

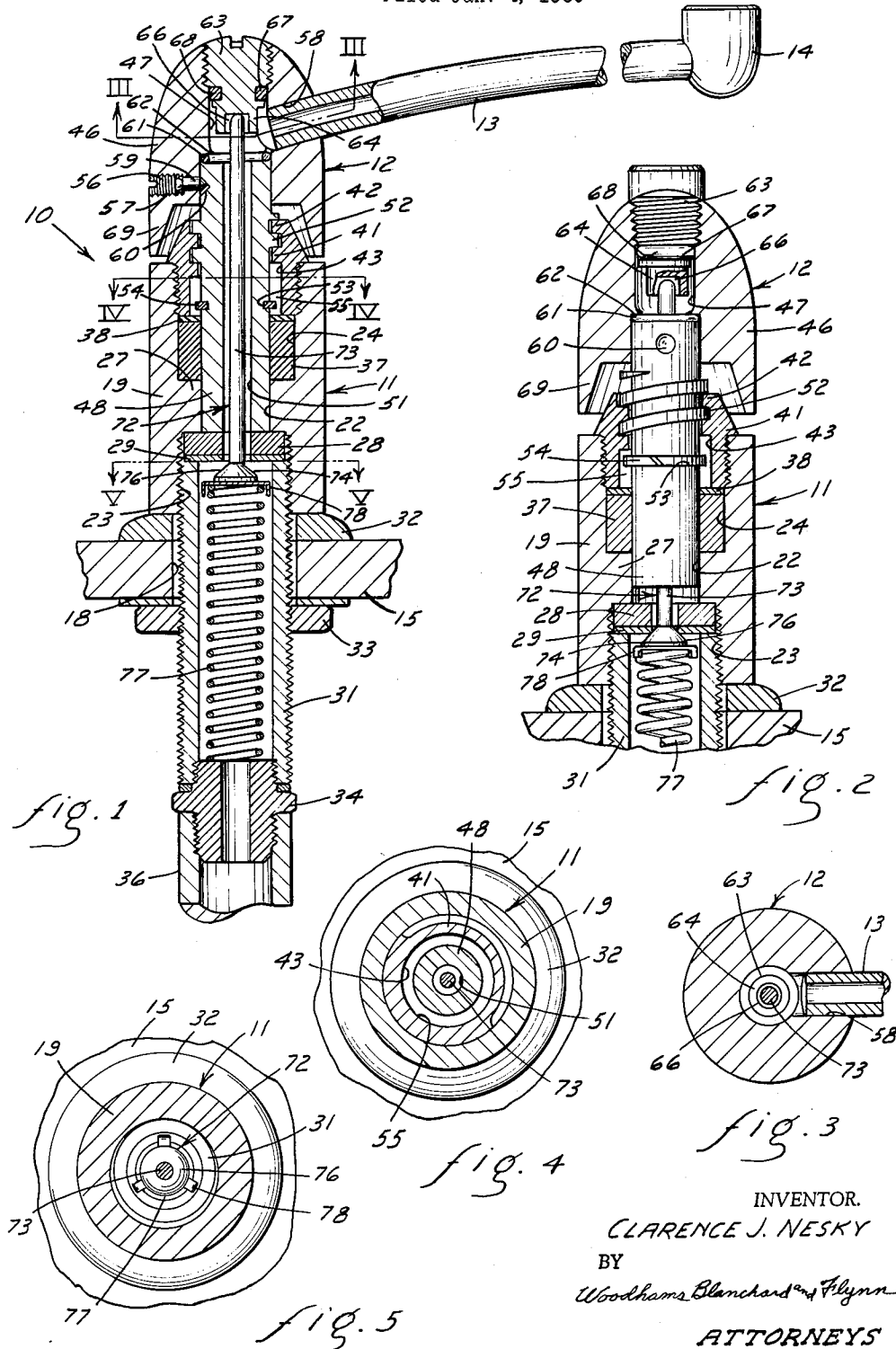
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C. J. NESKY

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SWINGABLE WATER FOUNTAIN

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INVENTOR.  
CLARENCE J. NESKY  
BY  
Woodhams Blanchard & Flynn  
ATTORNEYS

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## SWINGABLE WATER FOUNTAIN

Clarence J. Nesky, Allegan, Mich.

(P.O. Box 662, Kalamazoo, Mich.)

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This invention relates in general to a drinking water fountain and more particularly, to a type thereof having a swingable fountain head and valve mechanism associated with said head whereby pivotal movement of the fountain head with respect to its supporting base permits water to flow from the fountain head as it is moved into the drinking position.

