

May 31, 1932.

R. K. SLAYMAKER

1,860,600

DISPLAY RACK FOR FRUITS, VEGETABLES, AND THE LIKE

Filed Aug. 18, 1930

2 Sheets-Sheet 1

FIG. 1

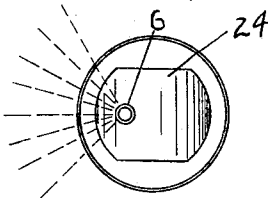
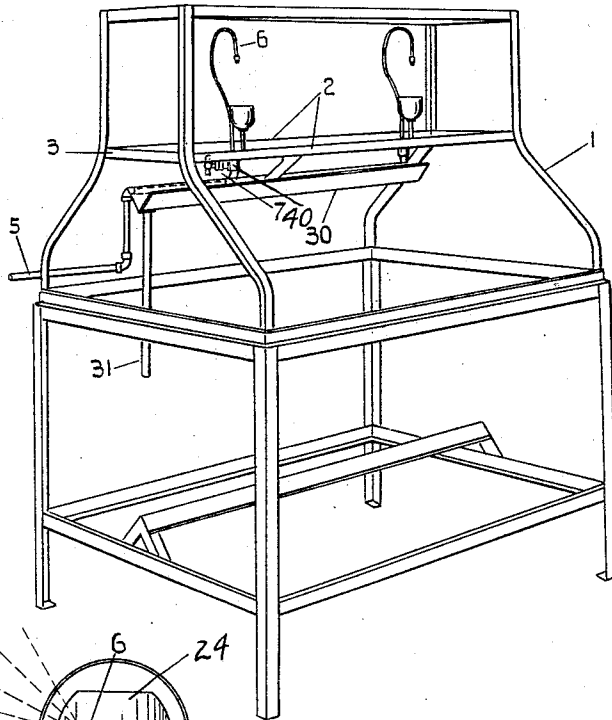


FIG. 8

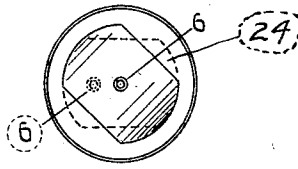
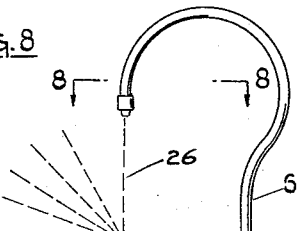
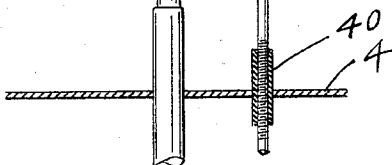


