April 17, 1934. J. M. WEAVER 1,954,855

WICK FOR OIL BURNERS

Filed Nov. 14, 1932

Fig. 1.

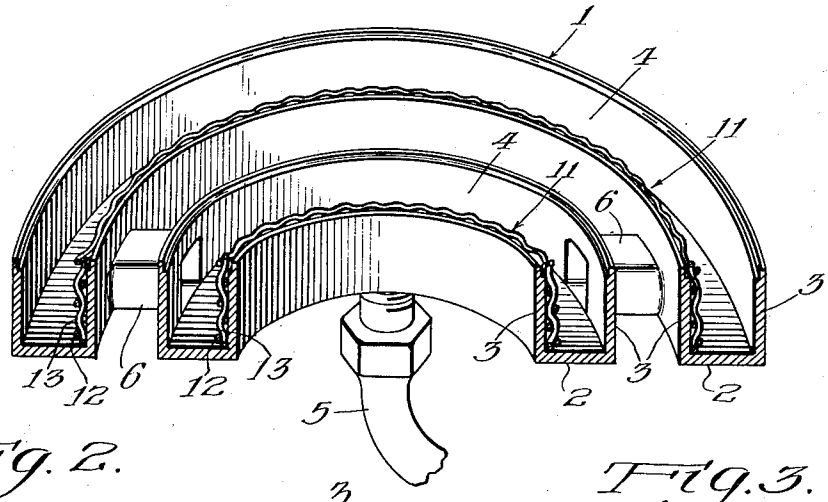


Fig. 2.

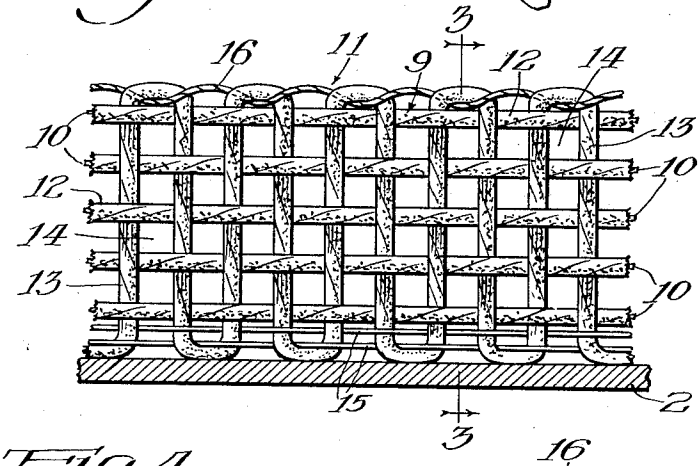


Fig. 3.

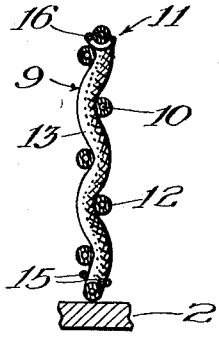
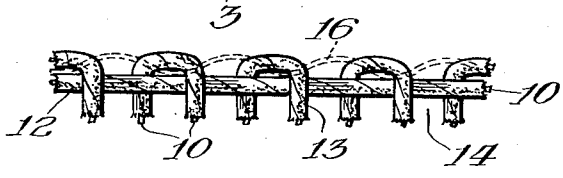


Fig. 4.



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WICK FOR OIL BURNERS

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Application November 14, 1932, Serial No. 642,536

5 Claims. (Cl. 67—69)

This invention relates to improvements in wicks adapted for use in oil burners or the like, and refers specifically to the provision of a woven wick constructed of a suitable absorbent material so reinforced as to stand edgewise without collapsing, the number of warp threads of the wick being reduced to a minimum so as to permit maximum rapidity of passage of liquid by capillary attraction from one edge of the wick to the opposite edge thereof.

The utility, object and advantages of my invention will be apparent from the accompanying drawing and following detail description.

In the drawing, Fig. 1 is a sectional, perspective view of a conventional oil burner with which an embodiment of my invention may be used.

Fig. 2 is an exaggerated, elevational view of the wick constructed in accordance with my invention.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary, detail view of the upper edge of the wick after the removal of the marking thread.

Referring in detail to the drawing, 1 indicates a conventional form of oil burner which may comprise a plurality of concentric, annular members 2 having upwardly extending flanges 3 forming a plurality of concentric annular compartments or channels 4. A pipe 5 may connect into the lower portion of the annular member 2 and may be adapted to carry liquid fuel from a suitable source of supply (not shown) to the inner compartment 4.

Conduit 6 may connect inner compartment 4 to an outer compartment whereby fuel introduced into said inner compartment may travel to said outer compartment.