It is common knowledge that, whereas drinking fountains are generally and successfully used in public buildings or institutions, they are rarely used in residences. In general, existing drinking fountains are designed as independent, self-supporting and permanent fixtures, which are usually costly to install, which require special installation and which would, if installed in a home, occupy valuable space needed for other, more essential equipment. Moreover, existing water fountains often require special adjustments and maintenance which the average home owner is unable to provide.

Accordingly, a primary object of this invention has been the provision of an improved drinking fountain, particularly for use in residential buildings, which is easy to install, which does not require a special, independent installation and which can be installed upon a substantially conventional kitchen or bathroom sink without disturbing the normal operations or functions of said sink.

A further object of this invention has been the provision of a drinking fountain, as aforesaid, which requires no special tools or equipment to install, which can be easily adjusted after installation, which includes a shut-off valve arranged so that it is automatically opened to permit the passage of water through the fountain head when said fountain head is moved from a position of non-use into a position of use, and said valve is closed when said fountain head is returned to said position of non-use.

A further object of this invention is the provision of a water fountain, as aforesaid, in which the water flow therethrough can be easily and accurately controlled, without removing, or rendering inoperative any part of the fountain assembly by adjusting exactly the relationship between the valve and the valve seat in a very simple manner.

A further object of this invention is the provision of a water fountain, as aforesaid, in which the fountain head and parts associated immediately therewith can be easily removed from the remainder of the fountain assembly for the purpose of cleaning, for example, without opening the valve therein.

A further object of this invention is the provision of a water fountain, as aforesaid, which is pleasing in appearance, which requires little or no maintenance, which occupies very little space and which is extremely simple in operation.

A further object of this invention is the provision of a water fountain, as aforesaid, which provides an independent supply of drinking water connectible to cooling coils, such as those in a nearby refrigerator, and which permits the connection of the regular cold water faucet in the kitchen sink to a source of softened water.

A further object of this invention is the provision of a water fountain, as aforesaid, in which the valve mechanism is enclosed and shielded from direct manual engagement so that it is impossible to jam or otherwise injure the valve or valve seat, and so that the valve mechanism is substantially trouble free.

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Other objects and purposes of this invention will become apparent to persons familiar with this type of equipment upon reading the following specification and examining the accompanying drawings, in which:

FIGURE 1 is a broken view primarily in central cross section of a swingable water fountain assembly embodying the invention.

FIGURE 2 is a fragment of FIGURE 1 with the parts thereof moved into different positions of operation.

FIGURE 3 is a sectional view taken along the line III—III in FIGURE 1.

FIGURE 4 is a sectional view taken along the line IV—IV in FIGURE 1.

FIGURE 5 is a sectional view taken along the line V—V in FIGURE 1.

For convenience in description, the terms "upper," "lower," derivatives thereof and words of similar import will have reference to the fountain assembly and parts thereof as appearing in FIGURES 1 and 2. The terms "inner," "outer" and derivatives thereof will have reference to the geometric center of said fountain assembly and said parts thereof.

### General Description

The objects and purposes of this invention, including those set forth above, have been met by providing a swingable, water fountain assembly comprised of a base member which is easily mounted in the upright position upon a horizontal surface, such as the rim of a kitchen sink, so that a water pipe can be connected to a portion of said base member which extends through an appropriate opening in the rim of said sink. A head member, including a tube extending into the base member, is pivotally supported upon said base member for movement around a substantially vertical axis. A discharge pipe having a fountain on one end is secured at its other end upon the head member and communicates with the upper end of the said tube. A valve, which is disposed within the base member for controlling the flow of water therethrough into and through the fountain head, is opened and closed in response to the pivotal movement of the head member with respect to the mountain base. Adjustment means for said valve is provided for controlling the amount of water flow past the valve in response to a selected movement of the fountain head.

### Detailed Construction

The fountain assembly 10 (FIGURES 1 and 2), which has been selected to illustrate a preferred embodiment of my invention, includes a mountain base 11 and a pivot head 12, which is pivotally supported upon the mounting base 11 and which supports a discharge pipe 13 having a fountain head 14 on its outer end. The fountain assembly 10 may be mounted upon a supporting surface, such as the rim 17 of a kitchen sink having an opening 18 in said rim.

The mounting base 11 (FIGURE 1) includes a body member 19 which is preferably, but not necessarily, substantially cylindrical and has a coaxial opening 22 therethrough of substantially circular cross section. Said opening 22 has at its lower end a coaxial threaded portion 23 of enlarged diameter. Another enlarged portion 24 is provided in the upper end of said opening 22 and is threaded at the upper end thereof. The upper and lower enlarged portions 23 and 24, respectively, of the opening 22 define between them an annular, inwardly extending flange 27 integral with the body member 19.

