March 20, 1934. J. TYLER 1,951,587

ADJUSTABLE SPRAY DEVICE

Filed April 11, 1932

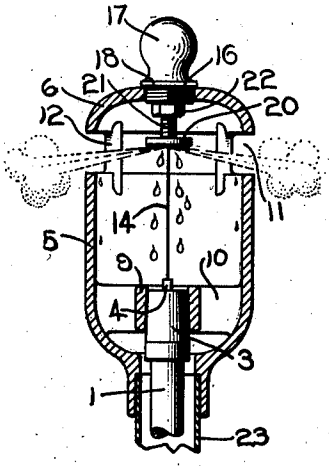


Fig. 1.

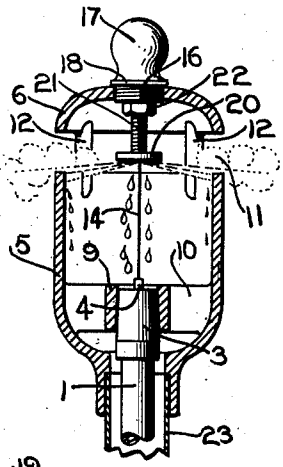


Fig. 2.

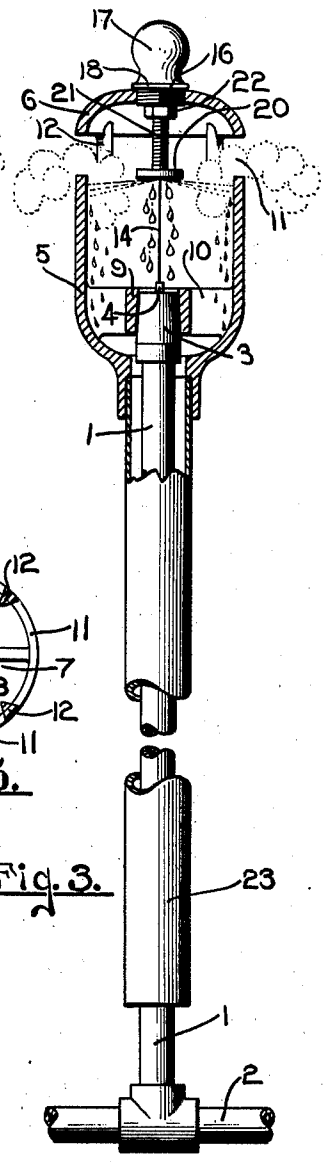


Fig. 3.

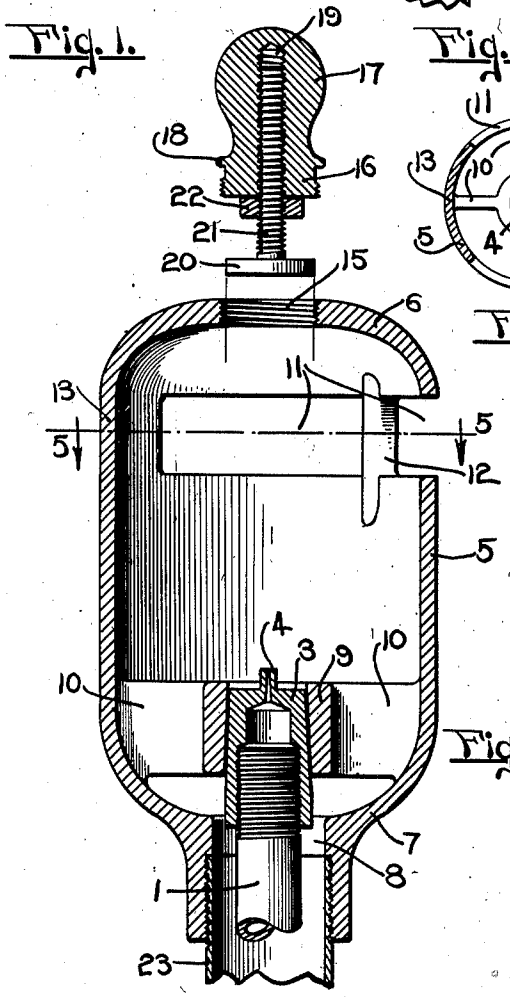


Fig. 4.

