Aug. 29, 1950 H. C. LONG 2,520,159

IGNITER FOR VAPORIZING OIL BURNERS OF THE OPEN RECEPTACLE TYPE

Filed Dec. 21, 1946

Fig 1

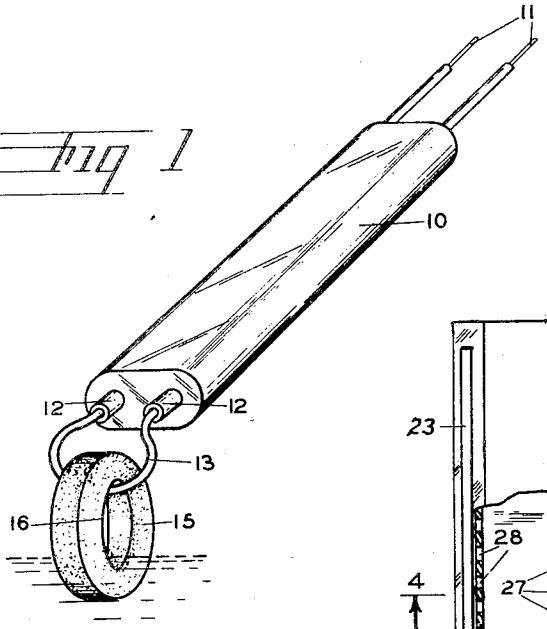


Fig 2

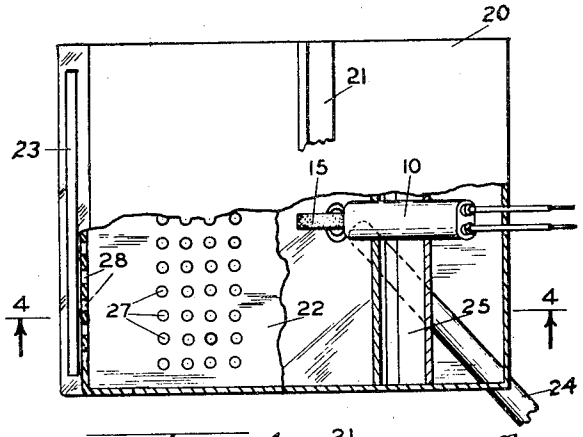


Fig 3

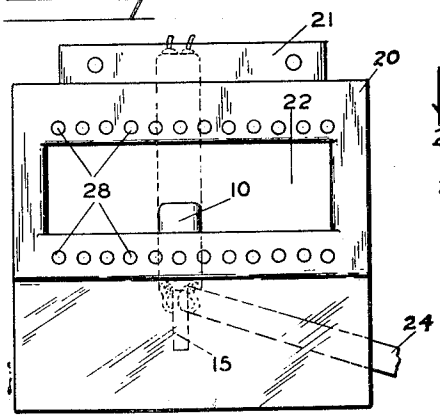


Fig 4

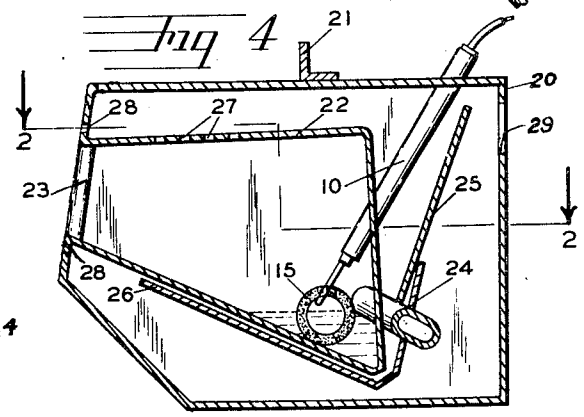


Fig 7

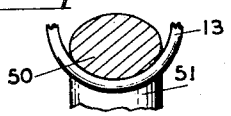


Fig 5

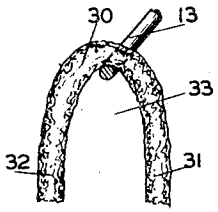


Fig 6

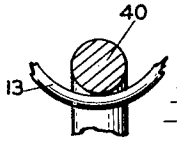
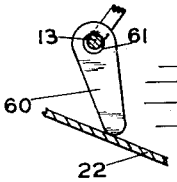


