July 16, 1957 A. K. NORDEN ET AL 2,799,534

SHOWER HEAD ATTACHMENT

Filed May 19, 1955

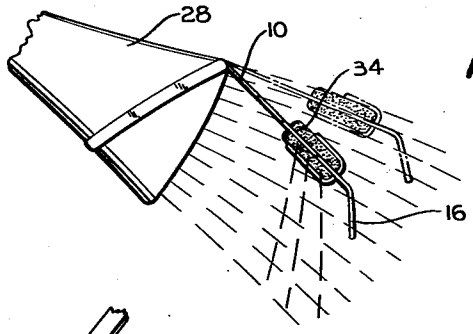


FIG. 1

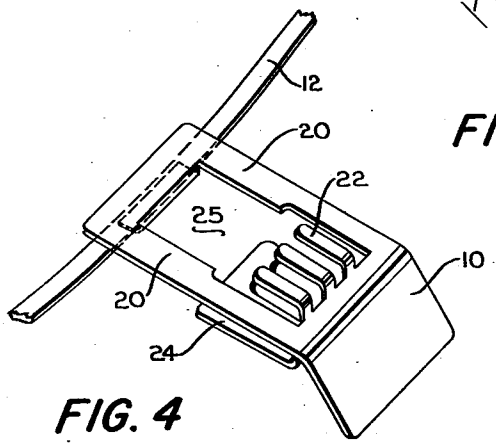


FIG. 4

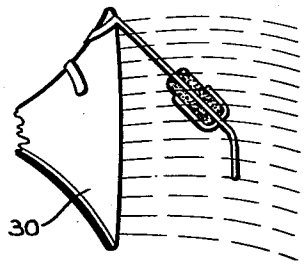
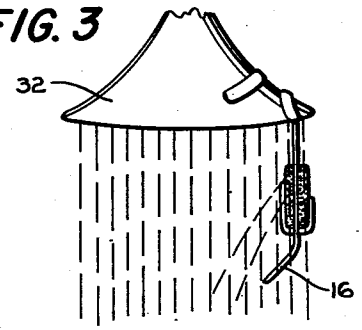


FIG. 2

FIG. 3



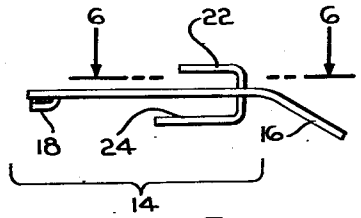


FIG. 5

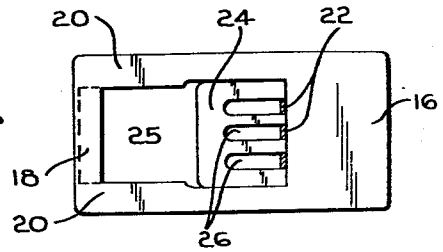


FIG. 6

INVENTORS.
ALEXANDRA K. NORDEN
ALEXANDER R. NORDEN

United States Patent Office 2,799,534 Patented July 16, 1957

2,799,534

SHOWER HEAD ATTACHMENT

Alexandra K. Norden and Alexander R. Norden, New York, N. Y.

Application May 19, 1955, Serial No. 509,468

16 Claims. (Cl. 299—83)

The present invention relates to apparatus for introducing a desired material into a liquid stream at a slow rate, and more particularly to the diffusion of bath salts or like material into shower water.

Mineral salts and scented materials of various kinds have heretofore been used extensively in the bath tub, for their therapeutic value and aesthetic appeal. A broad object of the present invention resides in the provision of novel apparatus for slowly diffusing such materials into water of a shower bath in exemplary fashion. More specific aspects of the invention are concerned with features of the novel apparatus that accomplish the foregoing object.

Shower baths are generally made as fixed, relatively permanent installations. A feature of this invention is in the facility of attaching the diffusing apparatus to existing showers without any modification thereof. A related feature is the universal application of the shower attachment hereby provided, enabling successful use with shower heads of virtually all sizes and shapes.

It will be readily understood that universal adaptability of the shower attachment is important to practical success commercially. A highly significant aspect of the present invention is its effectiveness with showers that may be directed slantwise or straight downward as well as with horizontally directed showers, and with showers having extremely high velocity of the divided stream emitted from the shower head, as well as gentle, low velocity showers.

