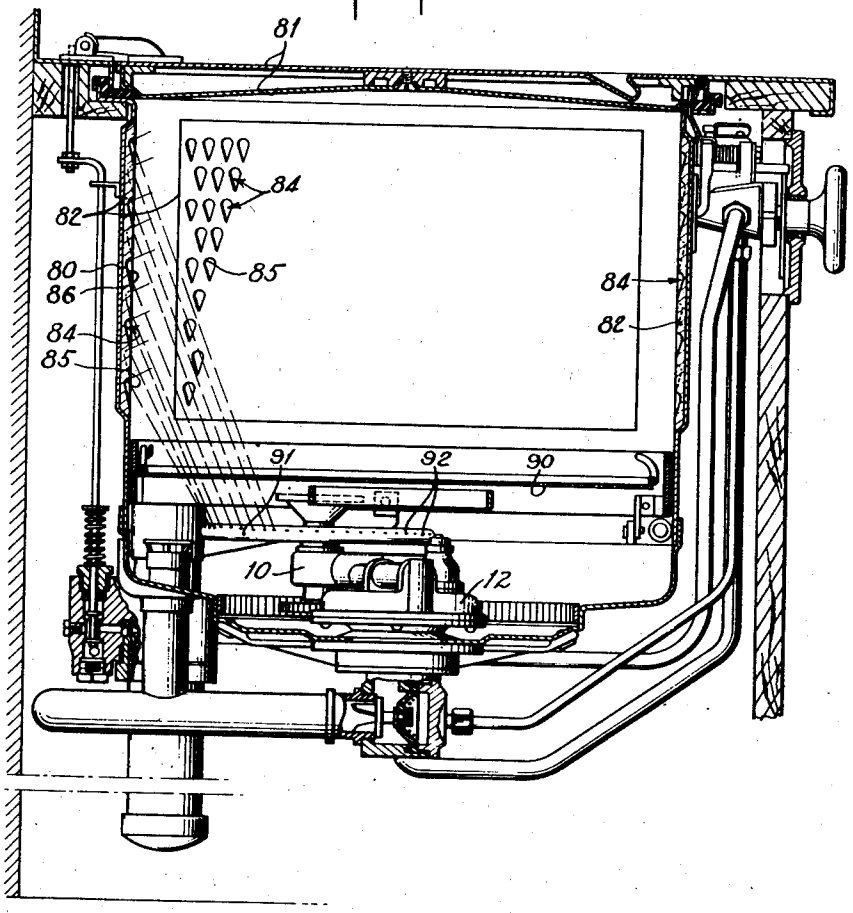


Fig. 2.

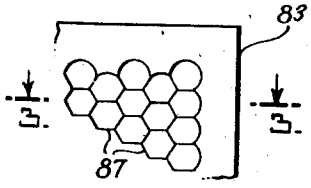
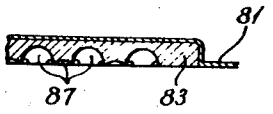


Fig. 3.



INVENTOR.

Frederick Johan Robert Karlström

BY

Jessie C. Markle

his ATTORNEY

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UNITED STATES PATENT OFFICE

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DISHWASHER HAVING DEFLECTING RECESSES IN THE WALL THEREOF

Fredrik Johan Robert Karlström, Stockholm, Sweden, assignor to Aktiebolaget Elecktrolux, Stockholm, Sweden, a corporation of Sweden

Original application April 11, 1940, Serial No. 329,092. Divided and this application November 25, 1943, Serial No. 511,665. In Sweden April 12, 1939

3 Claims. (Cl. 134—182)

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My invention relates to a dish washer of the type having means for discharging jets of cleaning liquid against the dishes placed in a container. Depending on how the dishes are placed in the container, certain of the jets will not strike the dishes, but will impinge on a wall of the container, and it is an object of my invention to redirect such jets so that they will impinge on the dishes.

This is accomplished by providing the inner walls of the container with surfaces so formed as to deflect the jets with a minimum loss of energy. In accordance with my invention, the walls are formed with concave recesses, the bowl-shaped surfaces of which may be spherical, or may be elongated in the direction of the jets with the end of each recess which faces the jet decreasing in depth and width while the opposite end is spherical.

This application is a division of application Serial Number 329.092, filed April 11, 1940, now issued as Patent Number 2,351,342, dated June 13, 1944.

The accompanying drawing shows two embodiments of the invention.

Fig. 1 shows in section a dish washing machine constructed according to the invention.

Fig. 2 shows part of a wall provided with bowl-shaped recesses according to the invention and intended to be fixed to the inside of the cover of the washing-up container, and

Fig. 3 is a section along the line III—III of Fig. 2.

