Oct. 26, 1948. E. B. JOHNSON 2,452,305

DRINKING FOUNTAIN

Filed Oct. 10, 1944 4 Sheets-Sheet 1

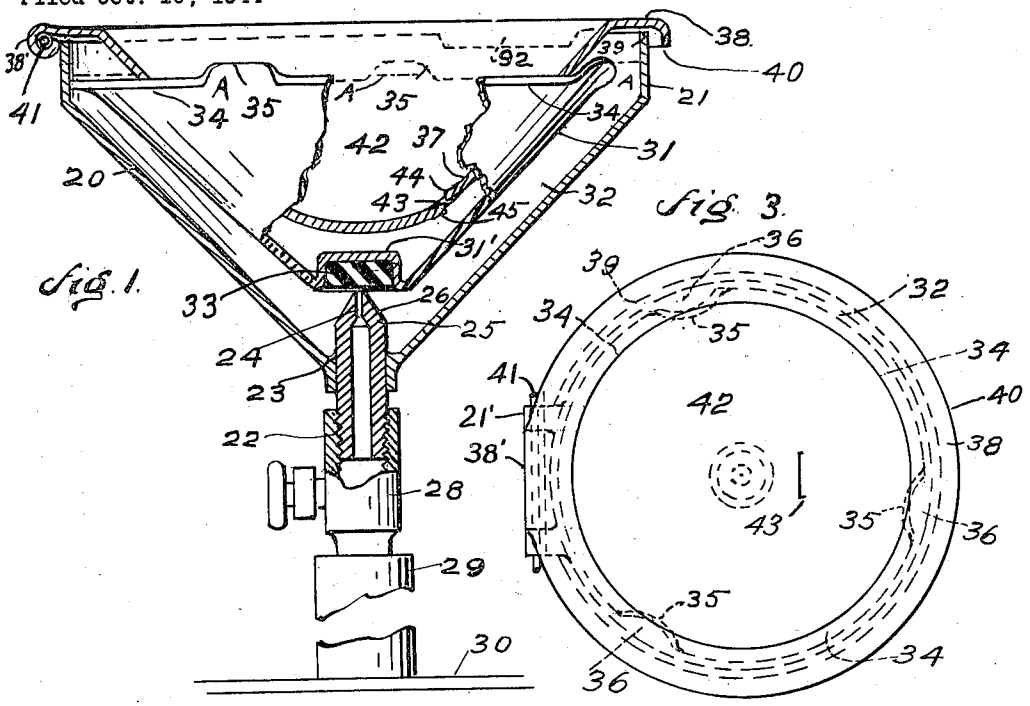


Fig. 1.

Fig. 3.

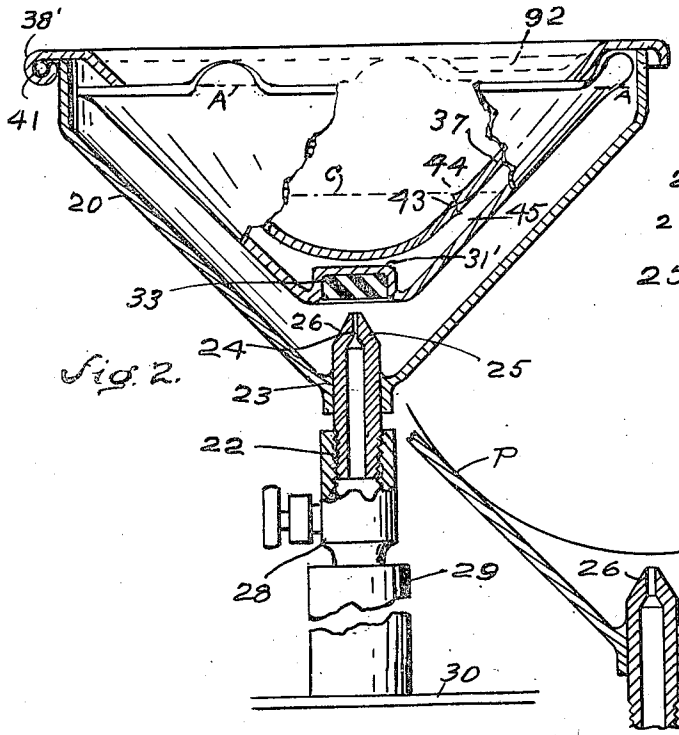


Fig. 2.

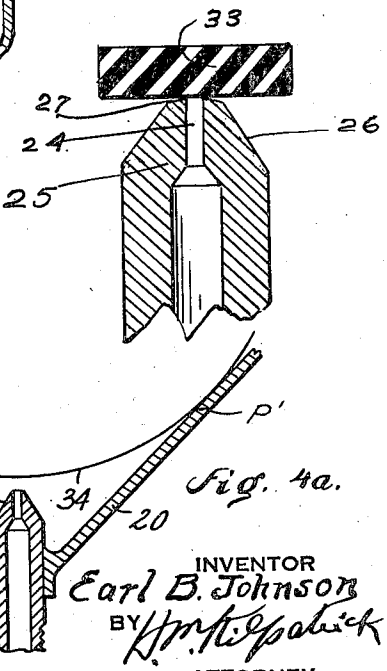


Fig. 4.

Fig. 4a.

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DRINKING FOUNTAIN

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4 Sheets-Sheet 2

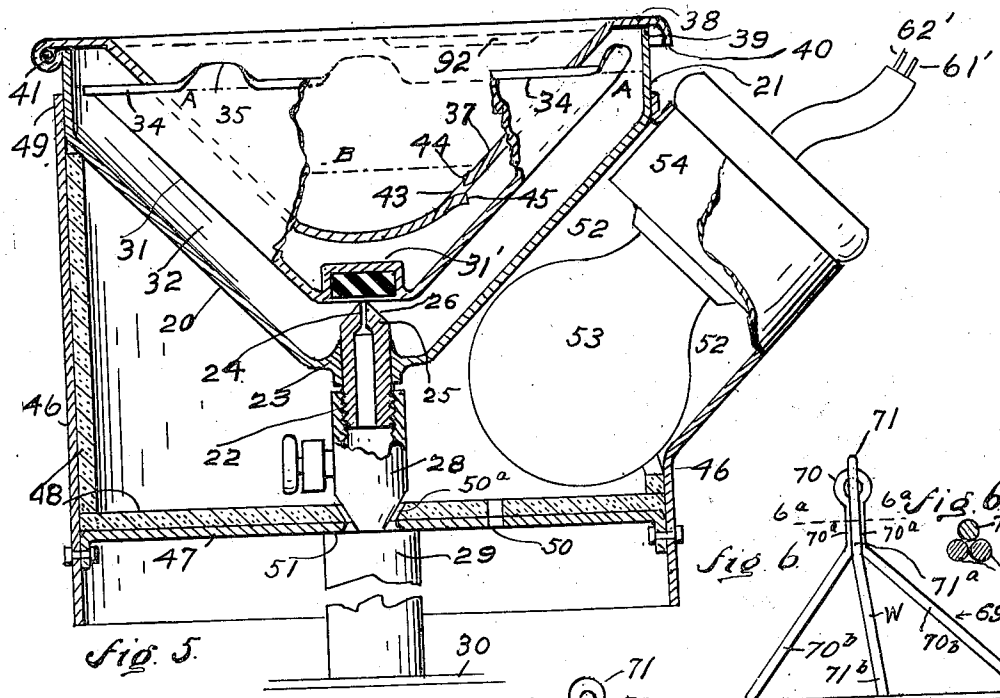


Fig. 5.

