A new and useful system and method is provided, designed to conserve existing water resources, and also to provide additional benefits to a water supply, particularly to a water heater. In a system and method of the invention, a source of water condensate is in fluid communication with a reservoir. A primary water flow path is established between water from a primary source and a water heater, and a hydrostatic connection is provided between the reservoir and the primary flow path. The hydrostatic connection is designed such that water from the reservoir is drawn into the primary flow path and mixed with the water in the primary flow path, thereby enabling the water condensate from the reservoir to supplement the flow of water in the primary flow path to the water heater. A system and method of the present invention is designed to conserve existing water resources, provide a water supplement that is a distillate with less minerals that can harm a water heater, and which also provides some softening of the water directed to the water heater.
WATER PROCESSING SYSTEM AND METHOD

RELATED APPLICATION/CLAIM OF PRIORITY

[0001] This application is related to and claims the priority of Provisional Application No. 60/830,284, filed Jul. 11, 2006, and entitled Air Conditioning and Dehumidifier Water Condensation Reclamation Unit; which provisional application is incorporated by reference herein.

BACKGROUND

[0002] The present invention relates to a new and useful water processing method, that is designed to supplement water flow to a water heater with water condensate from a source such as an air conditioner.

[0003] As water resources are becoming increasingly stressed, to fill increasing demands for that precious resource, there is considerable interest in finding new resources. Moreover, in applicant’s experience, there is also a need to find ways to conserve existing water resources.

SUMMARY OF THE INVENTION

[0004] The present invention provides a system and method that is designed to conserve existing water resources, and also to provide additional benefits to a water supply, particularly to a water heater.

[0005] A system and method of the present invention is designed to conserve existing water resources, by using condensate from an air conditioner or dehumidification unit (which would otherwise be drained to a sewer system) and use that condensate to supplement a water supply to a water heater. This provides a way of conserving water.

[0006] In addition, the system and method of the present invention reclaims water that is effectively distilled. Thus, when that reclaimed water is added to the water directed to a water heater, it provides less minerals (i.e. calcites) in the water directed to the water heater, thereby lessening the effects of such minerals on the water heater.

[0007] Moreover, with a system and method of the present invention, the effective distillation of the reclaimed water provides a degree of softening of the water produced by the water heater, which is particularly useful when the water heater is producing hot water for household use.

[0008] In a water processing system and method according to the present invention, a source of water condensate is in fluid communication with a reservoir. A primary water flow path is established between water from a primary source and a water heater, and a hydrostatic connection is provided between the reservoir and the primary flow path. The hydrostatic connection is designed such that water from the reservoir is drawn into the primary flow path and mixed with the water in the primary flow path, thereby enabling the water condensate from the reservoir to supplement the flow of water in the primary flow path to the water heater.

[0009] In addition, in a preferred system and method of the present invention, the primary flow path includes a venturi pump with an inlet side and an outlet side in direct fluid communication with the water heater, and wherein the hydrostatic connection between the reservoir and the primary water flow path communicates with the venturi pump. Thus, the system (i) draws water from the reservoir into the venturi pump, (ii) causes mixing of the drawn water with the water in the primary flow path, and (iii) enables the drawn and mixed condensate to supplement the primary flow to the water heater.

[0010] Other features of the present invention will become further apparent from the following detailed description and the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

[0011] FIG. 1 is a schematic illustration of the manner in which a condensate (preferably from reclaimed water) is reclaimed and used as a source of water to supplement a primary water flow to a water heater, according to the principles of the present invention.

DETERRALED DESCRIPTION

[0012] As discussed above, the present invention relates to a new and useful system and method that is designed to conserve existing water resources, and also to provide additional benefits to a water supply, particularly to a water heater. The principles of the present invention are described below in connection with a water processing system for a household, but from that description, the manner in which the principles of the invention can be used with various water processing systems will be apparent to those in the art.

[0013] FIG. 1 shows a water processing system 100 designed according to the principles of the present invention. The system includes a source of water condensate 102, which may be, e.g. a home air conditioning unit or dehumidifier. A reservoir 104 is in fluid communication with the source of water condensate 102, such that water condensate can drain from the source into the reservoir. A filter 106 may be provided between the source 102 and the reservoir 104. The system includes a water heater 108, and a primary flow path of water is established from a primary source to the water heater 108. The primary water source may be the primary water source for a home, and the primary flow path enables water to flow from the primary source, along a conduit 110, through a venturi pump 112 (described below), and to the water heater 108. As is conventional in home water heater systems, as water is drawn from the water heater 108 into the household, the pressure in the water heater drops, and a pressure differential is established between the primary water source and the water heater that draws water from the primary source into the water heater.

