

Sept. 2, 1947.

P. J. WALSH

2,426,907

LAMP

Filed Jan. 29, 1946

2 Sheets-Sheet 1

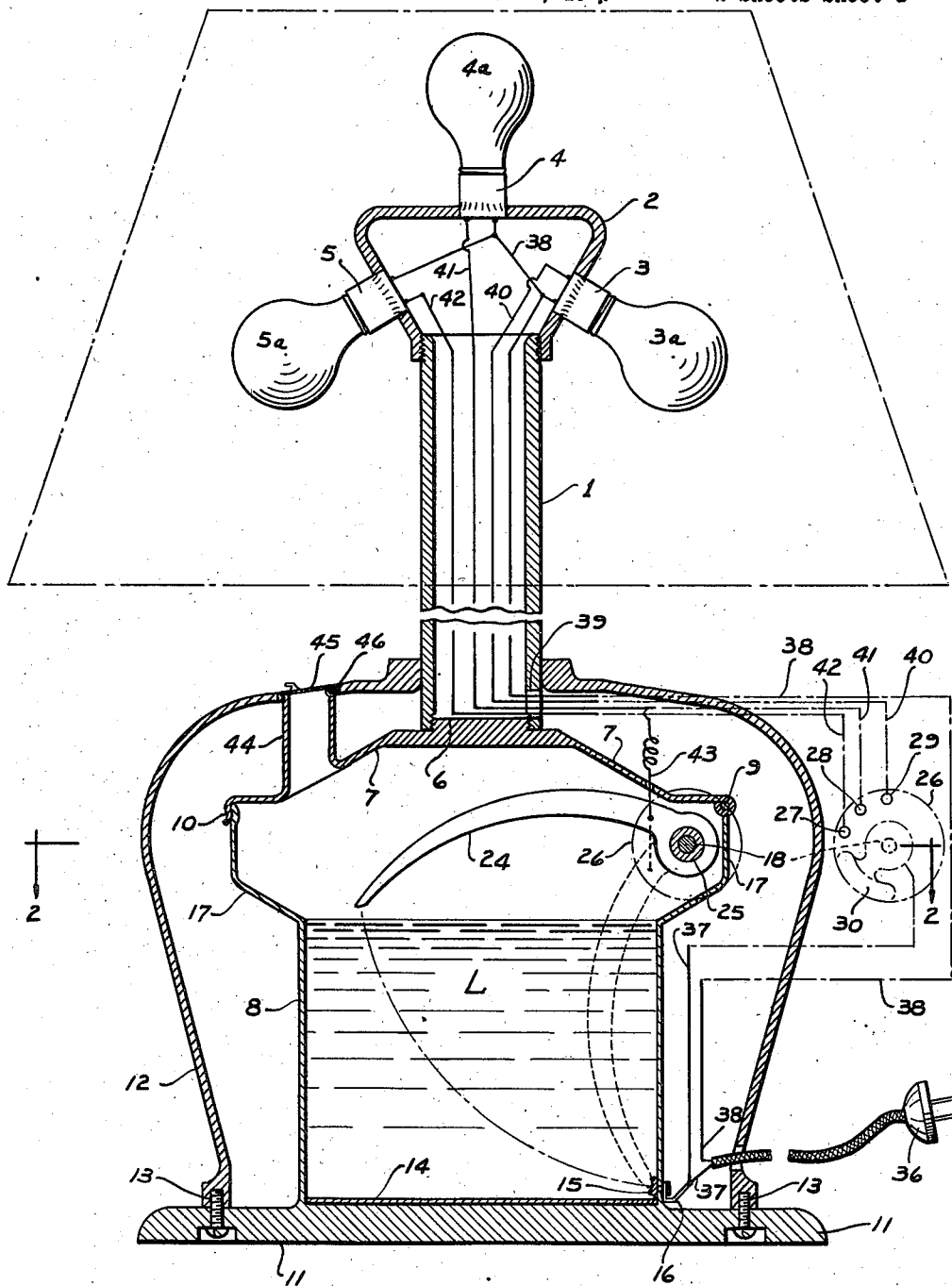


Fig 1

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2 Sheets-Sheet 2

Fig 2

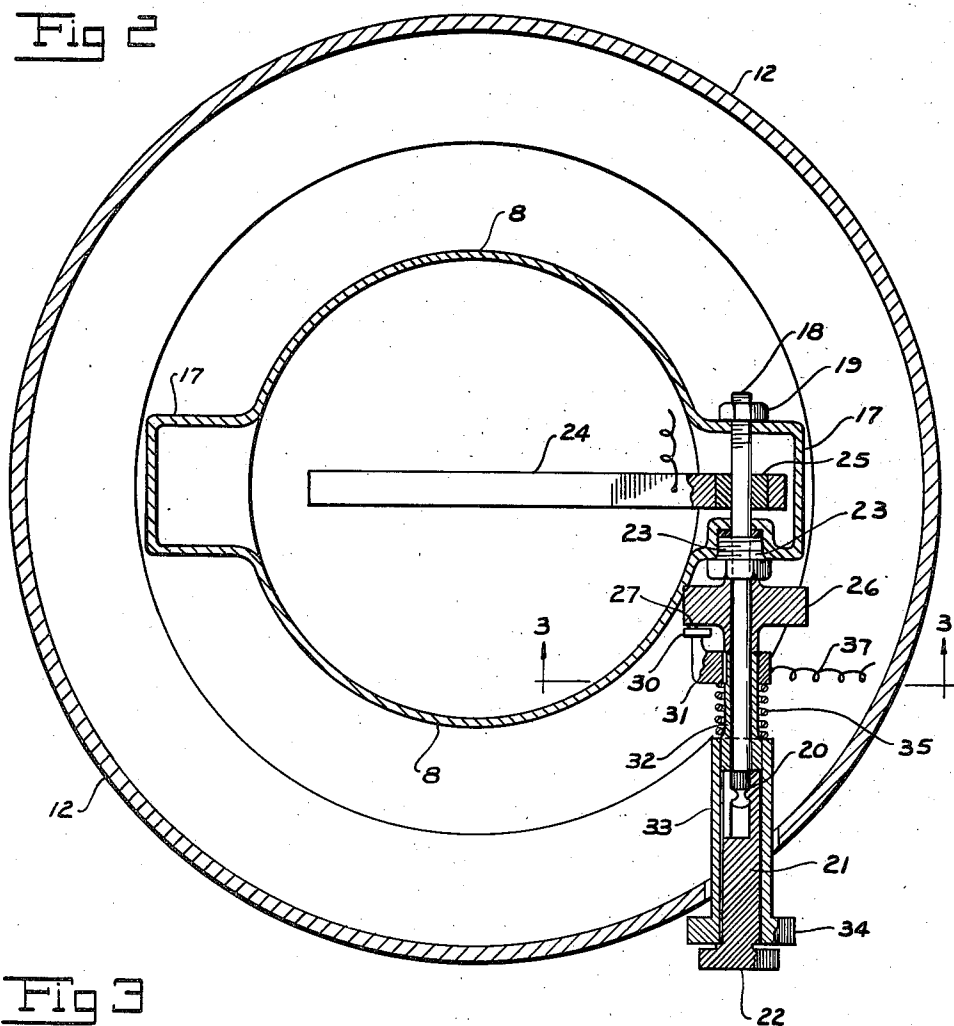
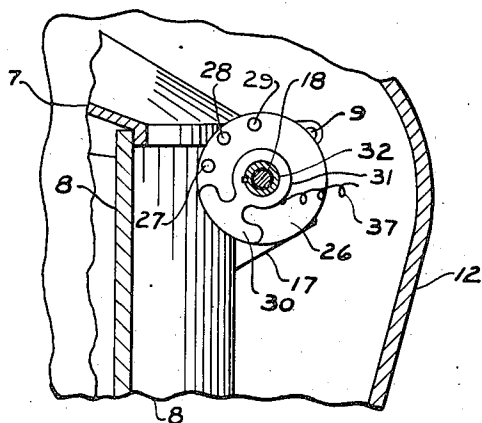


Fig 3



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## UNITED STATES PATENT OFFICE

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## LAMP

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6 Claims. (Cl. 240—81)

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This invention is a lamp wherein the intensity of the illumination therefrom may be varied at the will of the operator.

