

[54] **PERSONAL SPRAY AND MASSAGE APPARATUS**[75] Inventors: **Peter Bauer**, Germantown; **Vincent F. Neradka**, Rockville, both of Md.[73] Assignee: **Bowles Fluidics Corporation**, Silver Spring, Md.[22] Filed: **July 24, 1972**[21] Appl. No.: **274,519**[52] U.S. Cl. **239/102, 239/124, 239/390, 239/525**[51] Int. Cl. **B05b 3/14, B05b 7/02**[58] Field of Search **239/101, 102, 103, 239/124, 390, 391, 525, 600, 601, 589**[56] **References Cited****UNITED STATES PATENTS**

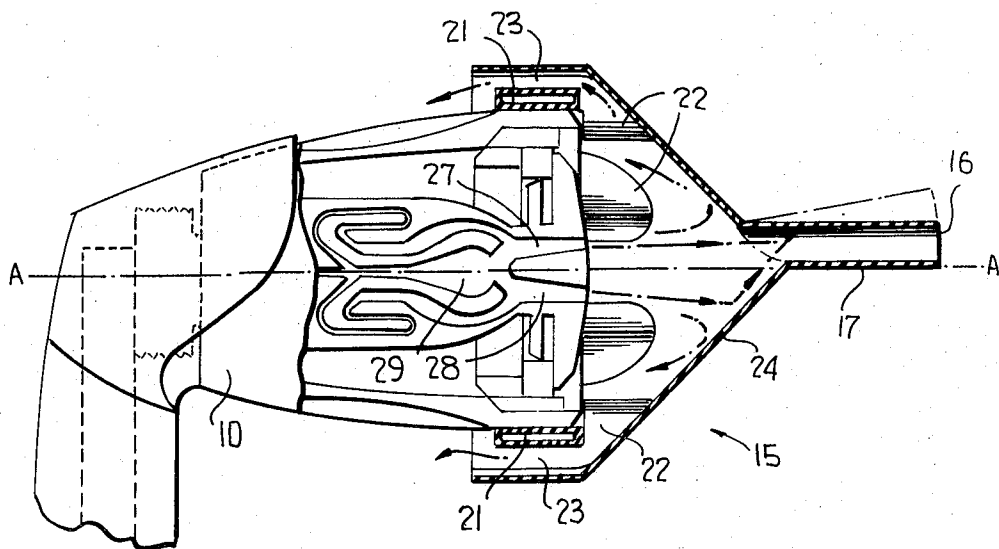
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Primary Examiner—Robert S. Ward, Jr.*Attorney*—Howard L. Rose et al.[57] **ABSTRACT**

An adapter for a hand-held shower head is configured in the form of a funnel to issue water through a projecting narrow-necked outlet, thereby permitting outlet spray to be directed at recessed and relatively inaccessible body areas. Large overflow vents are provided to prevent pressure build-up which could cause injury to the user. When employed with a pulsating or oscillating type shower head the adapter vibrates and serves as a combined cleansing and massage unit. The projecting outlet may be proportioned to permit the adapter to serve as a douching apparatus. In another embodiment multiple small outlet fingers project from the adapter to define a water-issuing brush which serves both cleansing and massaging functions. The adapter and spray member may be constructed as an integral unit.

