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WATER FLOW CONTROL FOR HUMIDIFIERS

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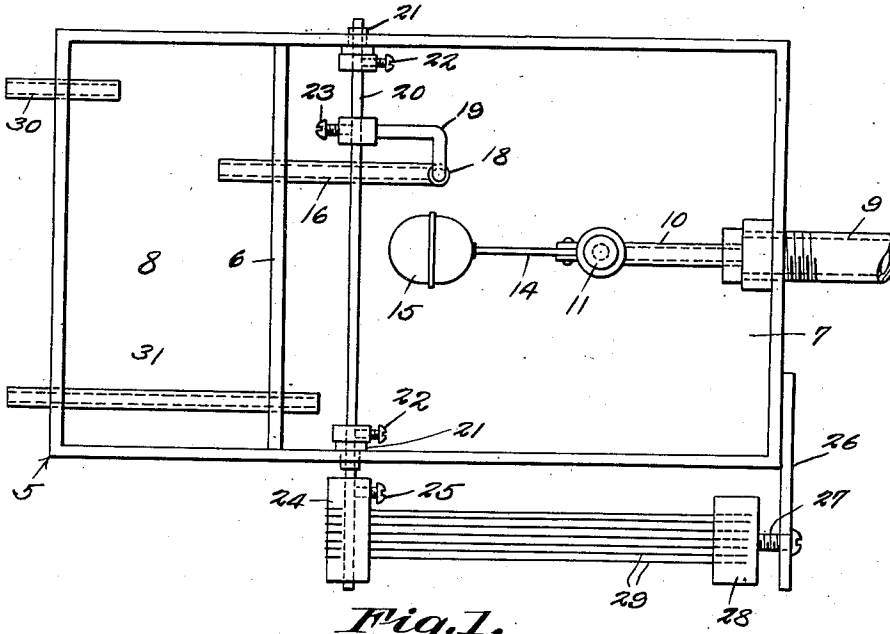


Fig. 1.

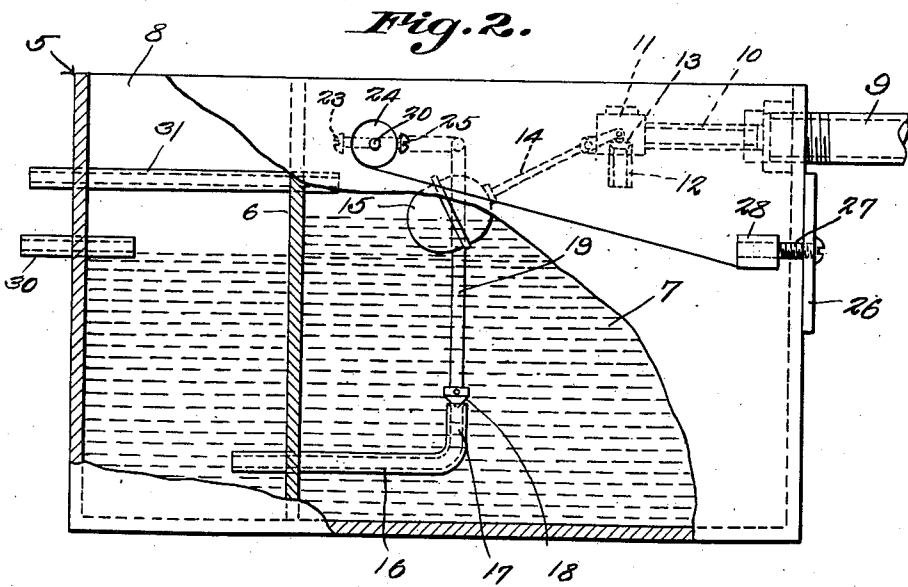


Fig. 2.

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WATER FLOW CONTROL FOR HUMIDIFIERS

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1 Claim. (Cl. 236-44)

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This invention relates to a water control device designed for use in supplying water to humidifiers, the primary object of the invention being to provide means controlled by atmospheric conditions, for replenishing the water in the evaporator tank of a humidifier, when the level of the water in the evaporator tank reaches a low level.

An important object of the invention is to provide fine thread-like members which will contract when the moisture therein becomes exhausted, due to lack of humidity in the air, the contracting thread-like members, operating a valve control means for replenishing the water in the evaporator tank and consequently supplying moisture to be absorbed by the threadlike members, causing them to lengthen, whereby the valve automatically closes, cutting off the flow of water to the main tank of the device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing:

Figure 1 is a plan view of a supply tank and operating mechanism, constructed in accordance with the invention.