The lamp of this invention preferably embodies a plurality of incandescent filament bulbs mounted on an appropriate standard or column, carried by a base which encloses a receptacle or vessel containing a liquid adapted to pass electrical current, but with variable resistance to such passage depending upon the spacing of the electrodes between which the current is fed through the liquid. Within the base of the lamp is a switching device electrically connected to the several bulbs and through the manipulation of this current switching device said lamps may be energized in succession, so that one or more of them may be illuminated with normal maximum brilliancy. Associated with said switching device is also a manually operable member to which is connected a movable arm adapted to be shifted from a point above the surface of the liquid in the vessel to various depths within the liquid and into engagement with a fixed contact near the base of the vessel. The movable arm and fixed contact are included in a circuit shunting the switching device and including one of the bulbs so that, when the switching device is in position to extinguish all of the bulbs, the movable arm may be manipulated to illuminate one of them and control the intensity of light therefrom, according to the relative positions between the movable arm and the submerged fixed contact. With this arrangement one or more of the bulbs may be lit when relatively bright illumination is desired or all of these bulbs may be extinguished and one of them energized with such degree of dimness as may be desired by the operator.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative, only, and not as defining the embodiments of the invention.

Figure 1 is a vertical section through a lamp embodying the present invention, the same being shown as a table lamp.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a fragmental section on the line 3—3 of Figure 2.

Referring to the drawings, 1 indicates a tu-

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bular column on the upper end of which is mounted a head 2 supporting a plurality of lamp sockets 3, 4 and 5. These sockets are adapted to receive incandescent bulbs 3a, 4a and 5a, respectively. Three of these bulbs are shown but more or less may be used without departing from the invention.

The lower end of the column 1 is threaded to be screwed upon and supported by a threaded boss 6 on the cover 7 of a receptacle 8. This receptacle is preferably made of plastic material or of some other dielectric substance. The cover is hinged at one side, as indicated at 9, and has a catch 10 at its opposite side so that it can be normally secured in closed position.

The bottom of the receptacle is extended as shown at 11 to form a base for the lamp and to this base a suitable shell 12 is attached by means of screws 13. This shell may be of any appropriate shape and its function is to enclose the receptacle, switching device, etc., and form an outer housing of pleasing and artistic appearance.

Within the base of the receptacle 8 is positioned a conductive plate 14, preferably of copper, and at one point of the periphery of this plate, it is turned up to provide a contact 15 positioned within the receptacle and having on the exterior of the receptacle a binding post to which is affixed a terminal or terminal connection 16.

The receptacle 8 may be of any desired shape, but for the purpose of illustration, I have shown it as provided near its top with oppositely projecting lateral extensions 17. One of these extensions serves as a support for a spindle 18 which passes through the opposite walls thereof (see Figure 2) with a nut 19 at one end and at its other end a slip connection 20 by means of which it may be sprung into engagement with a shank 21 of a manually operable knob 22 positioned exteriorly of the shell 12. A gland 23 is associated with the spindle 18 so as to preclude leakage of liquid L adapted to be contained within the receptacle.

Attached to the spindle 18 within the extension 17 is an arm 24 and an insulating bushing 25 is interposed between the arm and the spindle to insulate the latter from the former. By manipulation of the knob 22, the arm 24 may be swung from the full line position of Figure 1, wherein it is shown above the surface of the liquid L, downwardly into engagement with the contact 15 which is submerged in said liquid.

Embracing the spindle 18 on the exterior of

the receptacle 8 is a current switching device. This current switching device embodies an insulating block 26, secured in fixed position and on the outer surface of which are mounted three fixed contacts 27, 28 and 29. With these contacts a movable contact or wiper 30 cooperates. This wiper is mounted on an arm 31, keyed to a sleeve 32, embracing the spindle 18 which has squared or dog connection with the shank 33 of a knob 34 positioned exteriorly of the shell, directly back of the knob 22. A light spring 35 impels the wiper in the direction of the face of the block of insulation 26 on which the contacts 27, 28 and 29 are positioned. By rotating the knob 34 the wiper 30 may be caused to engage the contacts 27, 28 and 29 in succession, so that the electrical circuits next to be described may be accumulatively energized.

