This invention relates to bathing apparatus for massaging the user by a plurality of jets of high pressure liquid.

It is commonly known that many persons enjoy the exhilarating effect of skin and body massage. Such massages are commonly believed to have therapeutic effects for certain disorders as well. It is, therefore, an object of this invention to provide a massage bath which may be conveniently installed in a space substantially the same as required for the conventional bathtub in the home for massaging substantially all of the user at the same time.

A further object of the invention is the provision of a massage bath with means for ejecting a plurality of jets of high pressure liquid toward the user and recirculating the liquid therein.

An additional and highly important object of the invention is the provision of a bathtub of increased depth sufficient to receive the bather in sitting position having a plurality of jet directing devices in the ends and walls thereof for directing jets of high pressure fluid at all parts of the bather at the same time.

A further object of the invention is the provision of a closed massage bath including means for heating the enclosure to give a combination steam and massage bath.

It is an additional object of the invention to provide a bathing apparatus having novel nozzle configuration therein.

An additional object of the invention is the provision of a recirculating system for withdrawing liquid from a bathtub and recirculating the liquid under high pressure and directing the liquid under high pressure toward a bather for massaging the skin and the body of the bather. Other objects of the invention will become apparent from the specification which follows and from the drawings to which reference is now made.

In the drawings:

FIGURE 1 is a top view of the bath of this invention showing the pump and hidden parts by dashed lines;

FIGURE 2 is a front elevation view of the bath of this invention showing the bathtub and the enclosure and showing the pump and other hidden parts by dashed lines;

FIGURE 3 is a cross-sectional view of the bathtub and recirculating system of the invention taken substantially along line 3—3 in the direction of the arrows of FIGURE 2;

FIGURE 4 is an end elevation view in partial cross-section of the bathtub and the enclosure of this invention taken substantially along line 4—4 in the direction of the arrows as shown in FIGURE 3;

FIGURE 5 is a cross-sectional view of the manifold nozzle interconnection and the nozzle arrangement in the tub taken substantially along line 5—5 in the direction of the arrows as shown in FIGURE 3;

FIGURE 6 is a cross-sectional view of the ventilating louver in the step of the invention taken substantially along line 6—6 in the direction of the arrows as shown in FIGURE 3;

FIGURE 7 is a view looking upward inside the enclosure showing the heater and reflector;

FIGURE 8 is an exploded perspective view showing the details of the assembly of the nozzle in the tub;

FIGURE 9 is an enlarged perspective view of the directing element of the nozzle used in this invention; and

FIGURE 10 is a wiring diagram showing the interconnection of the pumps, the light and the heater.

With reference now to FIGURE 1, this invention comprises a bathtub 20 having ends 22 and 24 and walls 26 and 28 and a bottom 30. The bathtub of this invention may be of conventional size; however, in a preferred embodiment, the bathtub is of a depth sufficient to receive the bather in sitting position wherein the walls and the ends are approximately the height of the sitting bather. This makes possible the massage of the entire body of the bather at one time.

The invention also comprises an enclosure which includes panels 32 and 34, door 36, and walls 38, 40 and 42. In a preferred embodiment, the invention also comprises a step 44 having a tread 46 thereon for supporting the bather and assisting the entry and exit of the bather into the tub.

As best shown in FIGURE 3, there are a plurality of orifices having nozzles 48 and 50 in end 22, orifices with nozzles 52 and 54 in end 24, orifices with nozzles 56 and 58 in wall 26, and an orifice with nozzle 60 in wall 28. These orifices are preferably arranged in descending order from one end 22 to the other end 24 and in an especially preferred embodiment, additionally descend in order from the corner adjacent nozzle 48 to the opposite corner adjacent nozzle 54 and may further descend to the center of side 28 at nozzle 60. It is important that there be located at one end or one or more nozzles which will direct a jet of high pressure liquid, such as water or water containing soaps, perfumes, medicinal preparations and other additives, at the shoulders, neck and upper portions of the bather's body and other nozzles such as 56, 58 and 60 for directing jets of the high pressure liquid at the other portions of the body and nozzles 52 and 54 for directing jets of high pressure liquid at the legs and feet of the bather.

In this manner, the nozzle and highly advantageous arrangement of orifices with nozzles therein permits the entire body of the bather to be massaged at one time.

The massaging liquid is supplied to the orifices through a manifold 62 which extends substantially around the tub. In some embodiments, it may be possible for the manifold to extend entirely around the tub; however, this is not necessary to the invention. As shown in FIGURE 3, the manifold 62 extends from its inlet 64 to its end 66 adjacent nozzle 60.

An additional important feature of this invention resides in the novel recirculation system. A multiplicity of apertures indicated generally at 68, best shown in FIGURE 4, is provided in wall 28 of the tub adjacent the bottom 30 of the tub for withdrawing the liquid from the tub. A chamber receptacle 70 is fixed on the outside of the tub wall encompassing the withdrawal passages for collecting the liquid for recirculation. A pump 72 is connected by a conduit 74 to the withdrawal chamber and by a conduit 76 to the inlet 64 of manifold 62. The pump withdraws the water from the tub through the manifold of openings 68 and pressurizes the liquid in the manifold 62. The pressure of the liquid in manifold 62 may be controlled by a valve 78 which has an operator 80 extending through the wall of step 44 which defines a housing for recirculation pump 72 and includes a knob 82 thereon for convenient operation.

It has been found important to provide a multiplicity of small passages 68 in the tub for withdrawing the liquid rather than one passage of larger size to prevent any possible injury to the bather due to the vacuum resulting from operation of the recirculation pump 72.

