July 30, 1935. J. M. WEAVER 2,009,865

WICK FOR OIL BURNERS

Filed July 30, 1932

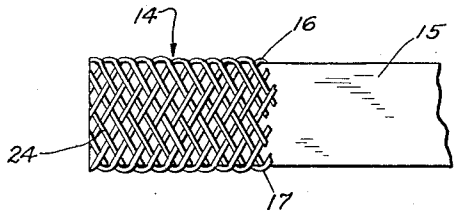


Fig. 1

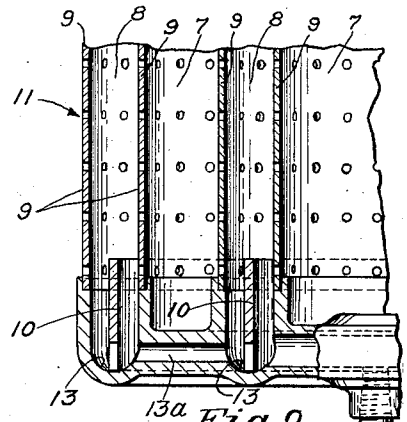


Fig. 9

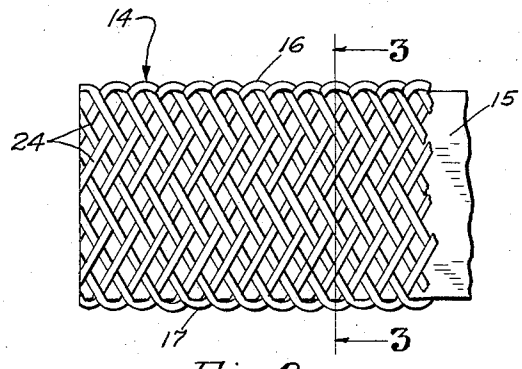


Fig. 2

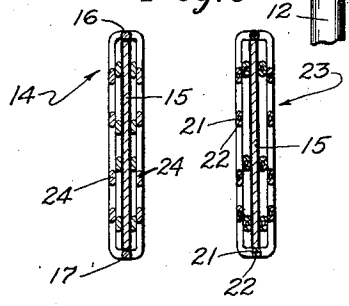


Fig. 3 Fig. 8

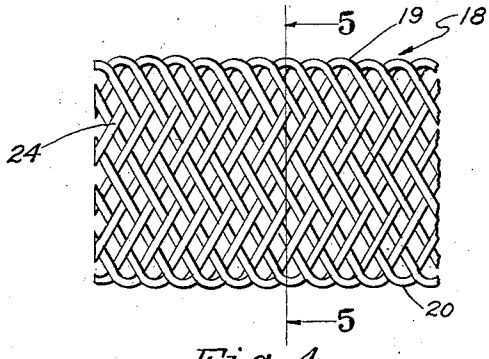


Fig. 4

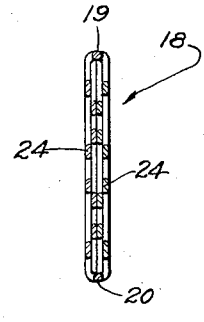


Fig. 5

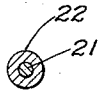


Fig. 7



Fig. 6

Inventor

Jesse M. Weaver

By Wooster & Davis

Attorneys

Published by AsbestosClaims.Law
asbestosclaims.law/library/23864/1

Patented July 30, 1935 2,009,865

UNITED STATES PATENT OFFICE

2,009,865

WICK FOR OIL BURNERS

Jesse M. Weaver, Charleston, S. C., assignor to Raybestos-Manhattan, Incorporated, Passaic, N. J., a corporation of New Jersey

Application July 30, 1932, Serial No. 626,262

3 Claims. (Cl. 67—69)

This invention relates to new and useful improvements in wicks for oil burners and has for an object the providing of an improved wick whereby the desired operating blue flame of an oil burner is quickly obtained after the oil burner is ignited.

Another object is to provide a wick which may be manufactured more cheaply than the wicks heretofore provided.

A further object is to provide a wick having the advantages stated and which includes a strengthening core of non-combustible material or of a material which has been treated to render it non-combustible.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein satisfactory embodiments of the invention are shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is an elevational view showing a portion of a wick made in accordance with the present invention;

Fig. 2 is a similar view on an enlarged scale;

Fig. 3 is a transverse sectional view taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 2 but illustrating a wick not including a strengthening core;

Fig. 5 is a transverse sectional view taken substantially along the line 5—5 of Fig. 4;

Fig. 6 is a detailed view illustrating a portion of a metal reinforced strand which may be employed in the forming of the improved wick;

Fig. 7 is an end view of the strand of Fig. 6;

Fig. 8 is a transverse sectional view through a wick braided of strands similar to the strand of Figs. 6 and 7; and

Fig. 9 is a detail sectional view through the lower portion of an oil burner showing the location of the wicks therein.

Referring in detail to the drawing and at first to Fig. 9, at 10 are shown wicks in place in an oil burner a portion of which is generally indicated by the reference character 11. Oil is supplied to the burner through pipe 12 and flows to the circular channels or troughs 13 which receive the lower portions of the wicks 10. These troughs are connected by passages 13a to carry oil from the inner to the outer trough. Seated on the flanges of the troughs are the usual perforated sheet metal shells 9 providing the combustion and air supply chambers 8 and 7 respectively. When the burner is not in operation there is no oil in these channels and when the oil is turned into the channels a taper or other igniting means is applied to the upper edges of the wicks 10 at several different points, it being understood that the oil will be soaked up by the wicks and by capillary action is carried to the upper edges of the wicks.

