

FAUCET AND FILTER ADAPTOR

Field of Invention

The present invention relates generally to faucet and filter adaptors. More specifically,
5 the present invention relates to adaptors for providing filtration functionality to faucets.

Background

Water filtration systems are typically used for removing undesirable chemical and biological contaminants from potable water. Depending on the filters used, these water
10 filtration systems can also be used for removing particles, bacteria and odor from potable water. Water filtration systems domestic use comes in various forms. Typically, such water filtrations are used in conjunction with existing faucets mounted to a supporting platform, for example the periphery of a sink having a first face and a second face outwardly opposing the first face. The faucet is mounted to a platform with its inlet
15 being received through a channel formed in the platform. With the faucet being mounted directly to the platform with the faucet extending from the first face of the platform, a fluid supply outlet is coupled to the inlet of the faucet by accessing the channel from the second face of the platform.

In this typical set-up, the platform substantially interposes the faucet and the fluid supply
20 outlet. The faucet will typically be accessible from the first face of the platform. Therefore, when a conventional water filtration system is required to be integrated for use with the faucet, the conventional filtration system requires fluids to be supplied by from the faucet, which impedes normal use of the faucet, or from the fluid supply outlet, which
25 is impeded by the platform. A solution to the latter approach requires a hole to be drilled through the platform for enabling access to the fluid supply outlet from the first face. However, this results in additional steps being required for installation of the filtration. Additionally, the hole created in the platform cannot be undone should the water filtration system be not required in the future or when repositioning of portions of the water
30 filtration system is required.



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Therefore, there is a need for a water filtration system configuration for addressing the foregoing problems.

Summary

5 In accordance with an aspect of the invention, there is disclosed a faucet and filter adaptor comprising a faucet mount and a filter mount. The faucet mount is shaped and dimensioned for mounting to a channel formed in a platform. The platform has a first face and a second face outwardly opposing the first face. The faucet mount comprises a first attachment portion for coupling a faucet thereto for spatially displacing the faucet
10 from the first face of the platform, the faucet having at least one inlet for receiving fluids therethrough, the first attachment portion being shaped and dimensioned for receiving the at least one inlet therewithin.

The faucet mount further comprises a second attachment portion disposed adjacent the
15 second face of the platform, the second attachment portion for coupling with a fluid supply outlet for receiving unfiltered fluid therefrom. The fluid supply outlet further provides the unfiltered fluid to the at least one inlet of the faucet. The filter mount is for coupling a filter thereto with the filter mount being fluid communicable with the second attachment portion for communicating the unfiltered fluid provided by the fluid supply
20 outlet with the filter when the filter is coupled thereto. The filter is for filtering the unfiltered fluid into filtered fluid. When the faucet mount is coupled to the channel of the platform, the platform substantially interposes the filter mount and the fluid supply outlet.

Brief Description of the Drawings

25 Fig. 1 shows a partial front sectional elevation of a faucet and filter adaptor according to a first exemplary embodiment of the invention;

Fig. 2 illustrates an isometric view of a faucet for use with the adaptor of Fig. 1;

30 Fig. 3 shows a partial front sectional view of the adaptor of Fig. 1 being mounted to a platform and having a filter coupled thereto;

Fig. 4 shows an isometric view of the adaptor of Fig. 1;

Fig. 5 shows a partial front sectional elevation of a faucet and filter adaptor according to
5 a second exemplary embodiment of the invention; and

Fig. 6 shows an isometric view of the adaptor of Fig. 5.

Detailed Description

10 A first exemplary embodiment of the present invention, an adaptor 20, is described hereinafter with reference to Fig. 1, Fig. 2, Fig. 3 and Fig. 4. The adaptor 20 is preferably for use with a typical faucet 22 and for enabling unfiltered fluid (not shown) conventionally supplied to the faucet 22 to be processed into filtered fluid (not shown) by a filter 28.