24 Claims, 9 Drawing Figures

SHEET 1 OF 2

FIG. 1

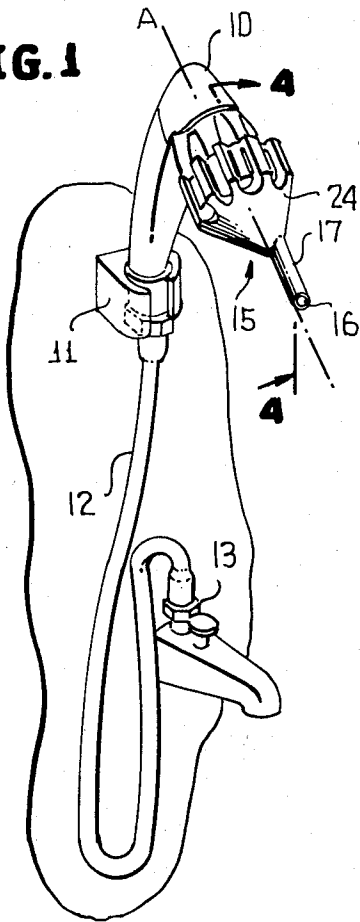


FIG. 2

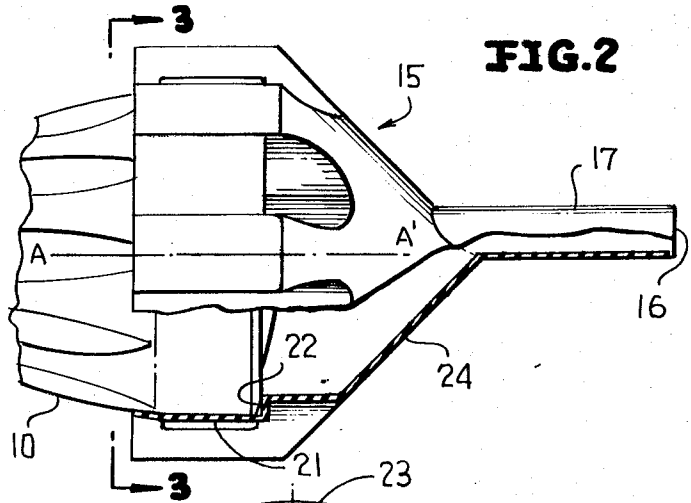


FIG. 3

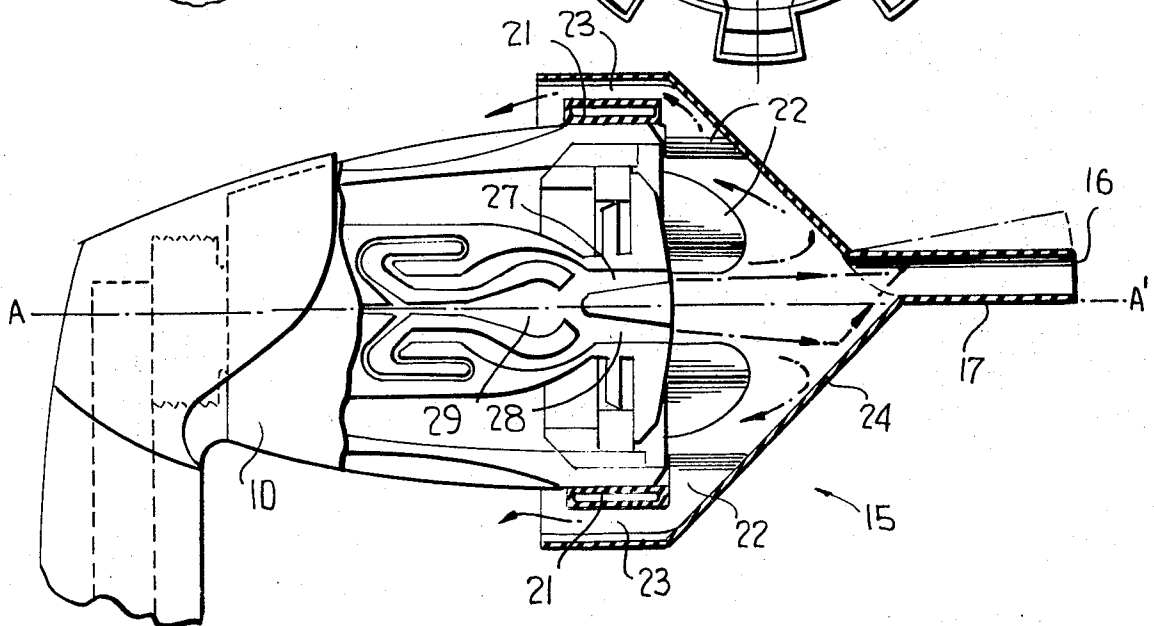
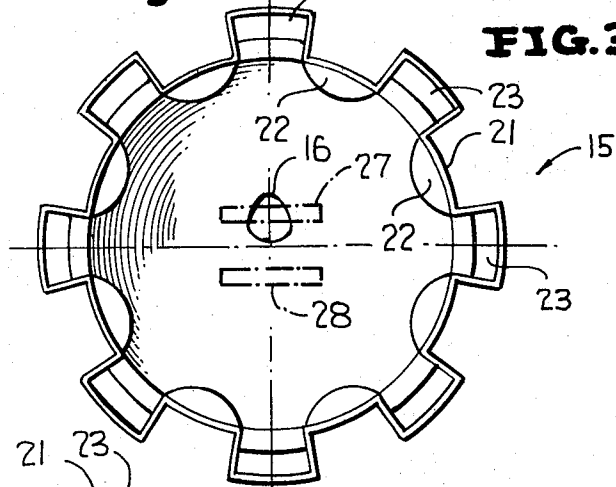


