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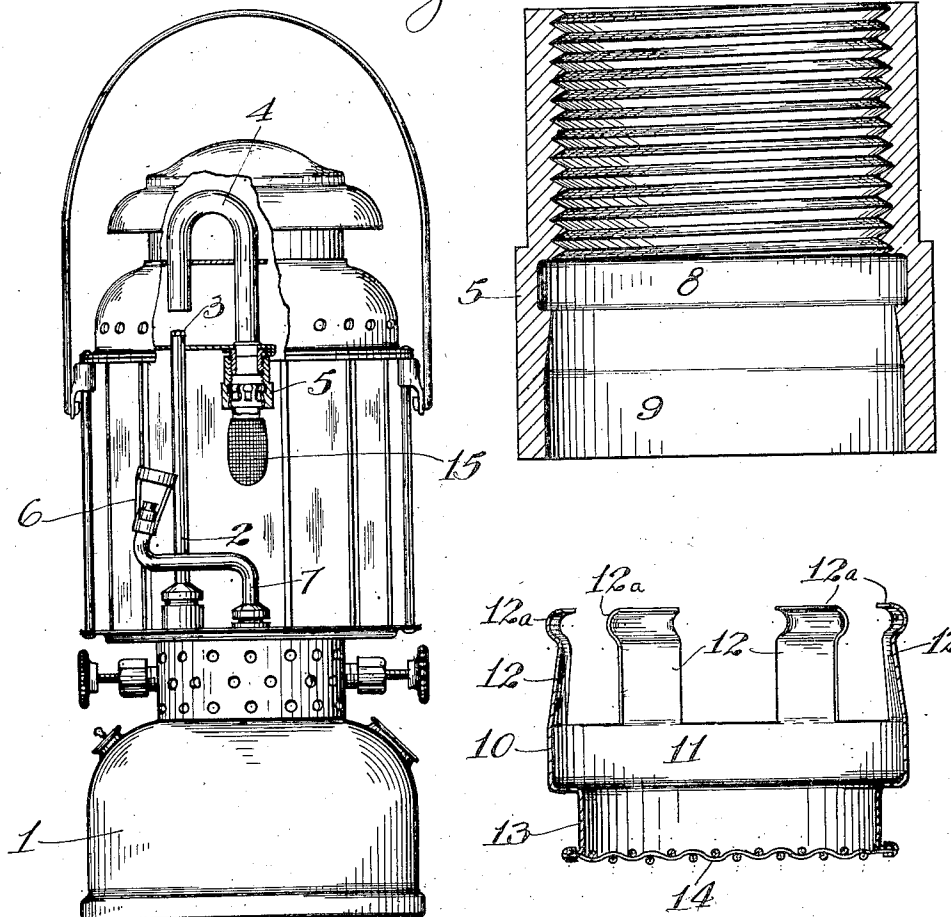
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INVERTED MANTLE HOLDER

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*Fig. 2*



*Fig. 1.*

*Fig. 3.*

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# UNITED STATES PATENT OFFICE

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## INVERTED MANTLE HOLDER

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25 Claims. (Cl. 67—50)

The invention relates to holders for thorium-impregnated mantles of the soft or rag type which, hitherto, have been tied by unskilled users to the blue-flame burners on which they are to be employed, and there incinerated in the usual manner.

These rag mantles often give unsatisfactory service on the burner when tied to the outside of the burner by asbestos cord which, due to the inexperience of the user, produces objectionable wrinkles in the mantle that remain after it is incinerated on the burner. Furthermore, incinerated mantles produced from rag mantles tied by the user to the exterior of a burner often become loosened from the burner after the mantle has become incinerated, due to the fact that the user did not properly secure the rag mantle to the burner.

These objectionable features of these prior-art rag mantles are eliminated by the present invention, which embodies a mantle support to which a rag mantle may, without distortion, be properly secured in the factory by a skilled workman. The new mantle support makes it possible for an unskilled user to quickly and easily position these mantles at a predetermined and most favorable location of the mantle relative to the burner. The new mantle support further comprehends the inclusion of a wire-gauze or similar diaphragm that prevents the flashing back of the flame of the burner and makes it possible to renew this diaphragm with each new mantle support.

This invention also comprehends means for supporting the mantle holder from the inside of a burner head where it is subjected to the cooling influence of the inflowing combustible mixture, and thereby prevented from oxidizing and adhering to said burner.

The invention will best be understood if reference be had to the accompanying drawing showing its preferred embodiment, and in which—

Figure 1 shows in elevation a lantern equipped with the improved mantle holder;

Figure 2 is a vertical sectional view of a burner head in which said mantle holder is to be secured; and

Figure 3 is a vertical sectional view of said mantle holder, the mantle being removed therefrom.