Figure 2 is an elevational view of the tank, a portion thereof having been broken away illustrating the compartments and pipes leading from the tank.

Referring to the drawing in detail, the main tank for supplying water to an evaporator tank of a humidifier, is indicated by the reference character 5.

The tank is provided with a partitioning wall 6 arranged near one end thereof, dividing the tank into a main or low pressure compartment 7 and a feed compartment 8, to the end that the water discharged from the tank will be gradual, insuring against a quantity of water being fed to the humidifying pan not shown which would cause flooding of the pan.

The water inlet pipe to the main compartment is indicated by the reference character 9 and supplies water to the main compartment, through the pipe 10 and valve housing 11, the discharge pipe from the valve housing 11, being indicated at 12. Operating within the valve housing 11 is a vertically movable valve 13 which is seated by

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means of the float-controlled arm 14 which carries the float 15 at one end thereof, the float rising and falling with the change of water level in the main compartment 7 of the tank.

The reference character 16 indicates a feed pipe which extends through the partition 6, near the lower end thereof, the feed pipe 16 having an upwardly extended end 17 formed with a valve seat, against which the valve 18 engages. This valve 18 is carried at the lower end of the rod 19 which is adjustably secured to the shaft 20 that extends transversely of the main compartment 7, the ends of the shaft being mounted in the bearings 21. The shaft 20 is secured within the bearings 21 by means of the set screws 22, so that the bearings and shaft may be adjusted with respect to each other. The rod 19 is also secured to the shaft 20 by means of the set screw 23 for adjusting purposes.

As clearly shown by Fig. 1 of the drawing, the shaft 20 has one of its ends extended beyond one of the side walls of the main tank, where it supports a drum 24 which is adjustable on the shaft 20, and is held in its positions of adjustment, by means of the set screw 25.

Secured externally of the main tank, at one end thereof, is a plate 26, the plate being extended laterally beyond one side wall of the main tank. This plate is formed with an opening for the reception of the adjusting screw 27. It has its inner end positioned in a threaded opening of the block 28 to which thread-like members 29 are secured, the thread-like members 29 being also secured to the drum 24, by passing them under the drum and securing their ends to the upper portion of the drum. These thread-like members are preferably hairs, although it is to be understood that any type of thread-like member having absorbing qualities, may be used for accomplishing the purpose.

An outlet pipe indicated at 30 extends into the feed compartment 8 and provides a feed pipe for feeding water from the feed compartment 8, to the humidifier or evaporator tank of the humidifier. Directly above the pipe 30, is an overflow pipe 31 which extends through the partition 6, and one end wall of the tank 5. Should the water in the main compartment 7 rise to the overflow pipe 31, the excess water will be carried off through the overflow pipe and directed to a suitable overflow chamber or drain pipe.

From the foregoing it will be seen that due to the construction shown and described, the valve control mechanism is contained within the main tank, and the thread-like members which actuate

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the valves are exposed to the atmospheric conditions of the room or area in which the device is positioned.

In the operation of the device, when the hairs or thread-like members 29 become saturated with moisture, the expansion of these members will result in the movement of the shaft 20 to cause the valve 18 to seat preventing the further discharge of water from the main compartment 7, into the feed compartment 3. It will of course be understood that the rotary movement of the shaft 20 is caused by the weight of the rod 19 and valve 18 carried thereby.

As the humidity of the air in the room in which the device is positioned, is reduced, the moisture in the hairs or thread-like members 29 will be exhausted, causing the hairs or thread-like members 29 to contract, moving the shaft 20 in the opposite direction, which results in lifting the valve 18 from its seat, whereupon water will flow into the feed compartment 8 and discharge into the evaporator tank of the humidifier with which the device is used, through pipe 30.

With the device, an automatic control of the system is provided, and an even degree of humidity insured at all times.

What is claimed is:

A water supply device for humidifiers, comprising a tank, a discharge pipe adjacent the bottom of the tank having an upstanding end within the tank formed with a valve seat adapted to discharge water from the tank, a horizontal shaft supported within the tank, one end of said shaft

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being extended to a point exteriorly of the tank, a valve arm and valve operated by the shaft adapted to control the passage of water through the valve seat and the discharge pipe, a drum adjustably secured to the extended end of the shaft, a block adjustable towards and away from the drum, supported in spaced relation with the drum at a point below the drum, thread-like members of a hygroscopic nature having one of their respective ends wound around the drum and being secured to the drum, the opposite ends of said thread-like members being secured to the adjustable block, whereby expansion and contraction of the thread-like members due to moisture content thereof, rotates the shaft, operating said valve thereby to control the passage of water through the discharge pipe.

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