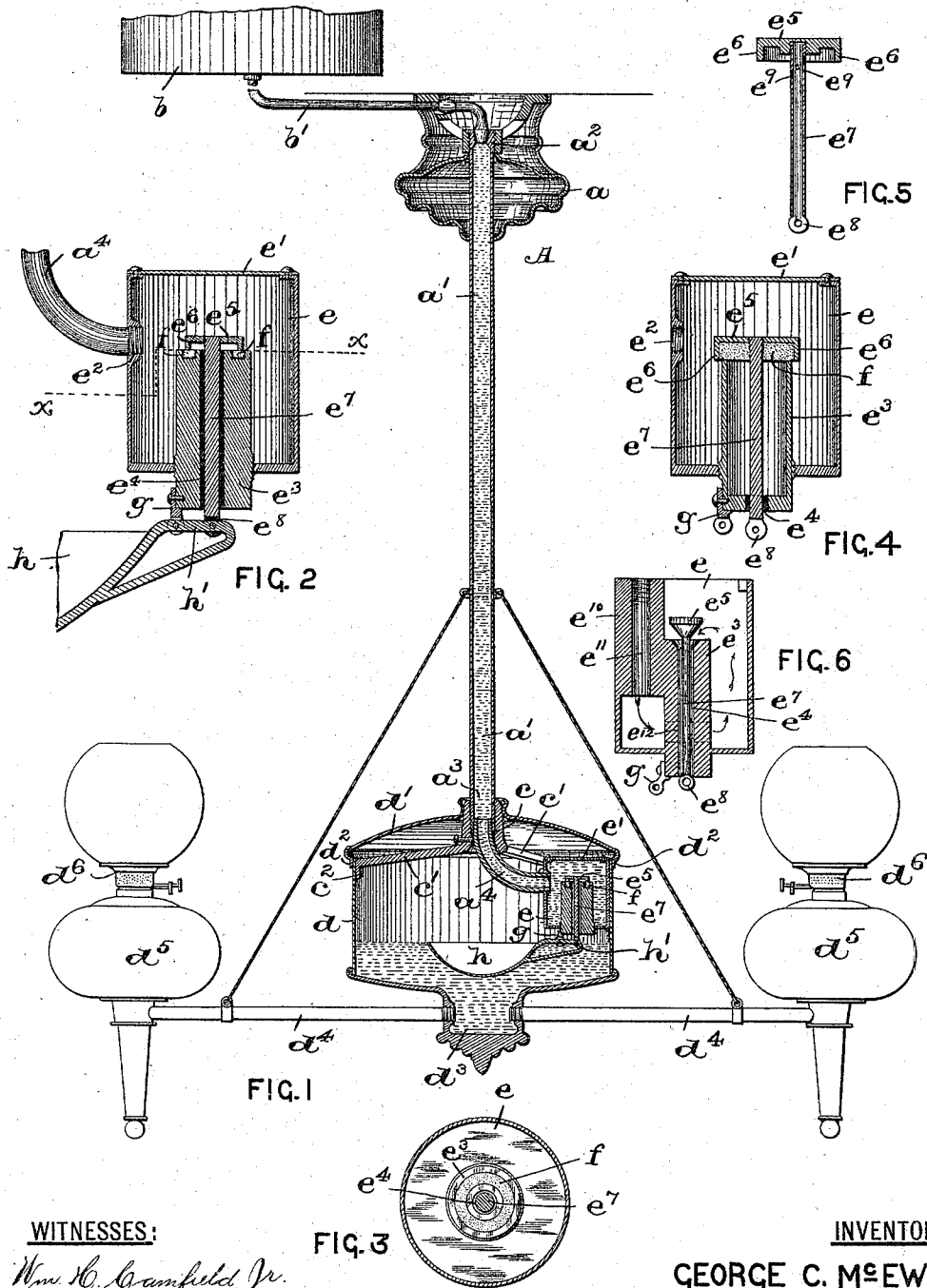


(No Model.)

G. C. McEWEN.
MEANS FOR CONTROLLING FLOW OF LIQUIDS.

No. 570,436.

Patented Oct. 27, 1896.



WITNESSES:

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MEANS FOR CONTROLLING FLOW OF LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 570,436, dated October 27, 1896.

Application filed June 4, 1895. Serial No. 551,640. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. McEWEN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Means for Controlling the Flow of Liquids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel form of apparatus for burning hydrocarbon oils or other oils, and is designed for utilization for both illuminating and heating purposes.

The present invention has for its primary object to provide a novel form of controlling device or regulator for automatically delivering the oil for consumption which shall be very simple in construction and still very reliable in its governing operation, completely shutting off the supply of oil and avoiding leakage when the burner or burners are not lighted, the construction of my novel form of controlling device being such to regulate the height of the oil in a service-tank and in the fount or founts of the lamps supplied with oil from said tank.

