(No Model.) 2 Sheets—Sheet 1.

H. E. N. MASON.

LAMP.

No. 476,055. Patented May 31, 1892.

Fig. 1.

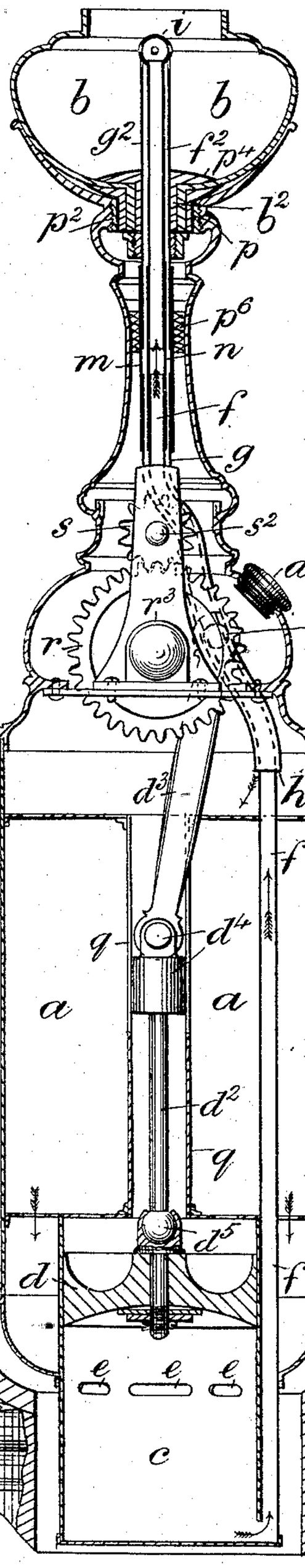


Fig. 3.

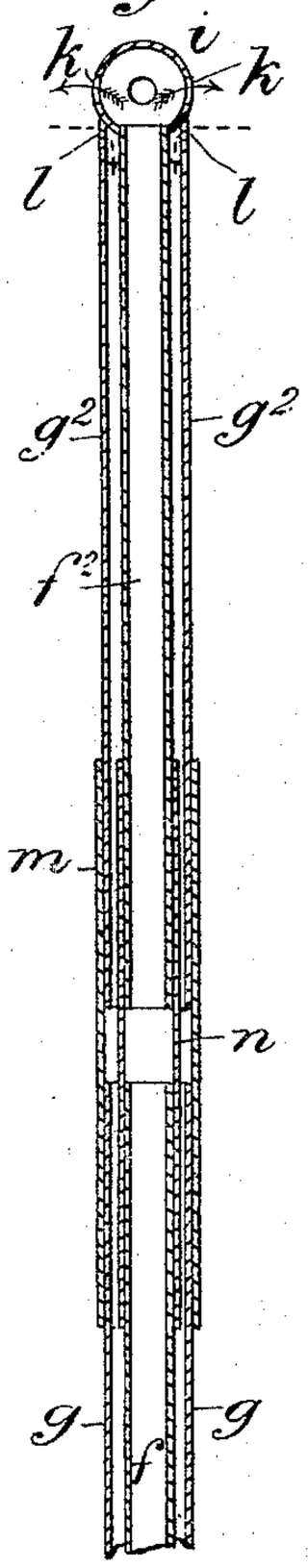
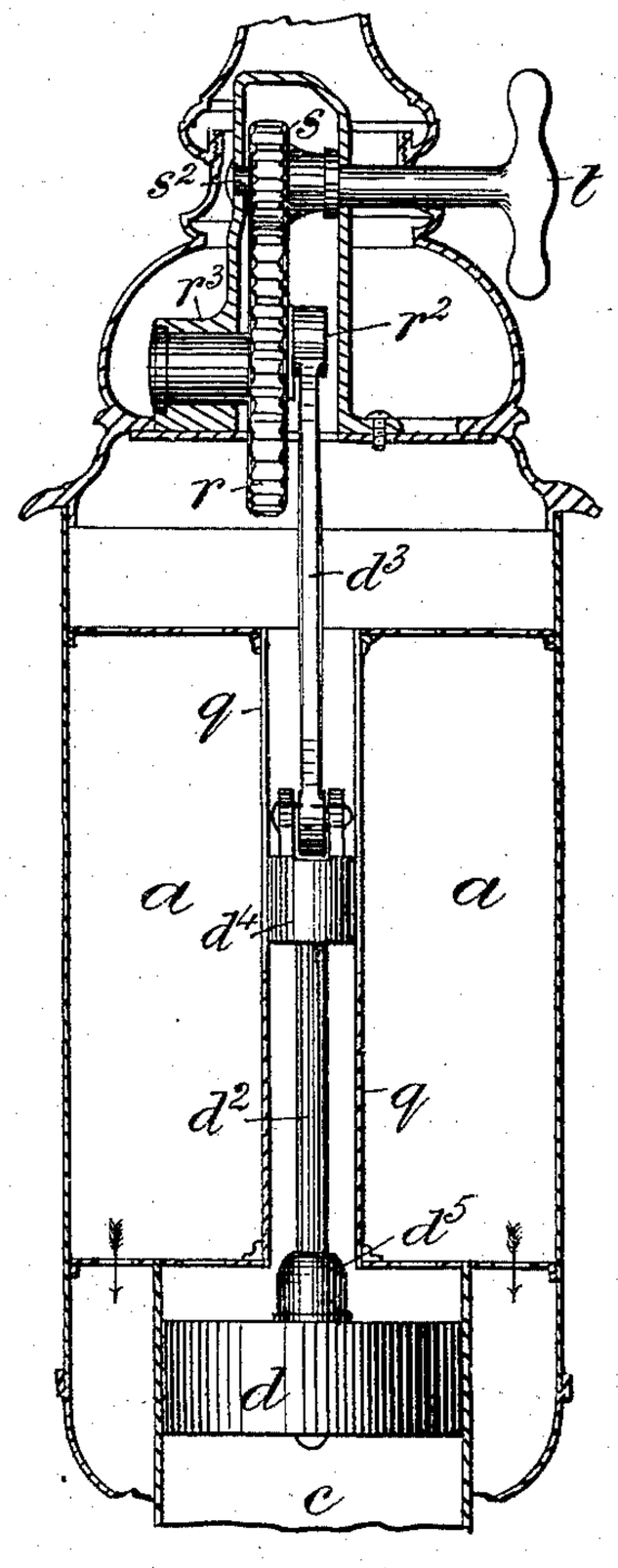


