Sept. 6, 1932. C. B. WILSON 1,876,377

OIL BURNER

Filed April 20, 1931

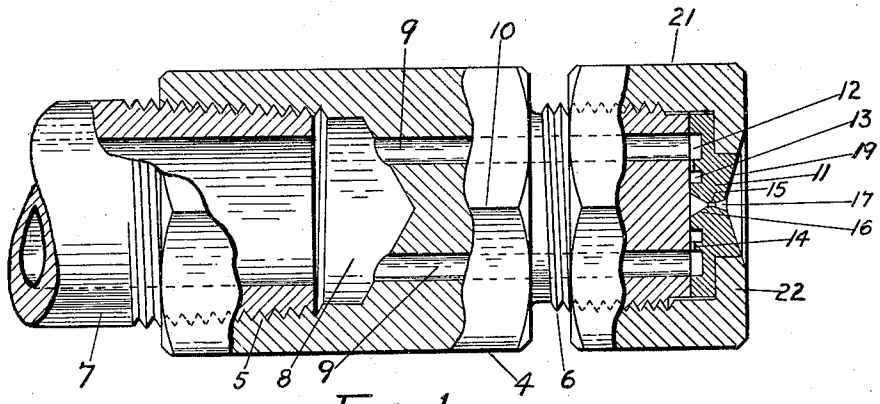


FIG. 1.

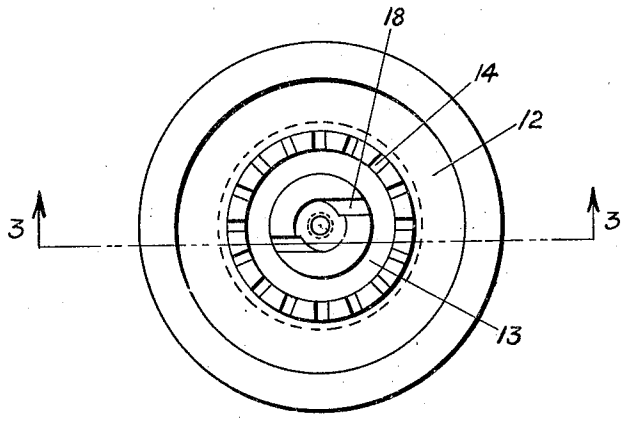


FIG. 2.

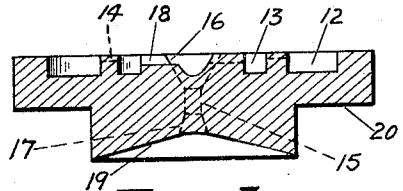


FIG. 3.

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UNITED STATES PATENT OFFICE

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OIL BURNER

Application filed April 20, 1931. Serial No. 531,443.

My invention relates to oil burners. An important object of the invention is to provide means for straining oil just prior to its point of combustion and just prior to its passage through the orifice leading to the point of combustion.

Another object is to provide channels for straining the oil that are smaller than the passage feeding the orifice that leads to the point of combustion.

Still another object is to provide tangent feeding grooves for said orifice, in order to impart a whirling motion to oil as it enters said orifice.

Other objects reside in details of construction and in novel arrangements of parts, which will appear more fully in the course of the following description.

In the drawing, like reference characters designate similar parts in the several views.

Figure 1 is a partly sectional elevation of an assembly including an embodiment of my invention.

Figure 2 is a magnified face view of such embodiment.

Figure 3 is a section taken on the line 3—3 of Figure 2.

Referring more in detail to the drawing, the reference character 4 generally designates a hollow body member having a threaded entrance 5 at one end and a threaded extension 6 at the other end. A conduit 7, connecting with a source of oil (not shown) preferably under pressure, is screwed into the entrance 5. The hollow body provides a chamber 8 that receives the contents of the conduit 7 and transmits same to a plurality of small passages 9 that extend through the body 4 and extension 6. The body has a hexagonal surface 10 for ease in assembling.

A disk 11 is placed at the end of the extension 6. The disk has a circular channel 12 disposed opposite the open ends of the passages 9. The disk 11 also has a circular channel 13 concentric with the channel 12. The two channels are connected by means of transverse grooves 14.

The orifice mentioned in the foregoing objects has a cylindrical neck portion 15 concentric with the channels and which tapers outwardly toward opposite faces of the disk 11, as shown at 16 and 17. The tapering portion 16 is connected with the channel 13 by means of tangent grooves 18. The tangent grooves 18 preferably have about twice the capacity of the grooves 14, the purpose of which will be more fully explained hereinafter.