Since the pump 72 generates a measurable amount of heat, a plurality of venting louvers 84 and 86 are provided in the step 44. The louver 86 is shown in greater detail in FIGURE 6.
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FIGURE 5 shows a detail of the manifold 62 and the communication relationship of nozzle 86 thereto. It will be noted that in the preferred embodiment the conduit 62 is integrally formed with the tub and includes the orifices in the tub wall communicating therethrough to the manifold. While this is a convenient and highly efficient and desirable feature of the invention, other manifold systems may be used without departing from the spirit of the invention.

The invention also includes a heating element 88 and a reflector 90 mounted in the ceiling of the enclosure above the tub for heating the enclosure space and for heating the liquid vapors to provide a combination steam and massage bath. In addition, as shown in FIGURES 2 and 3, a drain 92 is provided in the tub and a drain pump 94 may also be provided.

The perspective view of FIGURE 8 shows in exploded view the elements of the nozzles of this invention. The manifold 62 is provided with an orifice 96 which receives a cylindrical portion 98 of a directing element 100 which includes a hemispherical head portion 102. The directing head includes a passage 104 which is coaxial with the cylindrical portion 98 and which communicates with a second passage 106 which is angularly related thereto. The directing element is rotatably received and held by a flange 108 which is in turn secured by a plurality of screws 110 to the tub wall. Thus the directing head 100 may be rotated to direct the jet high pressure liquid at the desired portions of the bather's body.

As shown in FIGURE 10, the recirculating pump 72, the drain pump 94, the heater 88 and a light 112 which may be located in the ceiling of the enclosure are controlled by switches 114, 116 and 118 which are located in a switch box 120 shown also in FIGURES 1 and 2. A master switch 122 may be used to control the pumps, heater and light simultaneously.

It will be seen that, from the preceding description and from the drawings, that a novel and highly useful bath has been provided which serves to exhilarate the user and to provide the therapy of high pressure liquid massage to the body of the bather. Bath devices of the type described will also find use in bathing children. Not only is the child's body massaged and exhilarated by the controllable, high pressure jet of liquid but is more thoroughly cleaned by the repeated rinsing action of the liquid impinging on the body.

While the invention has been described with regard to very specific embodiments showing the preferred form of the invention, it will be readily understood that the drawings and the description are illustrative of the invention and are not intended in the limiting sense. Thus modifications made in the light of the teachings of the specification and of the drawings will become apparent to those skilled in the art and are contemplated to be within the spirit of this invention. The scope of the invention is defined in the appended claims.

I claim:

1. A bath for ejecting liquid under high pressure toward all parts of a bather's body simultaneously to massage and exhilarate the bather comprising:
   a bathtub of depth sufficient to receive the bather in sitting position having walls and ends approximately the height of the bather and having a plurality of orifices arranged in descending order from one end to the other of the bathtub in the walls and ends and passages adjacent the bottom for withdrawing the liquid for recirculation;
   a manifold communicating with the orifices extending substantially around the tub for supplying liquid to the orifices;
   a recirculation pump for the liquid; and
   withdrawal and supply conduits interconnecting the orifice supply manifold and the withdrawal passages with the recirculation pump;
   whereby the liquid is ejected at high pressure at all parts of the bather's body and then withdrawn from the tub for recirculation.

2. The bath of claim 1 further including:
   a plurality of rotatably adjustable ejection nozzles individually received in the orifices for directing the liquid.

3. The invention of claim 1 further including:
   a plurality of adjustable nozzles individually received in the orifices for adequately directing the liquid, each of said nozzles comprising:
   a directing element having a cylindrical portion and a hemispherical head portion and having a passage coaxial with the cylindrical portion in communication with an angularly related passage through the hemispherical head portion;
   a flange for receiving the hemispherical head portion adjacent the periphery thereof for permitting rotatable movement of the directing element; and
   means for securing the flange to the bathtub rotatably mount the directing element in an orifice.

4. The bath of claim 1 further including a valve in the supply conduit for adjusting the liquid pressure.

5. The bath of claim 1 wherein the tub includes a multiplicity of passages through a wall thereof adjacent the bottom of the tub and further includes a chamber fixed on the outside of the wall encompassing the passages for collecting the liquid and wherein the withdrawal conduit communicates with the chamber.

6. The bath of claim 1 further including:
   an enclosure above the bathtub;
   a heater in the enclosure for heating the air and the liquid vapor;
   and wherein the bathtub further comprises:
   a step secured along one side defining a housing for the recirculation pump.

7. The bath of claim 2 further including:
   an enclosure above the bathtub;
   a heater in the enclosure for heating the air and the liquid vapor;
   and wherein the bathtub further comprises:
   a step secured along one side defining a housing for the recirculation pump.

8. The bath of claim 3 further including a valve in the supply conduit for adjusting the liquid pressure.

9. The bath of claim 8 wherein the tub includes a multiplicity of passages through a wall thereof adjacent the bottom of the tub and further includes a chamber fixed on the outside of the wall encompassing the passages for collecting the liquid, wherein the withdrawal conduit communicates with the chamber.

10. The bath of claim 1 wherein:
   the bathtub has a drain in the bottom thereof; and
   the orifices in the bathtub walls and ends are arranged in the descending order from one corner to the opposite corner;
   and further including:
   a step secured along the outside of one wall of the bathtub to support the bather and define an enclosure for the recirculation pump;
   a valve in the supply conduit for adjusting the liquid pressure;
   a valve operator extending exteriorly of the enclosure defined by the step; and
   an enclosure above the bathtub.

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