No. 687,898. Patented Dec. 3, 1901.

W. NOTLEY.

SAFETY FONT FOR LAMPS.

(Application filed Oct. 29, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

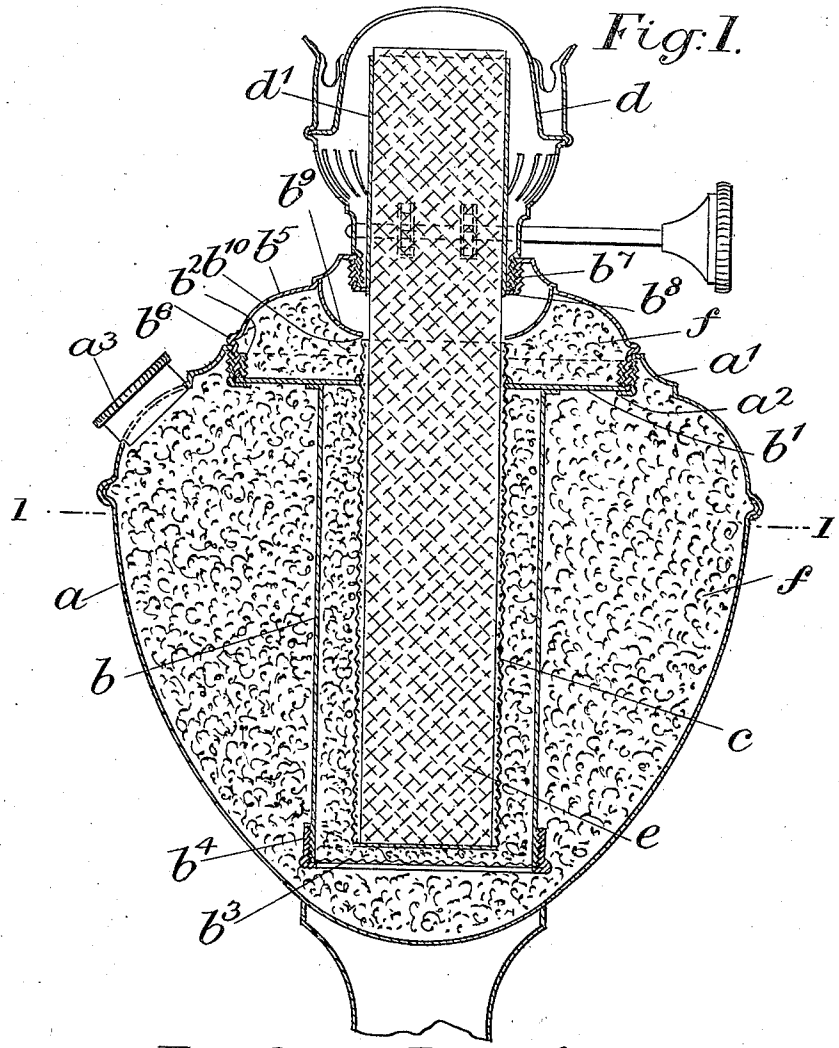
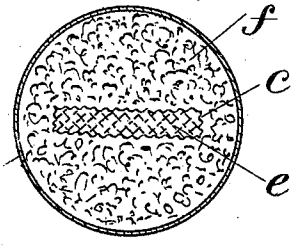


Fig. 2.



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Fig. 3.

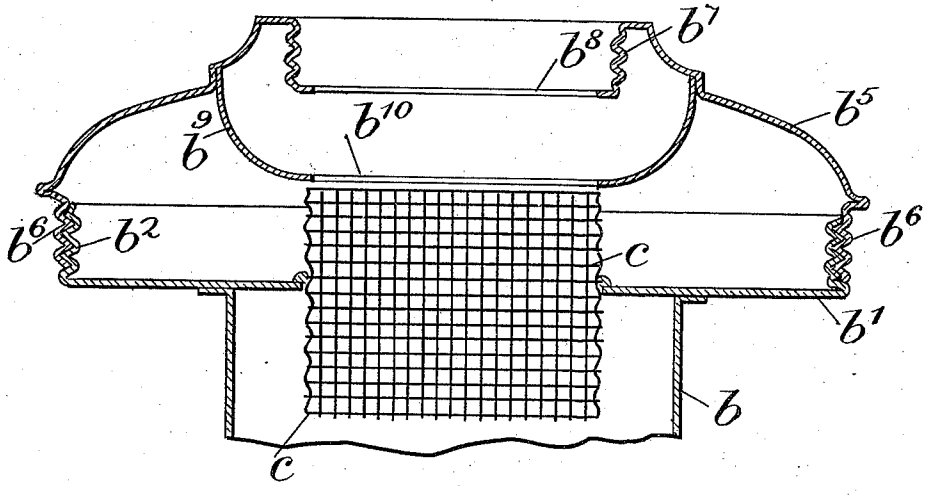


Fig. 4.