Fig. 2.



Witnesses;—
Richard Skerrett
William Fortes

Inventor;—
Herbert Ernest Newton Mason

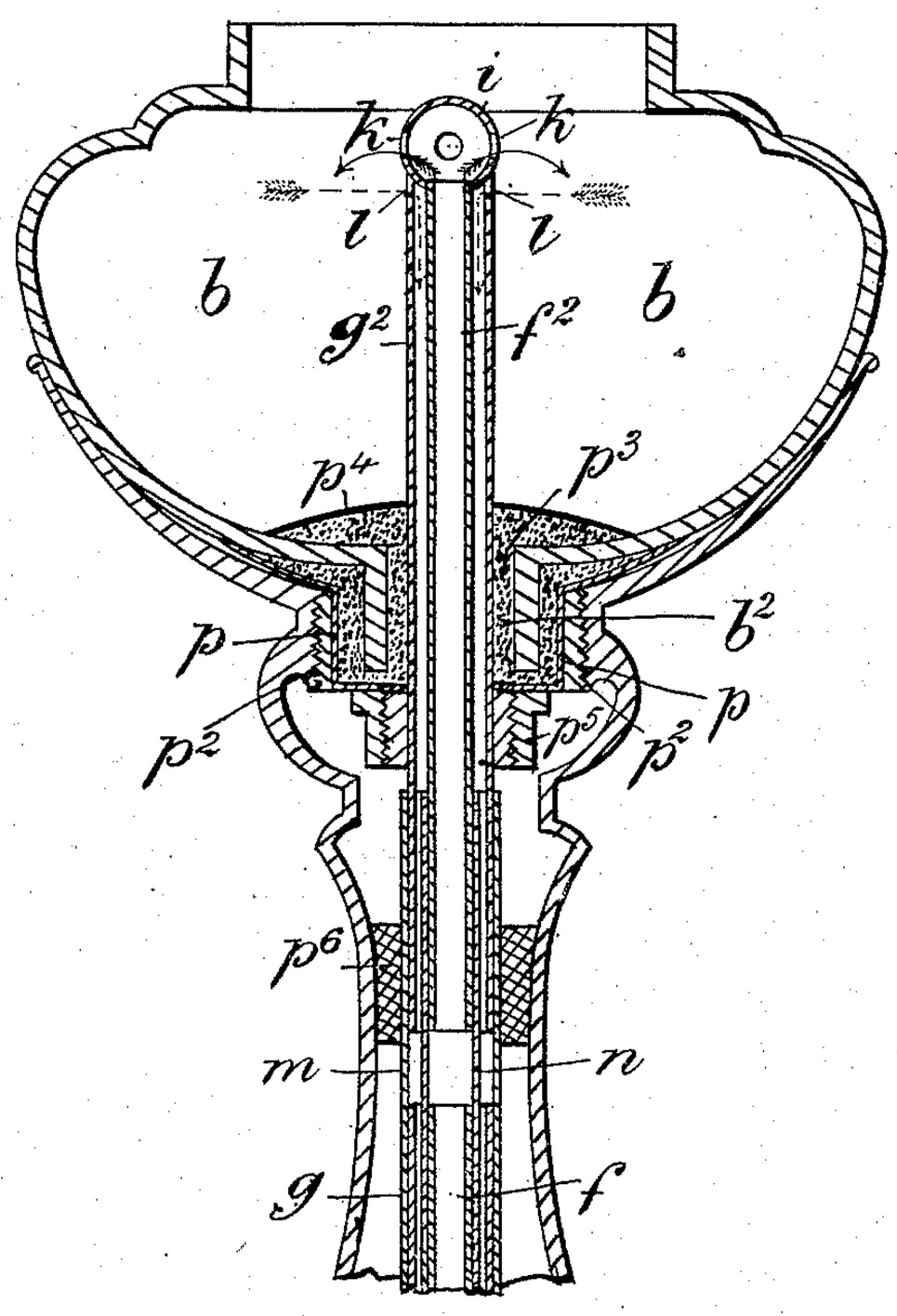
(No Model.) 2 Sheets—Sheet 2.

