A. ARBIB.

WATER LEVEL ACTUATED MECHANISM.

APPLICATION FILED NOV. 12, 1913.

1,168,699.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

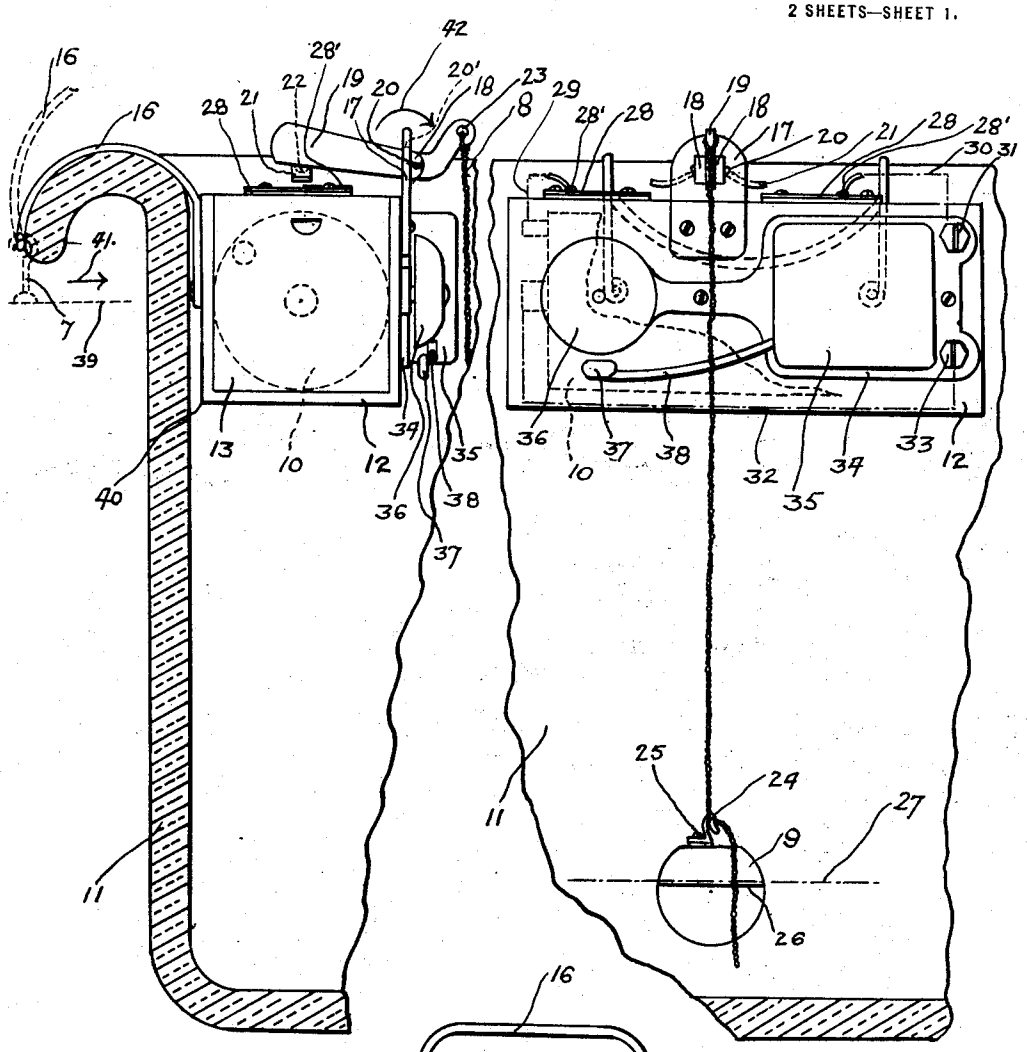


Fig. 1.

Fig. 2.