Referring to the drawing, Figure 1 shows a lantern having a reservoir 1 for liquid fuel which, under the pressure of a super atmosphere disposed above the level of said liquid fuel, flows through a vaporizer 2 to a jet orifice 3 from which

it passes with entrained atmospheric air to a mixer 4 and thence to a burner head 5.

A preheating burner 6 of suitable type, receiving liquid fuel from any convenient source through a pipe 7, is employed to initially vaporize the liquid fuel in the vaporizer 2.

The tubular burner head 5, which is screwed on or otherwise secured to the extreme end of the mixer 4, is interiorly provided with a groove 8 and with a tapered interior wall 9 extending upward to said groove 8.

The mantle holder 10 has a cylindrical body 11 which fits said tapered interior wall 9, and from the upper margin of said cylindrical body 11 rise resilient prongs 12 having outwardly and inwardly-curved upper ends 12a which interlock with said groove 8 when said mantle holder 10 is connected with said burner head 5, the resiliency of said prongs 12 being such as to permit them to retract while rising past the tapered interior wall 9 of said burner head 5 and to cause their upper ends to interlock with said groove 8, to thereby hold said mantle holder 10 in position within said burner head 5.

It will be observed that the cylindrical body 11 of the mantle holder 10 fits the cylindrical lower portion of the inner wall of the burner head, thus producing a tight joint which prevents the escape of the combustible mixture.

The lower end of said mantle holder 10 is provided with a seat 13 for the reception of the upper end of a rag mantle, and with a wire-gauze diaphragm 14 that prevents the flashing back of the flame within the mantle, which in Figure 1 is designated by the numeral 15. Said lower end is of less diameter than the body of the holder, so that the mantle which is to be attached thereto will lie close to the burner flame.

By fitting the mantle holder within the burner head 5, where a comparatively low temperature is maintained by the shielding influence of said burner head and by the cooling and reducing atmospheric influence of the inflowing combustible mixture, oxidation and consequent adhesion of the contacting surfaces of those parts are avoided, so that the mantle holder may readily be removed and a new mantle holder installed in its place. It, therefore, is possible to make these readily-detachable holders of cheaper metals, such as steel, instead of the more costly unoxidizable materials commonly used in mantle holders which surround burner heads and are directly exposed to the intense heat and oxidizing action at that point.

Having thus described my invention, what I claim is:

1. A holder for an inverted incandescent mantle, having a tubular lower end for the reception of the upper end of a mantle, and an inwardly-yielding and outwardly-expanding upper end having exterior means for engaging with a depression within a burner head.
2. A holder for an inverted incandescent mantle, having a tubular lower end for the reception of the upper end of a mantle, and an inwardly-yielding and outwardly-expanding upper end having prongs which are shaped to engage with an endless groove within a burner head.
3. A holder for an inverted incandescent mantle, having a tubular lower end for the reception of the upper end of a mantle, a wire-gauze diaphragm, and a resilient upper end provided with means for locking said upper end to the inside wall of a burner head.
4. A holder for an inverted incandescent mantle, having a tubular lower end for the reception of the upper end of a mantle, a wire-gauze diaphragm, and an upper end provided with resilient prongs for locking said upper end to the inside wall of a burner head.
5. A holder for an inverted incandescent mantle, having a tubular lower end for the reception of the upper end of a mantle, and resilient upstanding prongs provided with outwardly-inclined upper ends for locking said holder within a depression of a wall of the burner head.
6. A holder for an inverted incandescent mantle, having, at its lower end, a wire-gauze diaphragm and means for the reception of the upper end of a mantle, and an inwardly-yielding and outwardly-expanding upper end having exterior means for engaging with a depression within a burner head.
7. A holder for an inverted incandescent mantle, having, means exterior of its upper end for attaching it within a burner head, and a contracted lower end provided with a seat for the upper end of a mantle.
8. A holder for an inverted incandescent mantle, having a cylindrical body portion, a cylindrical mantle-holding portion smaller than and extending downward from said body portion, a wire-gauze diaphragm and a mantle carried by said mantle-holding portion, and resilient prongs extending upward from said body portion.
9. A tubular burner head for a hydrocarbon lighting device, said burner head having the inner surface of its lower end upwardly tapered and provided with a horizontal groove, said tapered section terminating adjacent said groove.
10. A tubular burner head having an interior groove, combined with an inverted mantle holder that is provided with a resilient upper end extending into and interlocking with said groove.
11. A hydrocarbon lighting device, including a tubular burner head for directing a mixture of air and vapor to a mantle, said burner head having an endless groove in its inner wall for engaging locking means of a replaceable holder for an inverted incandescent mantle.
12. A lighting device including a tubular inverted burner head having an internal annular recess, an incandescent mantle, and a mantle holder made from sheet metal and having its lower end adapted for the attachment of said mantle, a castellated inwardly-yielding and outwardly-expanding upper end engaged in the annular recess within the said burner head, and a central portion adapted to prevent the escape of vapor between said burner head and the attached end of said mantle, said holder during operation being protected by the stream of unburned vapor whereby rapid oxidation of said holder is prevented.
13. A sheet-metal support for an inverted incandescent mantle, said support having at its lower end a tubular seat for the attachment of the mantle, and having a central body section adapted to snugly fit within a burner tube and upstanding resilient members adapted to be inwardly compressed when inserted into a conical burner tube and to outwardly expand and engage a depression within said burner tube.
14. A holder to support an inverted incandescent mantle from a burner tube, said holder having a tubular lower end adapted for the attachment of said mantle, a central portion adapted to snugly fit within said burner tube to prevent leakage of vapor outside of said holder, and a castellated inwardly-yielding and outwardly-expanding upper end adapted to resiliently engage a depression within the end of said burner tube.
15. An inverted rag mantle provided at its open end with and attached to a sheet-metal support, said support having an inwardly-extending groove at its lower end for the reception of the upper end of the mantle, a cylindrical body portion adapted to prevent leakage of vapor outside of the mantle when in use, and a system of upstanding prongs adapted to engage with holding means within a burner tube.
16. A holder for supporting an inverted incandescent mantle from a tubular burner head, having, in combination, a castellated resilient upper portion shaped for insertion within the orifice of said burner head, means for the attachment of said mantle, and a wire gauze diaphragm to prevent the flame at said mantle from flashing back into said burner head.
17. In combination, an incandescent mantle for use in an inverted position, and a holder for supporting said mantle from a tubular burner head, said holder having a castellated resilient upper portion shaped for insertion within the orifice of said burner head, a contracted lower portion shaped to receive and secure said mantle, a wire gauze diaphragm in said lower portion, and a continuous annular center portion integral with said upper and lower portions.
18. In combination, an incandescent mantle for use in an inverted position and a holder for supporting said mantle from a tubular burner head, said holder having a castellated resilient upper portion shaped for insertion within the orifice of said burner head, means for the attachment of said mantle, and a wire gauze diaphragm to prevent the flame at said mantle from flashing back into said burner head.
19. A holder for supporting an inverted incandescent mantle from a tubular burner head, having, in combination, a castellated resilient upper portion shaped for insertion within the orifice of said burner head, a contracted lower portion shaped to receive and secure said mantle, a wire gauze diaphragm in said lower portion, and a continuous annular center portion integral with said upper and lower portions.
20. A sheet metal holder for supporting an inverted incandescent mantle from the inner surface of a tubular burner head, said holder having, in combination, resilient means whereby said holder may be readily attached to or removed

from said burner head, means for the attachment of said mantle, means to prevent the flame at said mantle from flashing back into said burner head, and means to prevent leakage of vapor between said mantle and said burner head.

5 21. In combination, an incandescent mantle for use in an inverted position, and a holder for supporting said mantle from the inner surface of a burner head, said holder having resilient means  
10 whereby it may be readily attached to or removed from said burner head, means for the attachment of said mantle, means to prevent the flame at said mantle from flashing back into said burner head, and means to prevent leakage of vapor be-  
15 tween said mantle and said burner head.

22. A holder for supporting an inverted incandescent mantle from a burner head, having, in combination, spring-actuated locking means exterior of its upper portion for attaching it within  
20 a burner head, and tubular means at its lower end for the attachment of said mantle.

23. In combination, an incandescent mantle for use in an inverted position, and a sheet metal holder for supporting said mantle from a burner head, said holder having resilient and expansive means at its upper portion for attaching it with-  
5 in a burner head and means for the attachment of said mantle, said holder having at its lower end a diaphragm to prevent back firing.

24. An article of manufacture comprising a mantle holder having at one end resilient and ex-  
10 pensive means for detachably uniting it with a tubular burner head, and carrying at the other end a tubular end an unincinerated rag mantle.

25. A article of manufacture comprising a mantle holder having at one end external resil-  
15 ient and interlocking means for detachably uniting it with the inside of a tubular burner head, and carrying at the other end a tubular end an unincinerated rag mantle.

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