FIG. 9

FIG. 7



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2 Sheets-Sheet 2

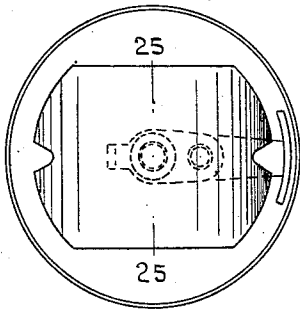


FIG. 3

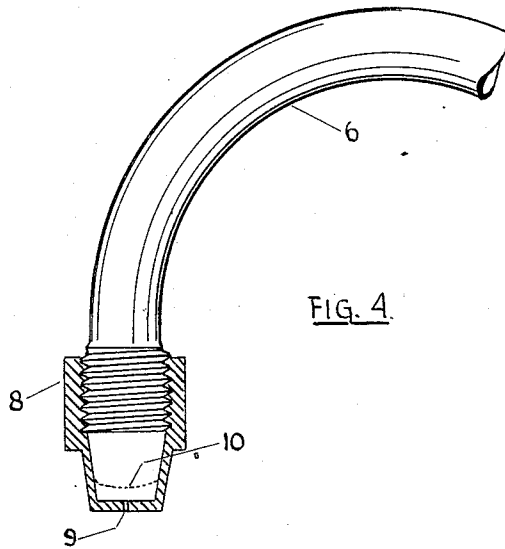


FIG. 4

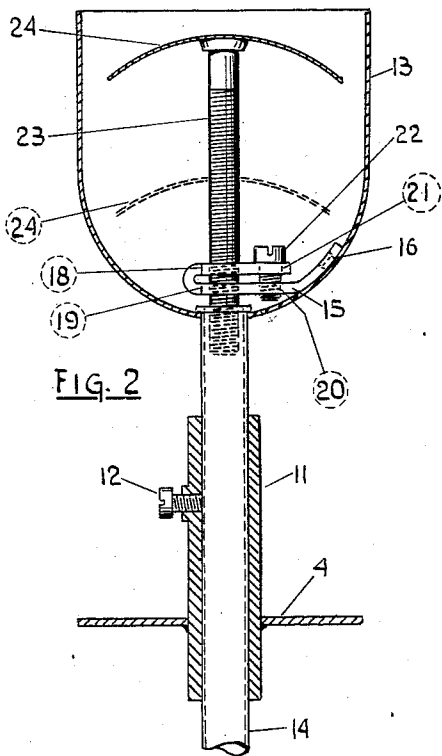


FIG. 2

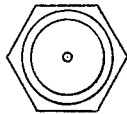


FIG. 5

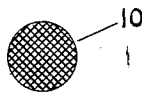


FIG. 6

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# UNITED STATES PATENT OFFICE

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DISPLAY RACK FOR FRUITS, VEGETABLES, AND THE LIKE

Application filed August 18, 1930. Serial No. 475,917.

This invention relates to a display rack for fruits, vegetables and the like, and more particularly contemplates a display rack of the type that humidifies the surrounding air to prevent the wilting and drying out of the fruits and vegetables supported and displayed thereby.

The humidifying is effected by directing a jet of water against a curved surface, the impetus of the jet against the curved surface transforming it into a mist of varying degrees of fineness. It is appreciated that this means for transforming a jet of water into a mist is not broadly new but it is an object of this invention to improve upon this general type of humidifying display rack. It is proposed to produce a mist creating baffle that is adjustable relative to an inclosing cup which effects the production of a mist varying in fineness from a fog to a spray of water droplets.

Since this type of display rack is situated usually in a fruit or grocery store, it is necessarily subjected to drafts which blow the mist in such a direction to prevent the humidifying of some of the display area of the rack. It is an object of the invention to overcome this defect and this has been achieved by the use of a mist producing means which permits the concentration and directing of the mist where most needed in counteraction to the draft.

It is a further object of the invention to regulate the degree of fineness of the mist by producing a cup inclosing the mist producing baffle that is adjustable relative to the baffle. Since such a display rack is useful not only for the humidifying and resulting preservation of the fruits and vegetables displayed thereon, it is intended to extend the usefulness of such a display stand and this has been achieved by utilizing the mist producing baffle and inclosing cup to produce a whistle or singing effect which at-

tracts the notice of the prospective customers.

A further object of the invention is to produce a jet producing nozzle that will not readily clog. This is achieved by the use of a screen within the nozzle which screens the water prior to its passage through the minute orifice in the nozzle.

A further object of the invention is to utilize a goose neck pipe for supporting the nozzle which is adjustable relative to the mist producing baffle to properly align the same.

Since the baffle is supported within the surrounding cup by means of a threaded engagement with a small bracket supported by the inside of the cup and since these threads often wear causing a looseness in the baffle, it is a further object of the invention to prevent this loose fit between the baffle and its threaded support by means of a screw which, when tightened, serves to disalign the threaded openings through which the baffle support projects and in turn create a tight fit between the threads of the baffle pin support and the openings in the support proper.

In the drawings:

Fig. 1 is a perspective of the display rack.

Fig. 2 is a detail view of the mist producing baffle and cup.

Fig. 3 is a plan view looking downwardly on the baffle and into the surrounding cup.

Fig. 4 is a detail view of the goose neck and screened nozzle.

Figs. 5 and 6 are detail views of the nozzle and screen respectively.

Fig. 7 is a view illustrating the distribution of the mist produced by the impact of the jet of water upon the mist producing baffle.

Fig. 8 is a section along line 8—8 of Fig. 7.

Fig. 9 is a detailed view illustrating the varied relative positions of the nozzle and baffle.

Referring more particularly to the draw-

ings I have shown a display rack generally referenced 1. This display rack is arranged to support several wire baskets (not shown) containing fruits and vegetables in a manner well-known to those versed in the art. The display rack has adjacent the top thereof a suitable rectangular reinforcing frame formed of the front and rear cross bars 2 and the end bars 3. This frame supports a strap 4 which in turn serves as a support for the mist producing mechanism.

