

H. S. HUDSON.

Lamp.

No. 89,580.

Patented May 4, 1869.

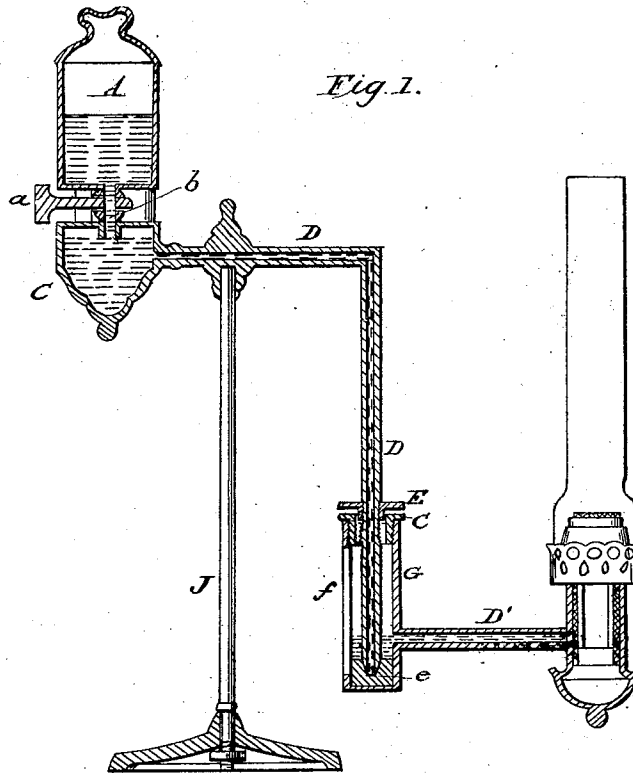
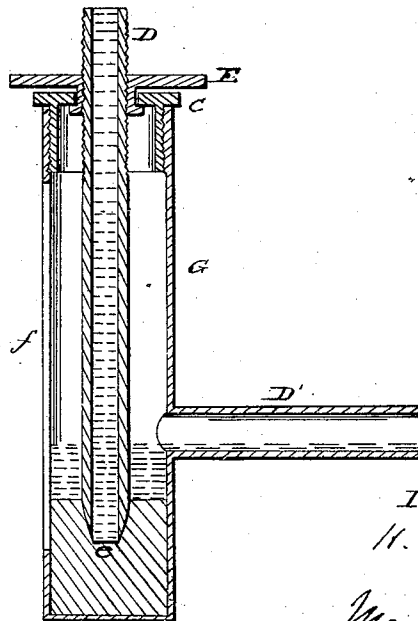


Fig. 2.



Witnesses
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H. S. HUDSON, OF SELMA, ALABAMA.

Letters Patent No. 89,580, dated May 4, 1869.

IMPROVEMENT IN AUTOMATIC FEED-REGULATORS FOR LAMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, H. S. HUDSON, of Selma, in the county of Dallas, and State of Alabama, have invented a new and improved Automatic Regulator for Artificial Illumination; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical sectional view of the improved regulator, applied to a pipe leading from an elevated reservoir to a lamp-burner, for regulating the supply of oil to the burner.

Figure 2 is an enlarged sectional view of the regulator.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to provide for automatically supplying oil to stationary burners arranged throughout a building, and also to the burners of portable lamps, from reservoirs which are located at any desired or convenient height above the level of the burners.

The nature of my invention consists in counterbalancing the weight of a column of burning-fluid, on its way from an elevated supply-reservoir to one or more burners, by means of a column of mercury, or other fluid of greater specific gravity than the burning-fluid; and in so constructing the device for effecting this result, that while the burning-fluid is allowed to flow to the burner only just as fast as it is consumed, the flow can be increased or diminished according to the quantity of oil or fluid which it is desired to consume, or the brilliancy of the light required, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, fig. 1, I have represented my improved illuminating-apparatus mounted upon a portable standard, J, and provided with a single burner; but, in practice, I also contemplate the application of my invention to stationary burners and supply-pipes arranged throughout a building, and supplied from a reservoir, which may be arranged in any convenient locality in the highest part of the building, or at a point which is above the level of the highest burner.