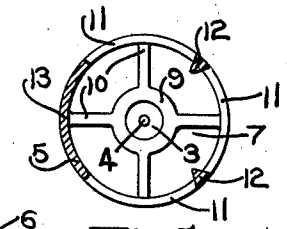


Fig. 5.

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1,951,587

UNITED STATES PATENT OFFICE

1,951,587

ADJUSTABLE SPRAY DEVICE

Jerry Tyler, Muskegon Heights, Mich.

Application April 11, 1932, Serial No. 604,429

2 Claims. (Cl. 299—58)

This invention relates to adjustable spray devices and more particularly to such devices which are especially adapted and intended to be used to spray moisture upon vegetables displayed for sale and to humidify the air around the vegetables and it is of the same nature as the device disclosed in my patent for Vegetable spraying device, No. 1,863,914, allowed June 21, 1932.

The specific object of the present invention is to provide means for forming a fine spray or mist of water and to combine with such spray forming means for localizing or controlling the ejection of such mist and for varying the ejection of the mist both as to quality and quantity as conditions require. The structure by which these results are accomplished is simple in form and provides for the utmost facility both in manufacture, assembly and adjustment. The invention provides various new and useful features of construction and arrangement as hereinafter more particularly pointed out in the claims, reference being had to the accompanying drawing, in which,

Figs. 1 and 2 are sectional elevations of the spray head embodying this invention shown in different adjusted positions.

Fig. 3 illustrates the parts shown in Figs. 1 and 2 adjusted to a third different position and also includes additional illustration of the water supply and drain pipes.

Fig. 4 is an enlarged sectional elevation of the spray head shown in partially disassembled position, and

Fig. 5 is a reduced size sectional plan of the dome member on the line 5—5 of Fig. 4.

Like reference numbers refer to like parts in all the figures of the drawing.

The device embodying this invention is intended to be used in combination with a vegetable holding and displaying tray or stand of the nature disclosed in my above identified patent and also in my copending application for Ventilated tray filed February 1, 1932, Serial No. 590,078, which stand or tray includes a perforated or mesh support for the vegetables below which is located means for draining surplus water. Such tray and drain means are not disclosed in this application as they form no part of the present invention.

A water supply pipe 1 is provided which extends vertically and may be a branch from a horizontal water pipe 2 as indicated in Fig. 3 and these pipes are in communication with a source of water under pressure. The upper end of the supply pipe 1 is provided with a cap 3 which has a small central orifice 4 therethrough through which a fine jet or stream of water is projected. A dome or shield 5 is located at the upper end of the pipe 1 and is in the nature of a cylindrical housing having a dome shaped upper end 6 and a lower end 7 which extends inwardly and is provided with an outlet opening 8 surrounding the pipe 1.

The outer surface of the cap 3 is of the general shape of a truncated cone or of a tapered round shape and a correspondingly tapered socket 9 is carried by arms 10 extending inwardly from the sides of the shield or dome 5. Preferably the socket 9, arms 10, and shield 5 are cast integrally. At the upper part of the shield 5 and below its dome shaped upper end 6 several arc shaped openings 11 are provided which may extend completely around the circumference of the shield 5, excepting where the joining legs 12 connect the dome top 6 with the lower portion of the shield but it is preferred that a portion of the side of the shield 5 be left intact and unperforated by openings 11 as at 13 which intact and unperforated portion may extend through substantially one-quarter of the circumference of the shield. The dome 6, lower portion of the shield 5, supporting legs and unperforated portion 13 are preferably cast integrally for facility of manufacture.

The tapered outer surface of the cap 3 and correspondingly tapered socket 9 combined with the location of the orifice 4 locate the parts in a manner so that the jet of water 14 ejecting from the orifice will travel upwardly at the axis of the cylindrical shield 5 and at this axis and in alinement with the jet a threaded opening 15 is provided in the top of the dome 6. A threaded plug 16 having a knob 17 forming its upper body and being provided with a shoulder 18 is screwed into the threaded opening 15 so that the shoulder 18 will engage the upper outer surface of the dome 6.