An annular valve seat 28 (FIGURES 1 and 2) is snugly disposed within the lower enlarged end 23 of the opening 22 adjacent to the flange 27, and said seat has an annular seal 29 on the lower surface thereof. The valve seat 28 and seal 29 thereon are preferably, but not necessarily, held in position against the flange 27 by

the upper end of the externally threaded nipple 31, the upper end of which is threadedly received into the threaded, lower end 23 of the opening 22. Said nipple 31 extends through an annular mounting plate 32 and the opening 18 in the rim 17 for threaded engagement by a nut 33, whereby the mounting base 11 is clamped upon the rim 17. A coupling 34 is threadedly received into the internally threaded lower end of the nipple 31, and said coupling is engageable with a pipe 36 for the purpose of connecting the fountain assembly 10 to a source of water, not shown.

A substantially cylindrical packing ring 37 (FIGURE 1) is disposed within the enlarged, upper end 24 of the opening 22 in the body member 19 between the annular flange 27 and the threads within the upper end 24. A retainer ring 38 is also disposed within said upper end 24 adjacent to the upper end of the packing ring 37. The packing ring 37 and retainer ring 38 preferably have inside diameters approximately equal to the inside diameter of the annular flange 27. An externally threaded packing nut 41 is threadedly received within the upper end 24 of the opening 22 for engagement with the retainer ring 38. The packing nut 41 has a coaxial opening 43 with internal threads 42 near its upper end which threads have an inside diameter approximately equal to the inside diameter of the opening 22. The lower portion of the opening 43 in the nut 41 has an inside diameter which is substantially larger than the diameter of the opening 22.

The pivot head 12 includes a central member 46 which has a substantially annular cross section and which has a vertical, substantially cylindrical opening 47 therethrough. The upper end of a substantially cylindrical, coaxial tube 48 is snugly but slidably received into the lower end of the opening 47 in the member 46. The lower end of the tube 48 is slidably, rotatably and snugly disposed within the packing ring 37 and annular flange 27 within the body member 19. The tube 48 has between its upper and lower ends external threads 52 which are engageable with the threads 42 within the upper end of the packing nut 41, whereby rotation of the tube 48 with respect to the mounting base 11 effects the upward or downward movement of the pivot head 12.

Said tube 48 (FIGURE 1) has an annular groove 53 spaced downwardly from the threads 52 in which a snap ring 54 is disposed. Said snap ring 54 extends radially outwardly from said tube into the cylindrical zone 55 (FIGURE 4) defined by the lower end of the opening 43 through the packing nut 41. The groove 53 (FIGURE 1) is preferably located so that the lower end of the tube 48 engages the valve seat 28, thereby stopping downward movement of the tube 48, before the snap ring 54 engages the retainer ring 38. The snap ring 54 is also arranged so that it engages the threads 42, for stopping upward movement of the tube 48, before said threads 42 and 52 are disengaged. Accordingly, the tube 48 cannot be accidentally disconnected from the mounting base 11.

The upper end of the tube 48 is held against accidental disconnection from the central member 46 by means including the set screw 56 (FIGURE 2) which is threadedly disposed within the radially disposed set screw opening 57 in said central member 46. A pin 59 is slidably disposed within the inner end of the opening 57 so that it is engageable by the set screw 56 for urging thereby into a recess 60 in the upper end of the tube 48. An annular seal, such as the O-ring 61, is disposed between the upper end of the tube 48 and an internal, annular shoulder 62 in the vertical opening 47. The recess 60, pin 59 and set screw opening 57 are arranged so that the O-ring 61 is compressed between the tube 48 and shoulder 62 when the pin 59 is seated in the recess 60. The recess 60 may be circumferentially elongated to allow for rotational adjustment of the member 46 around the tube 48.

Said central member 46 (FIGURES 1 and 3) has a substantially radially disposed pipe opening 58 which

communicates with the vertical opening 47 preferably adjacent to the upper end of the tube 48. The discharge pipe 13 is disposed within the pipe opening 58 for communication with the vertical opening 57 and extends substantially radially outwardly therefrom. An upwardly opening fountain head 14 (FIGURE 1) is mounted upon and communicates with the outer end of the discharge pipe 59. The member 46 is preferably mounted upon the tube 48 so that the pipe 13 and fountain head 14 are in their "on" or "use" positions when the lower end of the tube 48 engages the seat 28. Thus, the seat 28 acts as a positive stop. The initial location of the fountain head 14 in the "use" position, with the tube 48 against the seat 28, is effected by proper mounting of the base 11 on the rim 17. Later adjustments can be made either by loosening the nut 33 and adjusting the base, or by loosening the set screw 56 and adjusting the central member 46 on the tube 48.