A suitable water feed line 5 is run under the strap 4 where it is connected to a goose neck 6 by any suitable means such as the union 40. This connection permits the goose neck to be rotated to adjust the same relative to the mist producing baffle as will be explained below. The connection 40 between the goose neck 6 and the water feed line 5 carries the valve 7 which regulates the flow of water from the feed line 5 into and through the goose neck 6. The goose neck 6 is made of any suitable bendable metal, such as brass. The goose neck 6 has threaded on the downwardly projecting end thereof the nozzle 8. The nozzle 8 is provided with a minute orifice 9 through which the water flows in a thin needle-like jet downwardly toward the mist producing mechanism. Hence, this orifice 9 is very small and easily clogs. To prevent this a very fine screen 10 of a mesh smaller than the orifice is located within the nozzle 8 somewhat above the orifice 9. This screen collects and strains all particles of foreign matter from the water passing through the goose neck 6 and yet permits sufficient water to flow through the orifice 9. Obviously, after the screen 10 has been completely covered by the debris which it screens from the water flowing through the goose neck 6, the flow of water therethrough will be stopped and necessarily the nozzle will have to be removed and the screen cleaned.

Fixed to and passing through the strap 4 perpendicularly below the nozzle 8 is a suitable upright collar 11 open at both ends. This collar is provided with a suitable set screw 12. The collar 11 serves as a guide and support for the spray producing mechanism, the outer parts of which are the cup 13 and the downwardly projecting stem 14 the upper end of which opens into the cup. The stem 14 slidably engages within, and is supported by, the hollow collar 11. The set screw 12 permits the adjustment of the stem 14 and necessarily the cup 13 relative to the nozzle 8 in whatever position desired depending upon the type of spray required as will be explained below.

Since, as stated above, the mist is produced by the impact of a needle-like jet of water upon a suitable surface which dissipates the impinging water into a fine mist of varying degrees, there is utilized a deep cup 13 provided with a support 15 for the baffle. This support 15 is in the form of a spring strip of

metal soldered or otherwise suitably fixed to the inside of the cup as at 16 and which is folded back upon itself as at 17. The support 15 is provided with the aligned threaded openings 18 and 19. These openings are positioned axially above the upper mouth of the tube 14. The support 15 also has the threaded opening 20 and the plain opening 21 through which is passed a suitable set screw 22.

A suitable threaded stem 23 is threaded into the openings 18 and 19 and has fixed to the upper end thereof the mist producing baffle 24. This mist producing baffle is a section of a true cylinder and may have any peripheral contour desirable, the point being that all lines drawn parallel to the axis of the cylinder of which it is a part are straight lines whereas all lines running across the surface of the baffle 24 perpendicular to these axially parallel lines are arcs of a true circle. In other words, as viewed in Fig. 2, the curve of the baffle 24 is an arc of a true circle. As viewed in Fig. 3, the line 25 and all parallel surface lines are straight.

As above stated, such a display rack is often positioned in a draft in a fruit and vegetable store which necessarily blows the mist in the direction of the draft and often prevents a certain area of the rack from being humidified by the mist. To combat this very condition is an object of the invention and to this end the baffle 24 has been designedly constructed substantially as and preferably exactly a portion of a cylinder. The purpose of forming the baffle 24 as a portion of a cylinder is brought out nicely in Fig. 7. As the fine needle-like jet of water speeds from the orifice 9 to forcefully impinge the upper face of the baffle 24, it dashes itself into fine particles ranging from a mist to small drops of water. This needle-like jet of water may be referenced 26.

In Fig. 3 there is shown a view looking downwardly upon the baffle and enclosing cup. As shown in the full lines in this figure the goose neck 6 is positioned so that the jet will strike the baffle directly over the stem or somewhere along the line 25—25. In such a case the jet will be transformed into a mist uniformly in all directions.

In Fig. 7 I have shown the goose neck 6 rotated in the union 40 so that the nozzle 9 has been moved relatively to the stem 23 of the baffle so that the jet will now strike the baffle to the side of the line 25—25 as shown. This causes the water to be transformed into a mist which shoots outwardly in the direction shown, that is, none of the mist will be shot to the right of the stem as shown in Fig. 7. The relative positions of the stem and baffle, as shown in Fig. 7, are shown by the dotted lines in Fig. 9. It will be noted that the baffle 24 has been turned so that the jet strikes the surface of the baffle substantially

in the center of the curved surface but to one side of the line 25—25. This gives a uniform distribution of the mist in the direction indicated (Fig. 7).

5 Since the display rack is often positioned in drafts it is very desirable to be able to combat the drafts with the mist, otherwise the mist will be driven in the direction of the drafts and the vegetables on the one side of the mist will not be humidified. Hence, this  
10 adjustability of the goose neck and the baffle itself so that the jet can be made to strike the baffle on either side of the line 25—25, permits the mist to be shot directly into the  
15 draft and thus the vegetables on the side of the baffle from which the draft is coming are properly humidified.

