

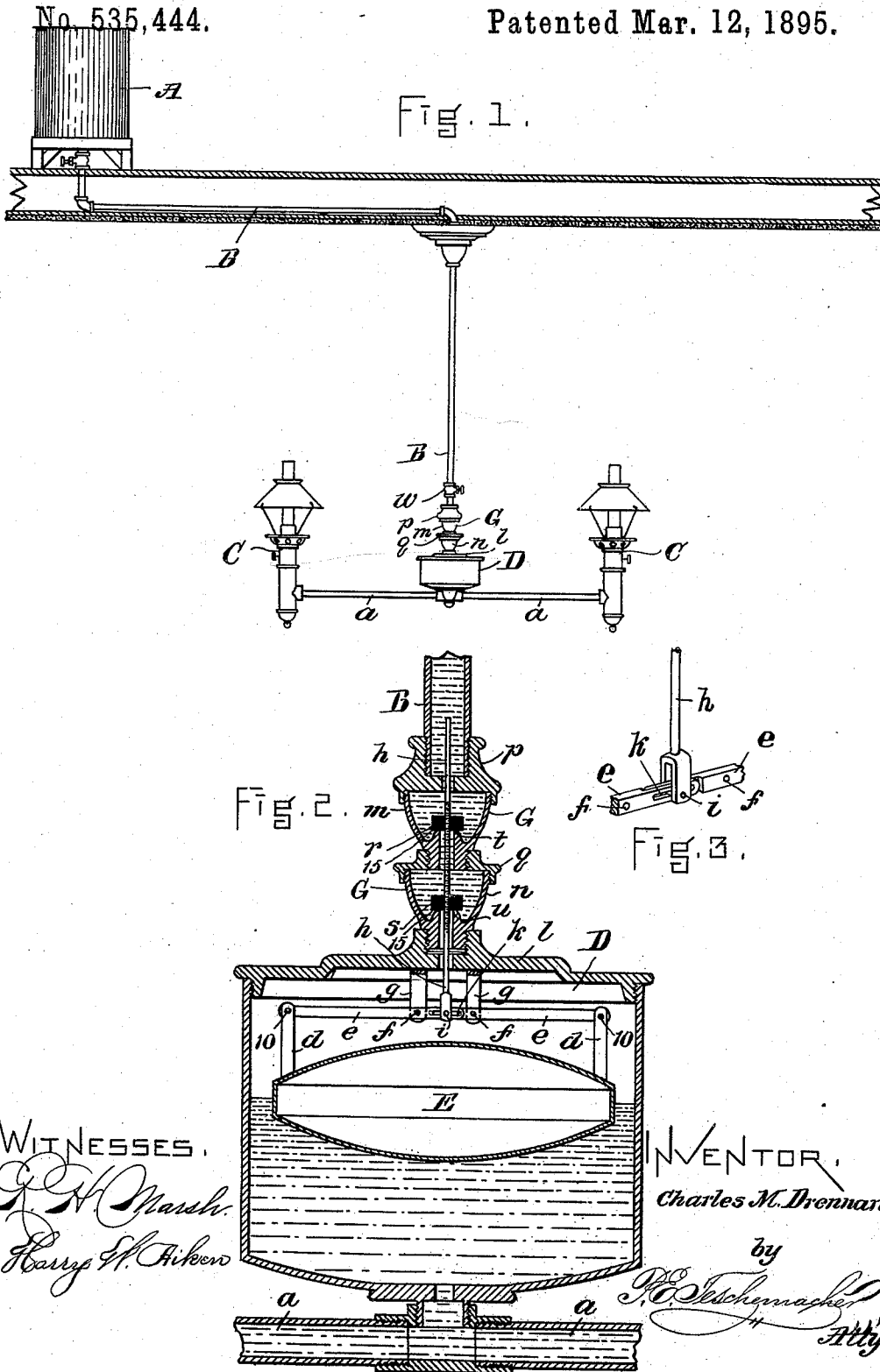
(No Model.)

C. M. DRENNAN.

AUTOMATIC REGULATING DEVICE FOR CONTROLLING SUPPLY OF
OIL TO LAMPS.

No. 535,444.

Patented Mar. 12, 1895.



UNITED STATES PATENT OFFICE.

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AUTOMATIC REGULATING DEVICE FOR CONTROLLING SUPPLY OF OIL TO LAMPS.

SPECIFICATION forming part of Letters Patent No. 535,444, dated March 12, 1895.

Application filed March 31, 1894. Serial No. 505,922. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. DRENNAN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Automatic Regulating Devices for Controlling the Supply of Oil to Lamps from an Elevated Tank or Reservoir, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an elevation of an apparatus for supplying oil to lamps, having my improved automatic regulating device applied thereto. Fig. 2 is an enlarged vertical section of the regulating device. Fig. 3 is a detail in perspective to be referred to.

My invention has for its object to simplify and improve the construction of automatic regulating devices for apparatus for feeding oil to a lamp or lamps from an elevated tank or reservoir, whereby the supply of oil to the lamp or lamps is more perfectly controlled and the valves rendered absolutely tight when closed, thereby effectually preventing the oil from leaking down and overflowing the lamps which has been a great source of trouble and annoyance in apparatus of this description as heretofore constructed.