Fig. 6.

Fig. 6a

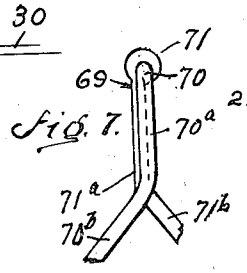


Fig. 7.

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DRINKING FOUNTAIN

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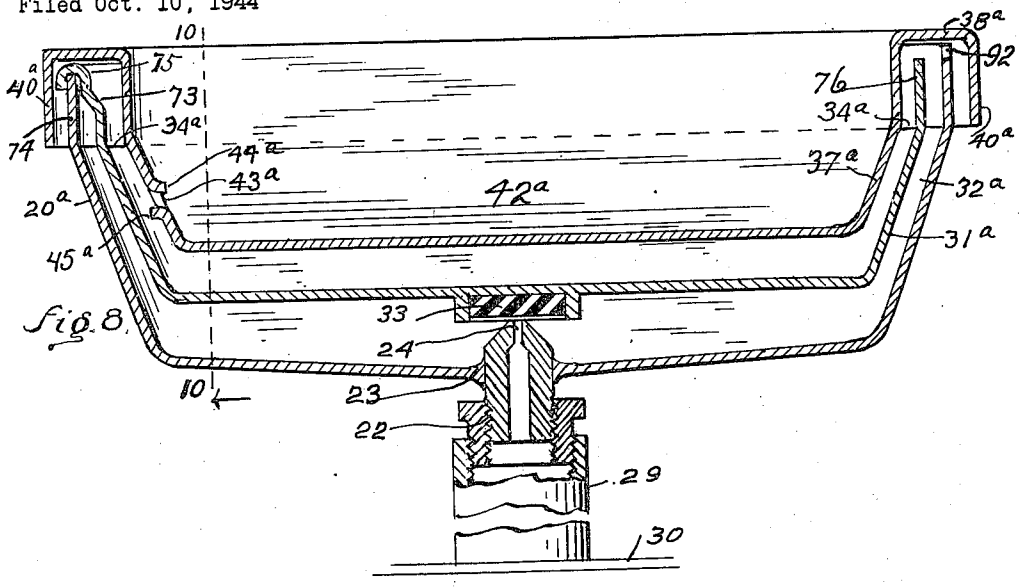


Fig. 8.

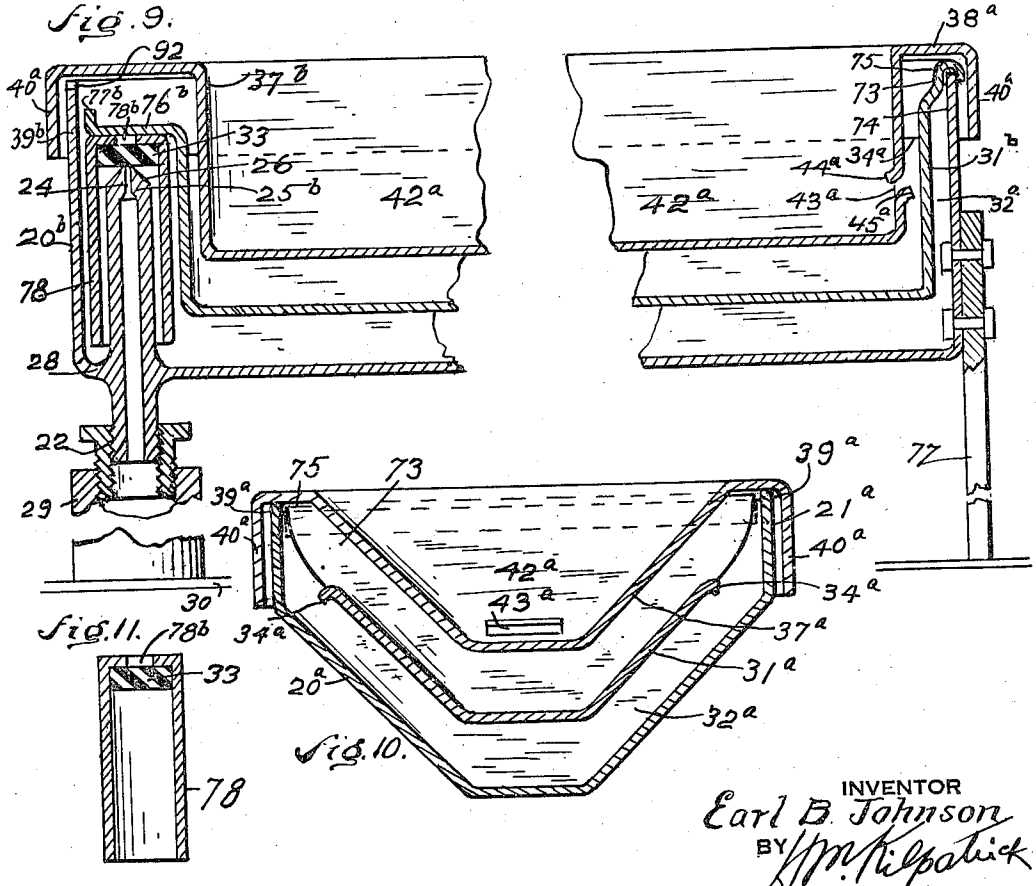


Fig. 9.

Fig. 11.

Fig. 10.

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DRINKING FOUNTAIN

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Fig. 12.