FIG. 4

FIG. 5

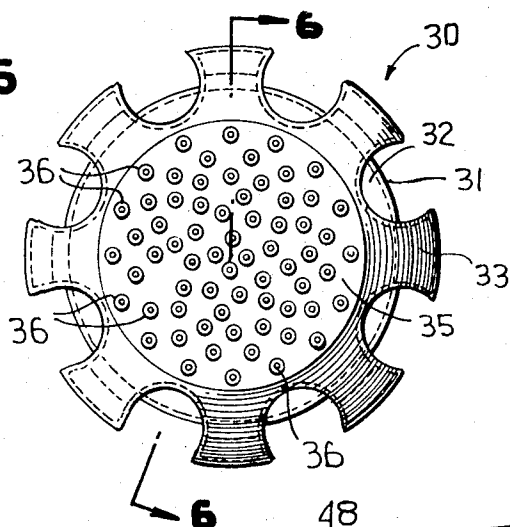


FIG. 7

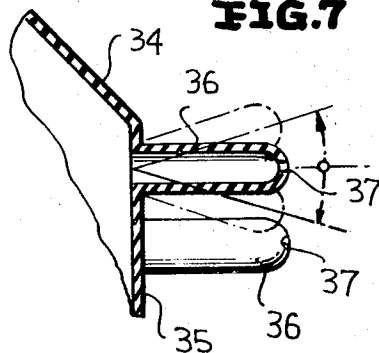


FIG. 6

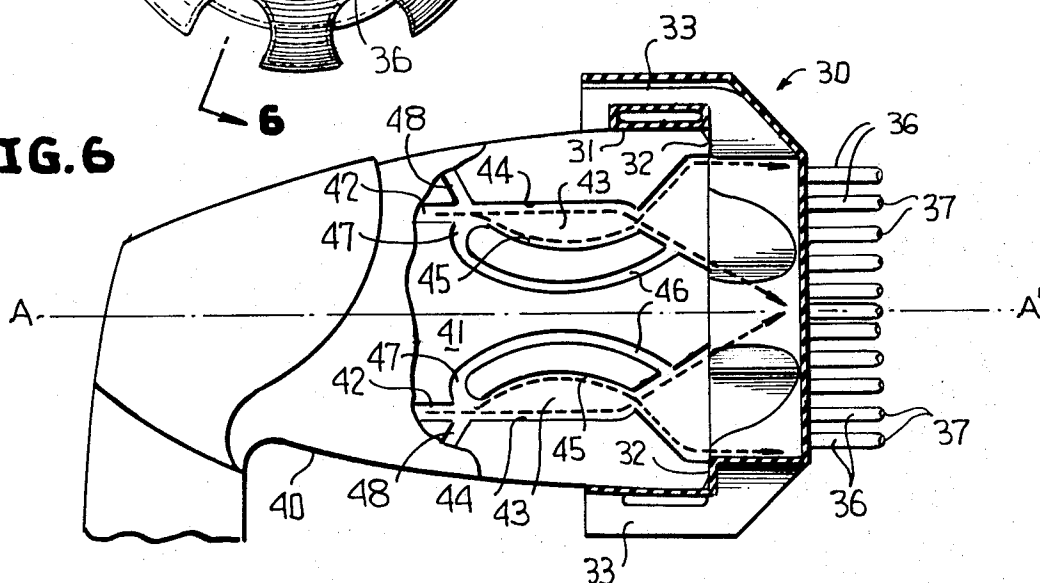


FIG. 8

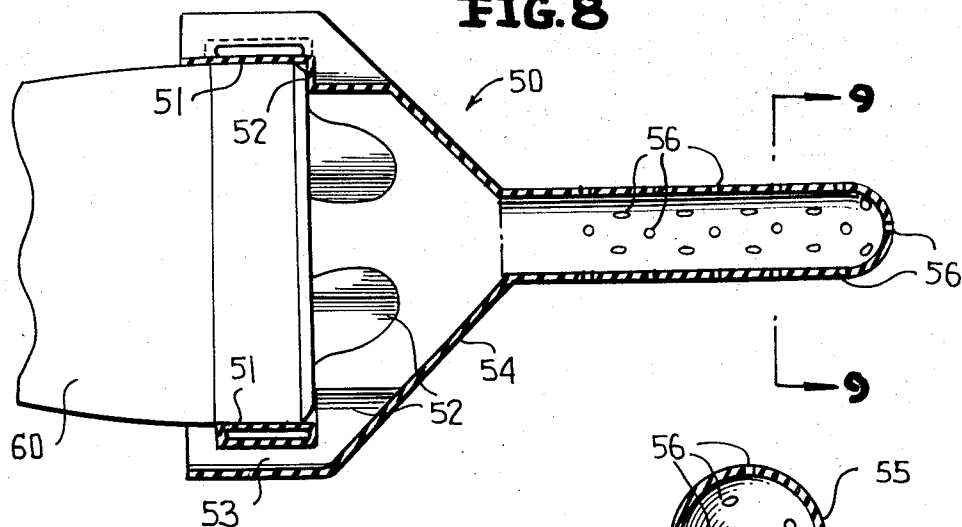
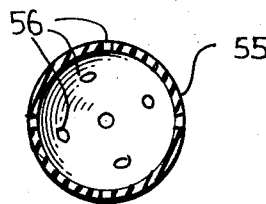


