

[54] **WHIRLPOOL JET FOR BATHTUBS**
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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 392,046, Aug. 27, 1973.

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 128/66; 138/40; 138/42

[51] Int. Cl. **A47k 3/10**

[58] Field of Search 4/178, 180, 181, 173, 1,
 4/172.17, 172.18; 138/40, 39, 41-46; 128/66

References Cited

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[57]

ABSTRACT

A whirlpool jet assembly for bathtubs comprising a plurality of housings spaced around the outside of a bathtub. Each housing has a water inlet opening connected to a water supply pipe and an air inlet opening connected to an air supply pipe. These openings are connected to a mixing chamber in which air is mixed with the water by venturi action as it flows into the bathtub through a water outlet having a jet outlet control. The device is compact and no fittings are required.

5 Claims, 5 Drawing Figures

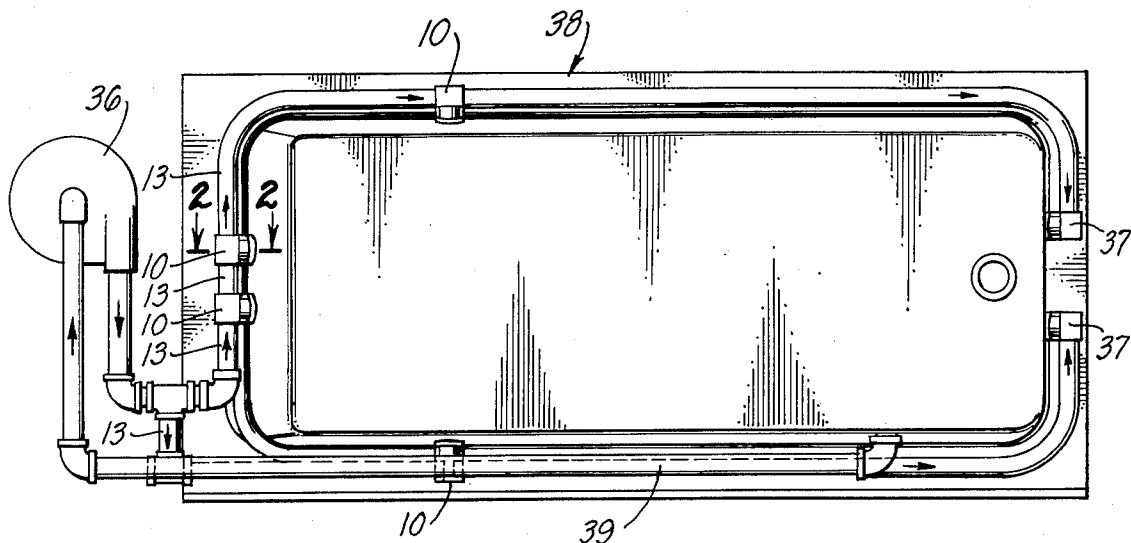


FIG. 1.