The original flame is not very intense and until the oil and the various metal parts of the burner, particularly the shells 9, become heated so as to vaporize the oil a blue flame is not obtained. However, after a certain period of time the oil and the metal parts become heated by the flame from the wick and a combustible gas is obtained with the result that the burner operates with a hot blue flame. Heretofore the wicks 10 have been formed of woven fabric in which the capillary action is slow and some little time is consumed before the oil reaches the upper end of the wick and before a blue flame is obtained. The present invention provides a wick which can be ignited more quickly than can the usual woven wick and in which the capillary action is quicker and through the use of which a blue flame is developed much more quickly.

Referring now to Figs. 1, 2 and 3, the reference character 14 indicates my improved wick in its entirety and this wick is in the form of a tube or sheath formed of braided strands 24. Within the braided tube there is disposed a core 15 which may be formed of metal or of a paper so treated as to make it fire resistant or the core may be formed of any other suitable non-combustible or fire resistant material. The core maintains the braided sheath in a relatively flat condition and the wick comprising the core and braided sheath has an upper edge 16 and a lower edge 17, it being understood that either edge may be the upper edge since such will involve only a reversal of the position of the wick.

From Figs. 1 and 2 of the drawing it will be apparent that the braided strands all occupy an inclined position extending from one edge of the tube to and over the other edge thereof and they all extend in directions which are more nearly vertical than horizontal. In the drawing they are shown as being substantially sixty degrees to the horizontal or thirty degrees to the vertical, but may vary as they are not required to be at just this angle. There are no horizontal strands employed and as the oil moves up one strand by capillary attraction as it engages a sec-

Published by AsbestosClaims.Law
asbestosclaims.law/library/23864/2

ond strand at an intersection any oil transferred to the engaged strand will continue to move upwardly therealong. With a woven fabric oil as it moves up a vertical strand when it reaches a cross or warp strand or thread, as these extend horizontally it tends to change its direction of flow and to move laterally along the engaged strand. This action in a woven fabric slows up the wick since the capillary action is slow. With the braided wick **14** there is no deflection of the oil from a constantly upward course since there are no strands on which the oil may move laterally and, therefore, the wick **14** may be much more quickly ignited.

In actual test with a wick constructed according to the present invention and an ordinary woven wick the production of a blue flame with the woven wick required a time interval of approximately double the time required to obtain a blue flame with the braided wick of the above invention. This advantage in the time interval required to obtain the blue flame is believed to result from the fact that the capillary action of the present wick is faster than that of a woven wick for the reasons above explained. Up to the present time diligent effort and tests to ascertain the reason for the more rapid action has indicated the above described action to be the reason.

The strands **24** are preferably of ordinary cotton and asbestos yarn or cotton and asbestos yarn with a metallic core as will be later described. The asbestos is incombustible a small amount of cotton being used to give the yarn the requisite strength for the braiding operation. The yarn or strands should be fairly firmly twisted for best results but a loose braiding of the strands of yarns is preferred. The loose braiding does not impede the capillary action but close weaving reduces it very materially as above described.

In Figs. 4 and 5 a slightly different wick generally designated **18** is shown and this wick is in the form of a flat tube or sheath braided from strands and is the same as the wick **14** with the exception that no strengthening core is provided. This strengthening core is, however, of advantage since it will prevent the upper edge of the wick being bent out of place by engagement therewith of the taper or other means which may be employed in igniting the wick. Wick **18** includes an upper edge **19** and a lower edge **20** although it will be understood that either edge may be used as the upper edge to be ignited.

Figs. 6 and 7 disclose a strand which may be employed in braiding the wicks and this strand includes a copper or other metallic core **21** enclosed in a covering **22** of cotton and asbestos yarn. This strand may be used in the braiding of a wick such as is generally indicated at **23** in Fig. 8. Aside from the employment of the particular strand, the wick **23** is of the same construction as the wick **14** although it will be understood that owing to the metallic center **21** wick **23** will be quite rigid without the employment of a core but may be used with or without the core as desired. This metallic center will be of material advantage in the wick since it will serve to conduct heat downwardly through the wick to the oil with the result that the oil will be heated faster and the desired vaporization more quickly obtained.

When the core employed in the wick is of paper or other flexible combustible material it may be treated with a solution of silicate of soda to stiffen it and render it non-combustible or fire-resistant. This treatment will also serve to cement the yarn or strands of the braided tube or sheath to the core. When a core is employed the wick may be made by braiding the tube or sheath about the core and as described the yarn used in the wick may be ordinary cotton and asbestos yarn and is loosely braided so as to reduce the capillary impedance. These braided wicks either with or without a core are less expensive to manufacture than are woven wicks and in addition through their use a blue flame is more quickly obtained as above set forth. It is desirable to have loose braiding of the strands as this requires much less material and reduces the capillary impedance. In short braided wicks either with or without a core are much better in every way than woven wicks of the same class.

Having thus set forth the nature of my invention, what I claim is:

1. In a wick, an elongated body having its longitudinal edges forming its upper and lower edges, said body comprising a flat sheath of braided strands, and a strengthening member of fire resistant material in said sheath to support the same against collapse.

2. A wick for an oil burner comprising an elongated body having its longitudinal edges forming its upper and lower edges, said body comprising a flat tube or sheath of multi-strand fabric in which all the strands extend in directions more nearly vertical than horizontal, and a flat reinforcing core of fire resistant material in said tube or sheath to support the same against collapse.

3. In a wick, an elongated braided sheath, said sheath having its longitudinal edges forming its upper and lower edges, a core of paper in said sheath, and said core having been treated with a solution of silicate of soda to stiffen it and render it fire resistant.

JESSE M. WEAVER.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23864/3