An adjustment nut 63 (FIGURE 1) is threadedly disposed within the threaded upper end of the vertical opening 47. Said adjustment nut 63 has a lower end of reduced diameter which has a downwardly opening cavity 66 and an annular groove 67. An annular seal 68, such as an O-ring, is disposed within the groove 67 for sealing engagement with the adjacent wall of the vertical opening 47, above the pipe opening 58. The central member 46 has an annular, downwardly extending skirt 69 which extends toward, but is spaced from, the upper end of the mounting base 11 for the purpose of surrounding and substantially enclosing the upper end of the packing nut 41.

A valve 72 has an elongated valve stem 73 which is slidably and removably disposed within the passageway 51, the upper end of said stem extending into the cavity 66 in the adjustment nut 63. Said valve 72 has at its lower end a valve head 74 having a downwardly diverging, conical upper surface 76 engageable with the annular seal 29 on the valve seat 28. The valve stem 73 is of such length that the valve surface 76 is moved away from the valve seat 28, as shown in FIGURE 1, by engagement between the nut 63 and the upper end of the stem 73 in response to rotation of the head 12 and before the snap ring 54 engages the retainer ring 38. A spiral valve spring 77 is held under compression within the nipple 31 between the upper end of the coupling 34 and the valve head 74. A spring retainer and guide 78 (FIGURE 5) is disposed between the upper end of the spring 77 and lower surface of the valve head 74, which is constantly urged toward the valve seat 28 by said spring 77.

It will be recognized that the annular seal 29 (FIGURE 1) could, if desired, be replaced by a conically shaped seal located upon the valve surface 76 for the same purposes. It will also be recognized that the discharge pipe 13 could be threadedly received into the pipe opening 58 for easy removal, if desired. Other similar modifications are contemplated though not specifically recited.

#### Operation

The fountain assembly 10 is operated simply by rotating the pivot head 12 with respect to the mounting base 11 from its non-use position into its position of use. When the fountain assembly is in its non-use or "off" position, as shown in FIGURE 2, the tube 48 is spaced upwardly from the valve seat 28 whereby the distance between the annular seal 29 and the upper end wall of the cavity 66 in the adjustment screw 63 is greater than the length of the valve stem 73. Accordingly, there is nothing to oppose the upward urging of the valve head 74 by the valve spring into the seated position against the seal 29, whereby the upward flow of water through the passageway 51, the inlet pipe 36 and the fountain head 14 is positively prevented.

When it becomes desirable to have water flow through the fountain head 14, the pivot head 12 is rotated in the

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proper direction so that the interengagement of the threads 42 and 52 causes the pivot head 12 to move toward the mounting base 11. In this embodiment, the pivot head 12 is rotated in the clockwise direction, as viewed in FIGURE 3, to open the valve. However, by appropriate changes in the threads 42 and 52, this rotation can be reversed to obtain the same results. As the adjusting nut 63 moves downwardly with the head 12, it will engage the upper end of the valve stem 73 whereby the valve head 74 is moved away from the seal 29 and water is permitted to flow through the valve seat 28, the passageway 51, the vertical opening 47, the discharge pipe 13 and out through the fountain head 14. By appropriate adjustment of the nut 63, exactly the right amount of water can be caused to flow through the fountain head 14 when it is in its normal "on" position. This "on" position can be located and controlled by the engagement of the lower end of the tube 48 with the valve seat 28. In this embodiment, the valve 72 is opened, as described above, preferably during the last 15 degrees of movement of the pivot head 12 around the axis of the valve stem 73 toward the "on" position.

The flow of water through the fountain assembly 10 is reduced or terminated by pivoting the pivot head 12 back toward or into its FIGURE 2 position, whereby said pivot head 12 moves upwardly and the valve spring 77 again urges the valve head 12 into its closed position with respect to the valve seat 28. After the valve 72 closes, the tube 48 continues to move upwardly, thereby increasing the volume of the chamber between the lower end of the tube 48 and the seat 28. Thus, water above the lower end of the tube 48 will move downwardly into said chamber as the pivot head 12 is pivoted into the closed position, thereby lowering the water level in the fountain head 14, which reduces the possibility of spillage from the head 14.

The pivot head 12 can be removed for cleaning by loosening the set screw 59 and then sliding the central member 46 upwardly of the upper end of the tube 48. Inasmuch as the valve 72 is constantly urged by the valve spring 77 against the valve seat 28, which is held down by the flange 27, removal of the pivot head 12 will have no effect upon the closed condition of the valve 72. Thus, there will be no leakage of water during such removal. If desired, the packing nut 41 can also be removed from the upper end of the mounting base 11 after which the tube 48, retainer ring 38 and packing ring 37 can be removed. The valve 72 will continue to remain closed during such removal and subsequent reassembly of the same parts.