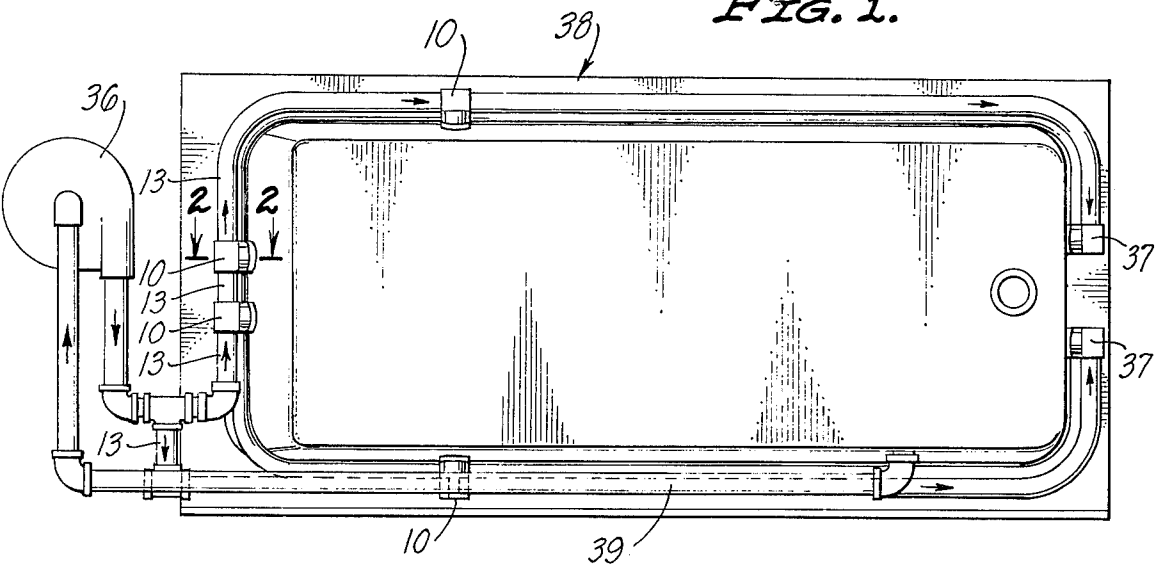


FIG. 2.

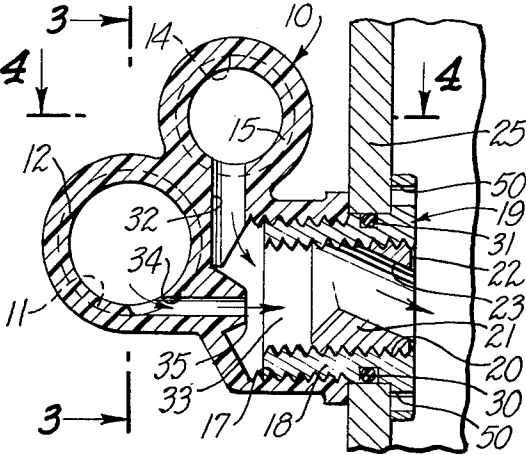


FIG. 3.

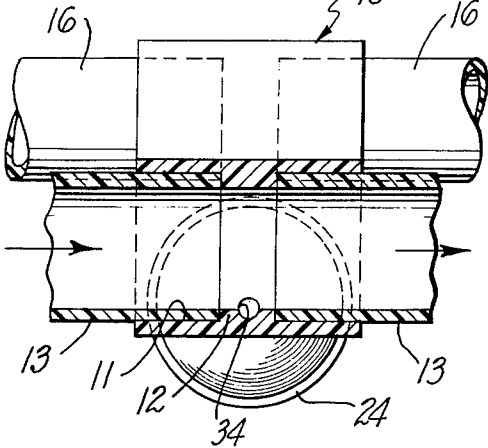


FIG. 4.

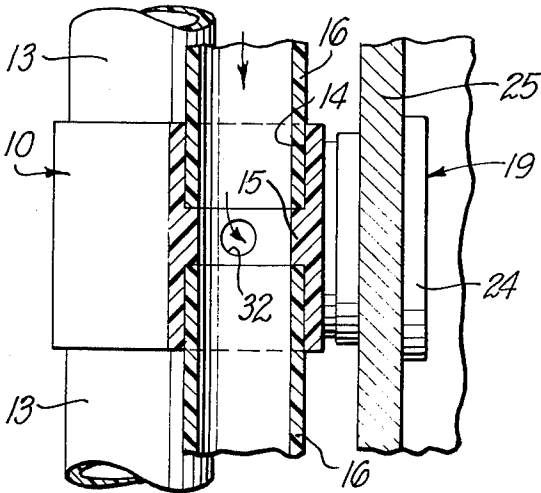
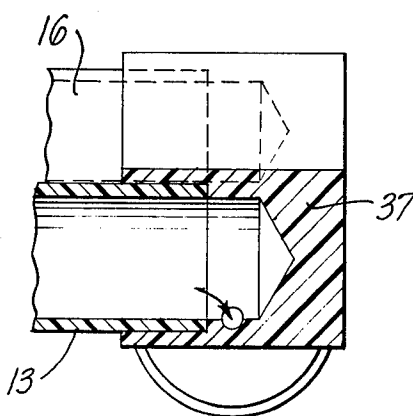


FIG. 5.



WHIRLPOOL JET FOR BATHTUBS**REFERENCE TO RELATED APPLICATION**

This application is a continuation-in-part of my co-
pending application Ser. No. 392,046 filed Aug. 27, 1973.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

The invention relates to a whirlpool jet outlet for
bathtubs which may also be used in therapy tanks, ther-
apy pools, swimming pools and the like.

2. Description of the Prior Art

There are a number of whirlpool jet outlets and out-
let structures on the market at the present time, all of
which are relatively complex in their structure, installa-
tion and operation. They are not readily adaptable to
various types of installations and environments. The
water outlets of such devices customarily protrude a
substantial distance into the bathtub, which is un-
sightly, is likely to result in accidents and injury and is
generally undesirable.