The invention therefore consists in the novel form and construction of controlling device or regulator herein shown and described, and also in the novel arrangement and combination of the same with other parts of the invention, such as will be hereinafter fully described, and finally embodied in the clauses of the claims.

The invention is illustrated in the accompanying sheet of drawings, in which—

Figure 1 is a vertical section of a suitable chandelier and lamps provided with a service-tank and illustrating one arrangement of my novel form of controlling device in connection with said tank. Fig. 2 is a vertical section of said controlling device on an enlarged scale, illustrating one form of valve construction; and Fig. 3 is a horizontal section of the same, taken on line *x* in Fig. 2. Fig. 4 is a vertical section of the controlling device, but illustrating another modified form of valve

used in connection therewith; and Fig. 5 is still another form of valve provided with a tubular form of piston or valve-stem. Fig. 6 is a sectional view of still another form of controlling device or auxiliary or supplemental service-tank and valve therein.

Similar letters of reference are employed in each of the above-described views to indicate corresponding parts.

In said drawings, *b* designates the main supply-tank, which may be placed in any suitably elevated position, either within or without the building, to supply one or more lamps or burners. Connected with said tank *b* by means of a suitable supply-pipe *b'* is a chandelier *A*, which consists, essentially, of the upper ornamental section *a*, for securing it to the ceiling, and the pipe *a'*, secured therein and connected by a suitable connection *a''* with said pipe *b'*, which can be suitably packed or otherwise constructed to prevent leakage at that point. The lower end of said pipe *a'* is screw-threaded, as shown, and is screwed into a threaded boss or collar *c*, from which extend suitably-constructed spider-arms *c'*, having the perforated ends *c''*, to which is secured, by means of suitable pins or rivets, the service-tank *d*. Said tank is provided with a centrally-perforated cover *d'*, which is arranged around the pipe *a'* and over said boss or collar *c* and has its edge *d''* turned down and over the upper circumferential edge of the service-tank, to which it can be secured in any well-known manner, as will be clearly evident. Said tank *d* is also provided in the bottom thereof with a suitable depression *d'''* for the connection of the chandelier arms or branches *d''* which support and feed the founts *d''* of the lamps *d''*.

Of course it will be understood that the form and construction of said service-tank *d* may be varied. Within said tank *d*, I have secured a suitable governing or controlling device for completely and automatically shutting off the supply of oil into the tank *d* when the oil rises above a certain level, and the construction of said device being such to automatically open and permit the entrance of a fresh supply of oil into said tank *d* when the oil has fallen below said level. Said controlling device comprises therein a separate oil-receiving reservoir or chamber *e*, which may be of any de-

sirable shape and cross-section, and is secured
 in any suitable manner, preferably within said
 tank *d*, to one of the spider arms *c'*, substan-
 tially as illustrated in Fig. 1. Said reservoir
 5 or chamber *e* acts as an auxiliary or supple-
 mental service-tank, into which the fluid from
 the main supply-tank *b* is received, and is
 preferably provided with a suitable cover *e'*,
 secured to said chamber in any desirable man-
 10 ner, and is connected with the lower end *a''*
 of the pipe *a'* by a suitable pipe or tube *a''*,
 which terminates and is secured in a suitable
 opening *e''* in the side or in any other desirable
 portion of said chamber or reservoir *e*. In
 15 the bottom of said chamber or reservoir *e* is a
 suitable opening, and in communication with
 the same is a stand-pipe or other suitable cast-
 ing *e''*, provided with a longitudinally-ar-
 ranged duct *e''*, through which the oil depos-
 20 ited in the chamber *e* can pass and flow into
 the service-tank *d* when the valve or control-
 ler connected with said stand-pipe or the cast-
 ing *e''* is open. Said valve or controller con-
 sists, essentially, of a suitable piston or valve-
 25 disk *e''*, having an annular and downwardly-
 extending rib or flange *e''*, which normally
 rests upon a suitable packing-ring *f*, made of
 any desirable material, and which may be
 forced into and held in a depression in the top
 30 of the stand-pipe or casting *e''*, as clearly shown
 in Figs. 2 and 3. Connected with said piston
 or disk *e''* is a stem *e''*, which extends down into
 and through said duct *e''*, leaving sufficient
 space for the passage of the oil through the
 35 same, and said stem being provided with a
 bifurcated and perforated end *e''* at the bot-
 tom. In place of the stand-pipe *e''* (shown in
 Figs. 2 and 4) said controlling device *e* may
 be made as indicated in Fig. 6. In said con-
 40 struction the pipe *a''* is tapped directly into
 a tubular portion *e''*, having a duct *e''*, said
 portion being formed integral with the stand-
 pipe portion *e''*. The fluid passes down through
 the duct *e''*, and through an opening *e''* in the
 45 pipe portion *e''* at one side thereof, as indi-
 cated in dotted lines, and finally through the
 top of said pipe into the tank *d*. The valve-
 disk *e''* on the stem *e''* may rest in a conical
 seat at the top of said pipe or casting *e''*, sub-
 50 stantially as shown, in which case I may dis-
 pense with the packing *f*. Pivotally sup-
 ported in a suitable bracket *g*, as shown in
 Figs. 1 and 2, is a suitable float *h*, having an
 arm *h'*, which is also pivotally connected with
 55 the bifurcated end of said stem *e''*. Said float,
 which is preferably of the construction shown,
 but may be made in the shape of a lever or
 other similar device, is of such a construction
 that it will rise and fall with the varying levels
 60 of the fluid in the tank *d*, thereby correspond-
 ingly operating the valve-stem, and hence the
 piston or valve-disk *e''*, which is brought down
 upon or raised from the packing-ring *f* or its
 seat at the top of the stand-pipe or casting *e''*.
 65 Thus it will be seen that when the oil in the
 tank *d* is at the level indicated in Fig. 1 said
 valve is closed, but as the fluid is being con-