FIG. 9



PERSONAL SPRAY AND MASSAGE APPARATUS**BACKGROUND OF THE INVENTION**

The present invention relates to personal hygiene apparatus and has particular utilization for converting shower heads to special purpose cleansing and/or massaging units. While the present invention is described in terms of an adapter for a shower head, it is to be understood that the principles of the invention also apply to apparatus permanently attached to either shower heads or other type spray devices such as may be used in conjunction with a wash basin, toilet, or bidet structure.

Hand-held shower heads are quite advantageous in permitting a shower spray to be directed towards portions of the bather's body which are inaccessible by wall-mounted shower heads. Despite these advantages even most hand-held shower heads, because of their configuration, are not really suitable for directing water at certain recessed and relatively inaccessible body areas, such as between the buttocks, the female genitalia, etc. Specifically, standard hand-held shower heads have a flat surface from which a spray pattern of generally circular cross-section is issued. The flat surface is substantially larger than the access space to the aforementioned recessed body areas and therefore are quite inefficient in cleansing those areas.

It is therefore an object of the present invention to provide a shower head which is suitable for cleansing recessed and inaccessible body areas.

It is another object of the present invention to render a hand-held shower head adaptable for efficient cleansing of normally hidden portions of the body.

A major roadblock to using hand-held shower heads for cleansing recessed body areas such as between the buttocks, the female genitalia, etc., relates to the susceptibility to injury of these areas. Specifically, water from most shower heads is issued under considerable pressure. If the pressurized spray is directed into a bodily orifice, the pressure build-up inside the body is likely to cause serious, if not fatal, injury to the bather.

It is therefore an object of the present invention to render shower heads safe for use in cleansing around or in bodily orifices.

It is another object of the present invention to provide an adapter for use with a hand-held shower head which renders the shower head safe and useful for cleansing recessed and inaccessible portions of the body.

It is known that a pulsing stream of water has the ability to remove dirt far more efficiently than a continuous stream of equal pressure. It is another object of the present invention to provide a shower head apparatus configured to have easy access to recessed body portions and arranged to issue a pulsating stream of water.

Body massage units have become quite popular in recent years. Such units usually take the form of an electrically-operated vibrating mechanism arranged to be secured to the back of one's hand or to be placed directly against the body. More recently there has appeared on the market a shower head which provides a water massage by issuing discrete slugs of water. Such a shower head is described in U.S. Pat. No. 3,563,462 to Bauer and in co-pending U.S. Pat. application Ser. No. 163,566, filed July 19, 1971, by Peter Bauer, entitled "Shower Spray," and assigned to the same assignee as the present invention. The massaging shower head

serves both cleansing and massaging functions but has only limited access to recessed body portions. Further, the massaging effect of the pulsating stream, while extremely pleasing to the user, provides a different sensation than electrical massage units which can transmit vibrations directly to the body. The electrical massage units, on the other hand, serve no cleansing function.

It is an object of the present invention to provide apparatus having the desirable features of a massaging shower head and an electrical massage unit.

It is another object of the present invention to provide an adapter for a massage-type shower head which permits vibratory sensations to be applied directly to the body.

It is still another object of the present invention to provide a shower head which serves both cleansing and massage functions and is configured to have access to recessed and relatively inaccessible portions of the body.

SUMMARY OF THE INVENTION

According to one aspect of the present invention there is provided an adapter which fits over the face of a hand-held shower head. The adapter is configured in the shape of a funnel with a series of overflow openings located about its wide inlet end. The overflow openings prevent pressure build-up at the output neck of the adapter, thereby assuring that the user will not be injured if the outlet flow is directed at or into pressure-sensitive portions of the body. The output neck diameter is of sufficiently small diameter to permit the output flow to be directed at or into recessed portions of the body.