Previous devices have also required the use of T-
fittings to connect the air and/or water to the outlet,
which is costly in both materials and labor.

Previous devices have a further disadvantage in that
no provision is made for full or complete drainage of
the water supply pipes through the water outlets.

SUMMARY OF THE INVENTION

The present invention provides a whirlpool jet which
is an improvement over the prior art because of its ex-
treme simplicity of structure, installation and opera-
tion.

Another advantage of the invention is that the struc-
ture is compact and the outlet does not protrude a sub-
stantial distance into the tub or tank.

The invention provides a whirlpool jet outlet which
can be equally and easily installed on any existing tub,
tank or pool. It is universal and is automatically self ad-
justing to varying thicknesses of wall structure.

In my previous application and in prior art devices,
it was necessary to use a T-fitting to connect the air
(and sometimes the water) to the outlet. Installing
these T-fittings is costly in both labor and materials.
With the present invention, all water and air pipe con-
nections are made directly to the fitting, and all T-
fittings are eliminated.

Because of its simplicity of structure, installation and
operation, it is more economical than existing devices
and can be manufactured, sold and installed at a sub-
stantially low price.

The invention also provides an outlet which is com-
pletely self-draining, so that when it is no longer in use,
all water is drained from the water supply pipe out
through the outlets and into the tub.

It is accordingly among the objects of the invention
to provide a whirlpool jet outlet for bathtubs and the
like having all of the advantages and benefits set forth
above and which are provided by the structure de-
scribed in detail hereinafter in this specification.

The invention also comprises such other objects, ad-
vantages and capabilities as will later more fully appear
and which are inherently possessed by the invention.

While there are shown in the accompanying drawings
preferred embodiments of the invention, it should be
understood that the same are susceptible of modifica-

tion and change without departing from the spirit of the
invention.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a bottom plan view showing the whirlpool
jet assembly installed on a bathtub;

FIG. 2 is a sectional view of one outlet taken on line
2—2 of FIG. 1;

FIG. 3 is a sectional view of the same taken on line
3—3 of FIG. 2;

FIG. 4 is a sectional view of the same taken on line
4—4 of FIG. 2;

FIG. 5 is a sectional view similar to FIG. 3 showing
an outlet in which the air and water supply terminate.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment which has been selected to
illustrate my invention comprises a main body member
or housing 10, which may conveniently be formed by
polyvinyl chloride or other suitable material. Extending
transversely through the back of the housing 10 is a
water inlet opening 11 which is circular in cross-
section. A divider 12 of lesser diameter disposed adja-
cent to the center of the water inlet opening 11 pro-
vides a pair of shoulders or abutments on its opposite
sides against which the ends of a pair of sections of
water supply pipe 13 abut. The pipe 13 may also be
conveniently formed of polyvinyl chloride. The walls of
the pipe 13 are preferably substantially equal in thick-
ness to the thickness of the divider 12. The inner diam-
eter of the water inlet opening 11 is only slightly larger
than the outer diameter water supply pipe 13, so that
they can be cemented together to form a permanent
connection.

Disposed upwardly and outwardly from the water
inlet opening 11 is an air inlet opening 14, which also
extends transversely through the housing 10. The air
inlet opening 14 is circular in cross-section and has a
divider 15 of lesser diameter against which the opposite
ends of a pair of sections of an air supply pipe 16 are
disposed in abutting engagement. Both sections of the
air supply pipe 16 are preferably cemented to the inter-
ior of the air inlet opening 14.

The housing 10 is provided adjacent its front portion
with an internally screw threaded opening 17, in which
is mounted the externally screw threaded shank 18 of
a water outlet 19. The water outlet 19 has internal
screw threading 20. Rotatably mounted within the
outer portion of the outlet 19 is an externally screw
threaded substantially cylindrical jet outlet control 21.
The outer end of the control 21 is provided with a dia-
metrical slot 22 which may be used to rotate the con-
trol within the outlet 19.

The jet outlet control 21 is provided with an angu-
larly directed water channel 23, which extends com-
pletely through the control 21. Rotation of the control
21 by means of the slot 22 results in changing the orien-
tation of the channel 23 and thereby changes the direc-
tion of flow of water into the tub.