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The faucet 22 preferably comprises a single inlet 30 for receiving fluids therethrough. The faucet 22 further comprises a valve (not shown) for regulating fluids discharge of fluids from the faucet. Typically, the faucet 22 is mounted to a platform 32 with the inlet 30 being received through a channel 34 formed in the platform 32. The platform 32 has a
20 first face 36 and a second face 38 outwardly opposing the first face 36. Preferably, the channel 34 extends between the first face 36 and the second face 38. The platform 32 is, for example, a portion of a sink or a basin, or a portion of a table or a kitchen top. With the faucet 22 being mounted directly to the platform 32 with the faucet 22 extending from the first face 36 of the platform 32, a fluid supply outlet (not shown) is coupled to the
25 inlet 30 of the faucet 22 by accessing the channel 34 from the second face 38 of the platform 32.

In this typical set-up, the platform 32 substantially interposes the faucet 22 and the fluid supply outlet. A user of the faucet 22 will typically access the faucet from the first face
30 36 of the platform. Therefore, when a conventional filtration system is required to be integrated for use with the faucet 22, the conventional filtration system requires fluids to

be supplied by from the faucet 22, which impedes normal use of the faucet 22, or from the fluid supply outlet, which is prevented by the platform 32. A solution to the latter approach requires a hole to be drilled through the platform 32 for enabling access to the fluid supply outlet from the first face 36.

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However, with the adaptor 20, all that is required is for the fluid supply outlet to be decoupled from the inlet 30 to enable the faucet 22 to be dismounted from the platform 32, and coupling of the faucet 22 and the fluid supply outlet to the adaptor 20 upon the adaptor 20 being mounted to the platform 32.

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Preferably, the adaptor 20 comprises a faucet mount 42 and a filter mount 44. The faucet mount 42 comprises a first attachment portion 46, whereto the faucet is couplable, and a second attachment portion 48, whereto the fluid supply outlet is couplable. Preferably, the first attachment portion 46 comprises a junction 50 and a protrusion 52 extending from the junction 50. The junction 50 is shaped and dimensioned for enabling mounting of the faucet 42 thereto with the protrusion 52 being shaped and dimensioned for being received through the channel 34 in the platform 32. Preferably, the protrusion 52 is diametrically smaller than the junction 50 for forming a shoulder (not referenced) therewith. The shoulder enables the junction 50 to abut and rest on the first face 36 of the platform 32 when the protrusion 52 is received through the channel 34.

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Preferably, when the faucet 22 has only the single inlet 30, the first attachment portion 46 comprises an annular joint 54 and a pipe 56. The first attachment portion 46 further comprises a flange 58 formed adjacent a first extremity (unreferenced) of the pipe 56.

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The pipe 56 couples with the annular joint 54 by being disposed therethrough with the flange 58 abutting the annular joint 54. Preferably, the first extremity of the pipe 56 is internally threaded. This enables an externally threaded portion of the faucet 22 to be coupled to the first extremity of the pipe 56. A person skilled in the art will appreciate that various means for fastening or coupling, for example, coupling of the faucet 22 to the pipe 56, can be applied without departing from the scope of the present invention.

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A second extremity (not referenced) of the pipe 56 is preferably externally threaded for cooperating with an internally threaded nut 58 for anchoring the pipe 56 to the channel 34. Preferably, the annular joint 54 defines a passageway 60 substantially circumscribing the pipe 56. A portion of the pipe 56 adjacent the passageway 60 preferably has one or more apertures 62 formed therein for fluid communicating the pipe 56 with the passageway 60 of the annular joint 54.

The second attachment portion 48 preferably comprises a tube 64 extending from the second extremity of the pipe 56. The tube 64 is shaped, dimensioned and externally threaded for coupling of the fluid supply outlet therewith.

The filter 28, mountable to the filter mount 44, preferably comprises a filter inlet 66 and a filter outlet 68. The adaptor 20 further comprises a discharge conduit 70 extending from the filter mount 44. The discharge conduit 70 preferably comprises a valve (not shown) for regulating passage of fluids therethrough. When the filter 28 is coupled to the filter mount 44, the filter inlet 66 is fluid communicable with the second attachment portion 48 while the filter outlet 68 engages with the discharge conduit 70 for fluid communication therewith.