In a preferred embodiment the adapter is employed with a massage-type shower head such as described in U.S. Pat. No. 3,563,462. The funnel outlet is positioned in alignment with one of the two alternately pulsating output streams from the shower head. This configuration permits the non-aligned pulsating stream to cyclically modulate the aligned pulsating stream, providing a pulsed adapter output flow which is sensuously pleasing.

In another embodiment the adapter terminates in a plurality of small flexible fingers rather than in a single outlet neck. The fingers form a brush-like member which can be rubbed against the body. The fingers may each have small openings from which spray is issued. A particularly suitable shower head for use with this brush-like adapter is disclosed in the aforementioned U.S. Pat. application Ser. No. 163,566 and is of the type which issues a spray pattern which alternately opens and closes. This spray periodically "sweeps" across the brush fingers, causing them to vibrate and impart a massaging effect when applied against the body. If the fingers are provided with holes the issued spray both cleanses and enhances the massage sensation.

In still another embodiment the funnel-like adapter includes a relatively large projection which may or may not include outlet openings. When used with a pulsating type shower head this adapter vibrates at the pulsation frequency and may be placed directly against the body to provide a pleasing massage effect. This embodiment has additional utilization for douching when the projection is properly configured, the user being rendered safe from internal injury by virtue of the overflow outlets about the adapter inlet.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and still further objects, features and advantages of the present invention will become apparent upon consideration of the following detailed description of specific embodiments thereof, especially when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a view in perspective of an adapter and hand-held shower according to one embodiment of the present invention;

FIG. 2 is a partial view in plan of the shower head and adapter of FIG. 1;

FIG. 3 is a sectional view of the adapter taken along lines 3—3 of FIG. 2;

FIG. 4 is a sectional view taken along lines 4—4 of FIG. 1;

FIG. 5 is a front view in plan of an adapter according to a second embodiment of the present invention;

FIG. 6 is a view in section taken along lines 6—6 of FIG. 5 and showing the adapter secured to a shower head;

FIG. 7 is a detailed view in section of a portion of the adapter of FIGS. 5 and 6;

FIG. 8 is a plan view in section of still another adapter embodiment of the present invention; and

FIG. 9 is a view in section taken along lines 9—9 of FIG. 8.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring in detail to FIG. 1 of the accompanying drawings, a hand-held shower head 10 is supported in wall bracket 11 and connected via flexible hose 12 to a plumbing system outlet 13 in a shower stall or bath-shower. An adapter 15, in the general configuration of a funnel, is secured over the water-issuing face of the shower head. The adapter includes a tubular neck 17 with an outlet opening 16 at its downstream end and from which water supplied by the shower head is issued. While adapter 15 is described herein as being removably secured to shower head 10, it is to be understood that the adapter and shower head may, if desired, form an integral structure which can be manufactured and sold as a unit.

Referring to FIGS. 2 and 3, the upstream portion of adapter 15 is provided with a thin flexible inner wall 21 of generally cylindrical configuration. Wall 15 is adapted to be stretched to fit over the front and tightly around the sides of shower head 10. In this position wall 21 is disposed coaxially about the longitudinal axis A—A' of the shower head. The downstream end of wall 21 terminates in a plurality of circumferentially-spaced arcuate shoulder segments 22 which limit the extent to which the shower head 10 can be inserted axially into the adapter. Between each adjacent pair of shoulder segments 22 there is provided an overflow passage 23 which extends rearwardly, or in an upstream direction, on the radially outward side of wall 21. Overflow passages 23 terminate in vented openings through which liquid inside adapter 15 may flow if outflow from outlet opening 16 is blocked.

In the region 24 between cylindrical wall 21 and outlet neck 17 the adapter has a frusto-conical configuration which converges in a downstream direction. Region 24 and neck 17 together form a funnel-like member which directs water issued from shower head 10 through outlet opening 16.

Adapter 15, as thus far described, can be used with substantially any hand-held shower head. Of course, for certain shower heads the attachment wall 21, or its equivalent, may require a different configuration to assure secure attachment of the adapter. The outside diameter of outlet neck 17 is preferably of such size to permit its insertion between the buttocks, labia majora, and other bodily recesses. In this regard the adapter may serve the function of a bidet for use in a shower. Importantly, the vented overflow passages 23 prevent injury to the user by preventing overpressure when the unit is employed for a bidet-type function. For example, should the neck 17 be inadvertently inserted into the anal or vaginal passage of the user, the resulting back pressure developed at the outlet opening 16 forces water issued by the shower head to vent through passages 23. Therefore, the pressure which can be developed inside the body of the user is severely limited to a safe level. For example, the adapter has been tested with 30 psi supply pressure and it was found that the maximum dead-headed pressure (i.e. — outlet opening 16 closed) in the adapter was approximately 1 psi. This pressure level is about the same as employed with common douche and bidet apparatus.

