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AIR CONDITIONING ATTACHMENT FOR TOILETS

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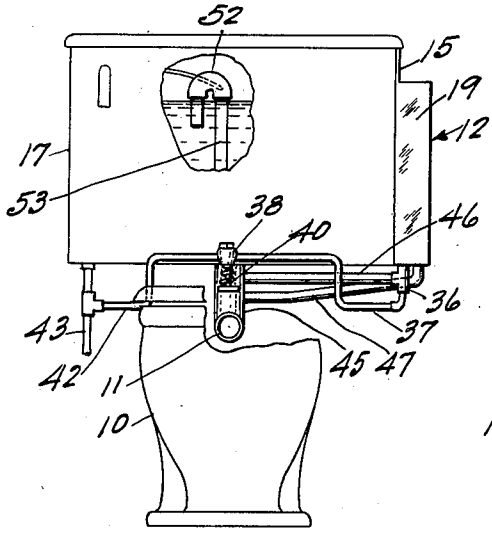


Fig. 1.

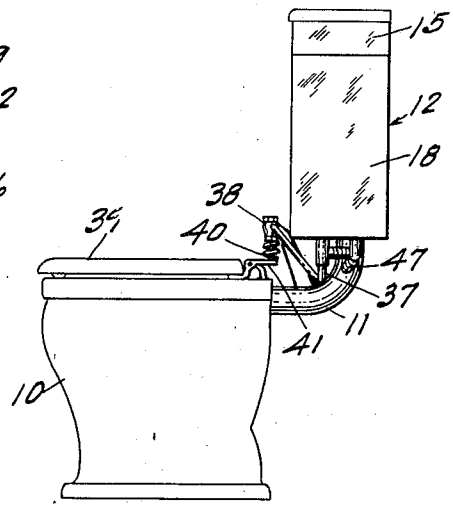


Fig. 2.

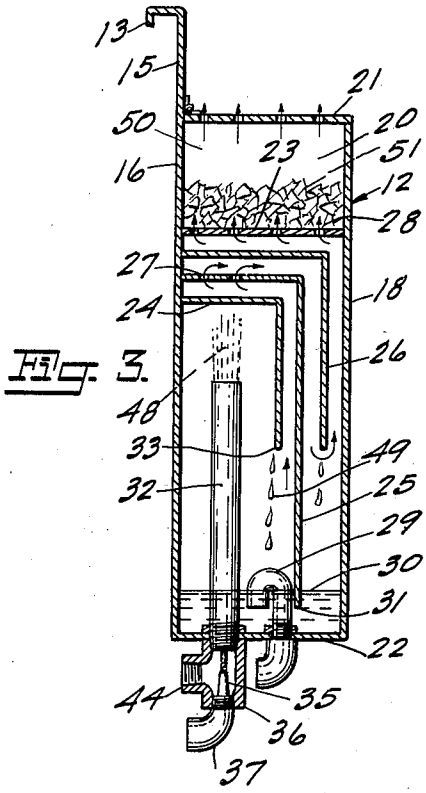


Fig. 3.

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AIR CONDITIONING ATTACHMENT FOR TOILETS

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6 Claims. (Cl. 4—215)

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This invention, an air conditioning attachment for toilets, is a modification of the air conditioning apparatus disclosed in my application Serial No. 576,255 filed February 5, 1945, now matured as Patent No. 2,406,507, dated August 27, 1946, which covers an arrangement to be installed in a flush tank and with the flush lever being used selectively for flushing and air conditioning, while this modification covers an attachment to be attached to one end of the flush tank and operated for air conditioning through raising of the toilet seat cover, with the flush apparatus in the tank operating in its conventional way.

This invention can be attached to any conventional flush tank by installing the special flushing connection and a connection in the water supply line and operates automatically when the toilet seat cover is raised with operation terminated when the cover is closed down.

When the toilet seat is raised the apparatus is placed in operation and by leaving the seat in a raised position the aerating apparatus will continue operating as long as desired to cool and condition the air, and it also can be installed as a unit separate from the toilet for straight air conditioning and can be located to discharge into a sink and the water supply obtained from the kitchen sink tap through a flexible connection or hose, thus providing a relatively universally applicable air conditioning installation.

The objects and advantages of the invention are as follows:

First, to provide an air conditioning apparatus in the form of an attachment which can be applied to a conventional toilet or can be mounted adjacent to a sink or the like for operation by a conventional water tap.

Second, to provide apparatus as outlined with a Venturi type spray jet for suction and washing of air.

Third, to provide apparatus as outlined which can be attached to the side of a conventional flush tank and placed in operation through raising of the seat cover of a toilet.

Fourth, to provide apparatus as outlined which is simple in construction and arrangement, relatively easy to install, low in cost, and economical to operate.

Fifth, to provide apparatus as outlined which can be installed in any location where a supply of water under pressure and drainage facilities are accessible, and which apparatus requires a relatively small space.