To this end my invention consists in certain novel features of construction and combinations of parts hereinafter set forth and specifically pointed out in the claim.

In the said drawings, A represents an elevated tank or reservoir for containing a supply of hydrocarbon oil or other illuminating fluid.

B is the oil supply-pipe which is connected with the bottom of the reservoir A, and through which the oil is supplied to the lamps C, C, passing first through my automatic regulator which is connected with the supply pipe B at any suitable distance from the lamp or lamps, and is provided with valves to regulate the flow of the oil thereto as will now be described. This regulator consists of a metallic casing or distributing reservoir D, to the bottom of which are secured the branch pipes a, a, leading to the lamps C, C. The reservoir D is intended to contain oil at a level corresponding to that desired for the lamp burners,

and within said reservoir is placed a hollow float E of any suitable shape, to the opposite sides of which are rigidly secured two up-rights d, d, to the upper ends of which are pivoted at 10, 10, two levers e, e, fulcrumed at f, f, in hangers g, g, depending from the inner side of the top of the casing D. To the inner ends of the levers e, e, which are halved and fitted together as shown in Fig. 3, is pivoted the bifurcated lower end of a valve-stem or spindle h, the pivot i passing through slots k formed in the ends of the levers e, e, to permit the same to move freely as required. The valve-stem h extends up vertically within a valve-casing G which is secured to the top of the reservoir D and is provided at its upper end with a threaded aperture for the reception of the lower end of the oil supply-pipe B, the valve-stem passing through suitable guide-apertures in the casing G above, below, and between the valves, said apertures serving to permit the oil to flow through the casing G to the reservoir D below. The valve casing G is composed of a base or lower portion l and two cups m, n, provided with suitable caps or covers p, q, the several parts being fitted together and connected by screw threads as shown in Fig. 2. These cups m, n, form large combined oil and valve-chambers for containing the valves r, s, which are formed of a composition of hard rubber or other suitable material, said valves being screw threaded to fit corresponding threads on the valve stem, whereby they are made adjustable in height with relation to the valve seats t, u, to insure a perfect fit thereupon. These valve seats are considerably raised above the bottoms of the valve-chambers as shown in Fig. 2, and the diameter of the valves r, s, exceeds that of their seats, causing them to overlap the same as shown at 15, whereby a portion of the pressure of the oil contained in the enlarged valve-chambers is caused to be exerted in an upward direction against that portion of the under surface of each valve which projects beyond its seat, thereby causing the valves to be partially balanced, and establishing an equilibrium which renders the valves extremely sensitive to the action of the float E exerted through the medium of the levers e, e, and valve stem h, the flow of the oil from the pipe B to the reservoir D being thus au-

tomatically regulated with the greatest nicety so as to maintain the oil in said reservoir at the exact height desired and prevent it from rising above such level and overflowing the lamps.

It will be obvious that the upper valve *r* relieves the lower valve *s* of the greater portion of the pressure of the oil in the pipe *B* above so that when the float *E* descends by reason of the consumption of the oil by the lamps, the power required to raise both valves will only slightly exceed that required to raise the upper valve alone, thus enabling me to reduce the size of the float and causing the valves to respond instantly to any increase in the height of the oil in the reservoir *D*, a very slight upward movement of the upper valve being required to produce a flow of the oil through the valve casing *G*, while the two valves arranged as shown co-operate to jointly insure freedom from liability to leakage and consequent overflow of the lamps which it has been found extremely difficult to avoid in apparatus of this description as hitherto constructed, especially where valves have been used having inverted valve-seats which it is almost impossible to render tight except when operated by a screw which is not adapted for use with apparatus of this character.

The supply-pipe *B* is provided above the regulator with a valve *w* for shutting off the supply of oil to the regulator when the lamps are not required to be lighted.

What I claim as my invention, and desire to secure by Letters Patent, is—

An oil lighting-apparatus comprising the reservoir *D* having a removable cover provided with a central opening and depending arms at opposite sides of said opening, a pipe *a* leading outwardly from said reservoir, a lamp *C* connected to the outer end of said pipe, the horizontal elliptical float *E* within the reservoir and having at opposite sides standards *d d*, the levers *e e* pivoted at their adjacent ends to the depending arms and at their opposite ends pivoted to said standards, a double, separable valve chamber on top of the reservoir, and having raised valve seats in the bottoms of both of its chambers, a rod extending down through said chambers into the reservoir and pivoted to the inner extremities of levers *e e*, two downwardly closing valves adjustable toward and from each other on the rod and of greater diameter than their seats to allow the oil to press on their under as well as their upper sides and thereby partially balance them; said valves being of less diameter than the interior of their chambers to permit the oil to flow down past them, a tank *A* at a greater height than the reservoir *D*, and a pipe leading from the tank into the top of the double valve-chamber, substantially as set forth.

Witness my hand this 27th day of March, A. D. 1894.

CHARLES M. DRENNAN.

In presence of—

P. E. TESCHEMACHER,
HARRY W. AIKEN.