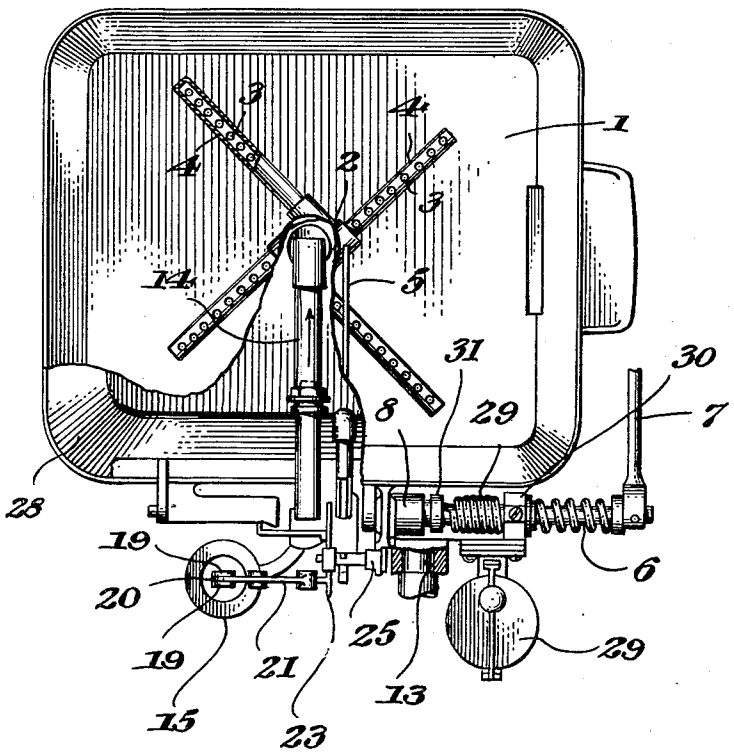
Dec. 1, 1953 S. G. SALOMONSSON 2,661,240

WASHING-UP MACHINE

Filed May 10, 1951 2 Sheets-Sheet 1

Fig. 1.



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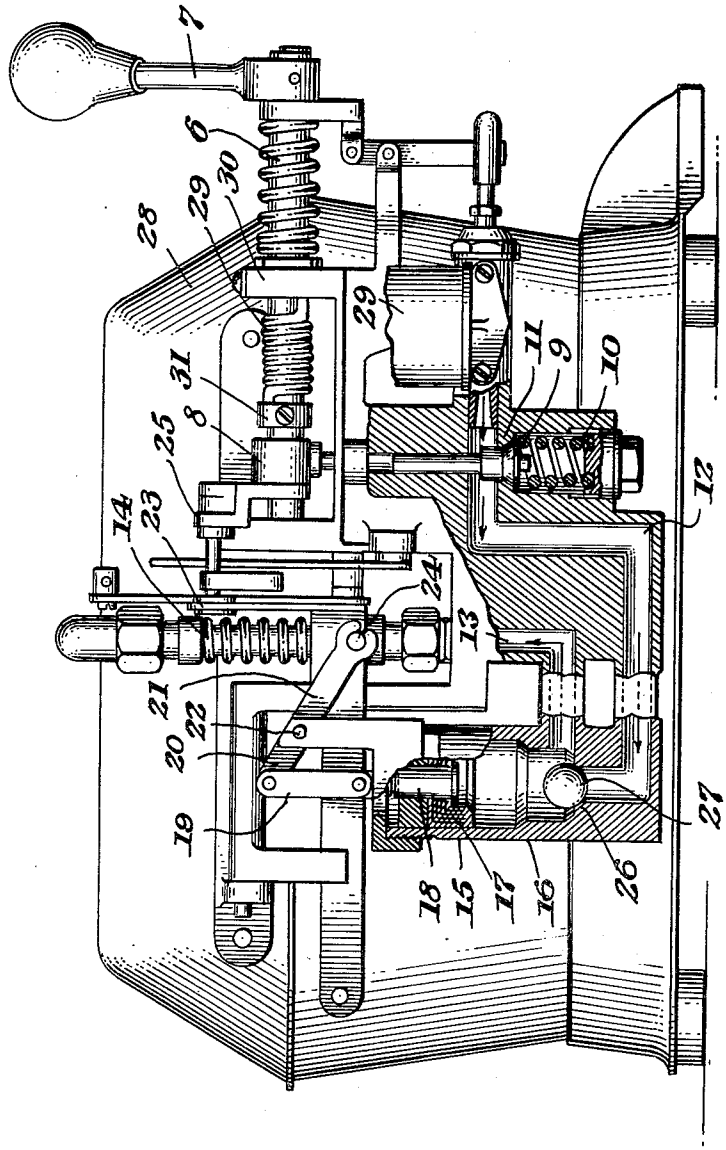
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Fig. 2.



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WASHING-UP MACHINE

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Claims priority, application Sweden March 29, 1951

3 Claims. (Cl. 299—62)

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This invention relates to washing-up machines of the type in which water under pressure is ejected through nozzles or orifices onto the dishes in order to cleanse the same.

For satisfactory operation of a washing-up machine of this type the water pressure must not be too low. If the washing-up machine is connected to a domestic water supply or to a hydrophore, it will often happen that the pressure falls below a limit value for effective operation of the machine. In such instance, there is no possibility of increasing the pressure, and in conjunction with the reduction of the machine effectivity the rate of water consumption will increase. Therefore, a desideratum resides in some way to increase the water pressure in the machine.