In describing the invention reference will be made to the accompanying drawings in which:

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Fig. 1 is a front elevation of a toilet and flush tank partly broken away with my invention applied thereto.

Fig. 2 is a side elevation of Fig. 1.

Fig. 3 is an enlarged sectional elevation through the air-conditioning chamber.

The invention is illustrated as applied to a conventional toilet 10 through a special flushing connection 11 which replaces the standard connection and which is quite easily substituted, and includes an aerating chamber 12 which is provided with a hook member 13 formed as an extension 15 of one side wall 16 and arranged to hook over the top of one side wall of the flush tank 17. This extension, though not so shown, can, if so desired, be formed without the hook and instead can be provided with holes for fastening to a wall.

In addition to the side wall 16, the aerating chamber has another side wall 18, a front wall 19, a rear wall 20, a perforated cover 21 and a bottom 22, a support 23 for deodorant, and a series of inverted L-shaped baffles 24, 25 and 26 which extend between the front and back walls, with the first and third baffles respectively 24 and 26 having their vertical legs extending only part way down to the bottom or to the sump water level to provide air passages at the lower ends, and the second baffle 25 extending down into the sump below the water level to form a seal. The intermediate baffle 25 has passages 27 formed in the horizontal leg preferably near the side wall 16, and the support 23 has passages 28 formed throughout its extent. Though only three baffles are shown the invention is not so limited.

A fluid trap 29 projects upwardly into the chamber and is arranged to maintain the water level 30 above the bottom 31 of the baffle 25 and each alternate baffle if there are more than three. A Venturi tube 32 extends upwardly to a point above the lower edge 33 of the baffle 24, and a jet 35 discharges axially through the pipe 32.

The jet 35 is connected through a T 36 and pipe 37 with a valve 38 which is opened or released to open when the seat 39 is raised, being indicated as being normally opened by a spring 40 and closed by a finger 41 attached to the cover 39. A supply pipe 42 or hose or other flexible conduit connects the valve to a source of water under pressure such as the flush tank supply pipe 43. The other connection 44, located in the impulse zone of the jet is connected to the special flushing connection 11 of a flush tank through a pipe 46, and a drain pipe 47 connects the trap

29 with the flush connection 11 which functions as a suction chamber.

Normally the seat cover 39 is closed, which through the finger 41 keeps the valve 38 closed. When the cover is raised, the spring 40 opens the valve and water under pressure is ejected through the nozzle 35, into the venturi 32 through which it passes upwardly in the form of a spray, being projected as indicated at 48 against the horizontal leg of the baffle 24 and drawing air from the flushing connection 11, or suction chamber through the pipe 46 and connection 44 and projecting it upwardly with the spray, the major portion of the water separating and being condensed on the baffle 24 and draining back to the sump as indicated at 49, the mixture of air and moisture passing through the curtain of water 49 and passing up between the vertical legs of the baffles 24 and 25 thence through the passages 27, then back and down between the vertical legs of the baffles 25 and 26 and around the lower end of the baffle 26 and thence upward between the baffle 26 and the side wall 18 of the chamber and discharging into the chamber 50 which may be supplied with any desired deodorant or aromatic 51, the separated water 30 being drained back to the flush connection each time that it rises above the trap 29.

The trap 29 forms a seal for the aerating chamber, and the vertical leg 25 in conjunction with the body of water in the sump forms a partition to require a predetermined path for the air-water mixture for complete circulation and separation. A trap 52 is also supplied for the overflow pipe 53 in the tank to seal the upper end of the flushing connection.

When the seat cover is lowered it automatically closes the valve and terminates operation of the system.

For straight air conditioning purposes, the tank 12 can be hung on a wall or the like, with the pipe 46 having an attached air intake pipe or suction chamber 45 open at both ends and discharging into a suitable drain, such as a sink, and the valve 38 connected to any suitable source of water under pressure such as to a kitchen faucet, through a length of flexible tubing substituted for the connection 42, under which conditions suitable hand control means (not shown because such controls are well known in the art) would be provided for the valve.

For purposes other than for toilet installations the suction chamber 45 can be coupled close to the aerating chamber 12 to provide a very compact unit, this merely requiring the substitution of nipples or short lengths of pipe for the pipes 37, 46 and 47.

Thus a very compact and efficient apparatus is provided which can be coupled to suit the specific conditions of aerating desired, and which can be installed in any location where a source of water under pressure and suitable drainage means is available.