A feature of this novel shower attachment is that it is self-adjusting to accord with the adjustment of any given shower, considering both quantity and velocity of the water flow. It is desirable that the material held by the attachment should be available to the user for a reasonable length of time. It should diffuse at a reasonable minimum rate to be useful, but it should not diffuse so rapidly as to be gone moments after it is put to use. This reasonable period of use naturally is influenced by the type of shower and the water adjustment of any particular shower; but an important feature of this invention resides in minimizing the effect of the particular shower or its adjustment on the time that a given charge of the material will remain available and in effect.

A further valuable feature of the invention, making its use with showers truly practical, is that the diffusing attachment to the shower head causes a bare minimum of interference with the natural shower stream. This is a feature that is undoubtedly of value in other applications of the novel diffuser. In conventional soap diffusers, for example, a container of soap is either clamped to, or hung under a faucet. The stream of water that leaves the soap container is of totally different velocity characteristics than the normal stream without such a container. The present novel attachment will be found particularly valuable where the jet velocity of the water is desired in addition to the diffusion of a suitable material into the water.

The foregoing objects and features of the invention are achieved with the illustrated embodiment disclosed in detail below. This preferred embodiment includes a universal attaching band at one end of the device, a container or holder for the material to be diffused, and a vane disposed at a slant angle to the structure between the attaching band and the holder. The material is fixed in the holder, preferably in cake form, or it may be a powder or other suitable form, and the holder may be a foraminous container. In use in a shower, the attaching band is fixed adjacent one edge of a shower head, with the mineral salt or other material held by its weight or by a spring in the normal jet of shower water, and with the vane portion extending slantwise somewhat further into the normal path of the water. The jet of water against the vane tends to shift the material holder toward the outer limit of the water. A weak jet of water produces less reaction against the vane, and the holder moves more fully into the shower stream. For very weak streams, the holder simply shifts into the main path of water. The attachment is shifted automatically to a position in the shower stream where it is consumed at a reasonable rate, so as to last approximately the same period of time for all showers and for all adjustments of any shower. In all cases there is but slight interference with the normal shower stream. The device is easily attached, is cheaply replaced or refilled, and is virtually universal in application. In the preferred embodiment, the holder may be re-charged with material without removal, and the amount of material remaining is readily seen at all times.

The foregoing objects of this invention and further advantages and features of novelty will be more fully appreciated from the following detailed description of a preferred, illustrative embodiment of the invention shown in the accompanying drawings that form part of the disclosure. In the drawings:

Fig. 1 is a lateral view of the preferred embodiment of the invention in a slant shower;

Fig. 2 is a lateral view of the same embodiment in a horizontal shower;

Fig. 3 is a lateral view of the same embodiment in a vertical shower;

Fig. 4 is a perspective view of a holder for a cake of slow-diffusing material, being a portion of the apparatus in Fig. 1;

Fig. 5 is a side view of the holder of Fig. 4; and

Fig. 6 is a cross-section of the holder in Figs. 4 and 5 along the line **6—6** in Fig. 5.

In Figs. 4, 5, and 6, a holder **10** for a cake or tablet of slow-diffusing bath salt is shown, being a single piece of sheet-metal carried by a hanger in the form of band **12**. This band extends across the end of holder **10** that is highest in use, conveniently termed the top edge of the holder. This edge is of substantial width, so that band **12** extends from points of holder **10** that are widely spaced apart. This spacing stabilizes the holder when in use, as will be seen.

The central portion of holder **10** may be called the body **14** of the holder. A vane **16** extends from body **14**. The vane is set at an angle to a plane containing the charge and the pivot of the swinging support. This angle is desirably flatter than a right angle to avoid unnecessary interference with the stream. While right-angled vane can be made effective to shift the charge to the desired position, it would cause spatter of the shower stream that is avoided in the preferred embodiment.

Body **14** includes a reverse-bent clip **18** struck out of the sheet metal. Band **12** extends between clip **18** and the

opposed portion of body **14**, and clip **18** advantageously is flattened or crimped against band **12**.

Body portion **14** also includes lateral strips **20** and container portions **22** and **24** for gripping or loosely retaining a cake of material to be diffused. Container portion **24** is struck out of the sheet metal so that, considering the space left by reverse bent portion **18**, a sizeable hole **25** is provided for receiving the cake of salt or the like. Portion **22** is in the form of fingers struck out of companion container portion **24**, leaving holes **26** in the latter.