Fig 8



INVENTOR
HARRY C. LONG

BY

ATTORNEY

Patented Aug. 29, 1950 2,520,159

UNITED STATES PATENT OFFICE

2,520,159

IGNITER FOR VAPORIZING OIL BURNERS OF THE OPEN RECEPTACLE TYPE

Harry C. Long, Portland, Oreg., assignor to Reliance Manufacturing Company, Incorporated, Portland, Oreg., a corporation of Oregon

Application December 21, 1946, Serial No. 717,671

20 Claims. (Cl. 158—91)

1

My present invention relates to means for igniting oil in a vaporizing type oil burner. The invention is herein specifically illustrated in combination with an oil burner of the vaporizing type, which is not to be taken as limiting the use of the present invention to the specific type of oil burner illustrated and described. My invention is capable of use with any type of vaporizing oil burner, of which there are many modifications known to the art and available on the market at the present time.

The principal object of my invention is to provide electric igniting means for a vaporizing oil burner. It is customary in the vaporizing oil burner art at the present time to provide means whereby a pilot flame continuously burns during periods when heat is not desired or necessary. This results in continued consumption of fuel oil at times when not needed, and if the pilot flame is large enough may cause overheating of the zone in which the burner is located or the dwelling which the burner heats. A principal object of my present invention is to provide means whereby the necessity for a pilot flame in a vaporizing type oil burner is eliminated.

A further object of my invention is to provide a vaporizing oil burner with an extremely simple but durable electric igniting means making possible the intermittent ignition of the oil supplied to the burner.

A further object of my present invention is to provide an electric igniter for a vaporizing oil burner which is formed of relatively few parts of readily obtainable materials, the invention being easily assembled and associated with any form of vaporizing oil burner.

A further object of my present invention is to provide an electric igniter for a vaporizing type oil burner in which an electrically heated resistance element is associated with a heat-resistant wick element of such form and shape as to confine the vapors formed by the heating action of the resistance element in proximity with the resistance element long enough to raise the temperature thereof to the flash point of the oil, and thereafter to permit continued burning of the vapors in a confined space adjacent the surface of the oil in the body of the oil burner so as to cause ignition thereof.

The foregoing and other objects and advantages of my present invention will be more readily apparent upon inspection of the following specification taken in connection with the accompanying drawings wherein like numerals refer to like parts throughout.

2

In the drawings

Fig. 1 is a view in perspective of an igniter of the present invention;

Fig. 2 is a view, partially in plan but with portions broken away, of an oil burner having the present invention incorporated therein, the broken-away section being taken substantially along line 2—2 of Fig. 4;

Fig. 3 is a view in elevation of the front of the burner disclosed in Fig. 2;

Fig. 4 is a section in elevation taken substantially along line 4—4 of Fig. 2;

Fig. 5 is a partial view in elevation of a modified form of the invention;

Fig. 6 is a partial view in elevation of a modified form of an element of the invention;

Fig. 7 is a view similar to Fig. 6 showing another form which the invention may take; and

Fig. 8 is a similar view of a further form illustrative of the invention.

Referring to Figs. 1 to 4 inclusive, I have illustrated the igniter of the present invention as comprising a bar 10, of electrically insulating heat-resistant material such as ceramic, the bar being of sufficient length to conduct a pair of wires 11 through the walls of a burner and to insulate the wires against the heat of the burner. The wires 11 terminate in suitable terminal members 12 into which are inserted the ends of a bail-like resistance element 13. The resistance element may be of any suitable type but preferably comprises a short wire of some standard resistance material which may be heated to a cherry red by the flow of electricity therethrough, suitable materials for the purpose comprising various alloys of chromium and nickel, some forms of which are non-oxidizable, resistant to corrosion, and have a melting point in the range of 1300° to 1400° F. and very high resistivity. The ends of the member 13 may be welded to the terminals 12 or otherwise secured thereto in electrical contact therewith. The wires 11 may lead to suitable controls, or a suitable control circuit, including a source of electricity, there being many such controls and combinations thereof known to the art whereby current may be caused to flow through the resistance element when ignition is desired. As is well known in the heating art the flow of current may be continuous when heating is desired or may be intermittently applied for sufficient duration to cause initial ignition of the fuel oil so as to minimize the consumption of electric current.