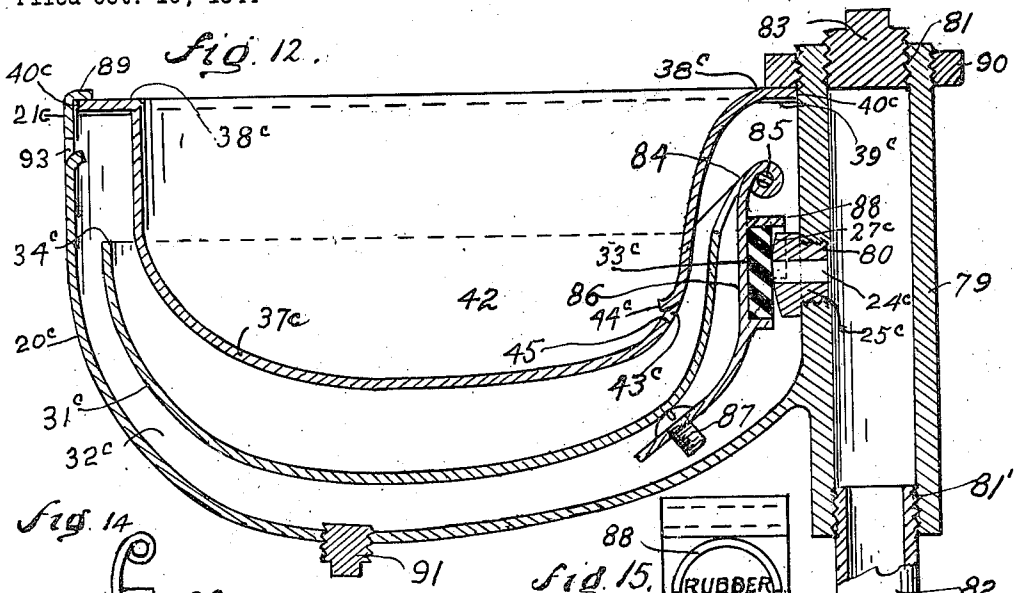


Fig. 14.

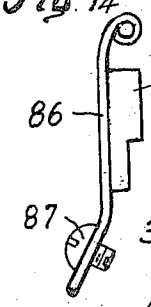


Fig. 15.

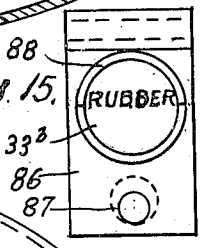


Fig. 13.

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2,452,305

UNITED STATES PATENT OFFICE

2,452,305

DRINKING FOUNTAIN

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Application October 10, 1944, Serial No. 557,987

24 Claims. (Cl. 119—81)

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This invention relates to water fountains and more particularly to drinking fountains having direct connection with a continuous supply of water under pressure, as provided by gravity or other effective means.

An important object of the invention is to provide a fountain which will provide an adequate amount of clear fresh water from such supply and which is fully under automatic control.

Another object is to provide an automatic fountain structure that is adaptable to practically any size, shape or capacity desired to provide water for all sizes of birds, poultry or animals.

A further object is to provide an automatic fountain structure that is adaptable to varying degrees of water supply pressure and volume of water desired.

Another object is to provide an automatic fountain structure whereby the automatic means of control is completely inclosed and protected from outside interference for its effective operation.

Another object is to provide inlet means for the flow of water from the supply into the fountain, that is quickly and fully opened when the fountain is to be refilled, thereby preventing the accumulation of rust or foreign matter from within the supply means stopping the flow of water, and also quickly and effectively closed when the fountain becomes filled, eliminating the possibility of a continual flow of water from failure of the control to fully close.

Another object is to provide a fountain structure whereby the cover serves as a receptacle to provide the drinking area and also sompletely incloses the automatic means of control.

Still another object is to provide an automatically controlled supply means for exposing for use only an extremely small volume of water at any one time and providing an adequate flow of water during periods of larger or faster consumption.

Another object is to provide an automatically controlled fountain that will effectively operate even though installed in a noticeably tipping or unlevel position or so becomes for any reason after being installed.

And still another object is to provide an automatically controlled fountain in which the drinking space or area is so separated from its source of supply as substantially to prevent food and ordinary foreign matter from passing from this area to the automatic controlling means to render the latter ineffective.

And another object is to provide an automatically controlled supply of water that can be economically heated by electricity to prevent freezing during periods of sub-freezing temperature. Due to the fact that a poultry fountain of this type with a drinking area four inches in diameter supplies adequate water and drinking area for a pen of 200 hens, there is an extremely small amount of water remaining in the fountain at any one time, which makes it possible to maintain a temperature above freezing by an electric heating element of very small wattage, located under the fountain and within an insulated shell placed under and around the fountain.

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Another object is to provide an electric fountain heater that is easily and quickly removable from the fountain and a heater from which the heating element may also be conveniently removed at any time for examination or replacement.

The inventive features for the accomplishment of these and other objects are shown herein in connection with drinking fountains which briefly stated includes an upwardly open container in which is disposed a jet adapted to discharge water therein. A reservoir disposed within the container has a margin within and lower than the upper edge portion of the container.

A disc of yieldable rubber or other material is disposed over the jet and is adapted to press on the jet to stop the flow of water when the fountain has enough water therein. The reservoir is of a shape and weight to rise in the water within the container when a portion of the water is removed from within the reservoir to allow water to flow from the jet and to sink and close the jet and stop the flow, when the reservoir receives from the container, and in turn from the source of supply, the amount of water needed to replace the water removed. A cover is provided for the container with the larger central portion of the cover extending downward into the interior of the reservoir and providing an open water area readily accessible to poultry or animals for drinking. The cover is provided with one or more openings above and near the bottom of the open water area whereby water from within the reservoir flows into the open water area to remain at a level of that within the reservoir. The outer rim of the cover extends outward and over the upper rim of the reservoir and over the water filled area of the container to rest upon the upper edge of the container and provide stop means to limit the upward movement of the reservoir, thereby preventing the fountain from overflowing during the time of refilling.

In one form the fountain is circular with an

upwardly pointing jet disposed at the axis of the container and adapted to discharge water upwardly, with the reservoir disposed within the container and without connection therewith.

And in one form the fountain is equipped with a housing that is removable from the fountain, with a heating element disposed within the housing and removable from the housing, as means to prevent the water in the fountain from freezing.

In other forms the fountain is rectangular, one form having the jet at the center and another having the jet near one end, both forms having the reservoir movement guided by one end portion of the reservoir extending upward and over the end portion of the container forming a hinge, with the opposite end of the reservoir free to rise and allow water to flow and sink to stop the flow.

In any form the fountain may be equipped with the fountain heater shaped accordingly.

In still another form the fountain is oval with the jet disposed at one side pointing inward, with the reservoir hinged inside the container at a point near the jet to increase the effective weight of the reservoir upon the rubber disc and the disc pressure upon the jet.