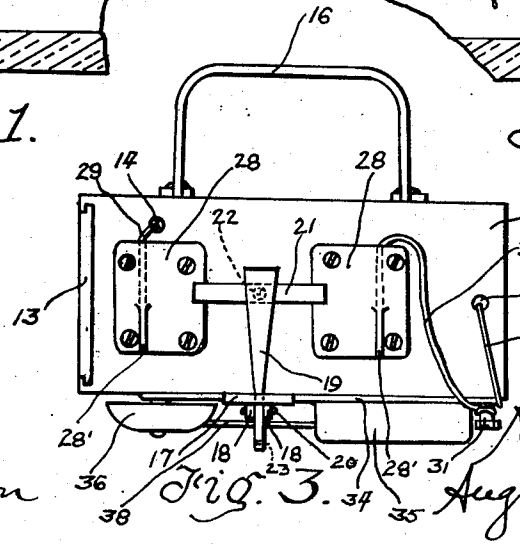


Fig. 3.

WITNESSES:

F. J. Kent

B. S. Newton

INVENTOR:

Arthur Arbib

BY

Augustus W. Airey

ATTORNEY

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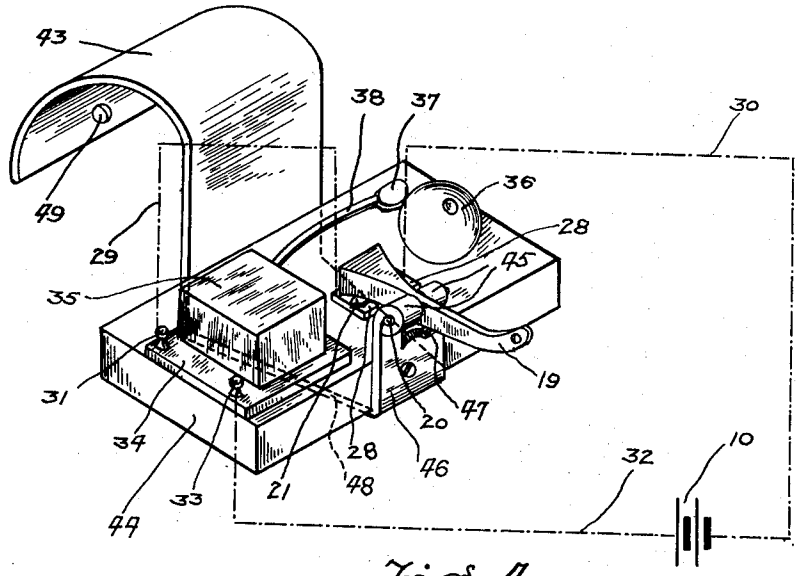


Fig. 4.

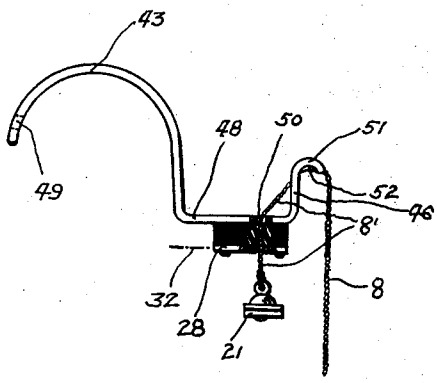


Fig. 5.

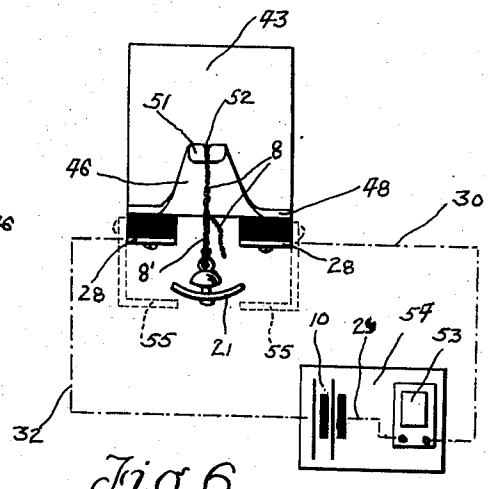


Fig. 6.

