

HOT FLUSH

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention is a water saving system which allows a person to use the water for flushing the toilet stool that is normally wasted while running water waiting for the hot water to reach the bathroom. This invention is based on the premise that most people flush the stool before washing their hands or before using a bidet, a shower or a bathtub. This system includes a valve that allows the
10 person to switch the water source flowing to the toilet from a cold water source to a hot water source. The system may include automated means for returning the valve to cold water being supplied to the toilet after a pre-determined time or upon the happening of a triggering event.

15 2. Description of the Related Art

 Many homes have the hot water heater located some distance from the bathroom or bathrooms of the house. This creates a situation where there is a long water line supplying hot water to each of the bathrooms from the water heater. Water only flows through the water lines when water is being used in the
20 house and thus, the water that is contained within in the hot water lines tends to cool off after a period of time of non-usage. This results in a plug of cold water in the hot water line. When the hot water is turned on to one of the fixtures in the

bathroom, for example at the sink, shower, bathtub or bidet, this plug of cold water must first be purged from the hot water line before the hot water from the hot water tank reaches the fixture.

5 Most people don't like to wash their hands or bath in cold water, particularly in the cooler months of the year and so they let the water run from the hot water faucet until the water is warm enough for them to use. This results in loss of a large volume of water as the water runs down the drain while the plug of cold water is purged from the hot water line.

The present invention addresses this problem. The present invention is
10 based on the theory that a person who is about to use the sink, shower, bathtub or bidet will normally flush the toilet stool first before using these other fixtures. The invention is a water saving system which allows a person to use this normally wasted plug of cold water to instead flush the stool and thereby purge the hot water line of the cold water so that the hot water line then contains hot
15 water for use at the sink, shower, bathtub or bidet. This system includes a valve that allows the person to switch the water source flowing to the toilet from a cold water source to a hot water source. As an optional feature, the valve could be provided with additional equipment for automatically returning the valve to the position where it feeds cold water to the toilet after a pre-determined time or
20 event.

Obviously this system is more useful in the cooler months of the year when the water in the hot water lines tends to cool more between uses or where water conservation is more important.

SUMMARY OF THE INVENTION

The present invention addresses the problem that exists when the hot water heater in a house is located some distance from the bathroom and it takes some time for the hot water to arrive at the bathroom from the hot water tank.

5 The cold water in the hot water line is normally wasted while a person is running water waiting for the hot water to reach the sink, shower, bathtub or bidet. The present invention is based on the theory that a person who is about to use the sink, shower, bathtub or bidet will normally flush the stool first. The invention is a water saving system which allows a person to use this normally wasted water to
10 instead flush the stool.

The system allows the user to use the cold water that remains in the hot water line between the hot water heater and the bathroom for the purpose of flushing the toilet stool when the person is intending to use other facilities in the bathroom, such as the sink, shower, bathtub or bidet shortly after flushing the
15 toilet. This purges the hot water line of cold water. This system includes a valve that allows the person to switch the water source flowing to the toilet from a cold water source to a hot water source. Preferably, the location of the valve would be in the reach of someone sitting on the toilet.

As an optional feature, the valve could be put on a timer so that it would
20 automatically return to the position where it feeds cold water to the toilet after a pre-determined time so that the user doesn't have to remember to reset the valve to deliver cold water to the toilet. Alternately, equipment such as a temperature

sensor could be added to the system to automatically switch the water source supplying water to the toilet back to the cold water source from the hot water source based on the sensing of an event such as the water temperature reaching a predetermined temperature. Optionally a manual balance valve could be

5 added that would allow the user to fine tune the amount of hot water flushed. Optionally equipment could be added to return the valve to the cold position when the toilet tank is full.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is diagram of a typical prior art plumbing arrangement in a bathroom of a home where only cold water is supplied to the toilet and both hot and cold water are supplied to the other fixtures in the bathroom.

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FIGURE 2 is diagram showing a plumbing arrangement illustrating the hot flush system of the present invention whereby a valve is provided in both the cold and hot water lines for selectively supplying either hot or cold water to the toilet.

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FIGURE 3 is a diagram of the valve of Figure 2 showing a first position of the valve where cold water is being supplied to the toilet.