H. E. N. MASON.

LAMP.

No. 476,055. Patented May 31, 1892.

Fig. 4.



Witnesses:-
Richard Skerrett
William Jones

Inventor:-
Herbert Ernest Austin Mason.

UNITED STATES PATENT OFFICE.

HERBERT ERNEST NEWTON MASON, OF BIRMINGHAM, ENGLAND.

LAMP.

SPECIFICATION forming part of Letters Patent No. 476,055, dated May 31, 1892.

Application filed August 17, 1891. Serial No. 402,888. (No model.) Patented in England June 5, 1890, No. 8,709.

To all whom it may concern:

Be it known that I, HERBERT ERNEST NEWTON MASON, a subject of the Queen of Great Britain, residing at Birmingham, England, have invented certain new and useful Improvements in Lamps for Burning Light or Volatile Oils, (for which I have obtained Letters Patent of Great Britain No. 8,709, dated June 5, 1890;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to lamps for burning light or volatile oils in which a small oil-container or wick-dipping cup at the head of the lamp is supplied with oil from a storage-reservoir in the base or body of the lamp; and my said invention consists principally of the construction and combination of parts hereinafter described and claimed for filling the said oil-container or wick-dipping cup from the storage-reservoir.

My invention is applicable to table-lamps and to standard lamps, or lamps supported on the floor.

I will first describe my invention as applied to a table-lamp. The case or body of the lamp constitutes a large storage-reservoir for the oil, and above the said storage-reservoir and on the axis of the lamp a small oil-container or dipping-cup is supported. In the base of the storage-reservoir and communicating with it by a series of perforations is a hollow cylinder in which a piston works. By means of the said piston, worked by the mechanism hereinafter described, the oil in the cylinder is forced through a supply-pipe opening into the bottom of the cylinder to the oil-container or dipping-cup. The overflow-pipe from the oil-container or dipping-cup is arranged concentrically around the greater part of the oil-supply pipe and opens into the storage-reservoir.

The piston in the cylinder is worked by the following mechanism: The piston-rod passes through a long guide-tube in the axis of the oil-reservoir and its upper end is jointed to the lower end of a crank-rod the upper end of which is jointed to a crank-pin on the face of a toothed wheel turning in bearings above the oil-reservoir. This crank toothed wheel gears with and is rotated by a pinion situated above it and working on a parallel axis. The axis of the pinion projects from the lamp-case and has a square end for turning the said pinion by a key or winch. By rotating the said pinion rotatory motion is given to the crank toothed wheel and the said wheel, through its crank-pin and crank-rod, gives a reciprocating rising and falling motion to the piston-rod and piston. Oil is thereby forced by the said piston from the cylinder in communication with the storage-reservoir and through the oil-supply pipe to the oil-container or wick-dipping cup.