The plug 16 has an axially extending threaded hole 19 extending from its lower end into the plug and a considerable distance into the knob shaped body 17 thereof and an impact plate 20 is provided with a threaded stem 21 which is screwed into the threaded hole 19. A lock nut 22 is also screwed onto the stem 21. The diameter of the disk 20 is less than the diameter of the threaded opening 15 so that the disk may be inserted through the opening 15 after having been attached to the plug 16 by means of the threaded stem 21 and the plug 16 may be screwed into the opening 15 tightly engaging the shoulder 18 with the upper surface of the dome 6 to locate the

parts in assembled operative position with the plate 20 in alinement with the jet 14.

The outlet opening 8 at the lower side of the shield 5 communicates with the interior of the shield and is provided with a drain pipe 23, said drain pipe being appreciably larger in internal diameter than the external diameter of the water supply pipe 1 and extending downwardly a considerable distance around the pipe 1.

Operation

Assuming that water is introduced into the spray pipes 1 and 2 under pressure and that the parts are in assembled relation as shown for example in Fig. 1, water is ejected with considerable force in the nature of a fine stream 14 through the orifice 4 and strikes the lower surface of the impact plate 20 and upon striking the plate 20 the stream is broken up and the force of the impact is sufficient to cause a large portion of the water to assume the condition of a very fine mist or fog. Other parts of the stream are reduced to variable degrees of fineness and a portion of the water striking the plate drops therefrom in relatively large drops. That portion of the stream which is broken into extremely fine particles floats in the air while other particles not so fine are directed radially from the plate by reaction of the water and the coarse particles forming in drops are too heavy to be thrown radially and drop almost vertically from the plate.

The vertical position of the impact plate 20 relative to the outlet openings 11 in the shell governs the amount and quality of the spray which ejects therefrom. If the plate 20 is placed in a high position relative to said openings as illustrated in Fig. 1 substantially all of the water which is broken into either a mist or spray and thrown radially from the plate will be ejected through the openings. If the plate is moved lower a portion of the coarser particles of water which travel in a downward angle as they are thrown radially from the plate will strike the inner surface of the shell 5 below the openings 11 and will be trapped within the shell. A still lower position of the plate 20 as illustrated in Fig. 3, will cause practically all of the particles of water, not including the quantity of a fog or mist to be trapped within the shell below the openings, this fog floating in the air and having the ability to move upward above the plane of the plate and out through the openings.

The proximity of the impact plate 20 with the orifice 4 also governs the quality of the spray to some extent and vertical adjustment of the plate 20 relative to the orifice 4 is desirable to adjust the quality or fineness of the spray.

Adjustment of the vertical position of the impact plate 20 is made by loosening the lock nut 22 and turning the threaded stem 21 in the threaded hole 19. Since access to these parts for adjustment is only obtainable through the comparatively narrow openings 11 when the device is in assembled position it is found expedient to remove the plug 16 with its attached parts whereby adjustment may be readily and conveniently made and after the plate 20 has been adjusted as desired and the lock nut 22 tightened to retain it in such adjustment, the plug with the parts attached is readily inserted.

The unperforated quadrant 13 of the shield 5 is utilized for the purpose of preventing ejecting of spray or mist in certain directions when desired, as for example, to prevent such spray being thrown toward the side of the display device which may be approached by a customer or to counteract the effect of a draft or wind which may tend to carry the spray to an undesirable location. The position of the unperforated portion 13 may be changed at will by rotating the shield 5 on the supporting pipe 1, the tapered cap 3 and socket 9 adapting the structure for such adjustment.

The water trapped and falling within the shield 5 and not emitted through the openings 11 is drained downwardly in the shield, through the outlet opening 8 at the bottom thereof and through the drain pipe 23 which loosely surrounds the supply pipe 1 and the drain pipe 23 may extend to a position where water falling from it will be caught by a drain trough or tray forming a part of the display stand structure.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a device of the class described having a small jet of water issuing upwardly therefrom, the combination of a shielding member enclosing said jet of water, the shielding member having portions thereof removed in non-symmetrical fashion, said shielding means including impact means located in alinement with the jet and means for revolubly supporting the shielding member.

2. The combination of elements as set forth in claim 1 but also having means for adjusting said impact means through substantially the vertical dimension of the removed portions of the shielding member.

JERRY TYLER.