sumed by the lamps or burners and falls below
 said level in the service-tank *d*, an upward
 movement of the valve-stem *e''* is the result, 70
 causing the valve at the top of the stand-pipe or
 casting *e''* to be opened and a fresh supply of
 oil to pass into the tank *d*, and as soon as the
 oil therein has again reached its former level
 indicated in Fig. 1 said valve-disk *e''* is again 75
 tightly closed down on the packing-ring *f* or
 upon the valve-seat at the top of the pipe or
 casting *e''*, thereby completely shutting off the
 supply of oil into the tank *d* until a fresh
 supply is needed. In lieu of the construction 80
 of valve illustrated in said Fig. 2, the casting
e'' may be made in the manner of a hollow
 cylinder and the packing *f* can be secured di-
 rectly to the under side of the valve-disk or
 85 piston *e''*, being brought down upon the sur-
 rounding edge of the said cylinder when the
 valve is closed to shut off the supply of fluid,
 as clearly illustrated in Fig. 4. If desirable,
 said valve-stem *e''* may be made hollow, as in-
 90 dicated in Fig. 5, being provided with suit-
 able perforations *e''*, through which the fluid
 can flow into said hollow stem and finally
 down into the tank *d*, as will be clearly un-
 derstood from an inspection of said Fig. 5.
 By this arrangement of the valve-disk *e''* at 95
 the top of the pipe or casting *e''* the column
 of oil in the chamber or reservoir *e* will by its
 own pressure act on the top of said disk, and
 in addition to the weight of the valve-operat-
 ing mechanism will help to maintain said 100
 valve-disk closed tightly down upon or
 against the packing-ring *f* or upon its seat
 when the level of the fluid in the tank *d* is
 below the level indicated in said Fig. 1,
 thereby securing an absolute stoppage of the 105
 flow of liquid from the chamber *e* into the
 tank *d*.

Of course it will be evident that my novel
 form and construction of controlling device
 is applicable to many other purposes and ap- 110
 paratus for automatically controlling the flow
 of liquids from one reservoir or a pipe into a
 second reservoir or pipe, and I therefore do
 not limit my invention to its use in connec-
 tion with lamps for burning hydrocarbon or 115
 other oils. It will also be evident that many
 changes of construction may be made in the
 details of the arrangements and combinations
 of the parts herein shown without departing
 from the scope of my invention, and I there- 120
 fore do not limit my invention to the exact
 arrangements and combinations of parts
 herein shown and described.

Having thus described my invention, what
 I claim is—

1. In a device for controlling the flow of 125
 liquids, the combination with a service-tank
 and means for conducting liquid into the
 same; of a separate chamber or reservoir ar-
 ranged within said tank; a stand-pipe in said 130
 chamber or reservoir leading from the same
 into said service-tank; a valve at the top of
 said stand-pipe held closed by the pressure
 of the column of liquid; and means connected

with said valve and operated by the rise and fall of the liquid in the service-tank to control the movement of said valve.

2. In a device of the class described, the
5 combination with a service-tank and means for conducting liquid into the same; of a chamber separate from and within said tank; a stand-pipe in said chamber communicating with the service-tank; a valve for said stand-
10 pipe held closed by the pressure of the column of liquid; a float; and means connecting said float with the valve.

3. In a device of the class described the combination with a burner of a service-tank

connected therewith; a chamber separate 15
from and within the service-tank; a stand-pipe in said chamber; a valve held closed by the pressure of the column of liquid; a stem connected to said valve; and a float and lever
20 connected to the stem.

In testimony that I claim the invention set forth above I have hereunto set my hand this 1st day of June, 1895.

GEO. C. McEWEN.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.