Band **12** is a strip of tough material advantageously having a coating of permanently tacky adhesive, as for example surgical tape. A broad band of tacky material may be substituted for the narrow band **12** shown, extending endwise to the left from the holder **10** in Fig. 4, to engage the shower head **28**, **30**, or **32**, in Figs. 1–3. A readily bendable wire hanger pivoted to body **14** might be used in place of band **12** as a universal securing device. The adhesive band in the preferred embodiment has many advantages, particularly because it is so easily and effectively applied to support the holder in the desired position, and there is no tendency of marring the shower head.

It has been pointed out above that band **12** is secured to spaced-apart portions of holder **10**. This stabilizes the unit against side-to-side oscillations. Some slight up-and-down oscillation occurs during operation, but this seems to have certain pleasing effects.

In use a cake **34** of the desired material is pushed into hole **25**, to be retained by means of companion containing portions **22** and **24** and lateral elements **20** of body **14**. A pouch of mesh or perforated sheet might replace this retaining means, if necessitated by the particular material to be held, but the one-piece holder in the preferred embodiment has special merit. The material used may, for example, be an antiseptic, and/or a mineral salt (as for therapeutic value) and it may contain essential oils and a scent. Whether in tablet or cake form, or in paste form or as small crystals, the broad objects of the invention may be achieved through use of an appropriate form of retainer. In any case, it should be slow-diffusing so as to last during a reasonable showering time interval.

Vane **16** is instrumental in assuring automatically the appropriate positioning of the device in the shower stream to make the material last. In Fig. 1 a slant shower is shown, with the device lifted from a substantially vertical position by the stream of shower water. Most of the water passes by the device in its completely normal stream. It carries with it the water that engages tablet **34**. Vane **16** is struck by a fraction of the shower jet, at a point spaced from the swinging support **12**, to raise tablet **34** out of position across the main water stream. For higher jet velocities, vane **16** would effect further removal of tablet **34** from the shower stream. It is evident that the reduced volume of high-velocity water that engages the unit in its dotted-line position (Fig. 1) tends to cause diffusion of tablet **34** in roughly the same time as the larger volume of lower velocity water that reaches the tablet in the solid-line position of Fig. 1. This automatic self-adjustment is enhanced by the angled relationship of vane **16** in the drawings. A curved or contoured vane can be devised for like action. Even were the vane aligned in the plane with section **14** of the holder **10**, it would be effective toward this end, although less effective.

The self adjusting feature is important toward the end of universal application of the invention to all sizes and shapes of shower heads, and to all types of showers, whether of the type having a high-speed jet or a low-speed jet, and whether of large or limited volume rate-of-flow of water.

The application of the shower attachment in Fig. 1 to a horizontal-jet shower is shown in Fig. 2. Its operation is virtually the same as described for Fig. 1. Application of the device to a vertical shower is shown in Fig. 3. In Figs. 1–3, it appears that the water jet shifts the tablet **34** toward the outer limit of the shower stream, to an extent that increases with increasing jet velocity.

From the foregoing description of an illustrative but presently preferred embodiment of the invention, it is evident that a very widely applicable diffuser device is here involved. This unit combines many attributes, rendering it ideal for use in making available to the shower bath a range of materials commonly employed in tub baths. The construction adapts it to all forms of showers, and it is self-aligning to different water velocities so as to remain in effect throughout a reasonable showering period. The device shown can readily be recharged, and its state of depletion is at all times apparent from inspection. It requires no plumbing alterations in putting it into service; and it is easily moved out of operating position temporarily when desired, and it is easily entirely removed when not needed.

It is evident that numerous variations and modifications may be made in the specific embodiment described and illustrated, and varied application of the disclosed invention may be made by those skilled in the art; and accordingly the appended claims should be broadly construed, consistent with the spirit and scope of the invention.

What is claimed is:

1. A spray attachment including a body having a retaining portion for holding a charge of slow-diffusing material, a hanger for swingably supporting the body in the shower stream, and a vane extending from said body and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

2. A shower attachment including a body having a retaining portion for holding a charge of slow-diffusing material, permanently tacky material extending from spaced-apart portions of the holder for supporting the body swingably in the shower stream, and a vane extending from said body for glancing incidence by the shower stream and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

3. A shower attachment including a body having a retaining portion, an exposed charge of slow-diffusing material held by said retaining portion, a hanger for swingably supporting said body in the shower stream, and a vane extending from said body and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

4. A shower attachment including a body having a retaining portion, an exposed charge of slow-diffusing material held by said retaining portion, permanently tacky material extending from spaced-apart portions of the body for swingably supporting said body in the shower stream, and a vane extending from said body for glancing incidence by the shower stream and effective to shift the body and slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

5. A shower head and an attachment thereto including a body having a retaining portion for holding an exposed charge of slow-diffusing material, a swingable support for holding the attachment in the path of the shower stream, and a vane extending from said body and effective to shift said retaining portion toward the outer limit of the shower stream.