I will now proceed to describe with reference to the accompanying drawings the details of my invention and the manner in which my invention is to be performed.

Figure 1 represents in vertical section a table-lamp containing my improvements. Fig. 2 represents in vertical section a portion of the same taken in a plane at right angles to that in which the section Fig. 1 is taken. Fig. 3 represents in section a portion of the concentric oil-supply and overflow pipes of the lamp, and Fig. 4 in section the upper part of the lamp drawn to a larger scale.

The same letters indicate the same parts in the several figures of the drawings.

a is the storage-reservoir for the oil, filled at an opening at a^2 in the top of the said reservoir, and *b* is the small oil-container or wick-dipping cup at the top of the lamp.

c is the hollow cylinder in the base of the storage-reservoir *a*, and *d* is the piston working in the said cylinder and actuated in the manner hereinafter described. By means of the slots or perforations at *e* communication is established between the storage-reservoir *a* and cylinder *c* for the passage of oil from the former into the latter.

$f\,f^2$ is the oil-supply pipe, through which oil is forced by the action of the piston *d* in the cylinder *c*. The said oil-supply pipe $f\,f^2$ opens at bottom into the cylinder *c*, and passing upward enters the wick-dipping cup or oil-container *b* through the tubular base of the same.

$g\,g^2$ is the overflow-pipe from the oil-container *b*. It will be seen that the said overflow-pipe is arranged concentrically about the

greater part of the oil-supply pipe and opens at h into the storage-reservoir a. The tops of the said concentric oil-supply and overflow pipes are connected together by the hollow perforated sphere i, the oil from the supply-pipe passing out into the container by the perforations k in the said sphere. Portions of the top of the overflow-pipe g^2 between it and the sphere are cut away at l to permit of the overflow-oil entering the said overflow-pipe and returning by the said pipe to the storage-reservoir, as best seen in Fig. 3.

In the base of the wick-dipping cup or oil-container b is a tubular passage b^2 for receiving the concentric oil-supply and overflow pipes f^2 g^2.

For the purpose of adjusting the height of the concentric oil-pipes in the wick-dipping cup or oil-container b I make the upper parts of the said pipes telescopic, in the manner best seen in the enlarged view, Fig. 3—that is to say, the upper part g^2 of the overflow-pipe is made separate from the lower fixed part g of the said pipe, and the two parts g g^2 are connected together and a tight joint made between them by means of the tubular collar or sleeve m, the lower part of which is soldered to the part g of the overflow-pipe. Within the upper part of the collar or sleeve m the adjustable upper part g^2 of the overflow-pipe is capable of sliding. Similarly the upper part f^2 of the oil-supply pipe is separate from the lower fixed part f, and the two parts are connected by the tubular collar or sleeve n, soldered to the lower part f, the upper adjustable part f^2 being capable of sliding in the said collar or sleeve n. By sliding the pipes f^2 and g^2 within their respective sleeves n and m the height of the oil-supply and overflow pipes in the wick-dipping cup or oil-container b may be adjusted. As the two pipes are connected together at top by the perforated sphere i, the raising or lowering of the outer pipe in its sleeve m at the same time raises or lowers the inner pipe in its sleeve n.

The adjustable upper parts f^2 and g^2 of the oil-supply and overflow pipes are fixed to the oil-container b and the said oil-container to the top of the lamp in the following manner: p is a metal socket or cup having an external screw-collar p^2. In the axis of the socket or cup p the pipes f^2 g^2 are placed, and after the tubular bottom b^2 of the oil-container has been placed in the socket and the pipes adjusted at the proper height the whole of the parts are secured in the socket by cement at p^3, a covering-plate p^4 being soldered to the outer pipe g^2. For additional security a screw-nut p^5 is screwed upon a collar on the outer pipe g^2 and made to bear against the bottom of the socket. A liquid-tight joint is thus made between the tubular bottom b^2 of the oil-container b and the concentric pipes passing through it. The pipes f^2 g^2 being thus secured to the oil-container, they are introduced into the collars m n and the socket or cup p screwed by its collar p^2 into the top of the neck of the lamp, the pipes f^2 g^2 sliding in the collars m n as the socket p is screwed home. The neck of the lamp is packed with a packing of cork p^6 to prevent the escape of oil, on the upsetting of the lamp, between the storage-reservoir and the oil-container.

