T. G. GOODFELLOW.
Hydrostatic Lamp.

No. 206,313. Patented July 23, 1878.

FIG. 1.

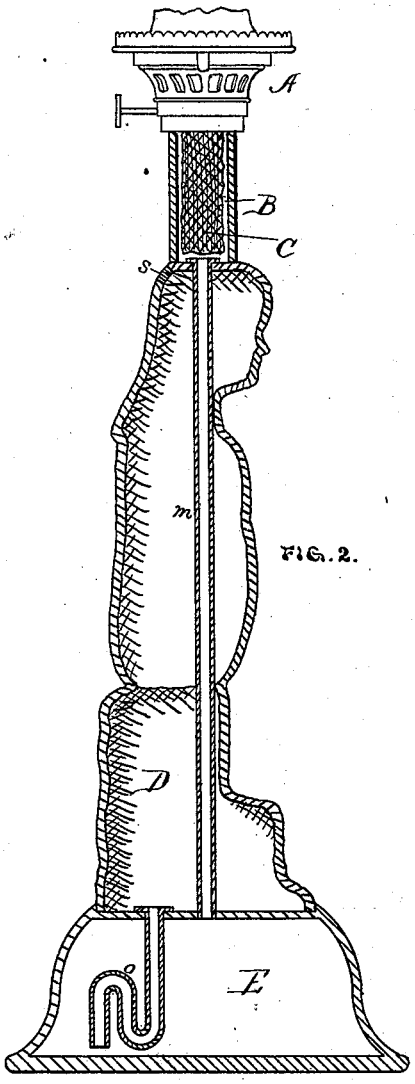

FIG. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS G. GOODFELLOW, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HYDROSTATIC LAMPS.

Specification forming part of Letters Patent No. **206,313**, dated July 23, 1878; application filed April 5, 1878.

To all whom it may concern:

Be it known that I, THOMAS G. GOODFELLOW, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Hydrostatic Lamps, of which the following is a specification:

In the accompanying drawing, Figure 1 shows an elevation, and Fig. 2 a central vertical section, of my improved lamp.

Referring to the drawing, A represents an ordinary burner placed above a receptacle, B, designed to hold the depending end of the wick C and the oil which comes in immediate contact therewith.

The receptacle B is above and may be made to rest upon a standard, D, which is in turn supported by the base E. Both standard and base are hollow, and each forms a reservoir, and I designate them as the "water-reservoir" and the "oil-reservoir," respectively.

The receptacle B and base E are connected by a small vertical tube, *m*, extending from the bottom of one to the top of the other. In the construction shown in the drawing this tube passes through the standard. The latter has no opening from the receptacle B, but is connected with the oil-reservoir by a trap-shaped pipe, *o*, inserted in its bottom, and discharging at the bottom of the oil-reservoir. An air-opening, *s*, is provided at the top of the water-reservoir, for reasons which will be obvious.

In the lamp thus constructed I employ a body of water or other fluid with a specific gravity superior to that of oil, for the purpose of raising the latter to the wick or burner, and my design has been to so construct the lamp that when the requisite quantity of water has been put within it there will be no necessity for removing the water whenever the oil is replenished, or, in other words, to so arrange the parts of the lamp as to give the oil, in filling, a sufficient head to overcome the superior gravity of the water and drive it back into the water-reservoir, thus enabling the oil to make room for itself, and this without impairing the performance by the water of the duty assigned it.

To understand this it is only necessary to describe the operation of the apparatus shown, which is as follows:

I first put into the lamp the necessary amount of water, preferably through the receptacle B, though an appropriate opening may be provided in the water-reservoir for the purpose, if desired. This water, of course, finds its way into the base E either through the tube *m* or trap *o*. I then pour oil into the receptacle B, from whence it flows into the tube *m* and oil-pot E, thus forming a column of sufficient height to enable it to overcome the resistance of the water and force it up into the water-reservoir through the trap *o*. The pouring is continued, of course, until the water is raised sufficiently to balance the oil, with the tube full and the receptacle B at least partially so. When this has been done the lamp is ready for operation. This balance is always kept up by the water following the oil as it is consumed in use.

When the lamp is refilled with oil the water is driven back to its place in position to act again as a lift or forcing medium to send the oil to the burner.

It is thus seen that the water moves backward or forward in the two reservoirs, according as the oil is being replenished or exhausted.

Of course, there will be some natural evaporation of the water, which will occasion a deficiency necessary to be supplied.

Obviously any other filling-point from which the necessary head of oil can be obtained may be substituted or used in filling instead of the receptacle B.

By my construction I not only obviate all necessity for withdrawing the water previous to the replenishing of the oil-supply, but also dispense with the openings which would be necessary for that purpose. The oil-pot and burner are widely separated, thus securing safety against explosion, and an increased weight is imparted to the base, which tends to prevent overturning.

The trap *o* acts to deter the oil from entering the water-reservoir, which is an important result, because, if the oil should enter, it would

rise to the top of the body of water therein, and not issue thence until the water be wholly withdrawn.

I claim—

The lamp for heating or illuminating purposes wherein are combined an oil-reservoir at the bottom, a water-reservoir located next higher than the oil-reservoir, and connected therewith by a suitable pipe, and a wick or other filling-receptacle, located above the water-reservoir and connected with the oil-reservoir, the pipe from the water-reservoir to the oil-reservoir being provided with a trap or cut-off, substantially as and for the purpose set forth.

THOMAS G. GOODFELLOW.

Witnesses:
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