6. A shower head and an attachment thereto includ-

ing a body having a retaining portion for holding an exposed charge of slow-diffusing material, a swingable support holding the attachment in the path of the shower stream, and a vane extending from said body and effective to shift said retaining portion toward the outer limit of the shower stream, said vane extending more acutely across the shower stream than the retaining portion.

7. A shower attachment including a body having a retaining portion, an exposed charge of slow-diffusing material held by said retaining portion, a hanger for swingably supporting said body in the shower stream, and a vane extending from said body for glancing incidence by the shower stream and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream, said vane extending at a moderate angle to said body so that the incidence of the stream against the vane is relatively more direct than against said charge.

8. A shower attachment including a body having a retaining portion for holding a charge of slow-diffusing material, a hanger of permanently tacky material extending from spaced-apart portions of the holder for supporting the body swingably in the shower stream, and a vane extending from said body for glancing incidence by the shower stream and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream, said vane extending at an angle to said retaining portion so that in use there is greater incidence of said stream against the vane than against the retaining body.

9. A shower attachment, including a unitary body of sheet-metal or the like, having a supporting band bearing permanently tacky adhesive and extending from an edge of the body at laterally separated points, thereby to afford swingable support of the body about said edge while inhibiting swinging perpendicular to said edge, a retaining portion in said body having integral retaining formations for a charge of slow-diffusing material, and a vane extending integrally from said body at the side thereof opposite said edge.

10. A shower attachment, including a unitary body of sheet-metal or the like, having a supporting band bearing permanently tacky adhesive and extending from an edge of the body at laterally separated points, thereby to afford swingable support of the body about said edge, while inhibiting swinging perpendicular to said edge, a retaining portion in said body having retaining formations for a charge of slow-diffusing material, and a vane extending integrally from said body at the side thereof opposite said edge, said vane extending at a limited but substantial angle to said retaining portion, so that, in use, the shower stream strikes more directly against said vane than against retained slow-diffusing material.

11. A shower attachment, including a unitary body of sheet-metal or the like, having a supporting band bearing permanently tacky adhesive and extending from an edge of the body at laterally separated points, thereby to afford swingable support of the body about said edge while inhibiting swinging perpendicular to said edge, a retaining

portion in said body having integral retaining formations, a charge of slow-diffusing material retained by said formations, and a vane extending integrally from said body at the side thereof opposite said edge.

12. A shower attachment, including a unitary body of sheet-metal or the like, having a supporting band bearing permanently tacky adhesive and extending from an edge of the body at laterally separated points, thereby to afford swingable support of the body about said edge, while inhibiting swinging perpendicular to said edge, a retaining portion in said body having integral retaining formations, a charge of slow-diffusing material retained by said formations, and a vane extending integrally from said body at the side thereof opposite said edge, said vane extending at a limited but substantial angle to said retaining portion, so that, in use, the shower stream strikes more directly against said vane than against retained slow-diffusing material.

13. A spray attachment including a body having openwork holding means for disposing a cake of slow-diffusing material in a stream of water for glancing incidence thereagainst, a freely swingable hanger for supporting the body in the shower stream, and a vane extending from said body and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

14. A shower attachment including a body having openwork holding means and a cake of slow-diffusing material disposed by said openwork holding means in the shower stream for glancing incidence of the stream thereagainst, a readily swingable hanger for supporting said body on a shower head in the shower stream, and a vane extending from said body and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

15. A shower attachment in accordance with claim 14, wherein said readily swingable hanger includes portions secured to said body at laterally spaced points establishing an axis about which swing may be readily produced while at the same time inhibiting other swinging of the body.

16. A shower head and an attachment thereto including a body having openwork holding means and a cake of slow-diffusing material disposed by said openwork holding means in the shower stream for glancing incidence of the stream thereagainst, a readily swingable hanger supporting said body on the shower head in the shower stream, and a vane extending from said body and effective to shift the body and the slow-diffusing material carried thereby toward the outer limit of the shower stream, the extent of shift being greater with increased velocity and with increased quantity of water in the shower stream.

References Cited in the file of this patent

UNITED STATES PATENTS

2,485,112 Rose ---------- Oct. 18, 1947

FOREIGN PATENTS

49,645 Norway ---------- Nov. 9, 1931