[0014] The present invention is designed to supplement water flow in the primary flow path, with condensate that is held in the reservoir 104. The reservoir 104 is in fluid communication with the venturi pump 112 in the primary flow path. When the pressure differential is established between the water heater and the primary water source, water from the reservoir 104 is drawn into venturi pump 112, mixed with the water in the primary flow path, and the mixed waters then directed to the water heater 108. Thus, the water condensate from the reservoir 104 supplements the flow of water in the primary flow path to the water heater 108.

[0015] The venturi pump 112 is preferably a venturi pump called the “Mighty Pump”, distributed by Designlife Products, Inc., Highland Park, Ill. The venturi pump 112 has an inlet 114 in communication with the primary water source, an outlet 116 in direct fluid communication with the water heater 108, and a venturi pump 112, with converging and diverging sections that, in accordance with venturi principles, convert water flow and pressure at the venturi inlet
114 to lower pressure and higher flow rate in the throat of the venturi nozzle, and then back to higher pressure lower flow rate at the venturi outlet 116. The water from the reservoir 104 communicates (via a conduit 120 and a fitting 122) with the diverging end of the venturi nozzle, and is entrained and energized by the flow in the venturi nozzle, thereby drawing water from the reservoir, mixing it with the primary water flow, and directing the mixed waters to the water heater 108.

[0016] A system and method of the present invention is designed to conserve existing water resources, by using condensate from an air conditioner or dehumidification unit (which would otherwise be drained to a sewer system) and use that condensate to supplement a water supply to a water heater. This provides a way of conserving water.

[0017] In addition, the system and method of the present invention reclaims water that is effectively distilled. Thus, when that reclaimed water is added to the water directed to a water heater, it provides less minerals (i.e. calcites) in the water directed to the water heater, thereby lessening the effects of such minerals on the water heater.

[0018] Moreover, with a system and method of the present invention, the effective distillation of the reclaimed water provides a degree of softening of the water produced by the water heater, which is particularly useful when the water heater is producing hot water for household use.

[0019] Thus, the foregoing detailed description shows a system and method designed to conserve existing water resources, and also to provide additional benefits to a water supply, particularly to a water heater. With the foregoing disclosure in mind, it is believed that various adaptations of a water processing system and method, according to the principles of the present invention, will be apparent to those in the art.

1. A water processing system comprising
   a. a source of water condensate,
   b. a reservoir in fluid communication with the source of water condensate, such that water condensate can drain from the source into the reservoir,
   c. a water heater, and a primary flow path of water from a primary source to the water heater, and
   d. a hydrostatic connection between the reservoir and the primary flow path, configured such that water from the reservoir is drawn into the primary flow path and mixed with the water in the primary flow path, thereby enabling the water condensate from the reservoir to supplement the flow of water in the primary flow path to the water heater.

2. The water conservation system of claim 1, wherein the primary flow path includes a venturi pump with an inlet side and an outlet side in direct fluid communication with the water heater, and wherein the hydrostatic connection between the reservoir and the primary water flow path communicates with the venturi pump.

3. A water processing method comprising
   a. providing a source of water condensate,
   b. providing a reservoir in fluid communication with the source of water condensate, and draining water condensate can drain from the source into the reservoir,
   c. providing a water heater, and a primary flow path of water from a primary source to the water heater, and
   d. providing a connection between the reservoir and the primary flow path, and establishing a pressure differential between the water heater and the primary flow path that draws water from the reservoir into the primary flow path and mixes the drawn water with the water in the primary flow path, thereby enabling the water condensate from the reservoir to supplement the flow of water in the primary flow path to the water heater.

4. The water processing method of claim 3, wherein the primary flow path includes a venturi pump with an inlet side in communication with a primary water source and an outlet side in direct fluid communication with the water heater, wherein the water condensate from the reservoir is in fluid communication with the venturi pump, and wherein establishing a pressure differential between the water heater and the primary flow path, when the drawn water from the reservoir into the venturi pump, (i) causes mixing of the drawn water with the water in the primary flow path, and (ii) enables the drawn and mixed condensate to supplement the primary flow to the water heater.