Before assembling the element 13 with the terminals 12 a wick element 15 is suspended there-

from by passing a leg of the bail-like element through an opening 16 extending transversely of the wick member. In one embodiment the wick member is in the form of a ring having a rectangular cross section so that a considerable length of the resistance element is in close proximity to a portion of the surface of the wick member. The wick member is formed of a heat-resisting capillary material such as ceramic, corundum, asbestos, or sintered comminuted metal of a porous nature. If made of sintered metals the material is preferably formed of a metal resistant to corrosion by fuel oil and the fumes created by the burning thereof and resistant to high heat. For this purpose, a sintered aluminum-nickel alloy or sintered powdered steel or iron is best, but powdered bronze or copper is sufficiently non-corrosive for the ordinary lifetime expectancy. The powdered metal may be formed into wick elements by mixing the powder with a binder, or with powdered graphite, and pressing the mixture into a mold in the presence of heat whereby the particles are bonded to each other with the attendant formation of capillary passages.

The present invention is illustrated as being associated with an oil burner of the type disclosed in the patent to Daniels, No. 2,083,832, comprising a housing 20, having a mounting flange 21 thereon and including a burner body 22 having a forwardly directed flame opening 23. The burner body 22 includes a lower portion adapted to confine a body of fuel oil admitted thereto by an inlet tube 24 extending through the wall of the burner body and the housing therefor. The burner is also provided with a plurality of shields 25 and 26 adapted to prevent overheating of the housing 20. The housing 20 is provided with air-inlet openings, such as opening 29, for the admission of air to mix with the vapor formed inside of the burner body 22, which air is admitted to the interior of the burner body 22 through a plurality of openings 27 in the top wall thereof. The mixture of air admitted through the openings 27 and the vapor forming within the burner body 22 burns outwardly through the opening 23, there being openings 28 provided adjacent the lip of the openings 23 for the admission of secondary air to the region of combustion. The housing 20 may be provided with an overflow opening (not shown) or other means, of which many are known to the art, for preventing the level of the fuel oil from raising into contact with the resistance element 13. In the preferred form of the invention the level of the oil is maintained between a maximum height, below the resistance element 13, and a minimum height above the lower extremity of the wick element 15. In the preferred embodiment herein illustrated the end of the inlet tube 24 is preferably so located that the oil flowing therefrom will immediately contact the wick element 15 so that the initial flow of oil into the burner will be soaked up by the wick member. It is to be appreciated that in other forms of vaporizing oil burner the initial flow, or flow at all times, merely wets a surface of the oil burner, in which case it is obvious that my invention could be so utilized as to have the wick member adjacent the inlet opening to the burner and at such a height with respect thereto as to contact the minimum level of oil admitted to the burner.

In the operation of my invention oil is soaked up by the capillary action of the wick member 15 and upon reaching the area heated by the resistance element 13 will be vaporized, and some of the vapor will be confined within the opening 16 until the flash point of the fuel is reached, whereupon it will burst into flame. The opening 16 is of such size and the oil level is of such respect thereto as to have a continuous passageway for the flow of combustion-supporting air through the opening 16 so that a flame will be supported to burn out of either end of the opening 16 unless all combustion-supporting air is utilized by the flame burning from the opening 23 prior to its reaching the zone of the ignition element. After a pilot flame is thus established the heat of the pilot flame will cause vaporization and ignition of the adjacent oil, and the flame will burn within the burner body 22 toward the opening 23 as is usual in vaporizing burners of all types. Preferably the wick member is of such diameter that a portion thereof will rest against the bottom wall of the burner body in position to intercept the first drops of oil admitted. It is also preferred that the point of contact be removed from a vertical plane passing through the resistance element so that the ring will lean against the resistance element and maintain firm contact therewith.

In Fig. 5 I have illustrated a form which the invention may take comprising a length of capillary material such as a braid of asbestos rope or a body of asbestos fiber, which is preferably of such rigidity as to maintain its shape in the form of an open bight or horseshoe shape. The wick member 30 in this case comprises opposed legs 31 and 32 of sufficient length to contact the minimum oil level and of sufficient rigidity to maintain an opening 33 therebetween, through which the resistance element 13 passes.