WITNESSES:

F. J. Kent

S. S. Newton

INVENTOR:

Arthur Arbib

BY

Augustus M. Henry

ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR ARBIB, OF NEW YORK, N. Y.

WATER-LEVEL-ACTUATED MECHANISM.

1,168,699. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed November 12, 1913. Serial No. 800,482.

To all whom it may concern:

Be it known that I, ARTHUR ARBIB, a citizen of the United States of America, and resident of New York, in the county of New York and State of New York, (whose post-office address is No. 38 West Thirty-second street, New York, N. Y.,) have invented certain new and useful Improvements in Water-Level-Actuated Mechanisms, of which the following is a specification.

This invention relates broadly to fluid-level-actuated mechanisms, and more particularly relates to mechanisms of this type adapted to be actuated upon the attainment of a predetermined fluid-depth within a bath-tub or the like, whereby there will be accomplished the actuation of signaling means and signaling means preferably of the audible type.

One of the objects of my invention is to provide types of apparata capable of ready attachment to a portion of a receptacle, as the upper edge of a bath-tub, or to any other suitable supporting device so located that the mounting thereupon of any of said apparata will effectively dispose the same.

An important object of my invention is the provision of adjustable means whereby various fluid levels effective to actuate the type of apparatus employed may be established, in accordance with particular conditions; and preferably whereby this adjustment may be predetermined and set up in advance of the existence of any predetermined fluid-level.

Another object of my invention is to disclose types of apparata of such a nature that, due to their compactness and light-weight, they may be conveniently and easily transported from one place to another, as within a hand-satchel of a traveler, or stored away, hung upon the wall, or otherwise removed from their effective locations, when the same are not in use.

A further object of the invention is to provide various illustrative types of construction characterized by compactness of combination, simplicity of operation, and inexpensiveness of construction.

Other objects and aims of the invention, more or less broad than those stated above, together with the advantages inherent, will be in part obvious and in part specifically referred to in the course of the following description of the elements, combination, arrangements of parts, and applications of principles constituting the invention; and the scope of protection contemplated will appear from the claims.

In the accompanying drawings, which are to be taken as a part of this specification, and in which I have shown one of the various possible embodiments of this invention as at present preferred: Figure 1 is a side elevation, disclosing one of said embodiments as being effectively supported upon an upper edge of a bath-tub 11, which is illustrated as being partly in elevation, partly in section, and partly broken away, a redisposition of the clasp 16 and hook 7 being shown in broken lines in aid of the description hereinafter contained of the self-adjustment of this embodiment when hung upon a wall; Fig. 2 is a front elevation of said embodiment, that is, an elevation presumed to be observed from the interior of the tub, this view disclosing completely the flexible support 8 here associated with the float 9 and in dot and dash lines the electrical circuit and battery 10 here employed, the circuit being merely diagrammatically indicated; Fig. 3 is a top plan view of the parts shown in Fig. 1, this view showing the embodiment as removed from the upper edge of the tub, the flexible support 8 and the float 9, however, being not included; Fig. 4 is a perspective view of another embodiment of this invention, the electrical circuit and source of current 10 being merely diagrammatically indicated; Fig. 5 is a side elevation of still another embodiment; and Fig. 6 is a front elevation of the parts shown in Fig. 5.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now particularly to the embodiment shown in Figs. 1 to 3 inclusive, the device includes a main box-member 12, which at one end is provided with a sliding top 13. Located within the box-member is a battery 10, which battery and the two binding posts of which are shown in dot and dash lines in Figs. 1 and 2, a plurality of apertures being formed transversely in the top wall of said box as shown at 14 and 15, for the emergence of the leading-in conductors to said binding posts, and which wires form a part of the circuit hereinafter described. As disclosed, the box member has mounted thereon the clasp 16, and this clasp is adapted when hooked over the upper edge of the tub 11 as