Although a particular preferred embodiment of the invention has been disclosed above for illustrative purposes, it will be understood that variations or modifications of such disclosure, which lie within the scope of the appended claims, are fully contemplated.

What is claimed is:

1. A swingable drinking fountain comprising: a base member having an upright opening of circular cross section extending therethrough, said opening having an annular, downwardly facing valve seat of reduced diameter disposed within said opening between the ends thereof; a head member having a tube secured thereto and extending slidably and rotatably into the upper end of said opening; cooperating means on said tube and said base member for effecting relative axial movement therebetween in response to relative rotation therebetween; stop means for limiting relative axial movement between said tube and said base member in both axial directions so that said cooperating means will remain in engagement with each other; means including a discharge pipe mounted on said head member and communicating with said opening through said tube; a valve having a stem slidably extending through said tube and engaged at its upper end by said head member; and means resiliently urging said valve toward and away from said valve seat in response to rotation of said head member around the axis of said tube.

2. A swingable drinking fountain connected to a water

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pipe, comprising: a mounting base having an upright opening therein of circular cross section; connector means securely disposed within the lower end of said opening for engagement with the water pipe; an annular, downwardly facing valve seat disposed within said opening adjacent to the upper end of said connector means, an internally and externally threaded nut threadedly received into the upper end of said opening; a substantially cylindrical tube slidably, snugly and rotatably disposed within said opening above said valve seat, said tube having external threads engageable with the internal threads on said nut for effecting axial movement between said tube and said mounting base in response to relative rotation therebetween, said tube having a coaxial opening extending therethrough; stop means on said tube engageable with said nut and said base member for limiting axial movement of said tube with respect to said base member; a head member having a substantially cylindrical opening extending therethrough, the upper end of said tube being removably held within the lower end of said head opening; an adjustment nut threadedly disposed within the upper end of said head opening; a discharge pipe mounted upon said head member and communicating at one end with said head opening between said tube and said adjustment nut, said pipe extending substantially radially from the axis of said head opening; a fountain head mounted upon and communicating with the other end of said pipe; a valve having a stem extending through said tube and engageable at its upper end by said adjustment nut, said valve being engageable with said valve seat; a spiral valve spring disposed within said connector and bearing at one end against said valve; and means secured to said connector and holding said valve spring under compression against said valve, whereby pivotal movement of said head member around the axis thereof effects movement of said valve toward and away from said valve seat.

3. A swingable drinking fountain connected to a water pipe, comprising:

a mounting base having an upright opening therein; connector means for connecting one end of said opening with a water pipe;

a downwardly facing valve seat disposed in said opening adjacent the upper end of said connector means; threaded fastening means threadedly received into the other end of said opening;

a substantially cylindrical tube slidably, snugly and rotatably disposed within said opening above said valve seat, said tube having external threads engageable with the threads of said fastening means for effecting axial movement between said tube and said mounting base in response to relative rotation therebetween, said tube having a coaxial opening extending therethrough;

a head member having a substantially cylindrical opening extending therethrough, the upper end of said tube being removably held within the lower end of said head opening;

adjustment means disposed within the upper end of said head opening;

a discharge pipe mounted upon said head member and communicating at one end with said head opening between said tube and said adjustment means, said pipe extending substantially radially from the axis of said head opening;

a fountain head mounted upon and communicating with the other end of said pipe;

a valve having a stem extending through said tube and engageable at its upper end by said adjustment means, said valve being engageable with said valve seat; and

means for resiliently and continuously urging said valve toward said valve seat, whereby pivotal movement upon said head member around the axis thereof effects movement of said valve toward and away from said valve seat.

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4. A swingable drinking fountain, comprising: a base member having an upright opening therethrough with a downwardly facing valve seat therein; a head member supported upon the upper end of said base member for pivotal movement around the central axis of said opening therein; a discharge pipe mounted upon and extending sidewardly from said head member, said head member having a passageway therethrough communicating between said pipe and said opening through said valve seat; a valve disposed within said opening below said valve seat; a valve stem extending from said valve through said valve seat and said passageway to said head member; means on said head member for engaging the upper end

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of said valve stem and moving same downwardly in response to pivotal movement of said head member and thereby moving said valve away from said valve seat; and a spring below said valve and urging same upwardly against said valve seat, said stem being free from connection to said head member so that said valve can tightly engage said valve seat.

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