

S. K. JACKSON.

Lamp for Light-Houses.

No. 133,647.

Patented Dec. 3, 1872.

Fig. 1.

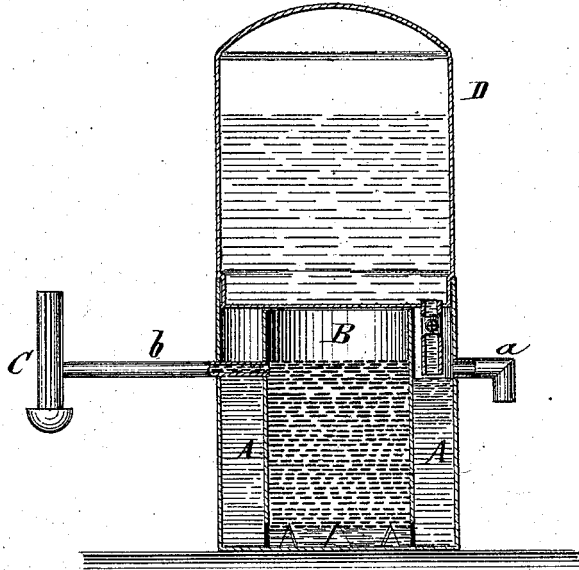


Fig. 2.

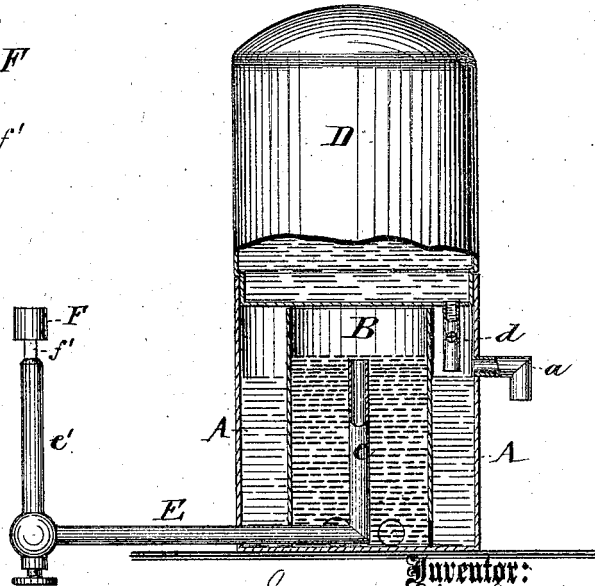
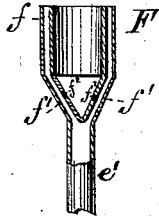


Fig. 3.



Witnesses:  
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Inventor:  
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PER *[Signature]*

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# UNITED STATES PATENT OFFICE.

SAMUEL K. JACKSON, OF NORFOLK, VIRGINIA.

## IMPROVEMENT IN LAMPS FOR LIGHT-HOUSES.

Specification forming part of Letters Patent No. 133,647, dated December 3, 1872.

*To all whom it may concern:*

Be it known that I, SAMUEL K. JACKSON, of Norfolk city, in the county of Norfolk and State of Virginia, have invented a Beacon-Light for Light-Houses or other purposes, of which the following is a specification:

The invention consists in automatically maintaining the desired oil-level in a beacon-lamp by means of hydrostatic pressure applied so as to take advantage of the different specific gravities of oil and water, and so as to cause the water to feed itself and take up the space gradually vacated by the oil. The object of this invention is to produce a continuous light, which will require no attention except from an inspector, who visits the beacon only at long intervals.

Figure 1 is a sectional elevation. Fig. 2 is a side view, partly broken away, of the connection between oil-vessel and burner; and Fig. 3, a sectional elevation of the burner which is preferably employed.

A in the drawing represents a water-vessel having a pipe, *a*. In the vessel is placed an oil reservoir or tube, B, having the pipe *b* leading to a burner, C. The oil-reservoir B may be open at lower end, or a little elevated above bottom of vessel A; or it may rest upon and be laterally apertured near the bottom of A. D is an air-tight water-chamber, superposed on the vessel A, and provided with the pipe *d*, which passes down to a level with the horizontal bottom of pipe *a*.

The operation is as follows: The chambers A & B are partially filled with water, and the required amount of oil poured into reservoir B, when water is supplied to vessel A until it covers the end of pipe *d*. The communication between air-tight water-chamber D and chamber A is then secured by turning a suitable cock in pipe *d*. As the oil from reservoir B flows through pipe *b*, and is consumed by burner C, the weight of oil decreases and the water falls, pressing up the oil, but not quite so high as before, the aggregate of fall being divided between the water and oil in proportion to their respective specific gravities. Hence becomes apparent the necessity of a new supply of water to create a higher level in both reservoir B and the water-vessel A, or the oil would gradually fall below pipe *b*. This object is secured

by an automatic supply of water from vessel D. When the water in A falls below the end of connecting-pipe *d* the water in D, pressing on the air only, (which is a liquid of less specific gravity,) passes through it and trickles down into vessel A until the end of said pipe is again covered. Thus is furnished a continual supply of water exactly commensurate with the loss of oil by consumption. The burner C may be of any suitable kind when heavy oils are employed, but even then I prefer the common Argand burner with a chimney. When, however, more volatile hydrocarbons are employed I use a supply-tube, E, passing into the lower part of reservoir B, and having two vertical arms, *e e'*, the first within and the second without said reservoir. The top of pipe *e'* may be on a level with the bottom of pipe *b*, and that of *e* with the end of pipe *d*. F is preferably, but not necessarily, an Argand burner, having the chamber *f* perforated at top and connected with supply-pipe *e'* by branch-tubes *f<sup>1</sup> f<sup>1</sup>*; but on the inner sides of the tubes *f<sup>1</sup> f<sup>1</sup>* I make two perforations, *f<sup>2</sup> f<sup>2</sup>*, which allow some of the oil to exude. This is lighted and kept continually burning, while the oil that passes through the branches *f<sup>1</sup> f<sup>1</sup>* is vaporized and then burned in the form of gas at the top of chamber *f*.

The advantages to the public of my invention are as follows: First, I am enabled to dispense entirely with the pumps and expensive clock-work mechanism now used in government light-houses for keeping the oil at the proper level in the lamps; and, secondly, to dispense with relays of watchmen and substitute therefor a single inspector at long intervals; while, thirdly, I can have the most inflammable oils under perfect control, and use them with perfect impunity. The overflow-pipe *a* may be dispensed with and air admitted through an aperture or any part of reservoir B; and the pipe *d* of air-tight water-chamber D may be made to terminate in the top of oil, which would render the device entirely applicable to buoys where considerable rocking takes place. Gages are used to show the height of water and oil. The heavier kinds of oil now in use are lard-oil and sperm-oil, while I can use any kind whatever. Explosion cannot take place in my device, because the tubes are always full of oil, and the oil is surrounded by water and pro-

tected from varying temperatures. If an increase of temperature causes the expansion of the air in the superposed water-tank, all that can happen is an overflow of water. If it contained oil, an overflow of that material would be disastrous.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with any suitable burner C, of the water-vessel A having air and overflow-pipe *a*, the oil-reservoir B having oil-

pipe *b*, and the superposed water-chamber D having water-pipe *d*, arranged and applied substantially as and for the purpose described.

2. The combination, with devices A B C, of the tube *e e'* and Argand burner F having the perforations *f<sup>2</sup> f<sup>2</sup>*, arranged as and for the purpose set forth.

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Witnesses:

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