shown to support the attached box member and the parts carried thereby. Mounted upon the outside of the front wall of the box member is a bracket 17 carrying a pair of ears 18 between which is pivotally mounted as shown, and as by means of the pin 20, a lever 19, the upper terminus of the bracket being vertically slotted to permit of the rocking of said lever, but said slot being preferably so designed that its upper edge 20′ will restrain the pull exerted by the predeterminedly heavy float 9 via the flexible connection or cord 8, when the arm of lever 19 which overlies the top wall of box-member 12 is predeterminedly elevated. This arm of lever 19 carries a contact maker or bridge 21 as by means of the screw or taper pin 22, and in such manner that preferably said bridge is floatably or loosely dependent. The projecting arm of lever 19 carries adjacent its free terminus an aperture 23, whereby there may be fixedly fastened to said arm one end of the cord 8. A portion of the cord 8 below its point of attachment to the lever is adapted to be adjustably gripped by the clip 24 (see Fig. 2), which clip is attached by the screw 25 to float 9. Float 9 is preferably provided with a water line marking 26, which, indicating the height above the bottom of the tub with reference to the suspension by cord 8 of float 9 whereat the water-level 27 within the tub will sufficiently slack the cord 8 to predeterminedly lower the bridge 21, serves as an index in aid of adjusting the clip 24 longitudinally of the cord 8. Located as shown upon the outside of the top wall of box member 12 and whereby they are each isolated one from another, are a plurality of contacts 28, these contacts being also so disposed that each will be located below but vertically removed from one of the side wings of the bridge 21 when lever 19 is normally held by the float 9 to elevate the arm thereof which overlies box member 12. Each contact 28 here preferably includes a pair of plates as disclosed in Figs. 1 and 2, one of the plates being superposed over the other whereby, in view of the groove 28′ formed in the upper plate as best shown in Fig. 3, the plates of each contact will cooperate to insure the proper embedding therein of a conductor forming a part of the circuit which will now be described. This circuit, normally open, includes (Fig. 2) a wire 29 leading from one binding post of the battery 10 to one of the contacts 28 (this wire passing from the interior of the box-member via aperture 14 as shown in Fig. 3), a wire 30 leading from the other contact 28 to a binding post 31 (see also Fig. 3), and a wire 32 leading from a binding post 33 to the battery's other binding post (this wire passing into the interior of the box-member via the aperture 15 as shown in Fig. 3). The binding posts 31 and 33, referred to in the preceding sentence, are a part of the alarm device carried on the outside of the front wall of box-member 12, this alarm device including the usual supporting frame 34, the casing 35 (within which are located the customary magnets and wirings), the bell 36, the hammer 37, and the flexible support 38 for said hammer.

Having described this embodiment of this invention, the operation thereof, which should largely be obvious, may now be understood. The device may be mounted upon the upper edge of a bath tub by the clasp 16, and the float 9 is adjusted upon the cord 8, as by means of the clip 24, to elevate the water-level-marking 26 to coincide with any desired water-lever 27. Water is then admitted to the tub and the vicinity, in the present instance say the bath room, may be deserted, and yet with the knowledge that when the desired surface level of water within the tub is reached, an audible alarm of such fact will be given as follows. It is obvious that when bridge 21 descends and touches contacts 28, there will be effected a closing of the normally open circuit which includes the battery 12 and which when closed will cause the actuation of the bell 36. And due to the fact that the arm of lever 19 which overlies the box-member 12 is more massive than the other arm of said lever, the attainment of the predetermined water-level within the tub (followed by the lifting of float 9 sufficiently to slack the cord 8 and the consequent removal of the normal pull of the weight of said float) will permit the massive arm of the lever to descend by gravity and close the circuit.