Adapter 15 has additional advantages when shower head 10 is of the massage type, such as illustrated in FIG. 4. Specifically, the shower head of FIG. 4 is of the type described in my aforementioned U.S. Pat. No. 3,563,462 and U.S. Pat. application Ser. No. 163,566. Specifically, shower head 10 includes a barrel type casing 25 within which is centrally mounted a core section 26. The core includes a fluidic oscillator 29 of the same general type as disclosed in my U.S. Pat. No. 3,563,462. Such an oscillator, when supplied with liquid under pressure, issues a liquid jet alternately from two outlet passages 27 and 28 terminating at the forward end of core section 25. The resulting alternating slugs of water, when directed against the body of a user, produce a massaging effect which has been found both pleasing and invigorating.

Adapter 15, when employed with this type of massaging shower head, is preferably constructed asymmetrical relative to longitudinal axis A—A' of the shower head. Specifically, outlet neck 17 is positioned off-axis such that it can be placed in alignment with one of the outlet passages, for example, passage 27, of oscillator 29. In this configuration, water slugs issued from passage 27 are issued directly through neck 17 and outlet 16; slugs from passages 28 impact against the frusto-conical wall 24 which in turn directs the flow through neck 17 and outlet 16. The overall effect is an apparent modulation of the slugs from passage 27 which results in a sort of pulsating output flow from outlet 16. The pulsation themselves provide a pleasing sensation and, as described previously, have a more efficient cleansing effect than a continuous stream issued at the same pressure.

Apart from the efficient bidet-type cleansing effect, the pulsating shower head produces vibrations in the adapter 15 in general and in neck 17 in particular. These vibrations tend to increase as the outlet opening 16 is made smaller. If outlet opening 16 is closed entirely, neck 17 vibrates rather vigorously. The therapeutic and sensuously pleasing advantages of such vibrations, particularly when applied to sore muscles, a tense neck, etc., are self-evident and constitute an important part of the present invention. In addition, if

opening 16 is provided, the combined cleansing and vibrational massage features afforded by the adapter are particularly advantageous.

Adapter 15 is preferably made entirely from a strong flexible material, such as rubber, polyurethane, polyvinylchloride, natural latex, etc. Alternatively, attachment wall 21 can be made from a more elastomeric material than region 24 and neck 17. Overall strength and flexibility of neck 17 should be maintained if the vibrational massage advantages are to be obtained.

Referring now to FIGS. 5, 6 and 7 of the accompanying drawings, there is illustrated another embodiment 30 of the adapter of the present invention. Specifically, adapter 30 includes an elastomeric wall 31 at its upstream end, similar to wall 21 of adapter 15. Arcuate shoulders 32 mark the downstream end of wall 21 and partially define the entrance to rearwardly or upstream directed overflow passages 33.

The frusto-conical region 34 is much shorter than in adapter 15 and terminates in a substantially planar wall 35. Wall 35 includes multiple openings facing upstream and from which respective hollow flexible fingers 36 project in a downstream direction. Fingers 36 may be closed at their downstream ends or may be provided with small openings 37 from which pressurized water may issue from interiorly of the adapter.

When employed with a conventional hand-held shower head, adapter 30 serves as a brush which can be used on the body and scalp. If outlet openings 37 are provided the adapter serves the combined functions of brush and spray, providing an efficient cleansing apparatus. In addition, adapter 30 may be employed with the pulsating massage-type shower head 10 of FIGS. 1-4. Shower head 10 imparts vibrations to adapter 30, particularly to fingers 36 which tend to vibrate about their bases at wall 35. The vibrating fingers provide a pleasing massage sensation when applied to the body.

Another type of shower head which is suitable for use with adapter 30 is that described in the aforementioned copending U.S. Pat. application Ser. No. 163,566 and illustrated in FIG. 10 of that patent application. That shower head is illustrated in FIG. 6 herein and designated by the reference numeral 40. The core of shower head 40 includes a three dimensional fluidic oscillator 41 which includes annular passages disposed about longitudinal axis A-A' of the shower head casing. More specifically, oscillator 41 is a familiar fluidic cross-over type element, operating as a relaxation oscillator, wherein pressurized liquid supplied from annular throat 42 is issued into annular reversing chamber 43 having sidewalls 44 and 45. Operation of the reversing chamber type element is well known and is described in U.S. Pat. No. 3,563,462. Pressurized liquid initially issued from throat 42 impinges against the downstream end of sidewall 44 and flows out through the downstream end of reversing chamber 43 in the manner illustrated by the solid arrow in FIG. 6. The outflowing liquid stream seals the reversing chamber from ambient air when crossing over the chamber output opening. A portion of the outflow is received by annular feedback passage 46 and blocks the flow of ambient air through that passage to annular control port 47 (defined through the upstream end of inner wall 45) to significantly lower the pressure at that point. This, combined with the ambient air flow from opposed vented control port 48 at the upstream end of outer wall 44, forces the stream to deflect toward inner wall 45. The jet thus is-