The filter mount 44 preferably comprises a regulator 73 for regulating flow of fluid between the second attachment portion 48 and the filter inlet 66. The regulator 73 is preferably a ceramic discs valve having two mating portions with corresponding apertures (all not shown). Aligning the apertures of the two mating portions enables fluid communication between the two mating portions to thereby enable fluid flow through the regulator 73. The degree of alignment between the apertures of the two mating portions determines rate of fluid communicable therebetween. The regulator 73 functions to regulate passage of fluids through the filter 28 and consequently, also functions to regulate the passage of fluids through the discharge conduit 70. Therefore, with the regulator 73 incorporated into the filter mount 44, the valve of the discharge conduit 70 need not be incorporated, or if incorporated, can operate in tandem with the regulator 73.

The adaptor 20 further comprises a duct 74 for inter-fluid communicating the faucet mount 42 and the filter mount 44. Preferably, the duct 74 is substantially structurally rigid for rigid coupling of the filter mount 44 to the faucet mount 42. This enables the filter mount 44 to be structurally supported by the faucet mount 42. Seals, for example o-ring type seals or gaskets are preferably used for fluid-sealing or liquid-sealing the interface between the annular joint 54 and the pipe 56. This enables the filter mount 44 to be swiveled substantially about the faucet 22 while still enabling the adaptor 20 and the faucet 22 to continue functioning by substantially impeding leakage from the interface.

Alternatively, the duct 74 is a flexible pipe (not shown) extending between the faucet mount 42 and the filter mount 44. This enables the filter mount 44 to be spatially displaced independent of the faucet mount 42. However, since the filter mount 44 is no longer structurally supported by the faucet mount 42, space is required for the filter mount 44 to rest upon.

When fluid, specifically unfiltered fluid, discharges from the fluids supply outlet 40 into the tube 64, the unfiltered fluid travels through the pipe 56 towards the faucet 22 for priming the faucet 22. The faucet 22 is operable for conventional discharge of the unfiltered fluid therefrom. Additionally, the unfiltered fluid travelling through the pipe 56 also enters the passageway 60 of the annular joint 54 via the one or more apertures 62. The unfiltered fluid is then conveyed to the filter mount 44 via the duct 74 before entering the filter 28 through the filter inlet 66. The unfiltered fluid is then processed by the filter 28 through filtration before being discharged from the filter outlet 68 and into the discharge conduit 70 as the filtered fluid. The filtered fluid is then discharged from the discharge conduit 70 when the valve is operated by a user.

Alternatively, the faucet 22 is a mixer faucet (not shown). The mixer faucet has two or more inlets (not shown) for receiving fluids from different sources, preferably at different temperatures. The mixer faucet enables fluids from the different sources to be mixed at a regulatable ratio achieved by operating the mixer faucet.

The adaptor 84 for use with the mixer faucet according to a second exemplary embodiment of the invention is described with reference to Fig. 5 and Fig. 6. The adaptor 84 comprises a faucet mount 86, a filter mount 88, a discharge conduit (not shown) and a duct 92. The faucet mount 86 comprises a first attachment portion 94 and a second attachment portion (not shown). Functionally and configuratively, the faucet mount 86, the filter mount 88, the discharge conduit, the duct 92, the first attachment portion 94 and the second attachment portion of the mixer faucet corresponds with respectively the faucet mount 42, the filter mount 44, the discharge conduit 70, the duct 74, the first attachment portion 46 and the second attachment portion 48 of the faucet 22 having the single inlet 30. Structurally, only the first attachment portion 94 and the second attachment portion of the adaptor 84 for the mixer faucet differs from the first attachment portion 46 and the second attachment portion 48 of the adaptor 20 for the faucet 22 with the single inlet 30.

The first attachment portion 94 comprises an annular joint 98 defining a channel 100. At least a portion of the channel 100 is internally threaded for enabling coupling of the mixer faucet to the first attachment portion 94. The two or more inlets of the mixer faucet extend through the channel 100 when the mixer faucet is coupled to the first attachment portion. At least a portion of the annular portion 94 is being shaped and dimensioned for being received through the channel 34 of the platform 32 for mounting the adaptor 84 to the platform 32. The annular portion 94 is further shaped for spatially displacing the mixer faucet from the first face 36 of the platform 32 when the adaptor 84 is mounted on the platform 32.