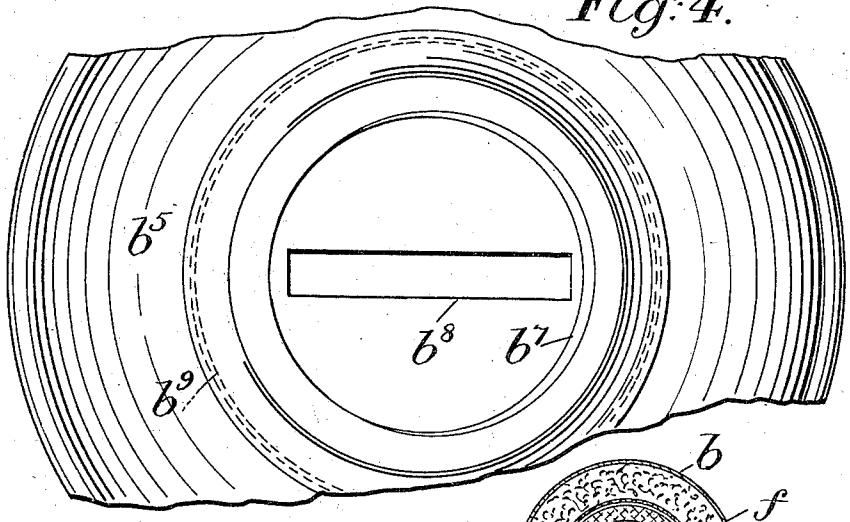


Fig. 5.

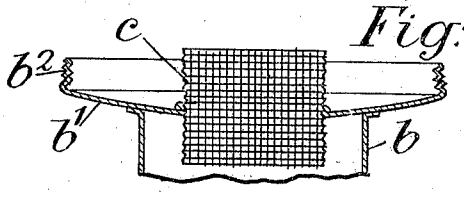
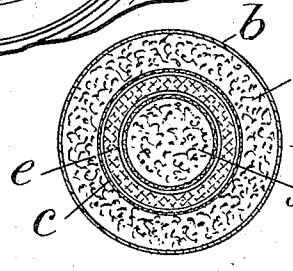


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM NOTLEY, OF DULWICH, ENGLAND, ASSIGNOR OF ONE-HALF TO CHARLES EDWIN FROST, OF LEWISHAM, ENGLAND.

SAFETY-FONT FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 687,898, dated December 3, 1901.

Application filed October 29, 1900. Serial No. 34,799. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NOTLEY, artist, a subject of the Queen of Great Britain, residing at 9 Goodrich road, Lordship Lane, Dulwich, in the county of Surrey, England, have invented certain new and useful Improvements in Safety-Fonts for Lamps, of which the following is a specification, reference being had to the accompanying drawings and to the letters marked thereon.

The invention relates to improvements in or connected with lamps for burning hydrocarbon oil or spirit.

It is well known that an ordinary petroleum-lamp is a source of considerable danger, inasmuch as the capsizing thereof commonly results in serious fires and loss of life due to explosion, the liberation of a considerable volume of free oil, and other causes, while even in the absence of capsizing the use of low-flash oil and the consequent accumulation of explosive vapor in ordinary lamps is highly dangerous. Although many devices have been suggested for the prevention of accidents due to the capsizing of lamps, such as the employment of automatic extinguishers designed to come into action upon the lamp assuming a given angle and appliances for trapping the oil and preventing the same flowing out of the wick-tube, at the present time no practical and effective remedy is in use.

Now the object of the present invention is to obtain a simple, inexpensive, and effective means for feeding the oil to the wick in the volume necessary, but only as it is required to support combustion, for trapping the oil in the reservoir, for preventing the flame flashing back thereto, notwithstanding that the lamp may be overturned, for preventing the accumulation of explosive vapor, and for extinguishing the flame on the capsizing of the lamp.

In the accompanying drawings, Figure 1 is a vertical section of a flat-wick hydrocarbon-lamp constructed according to the present invention. Fig. 2 is a horizontal section of the depending tube and connected parts, taken on the line 1 1 of Fig. 1. Fig. 3 is a vertical section of part of Fig. 1, but with the burner removed. Fig. 4 is a plan or top view thereof. Fig. 5 is a vertical section of parts, illustrating a slight modification; and Fig. 6 is a similar view to Fig. 2, illustrating the application of the invention to a cylindrical wick-burner. Figs. 3 and 4 are drawn to an increased scale with respect to the other figures of the drawings.

In the several figures like parts are indicated by similar letters of reference.

Referring to Figs. 1 to 4, a represents the reservoir or container, and a' represents the collar thereof. b represents a depending imperforate tube of any suitable cross-section, which at its upper end is, by means of a top plate b', closed with the exception of a central slot of dimensions sufficient for the passage of the wick e, and this top plate b' rests upon an annular flange a^2 within the collar a' of the reservoir a, while the depending tube b descends nearly to the bottom of the reservoir a and at its lower end is covered or closed by a diaphragm or plate b^3, of wire-gauze or the like, held in position by a ring or cap b^4, screwing onto the tube b.

