W. M. BRITTEN.

ROTARY OIL BURNER.

APPLICATION FILED JAN. 25, 1909.

1,022,122.

Patented Apr. 2, 1912.

Fig. 1.

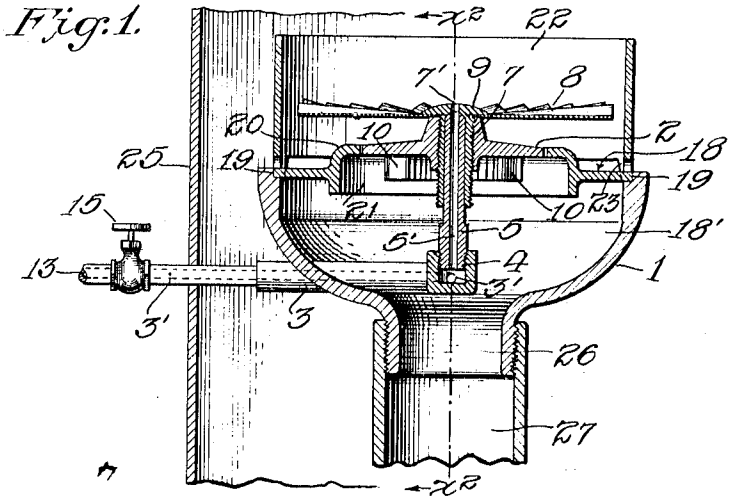


Fig. 2.

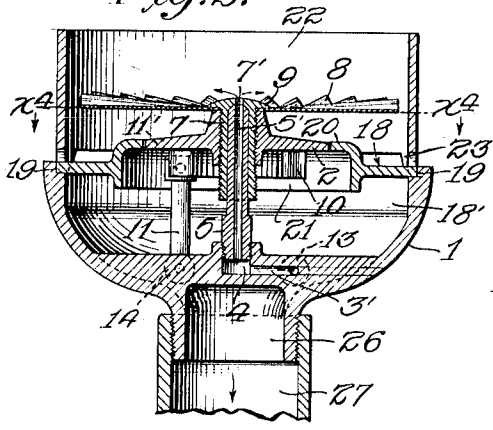


Fig. 3.

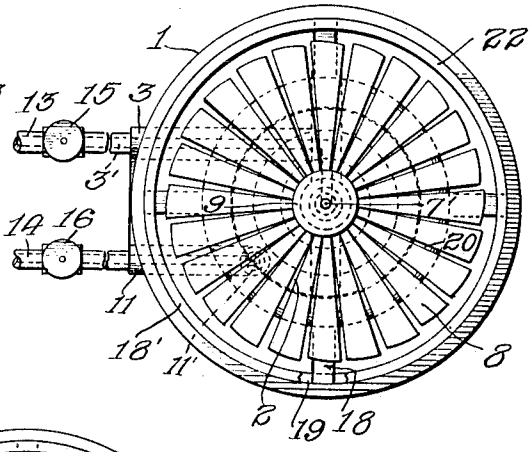
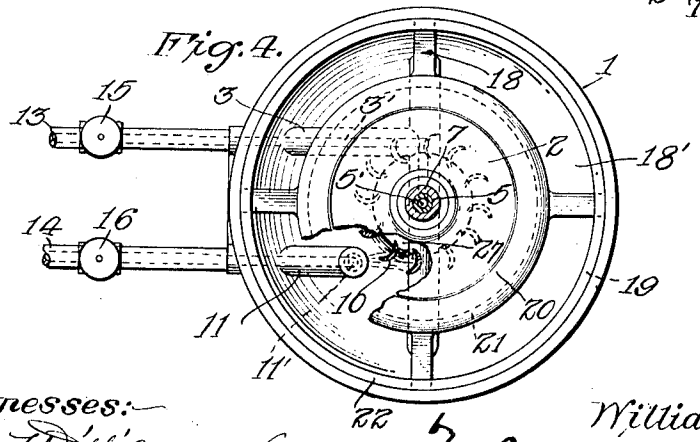


Fig. 4.



Witnesses:—

C. J. Williams

Louis A. Gratz.

Inventor,

William M. Britten.

Edmund Louis Hadley

atty.

UNITED STATES PATENT OFFICE.

WILLIAM M. BRITTEN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO CLYDE HARSHMAN, OF LOS ANGELES, CALIFORNIA.

ROTARY OIL-BURNER.

1,022,122. Specification of Letters Patent. Patented Apr. 2, 1912.

Application filed January 25, 1909. Serial No. 474,169.

To all whom it may concern:

Be it known that I, WILLIAM M. BRITTEN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Rotary Oil-Burner, of which the following is a specification.

The main object of the present invention is to provide an oil burner which will mechanically break up the oil preparatory to burning the same without the use of artificially supplied air or steam pressure.

Another object of the invention is to provide an oil burner wherein relatively heavy oil can be burned successfully.

Another object of the invention is to provide an oil burner which can be started in operation without the usual preliminary heating generally required for generation.

The accompanying drawings illustrate the invention.

Figure 1 is a vertical section of the burner. Fig. 2 is a section on line x^2—x^2 of Fig. 1. Fig. 3 is a plan of the burner. Fig. 4 is a horizontal section on line x^4—x^4 of Fig. 2, showing a portion of the rotary burner head broken away.