Additional objects of the invention are to effect simplicity and efficiency in drinking fountains and to provide an extremely simple structure of this kind which is economical of water, durable, convenient and reliable in operation, economical to manufacture and easy to install.

In the accompanying drawing showing, by way of example several of many possible embodiments of the invention,

Fig. 1 shows a vertical axial section, partly in elevation, of a circular fountain illustrating the position of the reservoir with the open water area or space filled with water and flow stopped;

Fig. 2 shows a view similar to Fig. 1 but with the open water space nearly empty and illustrating the position of the reservoir when the fountain is filling;

Fig. 3 shows a plan of the fountain of Figs. 1 and 2 somewhat reduced in size;

Fig. 4 shows an enlarged fragmental vertical section of a detail;

Fig. 4*a* is a diagrammatic representation showing proportional dimensions of parts so that the container prevents the edge of the reservoir from coming in contact wtih the jet;

Fig. 5 is similar to Figs. 1 and 2 but shows a surrounding heater housing in vertical section and shows the open water space only partially empty;

Fig. 6 shows in elevation on a reduced scale, a fountain as in Fig 1 having a hooked-on guard attached thereto;

Fig. 6*a* shows a section taken on the line 6*a*—6*a* of Fig. 6;

Fig. 7 shows in fragmental elevation the upper portion of the guard;

Fig. 8 shows in longitudinal section a modified form of elongated rectangular fountain;

Fig. 9 shows a longitudinal section of another form of rectangular fountain;

Fig. 10 shows a cross section of the fountain of Fig. 8, the section being taken on the line 10—10 of Fig. 8 looking in the direction of the arrow of said line;

Fig. 11 shows in vertical section a detail of Fig. 9;

Fig. 12 shows a vertical section of another form of fountain;

Fig. 13 shows a plan of the fountain of Fig. 12; and

Figs. 14 and 15 show elevations of a detail of the fountain of Figs. 12 and 13.

In the circular form of the invention as shown in Figs. 1 to 5, the upwardly open stationary container 20 is substantially conical in form with its upper rim 21 extending vertically upward, the lower part of the container 20 being provided with an externally threaded pipe connection 22, preferably secured by soldering as at 23, in an opening in the lower apex of the container 20 and having its upper end extending upward into the container and provided with an extremely small orifice or hole 24 at its upper discharge end forming a jet 25. The outer face 26 (Fig. 4) of the upper end of the jet 25 tapers inwardly approximately to the hole 24 thereby forming an extremely narrow nearly flat conical annular face 27 around the hole. The pipe connection 22 is threaded into the internally threaded end of a pet-cock 28 with the lower end of the pet-cock 28 threaded into the water supply pipe 29 which extends upward through the floor or ground 30 and serves as a support for the pet-cock and fountain.

The lower interior of the container 20 communicates with the continuous supply of water under pressure in the pipe 29, through the hole 24 in the jet 25, which directs the flow of water upward into the container 20.

A freely movable reservoir 31 of approximately the same shape as the container 20, but dimensionally smaller than the container 20, is loosely disposed within the container, leaving space 32 for water between the reservoir and container. The lower part of the reservoir 31 is upwardly pressed at 31′ providing a downwardly open disc-shaped recess having secured therein a yieldable sealing disc 33, preferably of rubber, disposed substantially at the vertical axis of balance of the reservoir 31, the disc 33 being substantially parallel with and adjacent to the face 27 of the jet 25, a portion of the disc 33 normally pressing on the face 27 of the jet 25 and stopping the flow of water when the fountain is filled to water level A. The upper rim of the movable reservoir 31 is formed with a number of flange portions 34 extending horizontally flatly outward toward the rim 21 of the container 20, shorter intermediate portions extending substantially vertically upward to form upstanding lips 35. The lips 35 are inclined inward from the outer edge of the flat portions 34 and inward from the rim 21 of the stationary container 20, thereby providing finger openings 36 (Fig. 3) for convenience in the removal of the reservoir 31 from the container 20.

A relative balance between the reservoir 31 and the water in the space 32 is required, and an auxiliary weight may be added to the reservoir 31 to accomplish this. However the reservoir 31 is preferably constructed of a material to provide a reservoir of a weight that will sink in water when filled and rise in the water within the space 32 of the container 20 when a predetermined portion of the water from within the reservoir 31 is removed.

The container 20 is provided with a combined drinking bowl and cover 37 of approximately the same shape and dimensions as the reservoir 31 but with the entire upper rim 38 extending horizontally flatly outwardly over and beyond the upper edge 39 of the container 20, with the outer edge 40 extending downwardly and spaced from the rim 21. The rim 38 is provided with a tongue 38′ curved around a pin 41 (Fig. 3) mounted in a

pair of spaced ears 21' formed on the rim 21, and is thereby hinged as at 41 to the rim 21 of the container 20.

The central portion of the cover 37 extends downwardly into the interior of the movable reservoir 31 providing an open water space or area 42, the cover 37 being provided with a slot 43 above and near the bottom of the open water space 42 and below a level of the long flange portions 34 of the reservoir 31, to allow flow from within the reservoir 31 into the open water area 42 to maintain the water in the cover 37 and reservoir 31 at uniform levels. The cover 37 serves also to separate the open water area 42 from the water filled space 32 between the reservoir 31 and container 20.

The upper edge 44 of the slot 43 inwardly overhangs the lower edge 45, to prevent food from the chicken's bill or other foreign matter from falling or sinking from the open water area 42 into the reservoir 31. The slot 43 is located in the side of the cover 37 away from the hinge 41, whereby when the cover 37 is lifted from the container 20, the contents of the open water area 42 spill over the hinged side 41 of the cover 37 and outside the container 20, and do not flow into the slot 43.

The operation of this type of fountain will be readily understood from the foregoing. Water in the space 32 never goes below level A (Fig. 1). When the reservoir 31 is resting in its lowest position with the disc 33 pressing on the face 27 of the jet 25, it may be slightly tipped, with the outer edge of a flat portion 34 of the reservoir 31 touching the rim 21 of the container 20 (Fig. 1). Then when water is removed from within the open water area 42, and therefore at the same time from within the reservoir 31, approximately to water level B (Fig. 5), the reservoir 31 levels itself as in Fig. 5 to correspond with the water level. As more water is removed approximately to water level C (Fig. 2) the reservoir 31 rises, substantially without contact with the container 20, until the lips 35 contact the inside of the rim 38 of the cover 37 (Fig. 2). This contact together with the additional weight of the cover 37, prevents the flat rim portions 34 of the reservoir 31 from rising to a level of the upper edge 39 of the container 20 and prevents the fountain from overflowing during periods of refilling. The rising of the reservoir 31 lifts the disc 33 away from the face 27 of the jet 25 and allows water to flow freely through the hole 24 of the jet 25 and upward in space 32. Then it flows over the flange portions 34 of the reservoir 31 until the reservoir 31 and the open water space 42 of the cover 37 fill to a level at which the reservoir 31 will sink to the position as shown in Fig. 1 and stop the flow until water is again removed from the space 42 and the cycle is repeated.