For convenience of illustration, my apparatus may be considered as consisting of two parts, to wit: The means for automatically supplying the burning-fluid to the distributing-pipe or pipes, and for regulating the pressure in the same; also, the device for counterbalancing the weight of the fluid in said pipe or pipes, and supplying the fluid to the burner or burners.

The first consists of a supply-reservoir, A, which is r-tight, except through its feed-tube, b, which tank is inverted, and supported in a suitable manner upon a distributing-tank C, as shown in fig. 1. The stop-cock a being open, the fluid from reservoir A will rise

in the tank C until the lower end of tube b is immersed, when the flow will stop, to be again renewed when the end of said tube is uncovered, thereby keeping a constant and nearly uniform level of fluid in the tank C, and consequently preserving a practically uniform pressure in the pipe or pipes D, leading off from said tank.

The supply-reservoir A, and its tank C, may be made of any suitable capacity, and constructed as shown in fig. 1, or in any other suitable manner.

The pipe D leads downward, and has applied on its lower extremity, a vessel, G, which I shall term a well. This well may be made of any suitable length, and from it a supply-pipe or pipes, D', is carried off to a burner-tube of any suitable construction.

Upon the external surface of the pipe D, near its lower terminus, a screw-thread is formed, upon which is applied a flanged nut, E, that is adjustable up or down, by turning it to the right or left.

Surrounding the annular collar g of said nut, is a screw-cap, c, which is screwed into the upper end of the well G, as shown in figs. 1 and 2.

As the nut E will turn loosely in the cap c, it will be seen, that by adjusting this nut, the well G can be more or less raised or depressed; and the lower end of pipe D can be adjusted nearer to or further from the bottom of said well. Other means equivalent to those above described may be adopted for effecting this result.

The lower end of pipe D is reduced to a knife-edge, as shown at e, and dips into a bath of mercury, or other fluid which is of greater specific gravity than the burning-fluid; and at a suitable height above the level of the mercury, a pipe, D', leads from the well G to the wick-tube of a lamp-burner, as above stated, for supplying the burning-fluid from the well to the wick.

Mercury, or other fluid having a greater specific gravity than the burning-fluid, is put into the well G, and this well adjusted until the lower end, e, of pipe D dips far enough into the mercury to allow the latter to counterpoise the weight of the superimposed column of fluid.

When it is desired to light the lamp, or lamps, as the case may be, the well G is depressed, and the burning-fluid allowed to pass through the mercury, and rise above it in the well and supply-pipe D', to the required height to maintain the proper supply, as illustrated in figs. 1 and 2. The specific gravity of the column of burning-fluid above the level of the mercury, added to the column of mercury above the lower end e of the pipe D, is always maintained by a renewal of supply, when the fluid in the burner or burners is being consumed.

It will be seen, from the above description, that I employ, in conjunction with the fluid-reservoir A, an automatic feeding-device, which will regulate the supply to and pressure of fluid in the pipe or pipes D; and that I combine therewith an adjustable automatic feed-regulator, by which the supply of oil to the burner or burners can be adjusted to a nicety, and maintain at

a uniform or nearly uniform level, and at any desired level therein.

The lower end, *c*, of the pipe *D* may be contracted, if desired, and is preferably reduced to a knife-edge, for preventing the accumulation of air-bubbles beneath it.

The well *G* may have a glass window, *f*, inserted in its side, for exposing to view the level of the fluid in this well.

For portable, or hand-lamps, the hollow pedestals thereof may be utilized as chambers for containing the automatic regulator.

I am aware that it is not a novel idea to construct portable lamps with means for automatically supplying burning-fluids from reservoirs to the wick-tubes; and therefore I do not claim broadly the principle of feeding lamps with oil.

What I do claim as new, and desire to secure by Letters Patent, is—

1. An adjustable automatic feeder, or regulator, applied to a pipe leading from a supply-reservoir to a burner, and constructed so as to operate substantially as described.

2. The combination of an automatic feeder, constructed substantially as described, with an apparatus which will regulate the supply to and pressure in a distributing-pipe leading to said feeder, substantially as and for the purposes set forth.

3. The well *G*, made adjustable upon pipe *D*, and so constructed as to expose to view the fluids into which the end of this pipe dips, substantially as described.

4. The lower end of pipe *D*, reduced to a knife-edge, and arranged within the well, substantially as described.

H. S. HUDSON.

Witnesses:

C. J. CLARK,
JAMES KENT.