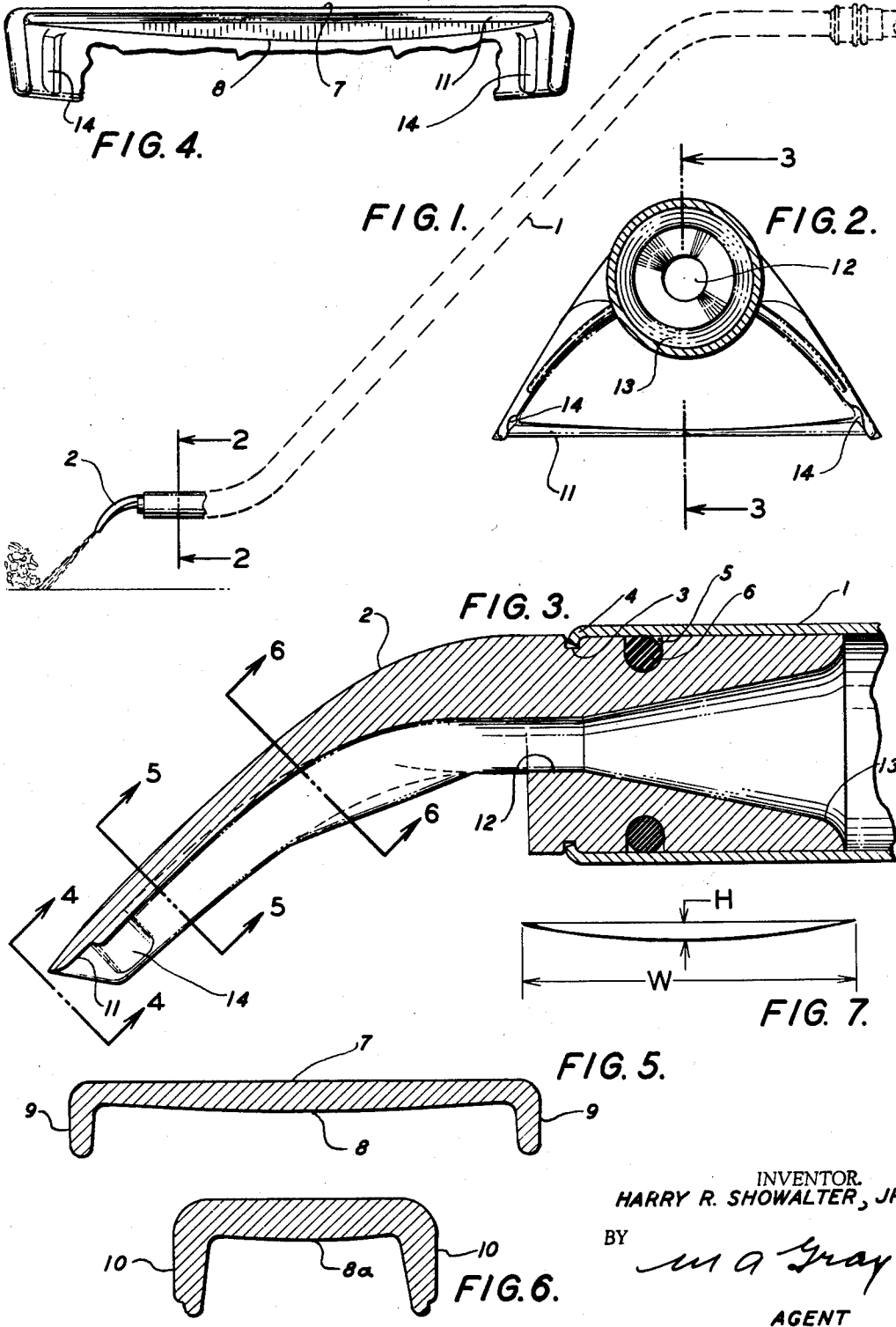


March 12, 1963

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NOZZLE AND HANDLE THEREFOR

3,081,041

Filed July 16, 1962



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3,081,041

NOZZLE AND HANDLE THEREFOR

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Filed July 16, 1962, Ser. No. 210,023

2 Claims. (Cl. 239-532)

My invention relates to a spray nozzle of the type used in directing a stream of water in a flat V-shaped pattern but with certain improvements in the deflector portion of the nozzle so as to provide a thin, flat V-shaped spray pattern that is well defined on the outer edges.

The present application is a continuation-in-part of my co-pending application Serial No. 125,338, filed July 18, 1961, now abandoned.