As the rising and sinking movements of the reservoir 31 are without connection, and substantially without contact, with the container 20, and as the reservoir 31 rests in its lowest position (Fig. 1) to effectively stop the flow of water, and as the reservoir 31 is positioned in its highest position (Fig. 2) by engagement of the lips 35 with the cover 37, in position to allow water to flow into the reservoir 31 over the flange portion 34, the fountain functions effectively even though installed in a noticeably tipping or unlevel position, or so becomes for any reason after being installed.

To start the fountain when first installed or after having it emptied, the container 20 is allowed to fill with water approximately one half full, the reservoir 31 is then placed within the container 20 and the cover 37 placed on, the additional weight of the cover 37 forces the reservoir 31 downward into the water and from then on the fountain is fully automatic.

The pet-cock 28 is provided for convenience in stopping the flow to the container 20 and also to make it possible to use the fountain as a continuous flow fountain by removing the reservoir 31 from within the container 20 and adjusting the pet-cock to the desired flow and then placing the cover 37 on without the reservoir 31. The cover 37 prevents food and the like from falling into the reservoir 31, and stopping the extremely small flow of water from the orifice 24.

After a period of use as a poultry fountain the water in the fountain becomes contaminated or turbid due to mash from the beaks of the fowls and eventually a viscous solution or slime forms between the cover 37 and the reservoir 31 and between the reservoir and the container 20. The reservoir and container are preferably of such shape and dimensions as shown in Figs. 1 and 2, and especially represented diagrammatically in Fig. 4*a*, so that the reservoir may be used as a scoop to remove the slime without danger of damaging the jet 26. It is possible for the reservoir to be used as a scoop so that the container, by engagement between the reservoir and container at two points P and P' on opposite sides of the axis of the container, holds the reservoir away from the jet. Furthermore it is impossible for the reservoir to be used as a scoop in any manner wherein the container will not hold the reservoir periphery away from the jet by such engagement.

Fig. 5 shows a very simple and efficient fountain heater providing means to keep the fountain in effective operation during sub-freezing temperatures. The fountain heater comprises a housing consisting of an outer shell 46 and bottom 47 both lined with a suitable heat-insulating material 48. The upper edge portion 49 of the shell 46 fits snugly around the rim 21 of the container 20. The bottom 47 of the housing is provided with a small hole 50 for drainage, and a larger opening 50*a* through which the lower end of the pet-cock 28 extends into the water pipe 29, the upper end of the water pipe 29 serving as a shoulder 51 for supporting the housing. The housing is provided with a spout-like opening 52 pointing angularly upward and slightly away from the fountain, through which the heating element 53 is placed under the fountain. The heating element 53 may comprise an ordinary light bulb 53 supported by a weather-proof socket 54 of a well known type, providing a damp-proof heating element that is very cheap, efficient, convenient to install and use and simply and easily replaceable. However other inclosed types of compact heating elements may be used in similar manner without departing from the scope of the invention.

Fig. 6, 6*a*, and 7 show a guard 69 to prevent the poultry from getting into the drinking bowl or cover 37. The guard 69 comprises two pieces of yieldable wire or the like, one approximately twice the length of the other. The longer wire is bent upon itself midway between the ends to form an eye 70 at the bend, with the wire at opposite sides of the eye extending slightly downward as at 70*a* then angularly away from each other to provide legs 70*b*. One end of the shorter wire *w* is bent upon itself to form a ring 71

interlocking in the eye **70**, over the top thereof, the adjacent portion **71***a* extending downwardly against one side of the wire parts at **70***a* and then on the opposite side angularly away from the legs **70***b* to provide the leg **71***b*. The extreme lower ends **72** of the legs are bent inward toward each other to engage under the outer edge **40** (Fig. 1) of the rim **38** of the cover **37**.

The guard **69** is secured to the cover **37** by the yieldability of the material in the guard and in no way interferes with the use of operation of the fountain, and is also quickly removable from the cover **37**.

In the two rectangular forms of the fountain as shown in Figs. 8 to 11, the containers **20***a* and **20***b*, the reservoirs **31***a*, and **31***b* and the covers **37***a* and **37***b* function substantially the same as in Figs. 1 to 5, with the exception that one end portion **73** of the reservoir **31***a* or **31***b* extends upwardly over and slightly downward outside the end portion **74** of the container **20***a* or **20***b* forming a hinge **75**, with the end flat portion **38***a* of the cover **37***a* or **37***b* contacting the hinge **75** holding the hinge **75** in operative connection with the container **20***a* or **20***b*. The hinge **75** maintains the reservoir in its intermediate rising and sinking movements substantially out of contact with the container.

In Fig. 8 the container **20***a* is centrally mounted on the supporting water pipe **29** and with the jet **25** at the mid-point of the length of the container **20***a* and the sealing disc **33** at the approximate vertical axis of balance of the reservoir **31***a* thereby to apply substantially the entire submerged weight of the reservoir **31***a* upon the face **27** of the jet **25** to stop the flow of water therefrom, with the free end portion **76** of the reservoir **31***a* extending upward toward the rim **38***a* of the cover **37***a* thereby to limit the rising movement of the free end of the reservoir.

The slot **43***a* in the cover **37***a* is located at one end of the open water area **42***a*, above and near the bottom thereof and below a level of the upper side edges **34***a* (Fig. 10) of the reservoir **31***a* thereby to separate water area **42***a* from the water filled space **32***a* between the reservoir **31***a* and container **20***a*. The outer edge **40***a* of the cover **37***a* extends further downward in the fountain than in the fountains of Figs. 1 to 5, thereby preventing accidental removal of the cover **37***a* which is not secured to the container **20***a* as in Figs. 1 to 5.

