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L. O. COCKRILL
LIQUID DISTRIBUTING DEVICE

2,230,320

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Fig. 1

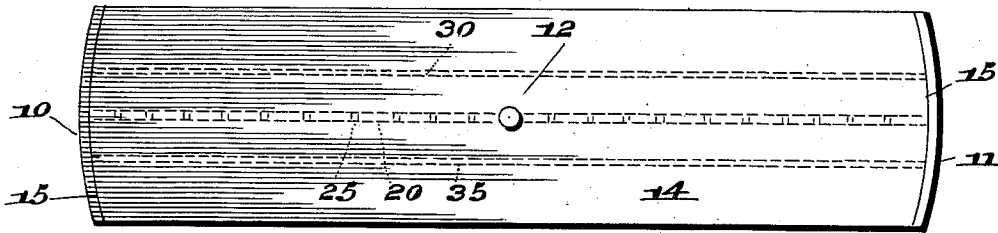
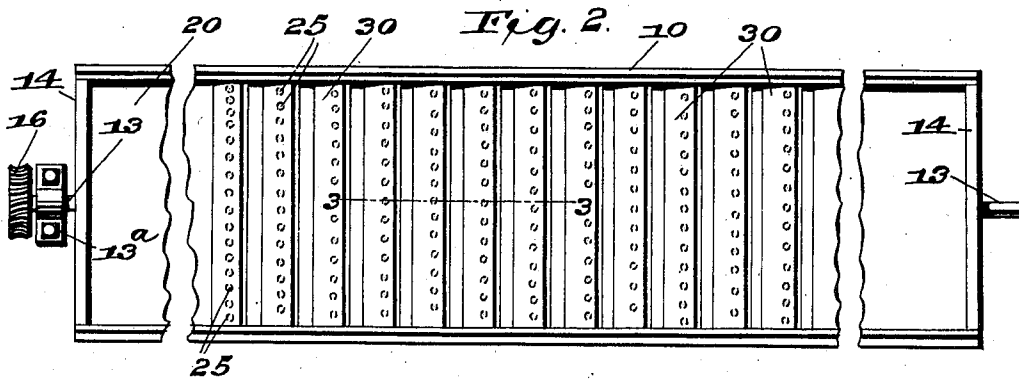


Fig. 3.

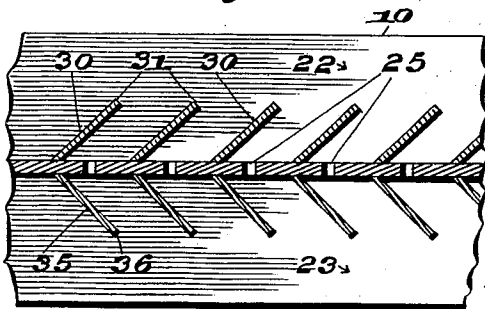
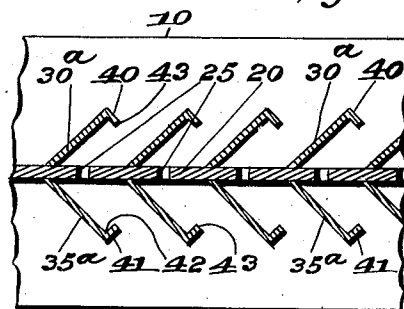


Fig. 4.



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LIQUID DISTRIBUTING DEVICE

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7 Claims. (Cl. 299—58)

This invention relates to a liquid distributing device.

An object of the invention is the provision of an apparatus for distributing liquid over fruits or vegetables for the purpose of washing, cooling, heating or disinfecting said fruits and vegetables.

A further object of the invention is the provision of an apparatus in which a liquid is discharged from a container or reservoir in a plurality of streams, the streams being converted into a thin sheet before falling on the fruits or vegetables so that such comestibles will not be injured during a washing, a cooling, a heating, or a disinfecting operation.

A further object of the invention is the provision of a container for dispensing a liquid in thin sheets onto vegetables or fruits for various purposes, the containers being constructed in an identical manner at the top and bottom at their opposite faces so that they may be reversed in situ to discharge foreign matter that has been collected in one section of the container and where liquid has been supplied before it is distributed.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawing forming a part of the specification; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications as define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is an end view of a liquid distributing device constructed in accordance with the principles of my invention,

Figure 2 is a plan view of the same,

Figure 3 is a fragmentary vertical section taken along the line 3—3 of Figure 2,

Figure 4 is a vertical section similar to the section shown in Figure 3, but disclosing a modified form of the invention.

Referring more particularly to the drawing, 10 and 11 designate a pair of curved side walls. These side walls are curved along an arc which has its center at a point indicated by the numeral 12 and this center lies within the horizontal axes of a pair of trunnions 13 which are secured to end walls 14.