The end of the outlet 19 has a wide annular radial
flange 24. The wall 25 of the tub 38 is provided with an
opening through which the outlet 19 extends, with the
edges of the wall 25 being held between the flange 24
and the adjacent end of the housing 10. The flange 24
is provided with a pair of diametrically spaced openings

50 for receiving a wrench or other tool for use in installing or removing the device on a tub.

An annular groove 30 is provided within the outlet 19 for holding an annular resilient bushing 31, which forms a watertight sealing engagement with the inside of the opening in the wall 25 to prevent water leakage.

An air passage 32 extends vertically downwardly from the air inlet opening 14 to the rear of a mixing chamber 33 which is disposed within the housing 10 behind the outlet 19. A water passage 34 extends horizontally from the water inlet opening 11 into the mixing chamber 33. The outlet end of the water passage 34 is in the form of a nozzle 35.

FIG. 1 of the drawings is a bottom plan view of a bathtub showing a typical manner in which the device of the present invention may be installed. A pump 36 of conventional type may be mounted wherever desired and is shown adjacent to the tub for purposes of illustration only. The pump 36 supplies water to a pair of water supply pipes 13 which extend around the opposite sides of the tub 38 and which terminate in end housings 37 which are formed in the manner shown in FIG. 5 of the drawings. A water return pipe 39 carries water from the tub 38 back to the pump 36 for continuous recirculation.

Any number of housings 10 may be used. In FIG. 1, two housings 10 are shown at one end of the tub, two end housings 37 at the opposite end of the tub and one housing 10 on each side of the tub.

In use, water is forced by pressure from the pump 36 through the water supply pipes 13, water inlet openings 11 and water passages 34 into the mixing chambers 33 of the housings 10. Air is drawn into the mixing chamber 33 through the air passage 32 by venturi action. A pair of air supply pipes 16 extend around the tub 38 and are connected to one or more air inlets which may conveniently be disposed adjacent to the top of the tub and which are not shown in the drawings.

The device can be used in any tank or tub wall through which an opening such as one inch diameter can be drilled, with room on the opposite side of the wall to accommodate the housings 10. The pipes do not protrude beyond the housings 10, so the device is more compact and is capable of fitting into smaller areas and more limited spaces than the prior art. All water and air supply fittings are completely eliminated, making for economy in manufacture and installation, as well as reducing space requirements.

It should be noted that no faucets, balls, jets, or other devices protrude into the bathtub or tank. The only portion of the device which extends inwardly from the wall 25 is the flange 24 of the outlet 19. It is flat and only a small fraction of an inch thick. It cannot cause any personal injury and is not unsightly.

It should be noted that the device of the present in-

vention requires no screws or other fastening members to be attached to the tub.

After use of the device, all of the water is completely drained from all of the water supply pipes 13 because the ends of the water passages 34 are disposed slightly beneath the bottom level of the interior of the water supply pipes 13.

I claim:

1. A whirlpool jet assembly for bathtubs comprising a plurality of housings spaced around the exterior of a bathtub, each of said housings having a transversely directed water inlet opening and an adjacent transversely directed air inlet opening disposed above said water inlet opening, a horizontally directed water supply pipe extending around the exterior of said bathtub and directly connected to each of said water inlet openings without fittings, a horizontally directed air supply pipe extending around the exterior of said bathtub and directly connected to each of said air inlet openings without fittings, each of said housings having a horizontally directed water passage extending from said water inlet opening to a mixing chamber within said housing, a venturi air passage extending vertically from said air inlet opening into said mixing chamber, whereby the movement of water into and through said chamber is speeded by venturi action, a horizontally directed water outlet extending between said mixing chamber and the interior of said bathtub, and a jet outlet control mounted in the outer end of said water outlet for directing water into said bathtub.

2. The structure described in claim 1, and means for recirculating water from said bathtub through said water supply pipe, the bottom of said water inlet opening of each of said housings being disposed above the bottom of said mixing chamber, whereby said water supply pipe is completely drained into said mixing chamber after each use.

3. The structure described in claim 2, each of said water and air inlet openings having a divider disposed adjacent the midportion thereof, said dividers providing a pair of abutments on opposite sides thereof against which the ends of a pair of sections of said water and air supply pipes fit, said sections being cemented within said openings to form a permanent connection.

4. The structure described in claim 3, said housings being compact and extending outwardly from the outer periphery of said bathtub approximately the same distance as said water and air supply pipes.

5. The structure described in claim 4, said water and air inlet openings, dividers, passages and mixing chambers all comprising integral portions of a unitary housing molded of rigid plastic material.

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