Attached to the top plate b' of the depending tube b and passing through the wick-slot therein is a depending perforate tubular partition or chamber c, in cross-section the same shape as the wick e and preferably constructed of fine wire-gauze and with a closed or imperforate lower end, and this perforate partition c is so proportioned that it terminates at or near the bottom of the depending tube b, and the space within the tubular perforate partition c constitutes a chamber to receive the wick and which more or less closely fits the same.

The top plate b' of the depending tube b is provided with an exteriorly-threaded flange or rim b^2, and in connection therewith is employed a dome b^5, which is provided with a similar rim b^6, interiorly threaded to screw onto the rim b^2 of the top plate b' and exteriorly threaded to screw into the interiorly-threaded collar a' of the reservoir a, by which construction the depending tube b and dome b^5 may be readily detached bodily from the reservoir a at the times desired and as shown at Fig. 3. The dome b^5 is provided with a threaded collar b^7, into which screws the burner d, the opening through said collar being closed with the exception of a central

slot b^8, through which passes the wick e, and this slot coincides with that of the top plate b' of the depending tube b, while beneath and around the slot b^8 of the dome and upon the interior thereof is arranged an inverted cone b^9, which is correspondingly slotted at b^{10} for the passage of the wick e.

The reservoir on the exterior of the depending tube b is packed with bran or other suitable vegetable absorbent material f, either alone or combined with other material, and the space between the perforate partition c and depending tube b and the space within the dome b^5 are similarly packed. The oil is filled into the reservoir a through the filler a^3 in the usual way and saturates the bran f therein, and it thence filtrates or is conducted by capillary attraction through the wire-gauze bottom b^3 of the depending tube b and saturates the packing material f surrounding the perforate tubular partition or wick-chamber c, which is at least coextensive with the wick, and this in turn gives up the oil to the wick e over its entire length within the depending tube b, and the packing material f within the dome b^5, which also becomes saturated, acts as an auxiliary feed directly beneath the burner d. The wick e is thus efficiently fed with oil over the greater part of its length until the oil held by the packing material f becomes completely exhausted, and consequently the usual diminution of the flame from the falling of the oil-level is avoided and a brilliant light is insured to the last. As all interior spaces are filled with packing material f, an accumulation of vapor is impossible, added to which said material forms an effective block against the back flash of the flame, so that an explosion cannot take place from that cause, while inasmuch as there is no free oil within the lamp the latter may be overturned with impunity and the flame will simply die out. In the event of the lamp being capsized, any slight quantity of drainage-oil is effectually trapped by the depending tube b in the first place and by the dome b^5 and inverted cone b^9 in the second place, so that no free oil can escape at the wick-tube d' of the burner d.

In the example given at Fig. 5 the top plate b' of the depending tube b has a dished form given thereto, by which means any free or drainage oil in the dome b^5 will be caused to gravitate toward the wick e.

In the example given at Fig. 6 the arrangement of the parts is shown when the invention is applied to a round-wick burner, the perforate partition or tubular wick-case c being of annular form and packed on all sides with the material f.

A lamp constructed in the manner above described presents such features of safety that the flame may be extinguished by blowing directly down the chimney without danger of fire or explosion.

If desired, any known and simple form of automatic extinguisher may be employed to immediately extinguish the flame on the lamp overturning.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A hydrocarbon-lamp comprising a reservoir or container, a burner, a depending tube extending nearly to the bottom of the reservoir and perforated at its lower end, a depending perforate tubular partition or wick-case formed with a closed lower end and arranged in alinement with the wick-tube and designed to receive the wick and a packing or filling of vegetable material in a finely-divided state substantially as herein shown and described and for the purpose stated.

2. A hydrocarbon-lamp comprising a reservoir or container, a depending tube extending nearly to the bottom of the reservoir and perforated at its lower end, a top plate closing the upper end of said depending tube, a central slot for the wick in said plate, a flange or support on the neck of the reservoir for said plate, a depending perforate tubular partition or wick-case formed with a closed lower end and arranged in the slot of the top plate and designed to receive the wick, a dome covering said top plate and carrying the burner, an inverted slotted cone depending from the dome beneath the burner and a filling of vegetable material in a finely-divided state packed into the reservoir around the depending tube, into the depending tube around the perforate tubular partition and into the dome substantially as herein shown and described and for the purpose stated.

3. A hydrocarbon-lamp comprising a reservoir or container having an interiorly-threaded collar provided with an annular horizontal flange, a depending tube extending nearly to the bottom of the reservoir and perforated at its lower end, a top plate closing the upper end of said depending tube and formed with a threaded rim and a central slot for the wick, a dome carrying the burner and having a rim interiorly threaded to screw onto the rim of the top plate and exteriorly threaded to screw into the collar of the reservoir, an inverted slotted cone arranged within the dome beneath the burner, a depending perforate tubular partition or wick-case formed with a closed lower end and arranged in the slot of the top plate and designed to receive the wick and a filling of vegetable material in a finely-divided state packed into the reservoir around the depending tube, into the depending tube around the perforate tubular partition and into the dome substantially as herein shown and described and for the purpose stated.

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