It will be observed that the projecting arm of lever 19 is upwardly canted, and attention is directed especially to this feature of the embodiment, for it is believed that when the device is not in use the same will be best placed out of the way by hanging the same via the clasp 16 from a wall supporting-hook, in which event the formation of the projecting arm of lever 19 as above referred to will perform a most important function. Thus were the hook 7 utilized for suspending therefrom the device (and now let us assume that the dotted line 39 shown in Fig. 1 represents a side elevation of the vertical surface of the wall), the clasp 16 will assume approximately the dotted line disposition disclosed, due to the fact that the outer edge 40 of the box-member will abut against the wall, and the weight of the float will cause the cord 8 to depend vertically, that is, in the direction of the arrow 41. On account of the above described formation of the projecting arm of lever 19, the actual point of support and the mass center of the float will not be in vertical alinement and consequently the lever 19 will be rocked in the direction of the ar-

row 42, which rocking will perform the valuable function of rendering certain that at no time when the present device is not mounted upon the edge of the tub can the bridge 21 close the circuit and thus create a false alarm and shorten the life of the battery.

Referring now particularly to the embodiments of the invention shown in Fig. 4, it is preliminarily pointed out that while the same is not shown as mounted upon the upper edge of a tub or the like, the clasp 43 is provided for such purpose. This embodiment, it may next be stated, is presented as an illustration of a structure wherein the clasp 43 supports, not all of the alarm-actuating instrumentalities, but only certain of those parts.

In Fig. 4 there is disclosed a supporting block 44, preferably of insulating material, and upon the upper surface of this block are mounted binding posts 31 and 33, plate 34, casing 35, bell 36, hammer 37, and arm 38, which last named parts are substantial duplicates of those shown in Figs. 1, 2 and 3. A plurality of contacts 28, a bridge 21, a lever 19 and a pin 20 are also provided in substitution for the similar numbered parts shown in said Figs. 1, 2 and 3. The lever 19 is pivotally mounted upon the pin 20 and this pin is supported by the pair of loops 45 formed upon the upper edge of the upstanding limb 46. This limb has punched therefrom, and between said loops, a finger 47, the slot created thereby being adapted to permit of the rocking of said lever upon its pivot and the finger itself being adapted to predetermine the height to which the massive arm of the lever may be raised. The limb 46, the loops 45, the finger 47, the clasp 43 being united with the other parts by the block-supporting intermediate portion 48, it will thus be seen that these parts comprise a unitary fixture capable of being manufactured, as by a stamping operation, in great quantities at exceedingly small cost, and that therefore the device shown in Fig. 4 possesses many peculiar advantages of economical construction.

The electrical circuit employed with the just described device is generally similar to that similarly indicated in Fig. 2, including as it does the wires 29, 30 and 32, these wires constituting a circuit which traverses the battery 10 and which is opened and closed in accordance with the rocking of lever 19 (which lever, of course, is preferably associated with a cord 8 and a float 9, or an equivalent instrumentality). The wires 30 and 32 being preferably of a flexible character, and economically of any convenient length, it follows that the battery 10 may be located upon any available support, as upon the floor or upon a shelf, while the device is being used, and, indeed, while it is idle; and furthermore the wires 30 and 32 may be of such length that the battery 10 may have a permanent location of such nature that whether the device is suspended from a wall-hook (as via the aperture 49) or elsewhere laid away, the battery 10 may be continuously maintained in its permanent location irrespective of the intervals of utilization and idleness of the device.

Referring now particularly to the embodiment of the invention shown in Figs. 5 and 6, it is also here preliminarily pointed out that while the same is not shown as mounted upon the upper edge of a tub, the clasp 43 is provided for such purpose. This embodiment, it may next be stated, is presented as an illustration of a structure wherein the clasp 43 supports, not the alarm-actuating instrumentalities, but merely the contact maker-and-breaker which controls said instrumentalities.