The side edges 15 of the end walls 14 are curved to conform to the curvature of the side walls 10 and 11 and are rigidly secured thereto. It will be noted that the height of the end walls 14 is

substantially equal to the height of said side walls with the upper and lower edges of the end walls being in the same plane with the upper and lower edges, respectively, of the side walls.

A plate 20 which forms the bottom of a pair of compartments, generally designated by the numerals 22 and 23, has its end and side edges secured respectively, in any approved manner, to the inner faces of the end walls 14, and the side walls 10 and 11. This plate is located in a plane which is midway between the upper and lower edges of the side and end walls of the frame.

A plurality of rows of spaced perforations or passages 25 is located transversely of the plate 20 so that the compartments 22 and 23 are in communication with each other. Thus, if a liquid is filled into the compartment 22 said liquid will pass in streams through the rows of perforations 25 and into the compartment 23. On the other hand, if the frame is reversed in position, or inverted, so that the compartment 23 will be on top and the compartment 22 will be below, the liquid which is filled into the compartment 23 will then pass in streams through the rows of passages 25 into the compartment 22. As has been explained, the device may be reversed in position by rotating the frame on the trunnions 13 which are supported, in any approved manner, in bearings.

Due to the fact that the side walls 10 and 11 are curved a plurality of these frames may be placed in close parallel relation in a support and since the side walls are curved along an arc which has its center at 12 (Fig. 1) these frames may be reversed at will.

Vanes 30 have their lower ends secured to the upper face of the plate 20 adjacent each row of passages 25. These vanes are inclined in such a manner that they extend over each row of passages with the free edges 31 of the vanes terminating below the upper edges of the side and end walls of the frame. The ends of these vanes are secured to the side walls 10 and 11.

A vane 35 has one edge secured to the under face of the plate 20 and it will be noted from the drawing that there is a vane disposed adjacent each row of passages. The vanes 35 are inclined at an acute angle to the under face of the plate 20 and project beyond transverse lines which pass through the rows of perforations so that when a liquid has been discharged into the upper compartment 22 thereby filling the spaces between the vanes 30, this liquid will flow in streams through the passages 25 and downwardly upon the inner faces of the vanes 35. This liquid will flow off the free edges 36 of the vanes 35

in a thin sheet onto the vegetables or fruit which are being carried beneath the free ends of the vanes by the usual traveling conveyor. In other words, the streams are broken up and the liquid is then dispensed in thin sheets to prevent the fruit or vegetables from being injured by falling streams of liquid from the passages 25.

In view of the fact that the vanes 30 and 35 are similarly constructed and similarly positioned the frame may be reversed by rotating the same on the trunnions 13 whereby the pair of vanes 35 will form compartments to receive the liquid and this liquid will then pass through the passages 25 and will then be discharged in thin sheets from the free edges 31 of the vanes 30 which are now in the lower position. The ends of the vanes 35, like the vanes 30, are secured at the ends of the side walls 10 and 11 of the frame.

In Figure 4 is shown a modified form of the vanes 30 and 35. In this form each of the vanes 30^a and 35^a are provided with right angularly disposed flanges 40 and 41, respectively, so that when liquid passes in streams through the passages 25 some of the liquid will be collected in a trough 42 formed by the flanges 40 and 41 with the respective vanes 30^a and 35^a. However, the liquid will drain off the free edges 43 of the flanges 40 and 41 in a thin sheet and will be distributed over the fruit or vegetables carried by a traveling conveyor (not shown) beneath the frame.

If desired where the frames are held stationary the upper vanes 30 and 30^a may be dispensed with and only the vanes 35 and 35^a may be employed for causing the liquid which is discharged in streams onto said vanes to flow therefrom in a thin sheet.

As has been previously stated, the trunnions 13 are supported in bearings 13^a. Worm gears 16 may be secured to each trunnion of the frame at one end thereof so that a plurality of worms on a shaft may be in meshing relation with associated gears whereby when the shaft is revolved all of the frames may be reversed in position or inverted for the purpose of dumping or discharging foreign matter which has collected on one face of the plate 20 after the device has been in operation for a predetermined period of time.

Various types of liquids may be employed for the various purposes of washing, cooling, heating or disinfecting the fruits or vegetables, and this liquid is supplied to each one of the compartments 22 or 23 when said compartment is in upright position and the supply is maintained for covering the free edges of the vanes so that all of the spaces between the vanes will be filled with liquid and so that a regulated quantity of the liquid may be discharged through the series of passages 25.