The present invention has for its object in a simple manner to make provision for the necessary extra pressure rise of the water.

More specifically, the invention relates to such washing-up machines as are provided with perforated nozzle tubes or other spraying members disposed in a flushing chamber and supplied via a controllable valve from a source of pressure liquid, usually a domestic water supply.

The main characterizing feature of the invention is that there is connected in the conduit between said valve and said spraying members a piston pump which is operably connected with a control member for the control of said valve, and by means of which pump an increased pressure in the supply conduit to said spraying members can be obtained.

The water supplied to the flushing chamber passes through the pump, and each time when the pump piston is displaced into its cylinder the water pressure will be increased. The effect of the water jets or sprays will be increased partly through the pressure rise and partly through the impacting action caused by the repeated water pressure shocks.

The invention will now be explained in conjunction with the accompanying drawings in which:

Fig. 1 is a plan view of a washing-up machine incorporating an embodiment of the improvement according to this invention, and

Fig. 2 is a frontal elevation of the same drawn to a larger scale and partly broken away.

In the embodiment illustrated in the drawings, the flushing chamber 1 contains a spider-shaped structure 2 rotatably mounted therein and the legs 4 of which are each provided with a plurality of spraying orifices so as to form four nozzle

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tubes. The spider 2 is connected by means of suitable movement transmitting elements 5 to a drive shaft 6 having at its extreme end a lever 7 for controlling the angular displacement of said shaft 6 and thus of the nozzle structure or spider 2. Shaft 6 has rigidly mounted thereon a cam 8 by means of which, upon angular motion of said drive shaft 6, a valve member 9 may be raised from its seating 11 against the tension of a coil spring 10. Valve 9, 11 is inserted in a passage 12 leading from the inlet 13, at which the washing-up machine is adapted to be connected to a water supply, to the liquid supply pipe 14 of the nozzle structure or spider 2.

The passage 12 further contains a piston pump 15 in the cylinder 16 of which is vertically reciprocable a piston 17. The piston rod 18 of said piston is movably connected by a link 19 to the shorter arm 20 of a lever 21 having unequal arms and being pivoted on a pin 22. The outer end of the longer arm of lever 21 is by means of a ball and socket joint connected to one end of a link arm 23 the other end of which is connected to a crank 25 mounted on shaft 6. Passage 12 opens into the lower end of cylinder 16 which lower end is formed into a seating 26 for a ball-shaped valve member 27. Valve member 27 may suitably consist of a rubber ball having an iron core.

In addition, the machine may be provided with means cooperating with said drive shaft 6 for securing the cover 28 of flushing chamber 1 in its closed position when the machine is in operation, and furthermore the machine may be provided with a container 29 for any suitable detergent and with means for supplying said detergent in batches into passage 12.

The operation of the machine is as follows: When the drive shaft 6 is rotated by moving the lever downward in a plane perpendicular to that of the drawings cover 28 will be locked in its closed position. Upon continued rotation of shaft 6, valve member 9 will be raised from its seating 11 by cam 8 whereby the water supply to spider 2 is opened. Valve member 27 will be raised from its seating 26 by the water stream. Upon continued downward movement of lever 7, piston 17 will be downwardly displaced into its cylinder 16 whereby valve member 27 is pressed against its seating and the water pressure in supply pipe 14 of spider 2 increases. Rotation of shaft 6 will also cause rotation of spider 2 about 90°. The return of shaft 6 and thus of piston 17 and spider 2 to their initial positions is promoted by a coil spring 29 one end of which

is secured to the machine frame **30** while its other end is secured to a sleeve **31** mounted on shaft **6**.

By rocking control lever **7** in the plane of the drawings, a batch of detergent will be fed into the water in passage **12** automatically.

It will be understood that the embodiment illustrated and described is to be considered merely by way of example, and that the several parts of the washing-up machine may be constructively modified in various ways without departing from the scope of the invention. Other spraying members than those illustrated in the drawings may be used, and the spraying members may be rotated or moved by other means than the control lever shown in the drawings. In addition to the spider **2** shown in the drawings, a similar spider or nozzle structure, not shown, is disposed on the underside of the cover **28** whereby the dishes in the flushing chamber **1** will be flushed from above as well as from below.

What I claim and desire to secure by Letters Patent is:

1. Spraying mechanism comprising a spray head, a liquid supply, conduit means connecting said spray head with said supply, a controllable valve device in said conduit means, control means for said valve device, a piston pump inserted in a portion of said conduit means between said valve device and said spray head, a piston rod connected to the piston of said piston pump, an operating shaft connecting said control means with said valve device, movement transmitting

means connecting said piston rod with said operating shaft, a cam member carried by said operating shaft, said cam member being operable upon angular displacement of said operating shaft to urge the movable member of said valve device into its opening position, whereby upon operation of said control means the liquid pressure in said conduit means may be increased.

2. Spraying mechanism as claimed in claim 1, said spray head being in the form of a nozzle-tube structure arranged in spider-fashion and rotatably mounted, means interconnecting said nozzle-tube structure and said operating shaft, which upon angular displacement of said operating shaft angularly displace said nozzle-tube structure in a horizontal plane.

3. Spraying mechanism as claimed in claim 1, a non-return valve in the liquid inlet end of the pump cylinder of said pump, said non-return valve, upon displacement of said piston into its cylinder, being urged into sealing engagement with its seating.

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