20 Since the goose neck 6 is made from brass or any other suitable bendable metal it is possible to bend the goose neck without turning the same in the union 40 to position the jet relative to the baffle but preferably this adjustment is effected by rotating the goose neck in the union 40.

25 The surface of the baffle 24 is preferably a portion of a true cylinder but it need not be such a surface in order to function as above described. The surface 24 is such a surface  
30 as would be defined by a line such as 25—25 which is normal to the stem 23 moving outwardly and downwardly from the position shown in Fig. 3 at a uniform ratio and  
35 always parallel to its initial position. In other words, the cross section of this surface will be an arc of an ellipse, parabola, circle, or similar geometric figure.

40 Since various operating conditions warrant various types of mist into which the needle-like jet 26 is dissipate, the baffle 24 has been adjustably mounted within the cup 13. Since necessarily the heavier particles which  
45 approximate drops of water will not rise very high from the baffle 24, when the baffle 24 is positioned as shown in the dotted lines (Fig. 2) only the very minute or fog-like particles  
50 escape from the mouth of the cup 13 because the sides of the cup 13 catch the larger drops of water formed by the impingement of the jet 26 against the spray 24. This water flows  
55 along the sides toward the bottom of the cup where it enters the mouth of the tube 14, passes therethrough and is discharged into the trough 30 and thence into the drain line 31.

60 As the baffle 24 approaches the mouth of the cup 13 the mist produced increases in the coarser or drop-like water content owing to the fact that less of the droplets are caught by the sides of the cup. The difference in the  
65 spray produced by the baffle alone when in the position shown in the full lines and in the position shown in the dotted lines (Fig. 2) is very small, but the difference of that formed by the baffle 24 in conjunction with the cup 13, when in these two positions is ap-

preciable. This is due to the fact that the larger the droplet formed by the impingement of the jet against the baffle 24 the smaller the distance it will rise above the baffle. Hence, when the baffle is in the lower position  
70 in order to escape the inside of the cup 13 the particles must rise substantially vertically or at a small angle thereto in order to clear the top of the cup 13. To do this requires a very small particle of water, so small in fact  
75 that it is found that the spray produced with the baffle in this position is substantially a fog.

The baffle 24 may be formed of sheet metal. It is found that the striking of the water upon this baffle causes it to vibrate, which in turn causes the air to vibrate and produce a sound. At the same time the hollow cup 13 serves as an amplifier. It is found that by varying the thickness of the sheet metal baffle that sounds  
80 of varying intensity and depth can be produced, the main thing being that this sound which is analogous to a hum serves to call the prospective customer's attention to the rack and the perishable vegetables and fruits displayed thereon.  
85

After the baffle 24 and the stem 23 have been much used there is a tendency for the threads in the openings 18 and 19 to wear which causes a loose fit of the stem 23 in the openings 18  
90 and 19. This loose fit can be eliminated by turning the screw 22 which bends the portion 17 of the support 15 downwardly to disalign the openings 18 and 19 which acts similarly to a lock nut to tighten the engagement of the stem 23 in the openings.  
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It is evident from the above description that there is here produced a humidifying display rack essentially characterized among  
100 other things in that the surface against which the jet of water impinges is movable relative to an inclosure open at the top to effect a mist of varying fineness and the impinging surface being of such a configuration as to distribute the mist farther in one direction than  
105 in another when proper relative adjustment between the baffle and jet producing feed line is effected.  
110

#### Claims:

1. In a mist forming device of the type  
115 adapted to humidify vegetables on display, the combination of a water feed line, means associated with the said line and forming the water into a needle-like jet, a baffle surface positioned in the path of the said jet, the  
120 said baffle surface being sufficiently thin to be vibrated by the impingement of the jet thereon and to dissipate the jet into a fog-like mist, and a cup shaped member inclosing the said baffle surface serving as a sound amplifier whereby the said baffle and cup inclosure  
125 effect a humming sound during the operation thereof.

2. In a mist forming device of the type  
130 adapted to humidify vegetables on display,

the combination of a water feed line terminating in a jet producing orifice, a downwardly curved baffle surface positioned in the path of the said jet for transforming the same into  
5 a mist, the said water feed line and baffle surface being relatively adjustable whereby the mist may be directed in a predetermined direction, and a cup surrounding the said baffle, the said baffle being relatively adjustable  
10 inwardly and outwardly of the said cup whereby the degree of fineness of the mist which is projected over the vegetables can be varied.

15 In testimony whereof I affix my signature.  
ROBERT K. SLAYMAKER.

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