The fountain of Fig. 9 is of a longer construction and has the water pipe mounting and support at one end thereof, the opposite end of the fountain being supported by an auxiliary leg **77**. The jet **25***b* extends upward from the water pipe **29** to near the top of the container **20***b*, with the sealing disc **33** carried inside the partly closed end of a downwardly open sleeve **78** loosely disposed over the jet **25** thereby directing the flow downward into the container **20***b* when the disc is raised by the pressure of the water in the orifice **24**. The free end portion **76***b* of the reservoir **31***b* extends outward and above the sleeve **78** and jet **25***b* and loosely rests upon the sleeve, the extreme end of said end portion being turned upward to form a stop **77***b* engageable with the flat portion **38***a*. This arrangement applies approximately one half the effective submerged weight of the reservoir **31***b* upon the face **27** of the jet **25** to stop the flow of water therefrom, and also limits the rising movement of the free end of the reservoir **31***b*. The disk may be pushed out, for replacement, by a small tool inserted through the opening **78***b*.

The slot **43***a*, the hinge **75** and associated parts of the fountain of Fig. 9 are the same as in Fig. 8, and the similarity of Figs. 8 and 9 is such that a central transverse section through Fig. 9 is similar to that shown in Fig. 10.

In the oval form of the fountain of Fig. 12 made for larger volume of water and faster flow, the container **20***c* is provided with an integral upstanding pipe **79** at one side provided with a threaded opening **80** establishing communication between the interior of the container **20***c*, and the pipe **79**. This pipe is internally threaded at both ends **81**, **81'** the end **81'** being received on the water pipe **82** connection, the upper end **81** being closed by a plug **83**. A jet **25***c* is threaded into the opening **80**, thereby directing the flow inward into the container **20***c*. The reservoir **31***c* is hinged inside the container **20***c* and to the container **20***c* by means of hinge ears **84** received on the outer portions of a hinge pin **85** which extends through the sides of the container **20***c* with the axis of the hinge pin **85** substantially vertically above the face **27***c* of the jet **25***c*. The hinge pin **85** is located approximately midway between the jet **25***c* and the upper edge **39***c* of the container **20***c* thereby increasing the effective weight of the submerged receiver **31***c* upon the face **27***c* of the jet **25***c*. The sealing disc **33***c* is carried by a separate flap **86** hinged on the middle portion of the hinge pin **85**. The lower end portion of the flap is provided with an adjusting screw **87** which contacts the side of the reservoir **31***c*, thereby to adjustably hold raised the free side of the reservoir **31***c* relative to the container **20***c*. The flap **86** carries a sealing disc retainer ring **88** receiving the sealing disc **33***c*. The upper portion of the ring extends beyond the face of the disc and above the jet **25***c* thereby directing the water flow downward. The extreme edge **40***c* of the upper rim **38***c* of the cover **37***c* extends over the upper edge face **39***c* of the container **20***c* and is even with the outer lateral face of the container.

The front part of the cover **37***c* is held on the container **20***c* by means of an upstanding lip portion formed on the upper edge **89** of the side of the container **20***c* opposite the pipe **79**, said lip portion extending upward in a recess **89***c* in the rim **38***c* and inward over the outer edge of the rim **38***c*. The rear of the cover is recessed as at **89'** to receive the upper end of the pipe **79** extending slightly above the container **20***c*. The pipe **79** is threaded to receive a locking ring **90** which engages over the rim **38***c* of the cover **37***c* to hold the rear of the cover in place. The cover **37***c* is provided with a series of slots **43***c* above and near the bottom of the open water area **42***c* nearest the hinge ears **84**. The slots **43***c* are below a level of the upper edge **34***c* of the reservoir thereby to separate the open water area **42***c* from the water-filled space **32***c* between the reservoir and the container **20***c*. A plug **91** is provided for draining the container **20***c* when desired. This oval fountain functions substantially the same as in Figs. 8 to 11, with the exception that the free side of the reservoir **31***c* must have a greater rising movement before the part of the upper edge **34***c* of the reservoir **31***c* most remote from the hinge pin **85** contacts the lower face of the rim **38***c* of the cover, thereby allowing enough movement to swing the sealing disc **33***c* far enough away from the face **27***c* of the jet to allow a faster flow. Also greater leverage

and effective weight of the submerged reservoir **31c** causes a greater pressure of the sealing disc **33c** against the face **27c** of the jet, thereby effectively closing the larger hole **24c** in the jet, a larger hole being required for faster flow.

While using different forms of these fountains for comparatively long periods of time without removing the cover, it was discovered that an air-locking seal sometimes formed between the upper edge of the container and the cover rim, rendering the reservoir inoperative. It was discovered also that air must escape from the space between the water level of the container and the inside of the cover rim, when the reservoir rises and in turn air must enter the space when the reservoir sinks. To effect this escape the upper edge portions **39**, **39***a* and **39***b* of the containers **20**, **20***a*, and **20***b* are partially cut away or provided with notches as at **92** whereby air passage space is provided between said edge portions and the rims **38** and **38***a*. A slot **93** is employed similarly in the fountain container **20c**.

To make the advantages of invention as disclosed herein more clearly understood it is noted that a fountain substantially as shown in Figs. 1 to 5, provided with a jet opening .025 of an inch in diameter and a submerged reservoir weight of approximately 3 ounces, under laboratory test, functioned properly under all water supply pressures from 0 to 100 pounds, as measured by a water pressure gauge. With an average water supply pressure of 50 pounds, the actual upward pressure of the water at the discharge end of the jet opening is slightly less than .4 of an ounce, therefore a submerged reservoir weight of 3 ounces applies a counteracting downward pressure more than 7 times greater than the upward pressure of the water. Each of the forms of the invention substantially as illustrated and described herein, functions effectively as an automatic means for providing a continuous supply of water as intended for the desired purposes.

There is a definite relationship and cooperation between the electric fountain heater and the fountain, because the fountain will not function at very low freezing temperatures without heat being provided. Because of the compactness of the fountain and the extremely small volume of water remaining in it at any one time, a very small amount of electric energy will maintain a temperature above freezing within the fountain area; and the fountain heater substantially as disclosed herein has proven very satisfactory for the purpose.

When preferred forms of the invention have been illustrated and described herein, the different forms may be constructed from any appropriate material, some materials may require certain variations in structure and still other variations in structure may be found desirable, it will be understood that any such variations may be made without departing from the scope of the invention as claimed.

Herein details of the invention are described in the specification and in some of the claims but the invention as described in the broader claims is not limited to these and many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

This application relates to modifications of the drinking fountains described and claimed in my co-pending application Serial Number 493,331, filed July 3, 1943.