FIGURE 4 is a diagram of the valve of Figures 2 and 3 showing a second position of the valve where hot water is being supplied to the toilet.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and initially to Figure 1, there is illustrated a typical prior art plumbing arrangement for a bathroom of a house. The typical plumbing arrangement has a cold water source 10 that may be either a private water supply such as for example, a spring or well, or a public water supply such as a municipal water system or a rural water system. The cold water from the cold water source 10 feeds into the house via cold water lines 12 that run to the hot water heater 14 for the house and also to the various fixtures 16, 18, 20, etc. in the house requiring cold water. As illustrated in Figure 1, these additional fixtures located within a bathroom may include a toilet 16, a sink 18, and a shower 20. Although not illustrated, the fixtures located within a bathroom which are supplied with cold water may also or alternately include a bidet, bathtub, etc. For simplicity of illustration only a sink 18 and shower 20 are illustrated as the other bathroom fixtures to which cold water is supplied via the cold water lines 12.

The hot water heater 14 is supplied with some type of fuel source 19 that is used to heat the water. After the water is heated in the hot water heater 14, the hot water is delivered to the fixtures 18, 20, etc. in the house requiring hot water via hot water lines 22 on an as-needed basis. As illustrated in Figure 1, the fixtures located within a bathroom requiring hot water may include a sink 18 and a shower 20. Although not illustrated, the fixtures located within a bathroom which are supplied with hot water may also or alternately include a bidet, bathtub,

etc. For simplicity of illustration only a sink 18 and shower 20 are illustrated as the bathroom fixtures to which hot water is supplied via the hot water lines 22.

However, hot water lines 22 normally are not connected to the toilet 16 since this fixture generally only is supplied with cold water via the cold water lines

5 12.

The hot water heater 14 may be located within the house a considerable distance from the bathroom. Because hot water is only needed in the bathroom periodically, the hot water located in the hot water lines 22 of the house will gradually lose their heat and the water within the hot water lines 22 will become

10 cool or cold. Thus, when hot water is needed at one of the fixtures 18 or 20 in the bathroom, the cool water located within the hot water lines 22 must first be purged from the hot water lines 22 by running the water until it becomes sufficiently hot for use. This water that is run while purging the hot water lines 22 is normally just allowed to run down the drain and is wasted.

15 The present invention addresses this problem by providing a system of piping that allows the cool water that is being purged from the hot water lines 22 to be used to flush the toilet 16. The invention is based on the premise that a person normally uses the toilet 16 and flushes it before running water at the sink 18, shower 20, bidet or bathtub.

20 Referring now to Figure 2, the present invention is illustrated. The toilet 16 is supplied water via a valve 24 that is attached to both the hot water line 22 and the cold water line 12. The hot water line 22 continuously supplies hot water

to the other fixtures 18 and 20 of the bathroom regardless of the position 28 or 30 of the valve 24.

The valve has two positions 28 and 30, as illustrated diagrammatically in Figures 3 and 4. Referring to Figure 3, the first position 28 is the normal position
5 whereby the valve 24 is supplying cold water that originates from the cold water line 12 to the toilet 16 via a dual function water line 31 that extends from the valve 24 to the toilet 16. Figure 4 shows the second position 30 whereby the valve 24 is supplying hot water that originates from the hot water line 22 to the toilet 16 via dual function water line 31. The valve 24 can be moved between
10 these two positions 28 and 30 either manually or automatically.

To use this system, the user will manually place the valve 24 in the second position 30 prior to flushing the toilet 16 whenever the user wants to purge the hot water line 14 of any cool water contained therein. After flushing the toilet 16, the user can then manually place the valve 24 back into its first position
15 28 so that cold water is once again supplied to the toilet 16 via the cold water line 12.

Alternately, the system can be provided with automated means 31 for returning the valve 24 to the first position 28 instead of relying on the user to manually switch the valve 24 back to the first position 28. This automated means
20 31 might be a device for detecting the occurrence of a triggering event or condition coupled with a means for switching the position of the valve 24, such as a solenoid, upon the detection of the triggering event or condition. Examples of

triggering events or conditions could be the elapse of a predetermined time interval, the temperature of the water in the hot water line 14 reaching a preset temperature or that the tank 32 of the toilet 16 getting filled.

While the invention has been described with a certain degree of
5 particularity, it is manifest that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure. It is understood that the invention is not limited to the embodiments set forth herein for the purposes of exemplification, but is to be limited only by the scope of the attached claim or claims, including
10 the full range of equivalency to which each element thereof is entitled.