The burner comprises a fixed case or chamber 1 and a rotary burner head 2 mounted to rotate therein. Chamber 1 is provided with an oil supply duct 3′ extending through its wall within a bracket 3 and which extends from the wall of the chamber inwardly and is bent to extend to the middle of the chamber where it is provided with an internally screw threaded socket 4 into which screws a hollow stud 5 which extends vertically upward and axially of the chamber 1, said stud 5 having a central passage 5′ which forms a continuation of the oil duct and discharges at its upper end onto the rotary head. The rotary head 2 is formed as a disk member screwing onto a hub or sleeve 7 which is centrally bored to form a socket fitting on the upper end of the stud 5, the upper ends of the socket and stud being tapered to give a cone bearing and the said sleeve being centrally perforated at 7′ to form a continuation of the oil duct through which the oil can pass over on the top of the sleeve. A fan 8 consisting of sheet metal cut and bent to form blades is secured at its central portion between the rotary burner head 2 and a flange 9 on sleeve 7, being clamped in that position by screwing the sleeve within the head 2, so that in the rotation of the burner head on the stud 5 the fan will rotate therewith. On its under face the rotary head 2 is provided with a circular series of turbine blades or buckets 10 located in the path of a jet issuing from a discharge slot or opening 11′ in a pipe or hollow bracket 11 extending through the wall of chamber 1. Oil supply pipe 13 and water supply pipe 14 connect respectively to the conduit means 3 and 11 aforesaid, and are provided with regulating valves 15 and 16 respectively. A top or spider member 18 extends over the chamber 1 at the top and rests in a shouldered seat or rabbet 19 at the top of the wall of said chamber, said top member having a central opening to receive the rotary head 2 and provided with an upwardly and inwardly extending flange 20 which extends close to the periphery of said head. Said top member also has a downwardly extending flange 21 around its central opening. A guard or deflector ring 22 rests by its legs 23 on the top of member 18 and surrounds the fan 8. The burner may be supported in any suitable manner, for example, by a wall plate 25, through which the pipes 13, 14 extend. Chamber 1 is provided with outlet 26 at its bottom, from which a waste pipe 27 extends to a drain or the like.

The operation is as follows: When it is desired to use the burner the oil and water are turned on by opening valves 15, 16, the water passing through the pipe 14 and communication 11′ issuing in a jet which impinges on the turbine blades 10 and thereby rotates the rotary head. The waste from the turbine falls to the bottom of the chamber and passes out through an outlet 26 at the bottom of the chamber 1 from which it may be conveyed by waste pipe 27 to any suitable drainage means. The oil passes from pipe 13 through the communications 3′, 5′, 7′ onto the top of the rotary fan 8, which is very hot and causes vaporization of the oil, and should any oil not be so vaporized it is thrown outwardly and beaten up or agitated so as to fly off into the air, and at the same time the rotation of the fan produces an ascending current of air which passes up through the space or openings 18′ between the members 1 and 20, and carries away the atomized or broken-up particles of oil so that the same may be ignited and burned at

the top of the burner. The blades of the rotary fan being separate and the spaces between these blades being open at top and bottom, the air can pass through the fan and take up the oil as it passes over the surface of the blades and is thrown from the edges of the blades. It is very important to construct the fan of light material, such, for example, as 27 gage B. & S., that will quickly respond to a change of temperature so that the expansion and contraction of the fan will prevent the formation of carbon thereon. This expansion and contraction of the fan takes place quicker than the carbon and the latter is caused to crackle and fly off like dust. This keeps the fan perpetually clean of carbon and so far as I am aware, is a novel feature. The water supplied to the hollow shaft 5 keeps the oil passages cool and prevents carbonization of the oil therein.

What I claim is:

1. An oil burner comprising a chamber, an oil supply pipe extending thereinto, a tubular stud extending from said oil supply pipe and communicating therewith, a burner head formed with a hollow hub journaled on said tubular stud and having a perforation communicating with the central opening in the tubular stud, said burner head being provided at its upper end with a plurality of separate blades constituting a rotary fan, the spaces between said blades being open at top and bottom, and said burner head being further provided with a disk portion below said fan and with a plurality of downwardly extending blades on said disk portion to serve as turbine means, and a water supply pipe having a discharge opening extending in position to direct a stream of water against said turbine means.

2. An oil burner comprising a chamber, an oil supply pipe extending thereinto, a tubular stud extending from said oil supply pipe and communicating therewith, a burner head formed with a hollow hub journaled on said tubular stud and having a perforation registering with the central opening in the tubular stud, said burner head being provided at its upper end with a plurality of separate blades constituting a rotary fan, the spaces between said blades being open at top and bottom, and said burner head being further provided with a disk portion below said fan and with a plurality of downwardly extending blades on said disk portion to serve as turbine means, a water supply pipe having a discharge opening extending in position to direct a stream of water against said turbine means, and an annular member supported on the walls of the chamber and formed with a flange extending in proximity to the aforesaid disk member on the burner head and with openings between said flange and the wall and chamber for the passage of air.

3. An oil burner comprising a chamber, an oil supply pipe extending thereinto, a tubular stud extending from said oil supply pipe and communicating therewith, a burner head formed with a hollow hub journaled on said tubular stud and having a perforation registering with the central opening in the tubular stud, said burner head being provided at its upper end with a plurality of separate blades constituting a rotary fan, the spaces between said blades being open at top and bottom, and said burner head being further provided with a disk portion below said fan and with a plurality of downwardly extending blades on said disk portion to serve as turbine means, a water supply pipe having a discharge opening extending in position to direct a stream of water against said turbine means, and an annular member supported on the walls of the chamber and formed with a flange extending in proximity to the aforesaid disk member on the burner head and with openings between said flange and the wall and chamber for the passage of air, and a ring resting on the top of the chamber and having openings in its lower portion for admission of air from the outside of the chamber.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 7th day of January 1909.

WILLIAM M. BRITTEN.

In presence of—
G. T. HACKLEY,
FRANK L. A. GRAHAM.