The piston d, by the reciprocating motion of which in the cylinder c the oil in the said cylinder is forced through the oil-supply pipe f f^2 into the wick-dipping cup or oil-container b, is actuated by the following mechanism: d^2 is the piston-rod, and d^3 is the crank-rod, jointed to its upper end d^4. The upper end d^4 of the piston-rod is cylindrical and works in the cylindrical guide-tube q, which tube is slotted on opposite sides to permit of the motion of the crank-rod d^3. The stem or reduced part of the piston-rod head d^4 is connected by a ball-and-socket joint at d^5 to the piston d. By connecting the piston-rod with the piston by means of a ball-and-socket joint instead of a rigid connection the piston is capable of slight play on the piston-rod, and hence can perform its reciprocating motion in its cylinder without undue wear and strain. The upper end of the crank-rod d^3 is jointed to the crank-pin r^2 on the face of the toothed wheel r, the axis of which turns in the bearing at r^3, supported at the top of the case or body of the lamp. The crank toothed wheel r gears with and is rotated by the pinion s, situated above it and working on a parallel axis s^2, the said axis of the pinion being worked from outside the lamp-case by the key t, taking upon a square end on the axis of the pinion.

When it is wished to fill the dipping-cup or oil-container b with oil from the storage-reservoir a, the pinion s is rotated by its key t and a rotary motion given to the larger crank-wheel r. This motion is transmitted through its crank-pin r^2 and crank-rod d^3 to the piston-rod d^2 and piston d, and a reciprocating motion thereby given to the said rod and piston, and the oil in the cylinder c, supplied thereto from the storage-reservoir a, is forced by the said piston from the said cylinder up the supply-pipe f f^2 to the oil-container or wick-dipping cup b, the surplus oil supplied to the dipping-cup being returned to the storage-reservoir through the overflow-pipe g g^2.

I do not limit myself to the particular arrangement of toothed wheel and pinion described and represented for working the piston, as other equivalent arrangements of gearing may be used for that purpose.

I claim—

1. The combination, in a lamp, of an oil-storage reservoir, a wick-dipping cup, a cylinder arranged in the storage-reservoir and having perforations for the flow of oil thereinto, an oil-tube connecting the lower portion of the cylinder with the wick-dipping cup, a vertical slotted guide-tube located in a fixed position above the cylinder, a piston in the cylinder, a piston-rod attached to the piston and having

its upper end in sliding engagement with the slotted guide-tube, a crank-rod connected with the piston-rod, and gearing for operating the crank-rod to reciprocate the piston, substantially as described.

2. The combination, in a lamp, of an oil-storage reservoir, a wick-dipping cup, a cylinder arranged in the storage-reservoir and having perforations for the flow of oil thereinto, an oil-tube connecting the lower portion of the cylinder with the wick-dipping cup, a vertical slotted guide-tube located above the cylinder, a piston in the cylinder, a piston-rod attached to the piston and having its upper end in sliding engagement with the slotted guide-tube, a crank-rod connected with the piston-rod, a toothed wheel having a crank-pin engaging the crank-rod, and a pinion geared to the toothed wheel, substantially as described.

3. The combination, in a lamp, of an oil-storage reservoir, a wick-dipping cup, a cylinder arranged in the storage-reservoir and having perforations for the flow of oil thereinto, a piston in the cylinder, means for reciprocating the piston, an oil-pipe connecting the lower portion of the cylinder with the wick-dipping cup, and an overflow-pipe surrounding and concentric with the said oil-pipe and opening into the upper part of the storage-reservoir, said oil and overflow pipes composed of upper and lower sections telescoped together between the storage-reservoir and the wick-dipping cup, substantially as and for the purpose described.

4. The combination, with the concentric oil-feeding and overflow pipes of the lamp, of an oil-container or wick-dipping cup provided with a tubular bottom through which the said pipes pass to the oil-container or wick-dipping cup, and a screw socket or cup for screwing into the neck of the lamp-body for forming a liquid-tight joint, as hereinbefore described and shown.

HERBERT ERNEST NEWTON MASON. [L. S.]

Witnesses:
RICHARD SKERRETT,
WILLIAM TONKS.