I claim:

1. An air conditioner comprising; an air-water separating chamber having a sump, a jet pipe, and a circuitous path formed therein and discharging through the upper end of the chamber; a suction chamber; a source of water under pressure; a spray nozzle having communication with said source of water under pressure and a control valve therefor and discharging into and through said jet pipe into said air-water separating chamber and a communication between said suction chamber and the outlet of said spray nozzle for drawing air from said suction chamber and discharging the same with the spray from said spray nozzle through said jet pipe for thorough washing of the air; said circuitous path including a series of baffles forming forward and return passages therebetween; and a trapped drain for said sump; said suction chamber consisting of a toilet flushing connection, a pipe communicating between said flushing connection and said trapped drain; said control valve consisting of a normally open valve; a finger projecting from and mounted on the reaward end of a toilet seat cover with said valve mounted in cooperative relation thereto, and with said finger closing said valve when the toilet seat cover is closed and releasing said valve to open when the cover is raised, and a trap for a flush tank overflow pipe, and means for mounting said air-water separating chamber on one end of a flush tank.

2. An air conditioning unit comprising; an air-water separating chamber having a trapped drain extending upwardly from the bottom thereof to maintain a predetermined level of water in the chamber, and having a horizontal perforated partition in spaced relation to the top and a perforated cover for the top; a series of inverted L-shaped baffles having horizontal legs of different lengths with the ends of the legs sealed to one side wall of the chamber and vertically spaced, and with alternate ones of said horizontal legs having perforated end portions and with the depending legs horizontally spaced relative to each other and to the other side wall of the chamber and with the intervening ones of said depending legs terminating in spaced relation above the water level and the alternate ones extending below the water level to form a water seal thereat, and with the sides of said baffles sealed throughout their extents to the respective front and back walls of said chamber and forming in conjunction with the water seal and the other side wall of the chamber and perforated end portions a circuitous water-air separating path; a jet pipe projecting upwardly into spaced relation to the horizontal leg of the lowermost baffle; a jet and a source of water under pressure for discharging upwardly through said jet pipe, and a suction chamber in communication with said jet pipe, and a valve for controlling said source of water; said one side wall having a hook member at its upper end for attachment over the side wall of a toilet flush tank; and said suction chamber comprising a toilet flushing connection having said trapped drain in communication therewith, and said valve being mounted in cooperative relation for control by the seat cover of a toilet, and a trap for the overflow pipe of a flush tank for sealing the upper end of the toilet flushing connection.

3. An air conditioning unit comprising; an air-water separating chamber having a series of baffles therein forming a circuitous air-water separating path, and having a perforated horizontal wall in spaced relation above the baffles and a perforated cover for the top and forming a deodorant container therebetween, and a trap for the lower end of the chamber to maintain a predetermined level of water with certain alternate baffles sealed at the lower ends thereby, a Venturi tube extending upwardly into said chamber and having a jet and a source of water under pressure and a control valve therefor and having a suction line in communication therewith within the impulse zone of the jet; means for attaching said unit to a toilet flush tank having an over-

flow pipe; a trap for the overflow pipe; a toilet flushing connection having said suction line and a drain for said first mentioned trap in communication therewith; and valve operating means for the cover of a toilet seat with said control valve mountable in cooperative relation thereto for control by raising and lowering of the cover of the toilet seat.

4. An air conditioning unit comprising; an air-water separating chamber having a series of baffles therein forming a circuitous air-water separating path, and having a perforated horizontal wall in spaced relation above the baffles and a perforated cover for the top and forming a deodorant container therebetween, and a trap for the lower end of the chamber to maintain a predetermined level of water with certain alternate baffles sealed at the lower ends thereby, a Venturi tube extending upwardly into said chamber and having a jet and a source of water under pressure and a control valve therefor and having a suction line in communication therewith within the impulse zone of the jet; said unit having a hook member to hook over the top edge of a toilet flushing tank having an overflow pipe; a trap for the overflow pipe; a toilet flushing connection having said suction line and a drain for said first mentioned trap in communication therewith; an operating member for mounting on the hinged end of a toilet seat cover; said control valve consisting of a normally open valve and mountable in cooperative relation to said operating member for closing the valve when the seat cover is closed and for releasing the valve to open when the seat cover is raised.

5. An air-conditioning attachment for toilets having a flush tank having an overflow pipe and a hinged cover for the toilet seat, and a source

of water under pressure, comprising; a chamber having air-water separating means, a deodorant container forming the discharge path for air from said air-water separating means, and a trapped drain to maintain a predetermined water level and form a water seal, and a Venturi tube extending upwardly into said chamber and a jet for said Venturi tube; a trap for the overflow pipe of the flush tank; a toilet flushing connection in communication with said trapped drain and having communication with said venturi at the impulse zone of said jet, a water connection and a control valve therefor for said jet, and a valve controlling member for attachment to the toilet seat cover and cooperatively related to said valve for operation through raising and closing of said toilet seat cover.

6. A structure as defined in claim 5; said valve controlling member consisting of a finger attachable to the hinged end of the toilet seat cover and projecting rearwardly, and said control valve being spring-urged to open and being closed by said finger when the toilet seat cover is closed and released to open when the toilet seat cover is raised.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
422,202	Furney	Feb. 25, 1890
1,235,535	Bowman	July 31, 1917
1,377,381	Worrall	May 10, 1921
2,164,763	Buck	July 4, 1939