In Fig. 6 I have illustrated the fact that the wick may comprise a member 40 of circular cross section if desired, whether formed as an open bight or a closed ring being immaterial, provided the lowermost portion thereof contacts the minimum oil level when it is suspended from the resistance element 13.

In Fig. 7 I have illustrated the fact that the wick element may comprise a member 50 of oval cross section and of greater width than heretofore illustrated, thus forming an opening 51 above the maximum oil level of considerable length so that proper admixture of combustion supporting air and fuel vapor may be achieved before the vapor reaches the region of the resistance element.

In Fig. 8 I have illustrated a form which the invention may take regardless of its material or transverse cross section or relative width, such as a member having a single leg 60 in contact with the fuel oil at its minimum level, and provided with a transverse eye 61 through which the resistance element 13 passes, thus providing a confined area for the ignition of the pilot flame. In this case I have found it unnecessary that the opening provided by eye 61 be of much greater diameter than the element 13, as sufficient air circulates about the wick member to support combustion.

It will be noted that regardless of the form which the wick element takes there is provided a portion having intimate contact with the resistance element and a surrounding area about the resistance element and in close proximity thereto so that oil which is soaked up through the capillary action of the wick element will become vaporized; and that there is a space sur-

rounding the heated area in which the vapor is permitted to mix with combustion-supporting air while being heated until the flash point of the oil vapor mixture is reached. Thereafter the vapor will burn at the ends of the opening through which the resistance element passes until the heat thereof causes vaporization of oil from the surface of the fuel within the burner and ignition thereof. Whether the resistance element is continuously supplied with current or not the flame will move out to the region of the opening 23 where sufficient secondary air will be supplied through the openings 28 to support final combustion of the fuel. It is preferred that the flow of current be intermittent and only for such period of time as to ignite a pilot flame. Thereafter when the flow of oil ceases and the body of fuel confined in the relatively small space of the lowermost portion of the burner body 22 has been completely vaporized, the flame will be extinguished and the burner will remain idle until the control system causes further flow of the fuel through the inlet pipe 24. At this time ignition would normally reoccur as the wick element becomes saturated and the current-flow through the resistance element resumed. I thus avoid the maintenance of a continuous pilot flame with its attendant overheating and formation of excess soot within the burner body.

The modification of Fig. 8 preferably resembles the modification of Fig. 1, in that the leg 60 is of such length as to contact the fuel-receiving surface of the burner at a point removed from a vertical plane through the resistance element so as to cause the wick member to lean against the resistance element in firm contact therewith. To further this end the extremity of the leg 60 is preferably rounded, so that it, like a ring, will rest in unstable equilibrium upon the floor of the burner.

The present invention contemplates the provision of wick members made of various capillary materials; for example, ceramics, asbestos, and sintered, powdered metals. All of these wick members have in common the ability to soak up fluids such as oil, and resistance to heat and corrosion. Wicks formed of ceramic and asbestos differ from the sintered metal wicks in their electrical conductivity, the first two being nonconductive and the latter being conductive. Wicks formed of ceramic and asbestos differ from metal wicks in their coefficient of heat transmission, the first two being relatively nonconductive of heat and the latter being highly conductive of heat. Therefore, it would seem that the metal wicks would be the least desirable since heat would be conducted away from the resistance element and the electricity might be dissipated. However, the opposite has been found to be true, and igniters employing porous metal wicks operate faster than igniters employing wicks formed of the other materials. Applicant believes that this is due to arcing between the contiguous portions of the resistance element and the wick member; probably a multiplicity of very tiny arcs pass between some of the tiny areas of sintered metal surrounding the porosities therein and the adjacent surface of the resistance element. Such arcs would exist in the angularities between the rounded surface of the resistance wire and the adjacent portion of the wick member and as such are hidden from view. By reason of these arcs high temperatures are created instantly, thereby rapidly vaporizing oil conducted into proximity with the resistance element by the wick member and exposing small quantities of a combustible mixture of oil vapors and combustion-supporting air to the arcs in relatively quiescent zones so that combustion is rapidly initiated. After initiation of combustion has thus been accomplished, the heat of the arcs in combination with the heat of the resistance element and the heat of combustion causes flame to spread throughout the entire area of proximity of the wick member and the resistance element until it spreads to the ends of the transverse opening through which the resistance element passes, thence over the entire surface of the wick member, and thence over the surface of the oil flowing into the receptacle.