The primary object of my invention is to provide a nozzle having a downwardly curved surface on the inner portion of the deflector, together with the marginal side walls, so shaped as to produce a uniformly thin, flat sheet of spray, and at the same time control the outer edges of the V-shaped sheet of water to permit accurate control thereof for more efficient use in cleaning pavements, walls or anywhere that this type of spray may be useful.

Although the foregoing objects of my invention are regarded as primary, other features will become apparent as the specification proceeds and from the illustration in the drawings, in which:

FIG. 1 is a side elevational view of the spray nozzle, a connecting handle being shown in dotted lines to illustrate the device as it appears in the position of use.

FIG. 2 is an enlarged sectional view taken on the line 2-2 of FIG. 1.

FIG. 3 is a vertical sectional view taken on the line 3-3 of FIG. 2.

FIG. 4 is a front end elevational view as seen with the portions broken away.

FIG. 5 is a sectional view on the line 5-5 of FIG. 3.

FIG. 6 is a sectional view on the line 6-6 of FIG. 3, and

FIG. 7 is a diagrammatic outline of the convex inner face of the nozzle, taken through sections such as FIGS. 5 and 6 and indicating the height dimension H relative to the width W.

Referring now to the accompanying drawings in detail, FIG. 1 shows the spray nozzle 2 and a tubular handle 1, the said tubular handle being shown in dotted lines to indicate the normal usage of the nozzle 2 which comprises the essential feature of my invention.

The nozzle, shown in detail by FIGS. 2 to 6 inclusive is secured to the metal tubing of the handle by the inwardly crimped portion 4 which is tightly pressed into a circular groove 3, the nozzle being sealed by a ring washer 6 fitted into circular groove 5.

Referring to FIG. 3 it will be seen that the water enters the nozzle through a flaring inlet, the outer rim portion 13 being gradually curved to decrease turbulence; the jet being directed through orifice 12 where it impinges upon downwardly curved surface 8a and thence continuing past downwardly curved surface 8 and past the re-entrant or recessed outer edge at the discharge end of the nozzle.

An essential feature of the downwardly curved surfaces 8a and 8 is the fact that the transversally convex face increases in depth from the point 8a to 8, the degree of convexity being on an arc having the same radius at both 8a and 8; the increased depth of curvature at the center

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from point 8a to 8 being due to the proportionate increase in width. Hence the degree of convexity at any point from 8a, which is the first point of jet impact to the point 8 or even to the edge at the outer end of the nozzle is determined by the ratio of the width of the inner face of the nozzle to the depth of the arc at the center portion, the said ratio being that of 23 to 1. This uniformly curved arc which extends between the marginal sidewalls 9, 10 and increases in depth as it increases in width and on a fixed ratio results in a type of deflection of the water stream wherein the water leaves the outer edge of the nozzle in a thin, flat V-shaped sheet, the resulting spray pattern being well adapted to cleaning surfaces such as floors, walls and the like.

Another feature of the nozzle resides in the marginal side walls 9, 10 being normally disposed to the body portion of the nozzle and which controls the outer edges of the thin V-shaped spray until it reaches the recessed portions 14 which decreases the surface tension before the point of discharge at the outer end portions of the downwardly curved sidewalls.

The top surface 7 of the nozzle is transversally flat at the points shown in section by FIGS. 5 and 6 and as indicated by the front elevational view shown in FIG. 4.

An essential feature of the nozzle of my invention resides in the re-entrant portion 11 at the outer edge of the nozzle which provides a flange for the nozzle end and tends to protect the same against damage when contacting walls, pavements and the like.

While I have shown and described certain specific forms of my invention, in a preferred form, it is to be understood that various changes and modifications may be made, as deemed desirable within the scope of the appended claims:

I claim:

1. A spray nozzle adapted to form a flat spray pattern comprising a body having a jet orifice extending there-through a jet deflector projecting from the said body at the exit end of the orifice and curved in front of said orifice, said deflector being provided on the inner surface with a transversally convexed face which gradually increases in width and height from a point adjacent the jet orifice to the outer end thereof, the ratio of the width to height being uniformly that of 23 to 1, the convex formation extending laterally between the sidewalls, said sidewalls being disposed normally to the nozzle face.

2. A spray nozzle adapted to form a flat spray pattern comprising a body having a jet orifice extending there-through, a jet deflector projecting from the said body at the exit end of the orifice and curved in front of said orifice, said deflector being provided on the inner surface with a transversally convexed face which gradually increases in width and height from the point adjacent the jet orifice to the outer end thereof, the ratio of the width to height being uniformly that of 23 to 1, the convex formation extending laterally between the sidewalls, said sidewalls being disposed normally to the upper surface, there being a re-entrant portion extending entirely across the inner side of the outer end of the deflector body to provide a protective flange.

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