In Fig. 1, 80 designates the container of the dish washing machine for the reception of washing liquid, and of the dishes or the like to be washed. At the lower part of the container is provided a screen 90 on which the dishes are placed, for example in a suitable basket or the like. Below the screen there is a rotatable spraying member 91 having openings 92 through which the washing liquid, as indicated in the drawing, is forced in the form of jets upwardly through the screen 90 and against the dishes supported thereon. Washing fluid under pressure is supplied to spraying member 91 through a conduit 10 from a suitable pump 12. The cover of the container is designated by 81. On the sides of the container there are arranged plates 82 which may consist of some mouldable material, such as rubber, synthetic resin, metal or the like. Corresponding plates 83 (Figs. 2 and 3) may be arranged on the underside of the cover 81. In the plates 82 and 83 there are a number of bowl-shaped recesses 84 or 87 facing the interior of

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the container. These bowl-shaped recesses possess unbroken surfaces. The recesses 84 are composed of a spherical or approximately spherical part 85, said part being the upper one in the embodiment shown, and of a more elongated part 86 which passes into the surface of the plate 82 and the bottom portion of which may, if desired, be plane. The extension and longitudinal section of the bowls are clearly seen from Fig. 1. The left-hand part of Fig. 1 also shows how those jets which do not strike the dishes strike instead the bowls 84 and are deflected by them, with the result that the dishes are struck by jets not only from below but also from the side and obliquely from above. The part 86 of the recesses 84 tapering in section downwardly has for its object to allow the surface of the bowl to gradually change the direction of the jets and also makes it possible for the maximum number of jets to strike the bowl-shaped surfaces. As shown in Fig. 1, the shape of each recess 84 in the side walls is such that the intersection of the surface of the recess with a plane normal to the wall and parallel to the stream which strikes it is a straight line along the lower portion of the recess, that is the portion adjacent the spraying member, and is an arc along the remainder of the recess, with the line being tangent to the arc. It is important that the edge of the portion of each recess where the re-directed jet leaves the recess, that is the upper part (Fig. 1) of the bounding edge of each recess, should be sharp, for the purpose of preventing the jets from being split up by adhesion, in which case they would lose their coherence and thereby their washing power.

The bowl-shaped recesses 87 according to Figs. 2 and 3 have wholly spherical or approximately spherical surfaces, because they lack the extension 86, to be found in the recesses 84 according to Fig. 1. The bowl-shaped recesses 87 are, in fact, intended to change the direction of the jets passing between the dishes, coming from below and striking the cover almost at right angles, said jets being for this purpose deflected in an almost opposite direction, that is, so that they pass downwardly.

If desired, the recesses 84 and 87 may be pressed directly into the side walls of the container 80 or the underside of the cover 81, even though said parts should consist of for example, sheet metal. It is not necessary that the bounding walls of the container should themselves be constructed with recesses according to the invention, since said recesses may also be arranged in other parts located nearest to the dishes.

What I claim is:

1. In a dishwashing apparatus, a receptacle, a sprayer member within said receptacle, and means for supplying water under pressure to said member to thereby produce a plurality of high velocity streams, an interior wall of said receptacle being formed with a multitude of closely spaced concave bowl-shaped recesses, the surface of each recess intersecting the surface of the wall along a single line closed on itself, said recesses being small enough so that each recess will be impinged by not more than one of said streams which will be redirected towards the interior of the receptacle by the bowl-shaped concave surface of the recess with a minimum of lateral spreading of the stream.

2. In a dishwashing apparatus, a receptacle, a sprayer member within said receptacle, and means for supplying water under pressure to said member to thereby produce a plurality of high velocity streams, an interior wall of said receptacle being formed with a multitude of closely spaced concave bowl-shaped recesses, the surface of each recess intersecting the surface of the wall along a single line closed on itself, said recesses being small enough so that each recess will be impinged by not more than one of said streams which will be redirected towards the interior of the receptacle by the bowl-shaped concave surface of the recess with a minimum of lateral spreading of the stream, each of said recesses being elongated in the direction of the stream which impinges it.

3. In a dishwashing apparatus, a receptacle, a sprayer member within said receptacle, and means for supplying water under pressure to said member to thereby produce a plurality of high velocity streams, an interior wall of said receptacle being formed with a multitude of closely spaced concave bowl-shaped recesses, the surface of each recess intersecting the surface of the wall along a single line closed on itself, said recesses being small enough so that each recess will be impinged by not more than one of said streams which will be redirected towards the interior of the receptacle by the bowl-shaped concave surface of the recess with a minimum of lateral spreading of the stream, each of said recesses being elongated in the direction of the stream which impinges it and having a shape such that the intersection of the surface of the recess with a plane normal to the wall and parallel to the stream is a straight line along the portion of the recess adjacent the spraying member and is an arc along the remainder of the recess, said line being tangent to said arc.

FREDRIK JOHAN ROBERT KARLSTRÖM.

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Certificate of Correction

Patent No. 2,448,490. August 31, 1948

FREDERICK JOHAN ROBERT KARLSTRÖM

It is hereby certified that name of the assignee in the above numbered patent was erroneously described and specified as "Aktiebolaget Elecktrolux" whereas said name should have been described and specified as *Aktiebolaget Elektrolux,* as shown by the record of assignments in this Office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of March, A. D. 1949.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.