Current is fed from a conventional plug 36, through an opening into the interior of the shell, where the two wires 37 and 38 thereof separate. The wire 37 is connected to the terminal 16 and passes therefrom to the hub 31 of the movable contact 30. The other wire 38 passes upwardly within the shell and through an opening 39 near the base of the column 1 into the interior of the column and thence upwardly through the column to the head 2 within which it is connected to one terminal of each of the lamp sockets 3, 4 and 5. From the other terminal of the socket 3 a wire 40 leads back through the column to the contact 29 of the switch block 26. Similarly wires 41 and 42 lead from the other terminals of the sockets 4 and 5 to the contacts 28 and 27, respectively. A wire 43 is connected to the wire 41 between the socket 4 and the contact 28 and leads from this wire 41 to the arm 24. This wire 43, together with the arm 24, liquid L and contact 15, collectively from a shunt circuit shunting the current switching device for the several bulbs.

Under normal conditions the arm 24 is in the position shown in Figure 1 wherein it lies wholly above the surface of the liquid L. Likewise the movable contact 30 is in the position shown in this figure so that all circuits to the bulbs are dead. When it is desired to turn on the bulbs without dimming, the knob 34 is rotated in a clockwise direction as viewed in Figures 1 and 3 to move the contact 30 into engagement with the contact 27. This completes the circuit through the bulb 5a and it will glow with maximum intensity. If the rotation of the knob is continued, the contact 30 will next engage with the contact 28 to turn on the bulb 4a and continued rotation of the knob will engage the contact 30 also with the contact 29, so that all three bulbs will glow brightly. Thus either one, two or three lamps may be turned on at the will of the operator.

However, should a dim light be desired, the movable contact 30 may be returned to the position in Figure 1 to extinguish all of the bulbs and, while it remains in this position, the knob 22 may be rotated in a counterclockwise direction to correspondingly swing the arm 24 so that its end is caused to enter into the liquid L. As soon as this occurs, current will pass from the arm 24 through the liquid to the conducting plate 14, but with a resistance inversely to the distance between the end of the arm 24 and the plate 14. In other words, when just the end of the arm dips into the liquid, the current will flow to the bulb 4a with maximum resistance in the line and consequently the lamp will glow dimly. The deeper the arm is depressed into the liquid, the closer it will approach to the contact 15 and its

plate 14 and the resistance will be correspondingly lessened, so that the bulb 4a will glow more brightly. If the arm is brought into the dotted line position of Figure 1, wherein it actually engages the contact 15, there will be no interposed liquid resistance and consequently the bulb 4a will glow with its maximum intensity. Thus by manipulating the knob 22, the operator can dim the bulb 4a as desired.

This arrangement makes the lamp particularly useful either to give full illumination or as a night light where just enough light is required to permit one to see his way around.

Any appropriate liquid L may be used in the receptacle 8 and for convenience in replenishing this liquid, the cover 7 is provided with an upstanding filling tube 44 which extends to and terminates in an aperture in the shell. The open end of this filling tube is closed by a cap 45 having a spring hinge 46 which normally holds it shut, but it may be manually opened when desired to permit liquid to be poured into the vessel. This spring closure also serves as a safety valve in the event that evaporation of the liquid L occurs at such a rate as to build up pressure in the vessel. This will not of course ordinarily occur, but might conceivably happen if the owner of the lamp should remove one of the bulbs and improperly use that socket to connect other electrical appliances or a plurality of other lamps, as persons sometimes do.

If at any time access is desired to the switching mechanism within the shell, this may be readily had by removing the screws 13 to release the shell. The shank 21 of the knob 22 is then withdrawn from the ball end of the spindle 18 and both knobs may then be withdrawn to free the shell. The shell may then be raised above the top of the receptacle 8 to uncover the switching mechanism. At that time the cover 7 of the receptacle may be opened for access into the interior of the latter. The connection between the shank 21 and the spindle 18 may vary, but, for the purpose of illustration, the spindle is shown as having a ball end immediately adjacent which the spindle is circumferentially toothed, while the shank 21 has a socket with an internal annular bead and the wall of the shank is longitudinally slit so that the shank may be sprung over the ball end to move the bead apast the ball and thus secure the parts together. Between the bead and the free end of the shank are teeth corresponding to the teeth on the spindle and serving to interengage therewith to lock these parts for simultaneous rotation.

The invention has been shown in the accompanying drawings as associated with a table lamp, although in practice it may be incorporated within a floor lamp or in any other conventional form of lighting device.

The foregoing detailed description sets forth the invention in its preferred practical form and the invention is to be understood as fully commensurate with the appended claims.