In the specification and appended claims reference is made to a "transverse opening." This term is meant to be inclusive of a cylindrical bore, an open bight, or other forms of openings such as a surface notch.

It is to be appreciated that the ignition device will operate in a burner of the type in which the resistance element and wick may be completely submerged in oil at times, provided the fuel level remains below the resistance element when pilot flame ignition occurs.

Having illustrated and described preferred embodiments which the invention may assume it will be readily apparent to those skilled in the art that various forms in arrangement and detail thereof are permissible, and all such modifications as come within the true spirit and scope of the appended claims are considered to be a part of my invention.

I claim:

1. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element, an insulator mounted on the receptacle and supporting said element, and a wick member of porous, heat-resistant, capillary material pivotally suspended from said resistance element in position to soak up oil flowing into the receptacle, said wick member having a portion in contact with said resistance element comprising a passageway therethrough in which said resistance element is located and which is of larger diameter than the diameter of said resistance element in order to admit combustion supporting air to mix with the oil vaporized by said resistance element, and said wick member being of such size and shape as to contact the bottom of the receptacle at a point removed from a vertical plane through said resistance element whereby said wick member is caused to lean against said resistance element.

2. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element mounted within the receptacle and consisting of a short length of wire, and a wick member of porous, capillary material pivotally mounted on said element, said wick member being of sufficient length to contact the bottom of the receptacle below said element when inclined at an angle thereto so as to cause the member to lean against the resistance element.

3. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element mounted within the receptacle and a wick member freely suspended

from said element and comprising a bar of porous capillary material of sufficient length to contact the bottom of the receptacle at a point removed from a vertical plane passing through the resistance element.

4. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a bail-like resistance element mounted within the receptacle and a wick member mounted on said element, said member comprising a bar of porous capillary material having a transverse opening therethrough through which said element freely passes, said bar having a rounded lower end causing the bar to lean against said element upon contact of said end with a portion of the receptacle below the element.

5. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element mounted within the receptacle above the oil therein and a wick member comprising a rigid bar of heat-resistant, capillary material freely suspended from said element, the lower end of said wick member being in contact with the bottom of the receptacle at a point removed from a vertical plane passing through the point of suspension of said bar on said element.

6. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element mounted within the receptacle above the oil therein and a wick member comprising a rigid bar of heat-resistant, capillary material freely suspended from said element, said wick member being of sufficient length to contact a portion of the receptacle at a point removed from a vertical plane passing through its point of suspension and having a rounded lower end surface.

7. A vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, including an igniter comprising a resistance element mounted within the receptacle above the oil therein and a wick member comprising a rigid bar of heat-resistant, capillary material freely suspended from said element, said wick member being of sufficient length to contact a portion of the receptacle at a point removed from a vertical plane passing through its point of suspension whereby said wick member is caused to lean against said element.

8. An oil burner comprising an open receptacle having an oil inlet near the bottom thereof and air admitting openings above the bottom thereof, an insulator associated with said receptacle, conductor wires extending through said insulator, a short length of resistance wire connected at its ends to the inner ends of said conductor wires, and a wick member of porous, heat resisting material pivotally mounted on said short length of wire, said wick member being so located as to be contacted by the oil admitted through said oil inlet.

9. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a bail-like resistance element adapted to be mounted within the receptacle and above the maximum level of oil therein, insulating means supporting said resistance element, electrical leads housed in said insulating means and connected to the ends of said resistance element, and a wick member suspended from said resistance element, said wick member having a transverse opening therethrough through which said resistance element passes, said opening being of larger diameter than said resistance element to provide passage for combustion-supporting air in proximity to the resistance element.

10. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a resistance element, an electrical insulating body supporting said element, and a wick member of porous, heat-resistant, capillary material suspended from said resistance element, said wick member having a portion in contact with said resistance element and an adjacent passageway therethrough to admit combustion-supporting air to mix with oil vaporized from said wick member by said resistance element.

11. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a bail-like resistance element adapted to be mounted within the receptacle, an insulator supporting said resistance element, wires in said insulator leading to said element, and a wick member of porous, heat-resistant, capillary material freely suspended from said resistance element, said wick member having a portion in contact with said resistance element comprising a passageway therethrough in which said resistance element is located and which is of larger diameter than the diameter of said resistance element.

12. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a bail-like resistance wire, and a wick member freely suspended from said wire and comprising a bar of porous, capillary material having a transverse opening there-

through of larger diameter than said resistance wire and through which said resistance wire passes, said material being of sufficient rigidity that the walls of the opening will not collapse upon themselves.

13. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a bail-like resistance element, and a wick member freely suspended from said resistance element and comprising a length of porous, sintered metal having a transverse opening therethrough through which said resistance element passes.

14. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a resistance element, and a wick member freely suspended from said element and comprising a length of porous, capillary material having a transverse opening therethrough through which said element passes, said wick member being formed of sintered particles of a heat-resistant substance.

15. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a resistance element, and a wick member freely suspended from said element and comprising a length of porous, capillary material having a transverse opening therethrough through which said element passes, said wick member being formed of sintered, comminuted metal.

16. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a resistance element, and a wick member freely suspended from said element and comprising a length of porous, capillary material having a transverse opening therethrough through which said element passes, said wick member being formed of heat-resistant ceramic.

17. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a rigid wick member of heat-resistant, capillary material, a bail-like resistance wire pivotally supporting said wick member, conductor wires extending from the ends of said resistance wire for conducting electricity therethrough, and an insulator through which said conductor wires pass, said wick member having a passageway therethrough in which said resistance wire is located and which is of larger diameter than said resistance wire in order that said passageway may permit free circulation of combustion-supporting air about the contiguous portions of said resistance wire and said wick member.

18. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a rigid wick member of heat-resistant, capillary metal, a resistance wire supporting said wick member, conductor wires extending from the ends of said resistance wire for conducting electricity therethrough, and an insulator through which said conductor wires pass, said wick member comprising a lower portion adapted to extend into the oil flowing into said receptacle and an upper portion in contact with and openly surrounding a portion of said resistance wire whereby free circulation of combustion-supporting air about the contiguous portions of said resistance wire and said wick member is permitted.

19. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a rigid wick member of heat-resistance, electrically conductive, capillary metal, a resistance wire supporting said wick member, conductor wires extending from the ends of said resistance wire for conducting electricity therethrough, and an insulator through which said conductor wires pass, said wick member comprising a lower portion adapted to extend into the oil flowing into said receptacle and an upper portion in contact with and openly surrounding a portion of said resistance wire whereby free circulation of combustion-supporting air about the contiguous portions of said re-

sistance wire and said wick member is permitted and arcing occurs between said contiguous portions.

20. In an igniter for a vaporizing oil burner of the type comprising an open receptacle having oil and air inlets thereinto and in which oil is vaporized by the heat of combustion, said igniter being of the type comprising a wick member adapted to have a lower portion contacting oil flowing into said receptacle and a resistance element for heating an upper portion of said wick member thereby to vaporize oil conducted into proximity with the resistance element by the wick member and initiate combustion; the improved igniter comprising a resistance element, an electrical insulating body supporting said element, and a wick member of porous, heat-resistant, capillary material suspended from said resistance element, said wick member having a portion loosely in contact with said resistance element with the area of contact being at least

partially open whereby combustion-supporting air may flow into proximity with the contacting portions of said wick member and said resistance element.

HARRY C. LONG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
453,618	Brown	June 9, 1891
1,307,797	Squires et al.	June 24, 1919
1,493,070	Evans	May 6, 1924
1,957,701	Dart	May 8, 1934
1,994,720	Little	Mar. 19, 1935
2,007,889	Chadwick	July 9, 1935
2,056,146	Sherman	Sept. 29, 1936
2,239,175	Unser	Apr. 22, 1941
2,438,823	Resek et al.	Mar. 30, 1948