I claim as my invention:

1. In combination, an upwardly open container having an upper edge portion; a reservoir disposed in the container for up and down movement and providing a water space between said reservoir and container and having a substantial margin disposable within and lower than said upper edge portion; said reservoir preventing flow of water from the container into the reservoir except at the upper part thereof; said reservoir being of a shape and weight to be buoyed by water in the container when less than a predetermined small amount of water is in the reservoir, and to sink in the water when the reservoir receives a predetermined larger amount of water from the container; water supply means for the container controlled by the rise and fall of the reservoir; and a cover mounted on the container disposed over the reservoir and said space to prevent undesired material from falling into the reservoir and said space and comprising a bowl-shaped part in and spaced from the reservoir, said bowl-shaped part being provided near its bottom with an opening communicating with the reservoir.

2. In a combination as in claim 1, said cover having a rim mounted on the upper edge portion of the container, said upper edge portion having an opening for the passage of air at the upper part of said water space.

3. In combination, an upwardly open container having an upper edge portion; water supply means for the container; means in the container to control the supply means and a cover mounted on the edge of the container and disposed over the container comprising a bowl-shaped part having an inwardly and downwardly inclined wall disposed in the container, said cover serving to prevent undesired material from falling into the space between said wall and the container; said wall being provided near the bottom with an opening communicating with the space in the container.

4. In a combination as in claim 3, said wall having a lip over said opening to substantially prevent undesired material from falling into said opening.

5. A fountain comprising an upwardly open container, a jet within the container and adapted to discharge water therein, a reservoir disposed within the container and having a margin within and lower than the upper edge portion of the container; a sealing means in operative contact with said reservoir and disposed over and adjacent to said jet and adapted to press upon the jet for stopping water flow therefrom when said reservoir is resting submerged at its lowest position; said reservoir being of such dimensions, shape and weight as to sink in water when filled and rise in the water within the container when a portion of the water is removed from within the reservoir, thereby relieving the pressure of said sealing means upon said jet, allowing water to flow; a cover disposed over said container and having its central portion extending downward into the interior of said reservoir and container and providing an open water space; inlet means provided in said cover above and near the bottom of said open water space whereby water flows from within the reservoir into the open water space and assumes the level of the water within the reservoir; said cover constituting stop means limiting the upward movement of said reservoir.

6. A fountain comprising a container, a jet adapted to discharge water therein, a reservoir

within the container, a sealing means in operative contact with said reservoir adjacent to said jet and adapted to stop water flow therefrom; a cover having an outer rim portion over said container, said cover having a central portion extending downwardly into the reservoir and providing an open water space, said cover having means whereby water flows from within said reservoir into said open water space; and means for providing an air passage between the exterior of the fountain and the space between the outer rim portion of said cover and the water level within said container, thereby preventing an air lock within said space.

7. A fountain comprising a container having an upper rim, a jet disposed within said container and adapted to discharge water upwardly therein, a reservoir disposed loosely within the container and without connection therewith, a yieldable sealing means secured to the reservoir at a vertical line passing through the center of gravity of the reservoir, said reservoir being of such dimensions, shape and weight that the reservor in its intermediate rising and sinking movements is substantially loosely received within the container, the sealing means being disposed over and adjacent to said jet and adapted to press upon said jet stopping water flow therefrom when the reservoir sinks; a cover over said container, having an outer rim hinged to the upper rim of said container, and having a central portion of said cover extending downward into the interior of said reservoir and container thereby providing an open water space, said cover providing stop means limiting the upward movement of said reservoir, said cover being provided with an opening above and near the bottom of said open water space whereby water flows from within said reservoir into said open water space.

8. A fountain as in claim 7, said jet having a small discharge opening, and a narrow annular face around said opening and above other structure of the jet.

9. A fountain as in claim 7, said jet opening being sufficiently reduced to cause the submerged weight of the reservoir to be substantially greater than the upward pressure of the water at said jet opening and whereby the yieldable sealing means effects a sealing contact with said jet at various angles of the sealing means relative to the face of the jet.

10. A fountain as in claim 7, said opening in the cover comprising a slot with the upper edge of said slot inwardly overhanging the lower edge of the slot.

11. A fountain as in claim 7, the reservoir having an upper rim having long portions extending outward toward the upper rim of the container, and shorter intermediate portions extending upward toward the cover and forming upstanding lips, said lips providing stop means limiting the upward movement of the reservoir when the reservoir rises and thereby preventing said long portions from rising to a level of the upper edge of said container, said upper rim of the lips also providing means for the removal of the reservoir from within the container.

12. A fountain comprising a container, a jet disposed within said container and adapted to discharge water therein; a reservoir disposed within the container and in operative connection therewith by one end portion of said reservoir extending upward and over the end portion of the container, forming a hinge, holding the reservoir during its intermediate rising and sinking movements with the free end of said reservoir substantially out of contact with other structure; a cover over said container and resting upon the upper side edge of the container and holding the hinged end of said reservoir downward and in operative contact with said container, with a lengthwise central portion of said cover extending downward into the interior of the reservoir and container providing an open water space, with said cover provided with a slot at one end of the open water space, above and near the bottom of said open water space whereby water flows from within said reservoir into said open water space and sealing means stopping water flow from said jet.

13. A fountain comprising a container, a jet disposed at the side of said container and adapted to discharge water therein, a reservoir disposed within the container and in operative connection therewith with one side edge of said reservoir hinged within the container and to the container, at a point near said jet, sealing means adjacent to said jet and in operative contact with said reservoir and disposable against the face of said jet for stopping water flow therefrom when the reservoir sinks; a cover over said container and secured to the upper edge of the container, with the central portion of said cover extending downward into the interior of said reservoir and container and providing an open water space, and means whereby water flows from within said reservoir into said space.

14. A fountain as in claim 13, said sealing means including a flap hinged near said jet and provided with a sealing part pressing on the jet with adjusting means engaging the reservoir whereby the said reservoir is raised and lowered relative to the container.

15. In combination, an upwardly open container: an upwardly directed jet in the lower part of the container; an upwardly open and downwardly pointed reservoir loosely and movably disposed in the container; a sealing member on the lower part of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover resting on said container having a substantially closed downwardly disposed part disposed in the reservoir formng a drinking space and provided with an inlet opening.

16. A drinking fountain comprising an upwardly open container; an upwardly tapered jet projecting in the lower part of the container; an upwardly open and downwardly pointed substantially conical reservoir loosely and movably disposed in the container substantially coaxially with the jet; an elastic sealing member on the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing

member in the sealing contact with the jet; and a cover resting on said container having a central downwardly pointed approximately conical part disposed in and spaced from the sides and bottom of the reservoir, and provided in its wall near the bottom with an inlet opening; said cover, reservoir and container nesting with each other and forming a compact drinking fountain.

