Jan. 13, 1931. W. H. SHEPPARD 1,788,495

OIL BURNER

Filed Sept. 1, 1928

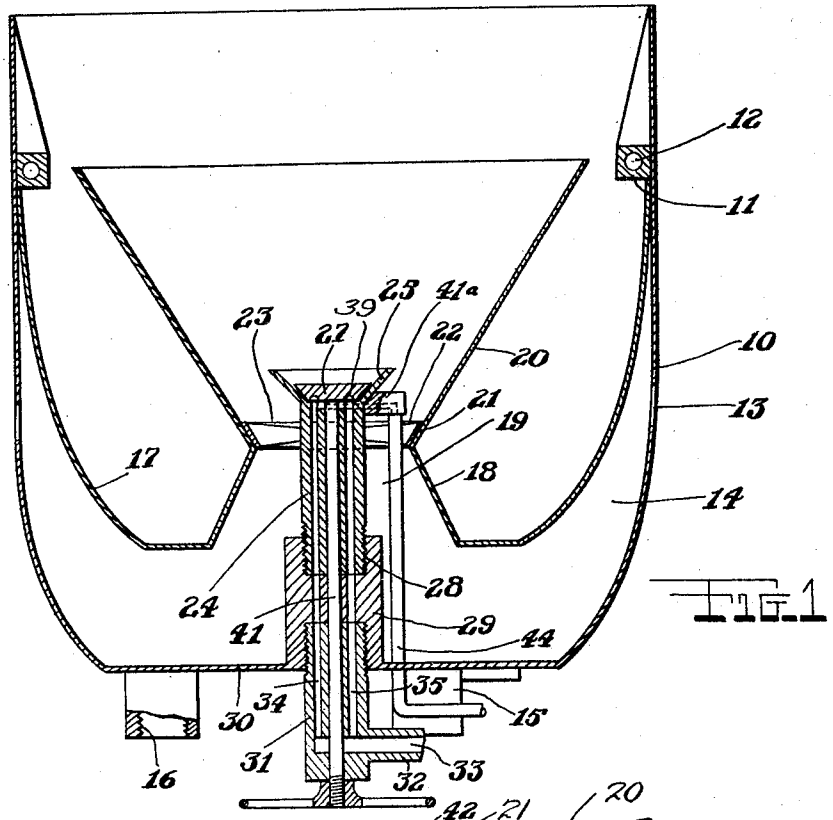


FIG. 1

FIG. 2

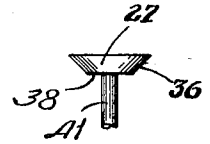


FIG. 4

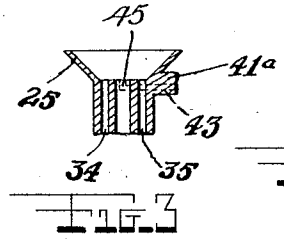


FIG. 3

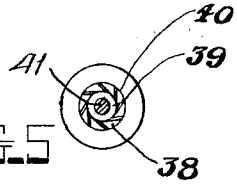


FIG. 5

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UNITED STATES PATENT OFFICE

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OIL BURNER

Application filed September 1, 1928. Serial No. 303,459.

The main object of this invention is to provide an oid burner which is applicable to furnace installations or similar other devices for the purpose of generating heat.

Another object of this invention is to provide an oil burner which uses a stream of air under pressure. This air is guided through a baffle plate which sets it whirling, and this whirling air is then mixed with atomized fuel oil, also projected into the burner under pressure.

The above and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing, Figure 1 is a longitudinal sectional elevational view through the burner.

Figure 2 is a top plan view of the same.

Figure 3 is a sectional elevational view of the upper end of the oil spreader nozzle.

Figure 4 is a front elevational view of the upper end of the oil spreader cone.

Figure 5 is a bottom plan view of Figure 4.

Referring in detail to the drawing, the numeral 10 indicates the body of the oil burner. This body has encircling it, at its upper end, a housing 11 in which a circular channel 12 is formed. This channel 12 communicates with a source of supply of air, not shown. The body is fashioned similar to a bowl and is provided with apertures 13 around its wall, through which the air under natural draft pressure enters into an enclosed chamber 14 in the oil burner. The body is preferably mounted on posts 15 which have threaded openings 16 therein for the purpose of securing the entire device on a base. The chamber 14 is enclosed at the top by an inverted bell 17 whose edge is secured to the wall of the body 10. This inverted bell is provided with an internal substantially conical rim 18 which encloses a similarly shaped passageway 19. An inverted outwardly flaring cone 20 surmounts the rim and is open at its upper end. The base or lower end of this cone has a spider wheel 21 located thereon. This spider is provided with laterally inclined blades 22 which radiate from the axis of the spider and are interspersed by air spaces 23. The spider 21 has an axial opening therein through which passes a nozzle body 24. The nozzle body has a tapering nozzle cone 25 at its upper end. The face of the nozzle body has seated thereon a valve-like spreader disc 27 held in place by stem 41. The body 24 has threads 28 at its lower end which engage in the threaded opening of a hub 29 which forms part of the floor 30 of the body. Member 29 has a pipe 31 connected to the lower end. The pipe projects externally of the body 10 and has unitary therewith an inlet 32. The passageway 33 in the inlet receives the oil from the source of supply and communicates with a pair of longitudinal channels 34 and 35. Said channels pass through the pipe 31, through the hub 29, and then through the nozzle body 24.

The surface 38 upon which the spreader disc seats upon the nozzle body 24 is provided with a groove 39. Said surface 38 is provided with a plurality of canals 40 which extend tangentially from the circular groove 39 in the spreader disc to the edge thereof. Alongside the nozzle cone 25 a housing 41^a is located. This housing has parallel passageways 42 and 43 formed therein which communicate with the surface of the nozzle member 25 as openings 45. A second passageway connects these two parallel passageways 42 and 43 and this connecting passageway is in communication with a pipe line 44 which leads from a source of supply of air under pressure.

The burner illustrated herein is adapted to atomize oil passing through the burner under pressure with air. The atomized oil is ignited in the confines of member 20 and serves as a heat generating unit. Air, preferably heated, passes into the chamber 14 of the oil burner through the apertures 13. This air, introduced through these apertures, finds an outlet through the spaces 23, located between the blades 22. In passing through these spaces it is baffled laterally by the blades 22 and, after passing around the blades, begins to whirl. This whirling, heated air envelopes the burner nozzle member 25. The oil under pressure enters through the passageway 33

of the inlet 32 and then passes, still under pressure, out of the channels 34 and 35 into the circular groove 39 formed in the spreader disc. The oil enters this circular groove at two diametrically opposite positions and, between the open ends of the passageways 34 and 35, the air openings 45 are located. Simultaneously with the entering of the oil into the circular groove two jets of air also enter the groove 39 from the pipe line 44 under forced pressure. The air and oil in this groove are mixed and as pressure continues are emitted through the space which is shown between the spreader disc 27 and nozzle 25 and are thrust upwardly in atomized condition.

It is to be noted that certain changes in form and construction may be made without departing from the spirit and scope of the invention.

I claim:

In an oil burner, a sprayer nozzle comprising a body having air and oil passages therein, an inverted conical upper end on said body, the conical end having a flat seat therein, a spreader disc seated on said flat seat having an annular groove therein, the air and oil passages opening into said groove, and tangential canals extending from said groove to the edge of said disc.

In testimony whereof I affix my signature.

WALTER HARRY SHEPPARD.