sues from reversing chamber 43 at an angle which is determined by the contour of inner wall 45. Feedback passage 46 is now open to ambient and any residue liquid in the feedback passage 46 is aspirated by the jet flowing quickly past control port 47. Ambient air in feedback passage 46 and control port 47 increases the pressure proximate the upstream end of inner wall 45 forcing the jet to switch back to its deflected position proximate sidewall 44 and impinging against the downstream end of that wall. The cycle repeats to provide an oscillating output spray having an alternately opened and closed configuration. This spray pattern effectively sweeps the issued water across wall 35 so that each finger 36 is in the direct path of the spray during different portions of the oscillation cycle. This results in vibration of the fingers 36 at the oscillation frequency. The angular vibratory deflection of fingers 36 has an amplitude which varies inversely with finger length.

Wall 35 need not be flat, as illustrated, but may be curved or otherwise configured. Shower head 40, while particularly advantageous in producing vibrations in the brush-type adapter 30, may also be employed with adapter 15 described above and adapter 50 to be described subsequently. Likewise, adapter 30 may be employed with shower heads 10 and 40 or with substantially any shower head, oscillating or not.

Referring now to FIGS. 7 and 8 of the accompanying drawings, another embodiment 50 of the adapter of the present invention is illustrated. Adapter 50 is similar to adapter 15 of FIGS. 1-4 in that it includes a flexible annular wall 51, arcuate shoulder segments 52, overflow passages 53, and a frusto-conical portion 54 converging downstream from annular wall 51. Frusto-conical portion 54 terminates in a hollow cylindrical projection 55 which is open to the adapter interior and extends therefrom in downstream direction. Projection 55 may be closed or it may be provided with one or more small openings 56 from which water may issue out of the adapter. Projection 55 may be symmetrically disposed or not, depending upon the intended use of the adapter. Adapter 50 may be manufactured from the same material described above for adapters 15 and 30.

As is the above case with previously described adapters 15 and 30, adapter 50 fits securely on a hand-held shower head 60 which may be an oscillating shower head, a pulsating shower head, or conventional spray shower head. If an oscillating or pulsating shower head is employed, projection 55 tends to vibrate. If the vibrating adapter is placed against the body the vibrations produce a pleasing effect. If, in addition, the outlet openings 56 are provided, the pleasing effects of the vibrating projection 55 may be combined with warm water outflow to further soothe tired and aching muscles.

Adapter 50 may also serve as a douching apparatus. For such utilization outlet openings 56 are required; however, shower head 60 need not be of the oscillating or pulsating type. Once again the overflow passages 53 become extremely important when the adapter is employed for douching because these passages prevent the build-up of pressure in the vaginal canal which could cause serious injury.

It is extremely important, particularly in the case of the adapters 15 and 50, that the total cross-section area of overflow passages 23, 53 be greater than the cross-section area of the outlet passages 16, 56. The larger venting area is what prevents large pressure build-up in

these adapters, and therefore avoids injury to the user should the adapter be utilized for internal cleansing.

The adapters described herein, apart from their functional advantages of cleansing and massaging, are relatively inexpensive to manufacture. Specifically, plastic material is itself inexpensive and plastic forming techniques are inexpensively performed, particularly on a mass production basis.

As mentioned above, the principles described herein are not necessarily limited to the use of a removable adapter. If desired, a shower head or other spray member may be constructed integrally with units such as 15, 30 and 50 described herein.

Another possible utilization for the present invention relates to massaging portions of the body covered by casts and the like. For example, neck 17 in FIG. 2 may be closed and operated as a vibrating massager and inserted between a cast and the user's body to massage the user and aid blood circulation.

It should also be noted that the brush fingers 36 in FIGS. 5, 6 and 7 may be constructed crooked rather than straight, or at an angle rather than normal to surface 35. In this way the oscillating spray tends to force the fingers into a straightened position during each cycle, thereby enhancing vibrational deflection.