Face 19 of the disk 11 is countersunk to the tapering portion 17 of the orifice. Surrounding the countersunk portion, the disk has a shoulder 20. A nut 21, which is screwed on the threaded extension 6, has an inturned flange 22, which engages around the shoulder 20 and holds the disk in position.

In the use of the invention, the conduit 7 is connected with a source of oil under pressure. Since any conventional equipment may be used and since the source per se forms no part of the present invention, illustration of same appears unnecessary.

The grooved face of the disk is flat and abuts against the end of the extension 6 and thereby closes the tops of the grooves and makes the grooves into passages.

The oil travels through the conduit 7, through the chamber 8 and from there through passages 9 and into channel 12. The oil is then strained as it passes through the grooves 14. Since the grooves 14 are smaller than the tangent grooves 18 and smaller than the orifice, any foreign particles in suspension in the oil that are capable of passing through the grooves 14 may pass through the grooves 18 and through the orifice. Therefore, if foreign particles pass through the grooves 14, they will not clog either the grooves 18 or the orifice. Thus the grooves 14 effectively strain the oil.

From the tapering portion 17 of the orifice, the oil is sprayed outwardly, across the countersink 19, and at this point is ignited.

It is to be understood that changes may be made in the details of construction and arrangement of the parts of the invention, without departing from the spirit and scope of the present invention.

In the present case, wherever "oil" is used, it is to be understood that it includes other

combustible liquids. Moreover, the present invention may be used for atomizing or spraying other liquids without departing from the spirit and scope of the invention.

What I claim and desire to secure by Letters Patent is:

1. In an oil burner, a nozzle for the discharge of oil, having outer and inner annular spaces in a face interiorly of the nozzle, the nozzle having a passage for supplying oil to the outer space, said face having strainer grooves connecting the spaces, the nozzle having a discharge aperture and grooves tangent to the aperture in said face and communicating with the inner space to conduct oil entered into the outer space and thru the strainer grooves, to the discharge aperture.

2. In an oil burner, a nozzle for the discharge of oil, having outer and inner annular spaces in a face interiorly of the nozzle, the nozzle having a passage for supplying oil to the outer space, said face having strainer grooves connecting the spaces, the nozzle having a discharge aperture and grooves in said face connecting the inner space with said aperture, to conduct oil passing from the outer space thru the strainer grooves, to the discharge aperture.

3. In an oil burner, a nozzle for the discharge of an oil spray, comprising a disk having a discharge aperture, a surface thereof, having a groove tangent to and connected with the aperture and having a set of strainer grooves in the form of open channels connected with the first-mentioned groove and cut into said surface of the disk, and arranged ahead of the first-mentioned groove and aperture, in the direction of travel of oil thru the burner, to form strainer ducts when the disk is held against a coacting surface of the nozzle.

4. A spraying nozzle for an oil burner, according to claim 3, in which the tangent groove and the strainer grooves are connected by an annular groove also in said surface of the disk.

5. In an oil burner, a nozzle for the discharge of an oil spray, comprising a disk having a spray groove and a set of strainer grooves in the form of open channels in the disk, all of said grooves being in the same surface of the disk and the spray groove being connected with the strainer grooves, each of the strainer grooves being of less capacity than the spray groove, and the grooves being arranged to form ducts when the disk is held against a coacting surface of the nozzle.

6. In an oil burner, a nozzle for the discharge of an oil spray, comprising a disk having a discharge aperture and having a groove tangent to the aperture and having strainer grooves connected with the tangent groove, all of said grooves being in the form of open channels and being in the same surface of the disk, and a body portion of the nozzle in contact with said surface closing the tops of the channels, whereby to form ducts.

7. In an oil burner, a nozzle for the discharge of an oil spray, comprising a disk having a discharge aperture, having a spray groove feeding into said aperture, and having strainer grooves connected with the spray groove, all of said grooves being in the same surface of the disk, each of the strainer grooves being of less capacity than the discharge aperture and the grooves being arranged to form ducts when the surface containing same is placed against a coacting surface of the nozzle.

8. A spraying nozzle for an oil burner, according to claim 5, in which the strainer grooves are nearer the source of supply, whereby the supply passes thru said grooves before reaching the spray groove.

9. A spraying nozzle for an oil burner, according to claim 3, in which the strainer grooves are arranged in a circular series concentric with the aperture of the disk.

In testimony whereof I hereunto affix my signature.

CARL B. WILSON.