The annular joint 98 comprises a chamber 102 formed therewithin. The second attachment portion comprises a spout 104 extending from the annular joint 98 and into the channel 100. The spout 104 is in fluid communication with the chamber 100. Preferably, the second attachment portion further comprises a distribution joint (not shown) coupled to the spout 104. The distribution joint is further for coupling and fluid

communicating with one of the two or more inlets of the mixer faucet and the fluid supply outlet.

The duct 92 extending between the faucet mount 86 and the filter mount 88 fluid communicates with the chamber 102. This enables the unfiltered fluid provided by the fluid supply outlet to be conveyed not only to the mixer faucet, via the one of the two or more inlets coupled to the distribution joint, but also to the duct 92, via the spout 104 and the chamber 102, and consequently the filter mount 88.

In the foregoing manner, a faucet and filter adaptor is described according to two exemplary embodiments of the present invention. Although only exemplary embodiments of the present invention are disclosed, it will be apparent to a person skilled in the art in view of this disclosure that numerous changes and/or modifications can be made without departing from the scope and spirit of the present invention.

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Claims

1. A faucet and filter adaptor comprising:

a faucet mount shaped and dimensioned for mounting to a channel formed in a platform, the platform having a first face and a second face outwardly opposing the first face, the faucet mount comprising:

a first attachment portion for coupling a faucet thereto for spatially displacing the faucet from the first face of the platform, the faucet having at least one inlet for receiving fluids therethrough, the first attachment portion being shaped and dimensioned for receiving the at least one inlet therewithin; and

a second attachment portion disposed adjacent the second face of the platform, the second attachment portion for coupling with a fluid supply outlet for receiving unfiltered fluid therefrom, the fluid supply outlet further providing the unfiltered fluid to the at least one inlet of the faucet, and

a filter mount for coupling a filter thereto, the filter mount being fluid communicable with the second attachment portion for communicating the unfiltered fluid provided by the fluid supply outlet with the filter when the filter is coupled thereto, the filter for filtering the unfiltered fluid into filtered fluid,

wherein when the faucet mount is coupled to the channel of the platform, the platform substantially interposes the filter mount and the fluid supply outlet.

2. The adaptor as in claim 1, the first attachment portion comprising:

a junction; and

a protrusion extending from the junction,

wherein at least a portion of the protrusion extends through the channel of the platform when the faucet mount is mounted thereto.

3. The adaptor as in claim 1, the first attachment portion comprising:

an annular joint; and

a pipe disposed through the annular joint, the pipe having at least one aperture for fluid communicating with the annular joint therethrough, at least a portion of the pipe passing through the channel of the platform when the first attachment portion is mounted thereto.

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4. The adaptor as in claim 3, the first attachment portion further comprising:

a flange formed adjacent one extremity of the pipe for abutting the annular joint for anchoring the annular joint to the first face of the platform when a portion of the pipe is anchored to the second face of the platform.

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5. The adaptor as in claim 4, the first attachment portion further comprising:

a nut being internally threaded, the pipe being externally threaded for cooperating with nut to anchor the portion thereof to the second face of the platform.

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6. The adaptor as in claim 3, the second attachment portion comprising:

a tube extending from the pipe for coupling of the fluid supply outlet thereto.

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7. The adaptor as in claim 1, the first attachment portion being an annular structure defining a channel wherethrough the at least one inlet is receivable, the second attachment portion being a spout extending through the channel.

8. The adaptor as in claim 1, further comprising:

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a discharge conduit extending from the filter mount, the filter having a filter inlet for receiving unfiltered fluid and a filter outlet for discharging filtered fluid, the discharge conduit being configured with the filter mount for coupling with the filter outlet when the filter is coupled to the filter mount,

wherein the filtered fluid discharged from the filter is conveyed away from the filter mount by the discharge conduit.

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9. The adaptor as in claim 8, the discharge conduit comprising:

a valve operable for regulating discharge of the filtered fluid through the discharge conduit.

5 10. The adaptor as in claim 1, further comprising:

a duct for rigidly coupling the faucet mount to the filter mount and for inter-fluid communicating the faucet mount and the filter mount.

11. The adaptor as in claim 1, further comprising:

10 a flexible tube extending between the faucet mount and the filter mount for inter-fluid communicating the faucet mount and the filter mount.