17. In combination, an upwardly open container; an upwardly tapered jet upwardly projecting in the lower part of the container; an upwardly open reservoir loosely and movably disposed in the container substantially above the jet; a sealing member on the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight that when less than a predetermined amount of water is in the reservoir the reservoir can rise in the water in the container and raise the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover on said container having a downwardly disposed part in the reservoir, and provided in its wall with an inlet opening and a part projecting over the opening.

18. In combination, an upwardly open container; an upwardly tapered jet projecting in the lower part of the container; an upwardly open and downwardly pointed reservoir loosely and movably disposed in the container above the jet; a sealing member on the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can rise open side up in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover resting on said container having a central downwardly pointed approximately conical part disposed in and spaced from the sides and bottom of the reservoir, and provided in its wall near the bottom with an approximately horizontal slot and a part offset from said wall and projecting substantially over the slot to prevent foreign matter from sinking through the slot.

19. In combination, an upwardly open container having an upper rim therearound; an upwardly directed jet projecting into the lower part of the container; an upwardly open and downwardly pointed reservoir loosely and movably disposed in the container and having an upper flange having upturned lugs projecting above the flanges of the reservoir; a sealing member on the bottom of the reservoir adapted to rest upon the jet to stop water flow; said reservoir being of such weight that when less than a predetermined amount of water is in the reservoir the reservoir can float in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover on said container, resting on said upper rim of the container, having an outturned upper rim portion, with which said lugs may engage to limit upward movement of the reservoir; said cover having a downwardly disposed part disposed in the reservoir, and provided with an inlet opening.

20. In combination, an upwardly open and downwardly pointed substantially conical container having an upstanding vertical upper rim therearound; an upwardly tapered jet coaxially upwardly projecting within the lower part of the container; an upwardly open and downwardly pointed substantially conical reservoir loosely and movably disposed substantially coaxially within the container and having an outturned flange portion spaced from said upstanding rim and having upturned portions therein allowing water from the container to overflow between said upturned portions into the reservoir; a flat elastic sealing member secured to the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said container and reservoir being of such a shape and size, and said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet, with sufficient force to stop the water flow; and a cover on said container having an outturned upper rim portion resting on said rim of the container and engaged by said upturned portions, said cover having a central substantially closed downwardly pointed approximately conical part disposed in and spaced from the sides and bottom of the reservoir, to form a drinking space, and provided in its wall near the bottom with a water inlet opening.

21. In combination, an upwardly open container member having an upper rim; a jet upwardly projecting into the lower part of the container; an upwardly open and downwardly pointed reservoir loosely and movably disposed in the container member substantially coaxially with the jet; a sealing means on the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing means out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing means in sealing contact with the jet; and a cover member on said container having an outturned rim resting on said upper rim of the container, said cover having a central downwardly disposed part disposed in the container and spaced from said upper rim of the container to leave an upper space, said cover being provided near the bottom with a water inlet opening; one of said members being provided with an air passage opening substantially at said upper space to allow the passage of air in and out said upper space.

22. In combination, an upwardly open container having an upstanding upper rim therearound having an air passage opening in its upper edge; an upwardly directed jet projecting within the lower part of the container; an upwardly open and downwardly pointed reservoir loosely and movably disposed substantially in the container and spaced from said upstanding rim; a sealing member secured to the bottom of the reservoir and having a lower flat face adapted to rest upon

the jet; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover on said container having an outturned upper rim portion resting on said upstanding rim of the container and having a downturned outer edge flange spaced from said rim and air passage opening to allow the passage of air in and out of the space above the water level and between the cover and the container; said cover having a central downwardly pointed approximately bowl-shaped part disposed in and spaced from the sides and bottom of the reservoir, and provided in its wall near the bottom with a water inlet means.

23. In combination, an upwardly open and downwardly pointed substantially conical container; an upwardly tapered jet projecting a short distance into the lower part of the container; an upwardly open and downwardly pointed reservoir loosely movably disposed in the container substantially coaxially with the jet and having an upper peripheral edge; a sealing member on the bottom of the reservoir adapted to rest upon the jet to stop water flow therefrom; said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing member out of contact with the jet, and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet; and a cover resting over said container having a central downwardly disposed part disposed in the reservoir, and provided with an inlet opening; said short distance, the shape and dimensions of said peripheral edge and the conical angle of the container being such that said edge of the reservoir can be disposed against the inner face of the container in a way to cause the container to hold said edge near and out of contact with said jet by engagement between the edge and the inner face of the container at two points of contact on opposite sides of the axis of the container.

24. In combination, an upwardly open and downwardly pointed substantially conical container having an upper rim therearound; an upwardly tapered substantially conical jet coaxially projecting a short distance within the lower part of the container having a minute upwardly directed bore adapted to discharge water upwardly and surrounded by a narrow annular face; an upwardly open and downwardly pointed substantially conical reservoir loosely movably disposed substantially coaxially in the container and having an outturned flange portion spaced from said rim, said portion allowing water from the container to overflow into the reservoir; a flat elastic sealing member secured to the bottom of the reservoir and adapted to rest upon the jet to stop water flow therefrom; said container and reservoir being of such a shape and size, and said reservoir being of such weight and distribution of weight that when less than a predetermined amount of water is in the reservoir the reservoir can float open side up in the water in the container with the sealing member out of contact with the jet and when the reservoir has received a predetermined larger amount of water from the container, the reservoir can sink and dispose the sealing member in sealing contact with the jet with sufficient force to stop the water flow; and a cover on said container having an outturned upper rim portion resting on said rim of the container; said cover having a central downwardly pointed approximately conical part disposed in and spaced from the sides and bottom of the reservoir, and provided in its wall near the bottom with a water inlet opening; said short distance of the jet, the diameter of said flange portion and the conical angle of the container being such that when the reservoir is used as a scoop to clean out the container, the reservoir cannot reach, touch or injure said jet.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
579,821	Elliott	Mar. 30, 1897
1,058,102	Ricketts	Apr. 8, 1913
1,206,281	Wood	Nov. 28, 1916
1,228,224	Luke et al.	May 29, 1917
1,232,723	Schulze	July 10, 1917
1,253,941	Copeland	Jan. 15, 1918
1,476,095	Morgan	Dec. 4, 1923
1,477,223	Krey	Dec. 11, 1923
1,689,004	Ackley	Oct. 23, 1928
1,702,973	Lord	Feb. 19, 1929
1,816,781	Johnston	July 28, 1931
1,900,831	Marter, 3d	Mar. 7, 1933
1,941,814	O'Connor	Jan. 2, 1934
2,096,844	Cekal	Oct. 26, 1937
2,162,314	Perri	June 13, 1939

FOREIGN PATENTS

Number	Country	Date
80,637	Germany	Apr. 13, 1895
716,611	France	Oct. 12, 1931