While we have described and illustrated specific embodiments of our invention, it will be clear that variations of the details of construction which are specifically illustrated and described may be resorted to without departing from the true spirit and scope of the invention as defined in the appended claims.

We claim:

1. An adapter for use with a shower head of the hand-held type, said adapter comprising:

attachment means for securing said adapter to said shower head such that liquid issued from said shower head is directed interiorly of said adapter; at least one outlet passage arranged to issue pressurized liquid from interiorly of said adapter; and overflow passage means communicating with the interior of said adapter for venting liquid therefrom.

2. The adapter according to claim 1 wherein said attachment means is disposed at one end of said adapter and said outlet passage comprises a tubular member extending from the opposite end of said adapter.

3. The adapter according to claim 1 wherein said outlet passage comprises a tubular member having an inlet opening at one end for receiving liquid from the adapter interior and an outlet opening at its other end for issuing liquid, wherein the area of said outlet opening is smaller than the area of said overflow passage means.

4. The adapter according to claim 3 wherein said overflow passage means is positioned to direct overflow liquid in a direction opposite to the liquid issued from said outlet opening.

5. The adapter according to claim 4 arranged for use with a shower head of the type which issues discrete slugs of water from an outlet port and wherein said inlet opening of said tubular member is positioned to be aligned with outlet port of said shower head.

6. The adapter according to claim 5 wherein said tubular member is constructed to be subject to vibratory deflections in response to issuance of said discrete slugs of water into said adapter.

7. The adapter according to claim 5 wherein said adapter includes a frusto-conical portion which de-

creases in size in the direction toward said tubular member to form a funnel-like configuration, and wherein said overflow passage means communicate with the adapter interior at the wider end of said frusto-conical portion.

8. The adapter according to claim 3 arranged for use with a shower head of the type which issues discrete slugs of water alternately from two spaced outlet ports, and wherein said inlet opening of said tubular member is positioned to be aligned with one of said shower head outlet ports.

9. The adapter according to claim 8 wherein said adapter is configured in the form of a funnel having said tubular member as a stem.

10. The adapter according to claim 9 wherein said two shower head outlet ports are disposed symmetrically on either side of the longitudinal axis of said shower head, and wherein said tubular member is disposed asymmetrically on said funnel such that the inlet opening may be aligned with one of said shower head outlet ports while the outer shower head outlet port is directed toward a converging wall of said funnel.

11. The adapter according to claim 10 wherein the material of said tubular member is subject to vibrations of a tactile nature in response to issuance of said slugs of water by said shower head into the adapter interior.

12. The adapter according to claim 1 wherein said outlet passage is in the form of a tubular member arranged to receive water issued by said shower head and issue the received water from a plurality of small openings in said tubular member, the size of said tubular member being such to permit service in a vaginal douching function.

13. The adapter according to claim 1 further comprising a plurality of said outlet passages, each outlet passage comprising a hollow finger-like projection arranged to receive liquid issued from said shower head and having an opening for issuing received fluid, said finger-like projections being flexible and forming a brush-like member.

14. The adapter according to claim 13 arranged for use with a shower head of the type which includes oscillatory means for cyclically changing the pattern of liquid issued from the shower head, and wherein said finger-like projections are constructed to be vibrationally deflected in response to the cyclically changing shower spray pattern.

15. In combination:

a spray element for issuing liquid in a cyclically varying flow pattern;

a member for receiving said flow pattern, said member including at least one surface which is rendered tactily vibratory in response to said cyclically-varying flow pattern; and

overflow means for venting liquid from said member at a location other than said at least one surface.

16. The combination according to claim 15 wherein said at least one surface is additionally provided with at least one outlet opening for issuing liquid.

17. The combination according to claim 16 wherein said member is removably secured to said spray element.

18. The combination according to claim 17 wherein said spray element is a hand-held shower head.

19. The combination according to claim 15 wherein said at least one surface is the outer surface of a tubular projection from said member.

20. The combination according to claim 15 wherein said tubular projection is arranged to receive liquid from said spray element and includes at least one outlet opening for issuing received liquid.

21. The combination according to claim 20 wherein said at least one surface is additionally provided with at least one outlet opening for issuing liquid.

22. The combination according to claim 15 wherein said at least one surface includes a plurality of small flexible finger-like projections extending exteriorly of said member, said finger-like projections forming a

brush-like pattern and being subject to tactile deflections in response to vibration of said at least one surface.

23. The combination according to claim 22 wherein said finger-like projections are hollow, each having an inlet opening for receiving liquid issued by said spray element and an outlet opening for issuing received liquid.

24. The combination according to claim 23 wherein said spray element is a hand-held shower head.

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