In Figs. 5 and 6 there is disclosed a unitary fixture including the clasp 43, the limb 46 and the horizontal intermediate portion 48 substantially as shown in Fig. 4, the portion 48 being provided with a transverse aperture 50, and the limb 46, instead of carrying the loops 45 and finger 47, being provided with a lip 31. This lip 51 has formed therein a groove 52 adapted to guide the float-supporting cord as shown, the portion 8 of said cord supporting the float and the portion 8′ of said cord supporting the loosely hung bridge 21. Since this embodiment is provided to illustrate also a possible application of the invention wherein the significance of the audible alarm is dissimilar to the significance of said alarm as employed in the other embodiments of this invention herein disclosed, that is, to set up a continuous alarm from the instant whereat the float is suspended within the bath tub, the ceasing of which alarm is the predetermined signal to indicate the attainment within the tub of a predetermined water-level, the suspension of the float upon the length 8 of the cord will normally elevate the bridge 21 to touch the contacts 28 (each normally mounted upon a block of insulation as indicated) and close the circuit which traverses in part the wires 29, 30 and 32,—a buzzer 53 being here shown as included within the circuit in addition to the inclusion therein of the battery 10. In aid of a clear disclosure, in Fig. 5 the portion 48 and the right-hand contact and insulation are shown partially in section, the left-hand contact and insulation being broken away. Said battery and said buzzer are shown as being mounted upon a conveniently transportable supporting plate 54. The wires 30 and 32 being preferably of flexible character, and economically of any convenient length, it follows that the plate 54 may be located upon any available support, as upon the

floor or upon a shelf, while the device is being used, and, indeed, while it is idle, and furthermore the wires 30 and 32 may be of such length that the battery 10 may have a permanent location of such nature that whether the device is suspended from a wall-hook (as via the aperture 49, which may be transversely formed in the clasp 43 to become an equivalent of the aperture 49 shown in Fig. 4) or elsewhere laid away, the plate 54 may be maintained in its permanent location irrespective of the intervals of utilization and idleness of the device.

Should, however, the embodiment disclosed in Figs. 5 and 6 be desired to be available for use in accordance with a theory of application of the invention wherein the buzzer 53 will not be actuated until the predetermined water-level within the tub is attained and consequently until the length 8 of the cord is slacked, there may be provided, in substitution for the contacts 28, the L-shaped contacts indicated in dotted lines in Fig. 6 at 55. In case these contacts 55 are utilized, it is obvious that the weight of the float suspended by the length 8 of the cord will act, pending the attainment within the tub of a predetermined water-level, to maintain the contact 21 elevated above the contacts 55, and that upon the attainment of said water-level, the length 8 of the cord will be slacked, whereby the bridge 21 will descend and touch said contacts 55, thereby closing the circuit, actuating the buzzer 53 and thus signaling the attainment of said water-level.

It will thus be seen that I have provided embodiments of this invention well calculated to attain the various ends and objects thereof in an exceedingly simple and positive manner, and embodiments, moreover, capacitated for inexpensive manufacture and economical maintenance.

Inasmuch as many changes could be made in the above construction, and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described this invention, what I claim as new and desire to secure by Letters Patent, is:

In a device of the class described, in combination, a support, an audible alarm, a source of current, actuating means for said alarm, a normally arranged circuit traversing said actuating means and said source of current, a controller carried by said support adapted when in one disposition to rearrange said circuit and when in another disposition to be ineffective to rearrange said circuit, a buoyant member, means whereby said controller and said member may be detachably but effectively arranged adjacent a collection of liquid and a connection between said member and said controller whereby said member normally maintains said controller in one of its said dispositions and whereby said member, upon a lifting of the same by the surface level of said collection of liquid, permits said controller to assume the other of its said dispositions, said controller including a pivoted member from one arm of which is suspended said member and said arm being so formed that the point from which said member is suspended, is, with the device effectively arranged as aforesaid, higher than the point whereat said pivoted member is pivoted.

In witness whereof, I have hereunto signed my name in the presence of two witnesses.

ARTHUR ARBIB.

Witnesses:
FRED M. LOEFFLER,
ETTORE PORCELLS.