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

1. A lamp comprising a receptacle adapted to contain an electrical resistance liquid, a column supporting at least one incandescent lamp bulb, an electrical circuit including said lamp bulb and also including a manually operable switch through which current may be fed directly to the lamp bulb, a shunt circuit connected across said switch and including a fixed contact submerged

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in the liquid in the receptacle, and a movable contact adjustable through said liquid toward and away from said submerged fixed contact, and means for manually adjusting said movable contact to interpose in the shunt circuit the resistance of more or less of the liquid contained in the receptacle at the will of the operator to vary the intensity of the bulb thus energized.

2. A lamp comprising a base provided with a receptacle adapted to contain a resistance liquid, a column extending from the base and supporting at least one lamp bulb, an electric circuit extending into the base and upwardly through the column to the lamp bulb and including, within the base, a manually operable switch to directly control the feed of current to the lamp bulb, a shunt circuit connected across the switch with one terminal of the circuit submerged in the resistance liquid and the other terminal of the circuit connected to an arm pivotally supported above the surface of the resistance liquid, and manually operable means for causing said arm to dip into the resistance liquid for the purpose of completing the shunt circuit through said liquid to the bulb, the length of the path of current through the liquid determining the intensity of the bulb when thus illuminated.

3. A lamp comprising a base provided with a receptacle adapted to contain a resistance liquid, a column extending from the base and supporting a plurality of lamp bulbs, an electrical circuit leading into the base and having a common feed wire extending through the base and through the column to one terminal of each of the several lamp bulbs in succession, a switch within the base comprising fixed and movable contacts, the fixed contacts being individually connected to the several bulbs and the movable contact being connected to the common return of such circuit and the movable contact being manually movable to engage said fixed contacts accumulatively and in succession, in combination with a shunt circuit around the switch and including one of the bulbs, said shunt circuit having normally spaced terminals, one of which is submerged in the liquid in the receptacle and the other of which is in the form of an arm manually movable from a point above the surface of such liquid downwardly through the liquid and into contact with the other terminal at the will of the operator.

4. A lamp comprising a base provided with a receptacle adapted to contain a resistance liquid, a column extending from the base and supporting a plurality of lamp bulbs, an electrical circuit leading into the base and having a common feed wire extending through the base and through the column to one terminal of each of the several lamp bulbs in succession, a switch within the base comprising fixed and movable contacts, the fixed contacts being individually connected to the several bulbs and the movable contact being connected to the common return of such circuit, and

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the movable contact being manually movable to engage said fixed contacts accumulatively and in succession, in combination with a shunt circuit around the switch and including one of the bulbs, said shunt circuit having normally spaced terminals, one of which comprises a conductive plate at the bottom of the receptacle and is submerged in the liquid in the receptacle and the other of which is in the form of an arm manually movable from a point above the surface of such liquid downwardly through the liquid and into contact with the other terminal at the will of the operator.

5. A lamp comprising a receptacle adapted to contain an electrical resistance liquid, a column supporting at least one incandescent lamp bulb, an electrical circuit including said lamp bulb and also including a manually operable switch through which current may be fed directly to the lamp bulb, a shunt circuit connected across said switch and including a fixed contact submerged in the liquid in the receptacle, and a movable contact adjustable through said liquid toward and away from said submerged fixed contact, and means for manually adjusting said movable contact to interpose in the shunt circuit the resistance of more or less of the liquid contained in the receptacle at the will of the operator to vary the intensity of the bulb thus energized, said receptacle having a filler tube provided with a spring pressed closure adapted to open and relieve gaseous pressure if such becomes present in the receptacle.

6. A lamp comprising a base provided with a receptacle adapted to contain a resistance liquid, a column extending from the base and supporting a plurality of lamp bulbs, an electrical circuit leading into the base and having a common feed wire extending through the base and through the column to one terminal of each of the several lamp bulbs in succession, a switch within the base comprising fixed and movable contacts, the fixed contacts being individually connected to the several bulbs and the movable contact being connected to the common return of such circuit and the movable contact being manually movable to engage said fixed contacts accumulatively and in succession, in combination with a shunt circuit around the switch and including one of the bulbs, said shunt circuit having normally spaced terminals, one of which is submerged in the liquid in the receptacle and the other of which is in the form of an arm manually movable from a point above the surface of such liquid downwardly through the liquid and into contact with the other terminal at the will of the operator, said receptacle having a filler tube provided with a spring pressed closure adapted to open and relieve gaseous pressure if such becomes present in the receptacle.

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