As a feature of my invention I may provide a wick woven from asbestos threads or yarn 9, said asbestos being wound upon a core of wire 10, said wire being slightly heavier than the wire heretofore used. The asbestos threads 9 may be woven into the form of a wick 11, said weaving, however, being relatively loose in comparison with the weaving of the conventional wicks heretofore used, the horizontal threads 12 being so spaced from each other and the vertical threads 13 being so spaced as to provide openings 14 in the body of the wick. In order to maintain such spacing at the lower edge of the wick, that is, at that edge upon which the wick rests when in use, a relatively heavy wire strand 15 may be utilized during the weaving operation to form one edge of the wick. During the weaving operation the wire strand 15 may be stretched as tightly as possible in order that the finished wick will have a relatively straight edge.

When a wick of this character is used, said wick will maintain its edgewise or vertical position within compartments 4 for an indefinite period without collapsing or crumpling. In addition, by the provision of the spaced warp threads 12, the capillary transfer of the liquid along the length of the vertical threads from the lower edge of the wick to the upper edge thereof is caused to be more rapid, consequently, a relatively short period after the liquid has been introduced into the compartments 4 the burner may be lit. Further, by the provision of the lower or edge reinforcing strand 15, the spaces 14 between the warp and woof threads are maintained adjacent the supporting edge of the wick and, hence, liquid passing from compartment to compartment through conduits 6, and connecting flanges 3 readily passes through the wick and permits a uniform saturation of the wicks adjacent the inner and outer portion of the burner.

A colored cotton thread 16 may be woven in the opposite edge of the wick from the strand 15 and may indicate to the user the proper position in which the wick is to be inserted in the compartments 4. When the wick has been ignited, said cotton thread readily burns and exposes a serrated edge as shown best in Fig. 4. By the provision of said serrated edge, a greater wick area is provided at the upper edge of the wick.

In the usual oil burner, most efficient burning takes place when all of the oil or other liquid fuel is mixed with an ample supply of oxygen or air and is in vapor form. In order to bring said oil to the vapor state the same must be subjected to a relatively high degree of heat. By utilizing my invention wherein a relatively heavy wire strand 15 is positioned at the lower edge of the wick and wherein the asbestos is wound about relatively heavy wires 10, said metal portions, namely wires 15 and 10 being relatively good conductors of heat, are rapidly brought to a relatively high temperature and assist vaporization of the liquid carried by capillary attraction through the asbestos. In practice, after the burner has been lit for a relatively short time, to all appearances the wick is not burning, the impression being that the atmosphere adjacent the wick is the burning medium. This, however, is based merely upon the fact that the metal wires 10 and 15 are giving off sufficient heat to vaporize the combustible liquid carried by the asbestos and that said vapors are

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ignited after the same leave the surface of the wick.

In the usual asbestos woven and paper wicks in common use, a common cause of deterioration of the wick is the formation of carbon or coke within or upon the wick. This is due to the fact that the supply of fuel or oil carried by the wick is greater than can escape completely as vapor from the surface of the wick and the heat therefore transforms a part of the hydrocarbon into coke. A wick made in conformity with my invention provides a smaller number of absorbent strands of yarn through which the fuel can enter into the body of the wick. Therefore, the supply of oil entering the wick is reduced and the greater area for evaporation that is obtained by the open weave construction together with the smaller amount of fuel to be vaporized insures maximum vaporization and minimizes the formation of carbon or coke upon or in the wick.

It is to be understood, of course, that I do not wish to be limited to the use of my invention with the specific type of burner shown and described inasmuch as the same has been presented merely for purposes of illustration.

I claim as my invention:

1. An oil burner wick comprising strands of asbestos covered wire coarsely woven into a relatively thin, narrow, elongated ribbon having visible open spaces between the strands, said wick having sufficient inherent strength and rigidity to stand on edge and resist normal transverse distortion without collapsing or objectionable bending, the bottom edge of the wick consisting essentially of relatively heavy strands of wire integrally woven into the structure and constituting the selvage.

2. An oil burner wick comprising strands of asbestos covered wire coarsely woven into a relatively thin, narrow, elongated ribbon having visible open spaces between the strands, said wick having sufficient inherent strength and rigidity to stand on edge and resist normal transverse distortion without collapsing or objectionable bending, the bottom edge of the wick consisting essentially of relatively heavy strands of wire integrally woven into the structure and constituting the selvage, said base being no thicker than the average thickness of the wick throughout its body portion.

3. A woven wick for oil burners which comprises, a plurality of asbestos strands having wire cores, said wick having a warp strand of combustible material at one edge thereof which, when burned, exposes spaced protruding weft strands at said edge.

4. A wick for an oil burner having a combustion chamber which comprises, a plurality of spaced asbestos warp strands having wire cores interwoven with a plurality of asbestos weft strands having wire cores in such a manner as to provide apertures in said wick whereby a maximum surface of said warp and weft strands is exposed to heat from said combustion chamber.

5. A wick for an oil burner which comprises, a plurality of warp strands of wire covered with fibrous material comprising asbestos, the major portion of said strands being non-contiguous, and a plurality of non-contiguous weft strands of wire covered with fibrous material comprising asbestos, interwoven with said warp strands to form a wick having a plurality of spaced openings whereby a maximum surface of said strands is exposed.

JESSE M. WEAVER.