Due to the fact that the vanes 30, 35 and vanes 30^a 35^a are similarly positioned and similarly constructed, the frame may be readily inverted so that either compartment 22 or 23 may be filled with the liquid after supplying said liquid to the perforations 25, whereby the liquid will be discharged over the free edges of the depending vanes in thin sheets.

I claim:

1. A liquid distributing device comprising a horizontal frame having side and end walls, a plate having the ends and sides thereof connected respectively to the end and side walls of the frame and along lines which are located intermediate the top and bottom edges of said

walls, said plate adapted to receive a liquid and provided with a plurality of passages arranged in parallel rows transversely of said plate, spaced means in the frame at the upper face of the plate for isolating the rows of passages from each other, means at the under face of the plate adjacent each row of passages to receive and discharge the liquid issuing from said passages in a thin sheet.

2. A liquid distributing device comprising a horizontal frame having side and end walls, a plate having the ends and sides thereof connected respectively to the end and side walls of the frame and along lines which are located intermediate the top and bottom edges of said walls, said plate adapted to receive a liquid and provided with a plurality of passages arranged in parallel rows transversely of said plate, spaced means projecting downwardly from the underface of the plate adjacent each row of perforations and means connected to each last-named means for retaining a predetermined quantity of the liquid on said last-named means before the liquid is discharged, so that the liquid will be evenly distributed in a thin sheet from each of the spaced means.

3. A liquid distributing device comprising a horizontal frame having side and end walls, a plate having the ends and sides thereof connected respectively to the end and side walls of the frame and along lines which are located intermediate the top and bottom edges of said walls, said plate adapted to receive a liquid and provided with a plurality of passages arranged in parallel rows transversely of said plate, spaced means in the frame at the upper face of the plate for isolating the rows of passages from each other, means at the under face of the plate adjacent each row of passages to receive and discharge the liquid issuing from said passages in a thin sheet, and trunnions projecting from the end walls of the frame, the side walls being curved so that when a plurality of the frames are located side by side, the frames may be inverted when revolved on the trunnions with the curved side walls of adjacent frames clearing each other.

4. A liquid distributing device comprising a horizontal frame having side and end walls, a plate having the ends and sides thereof connected respectively to the end and side walls of the frame and along lines which are located intermediate the top and bottom edges of said walls, said plate adapted to receive a liquid and provided with a plurality of passages arranged in parallel rows transversely of said plate, spaced transversely disposed vanes secured to the under face of the plate, each vane being located adjacent a row of passages to receive the liquid flowing from the passages and for dispensing the liquid in a thin sheet, the ends of the vanes being secured to the side walls, and a flange projecting upward from the free edges of the vanes to form troughs to receive the liquid before it flows over the free edge of the flange to form a thin sheet of discharging liquid.

5. A liquid distributing device comprising a frame having side and end walls, a horizontally disposed plate secured to an intermediate portion of the end and side walls to form two compartments, either of the compartments adapted to be supplied with a liquid when facing upwardly, the plate provided with a plurality of transverse rows of passages, a vane located adjacent each row of openings in both compartments, the

vanes having the inner edges secured to the under face of the plate so that a liquid supplied to one compartment when facing upwardly will pass through the passages and fall on the vanes in the other compartment and be discharged from the free edges of said vanes in a thin sheet, means rotatably mounting the frame so that either compartment may be positioned in an upwardly facing manner.

6. A liquid distributing device comprising a frame having side and end walls, a plate secured to an intermediate portion of the end and side walls to form two compartments, one of the compartments adapted to be supplied with a liquid, the plate provided with a plurality of transverse rows of passages, an inclined vane located adjacent each transverse row of passages in each compartment, the vanes in one compartment having substantially the same construction and positions as the vanes in the other compartment so that when the frame is revolved either compartment may be located in an upper or downward position, and flanges projecting from the free edges of the vanes towards the plate and having the ends thereof secured to the side walls to form troughs, means rotatably mounting the frame, liquid dispensed into an upwardly turned com-

partment passing through the passages in streams which fall on the vanes and are discharged in a thin sheet from the free ends of the vanes.

7. A liquid distributing device comprising a frame having side and end walls, a plate secured to an intermediate portion of the end and side walls to form two compartments, one of the compartments adapted to be supplied with a liquid, the plate provided with a plurality of transverse rows of passages, an inclined vane located adjacent each transverse row of passages in each compartment, the vanes in one compartment having substantially the same construction and positions as the vanes in the other compartment so that when the frame is revolved either compartment may be located in an upper or downward position, and flanges projecting from the free edges of the vanes towards the plate and having the ends thereof secured to the side walls to form troughs, means rotatably mounting the frame, liquid dispensed into an upwardly turned compartment passing through the passages in streams which fall on the vanes and are discharged in a thin sheet from the free ends of the flanges.

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