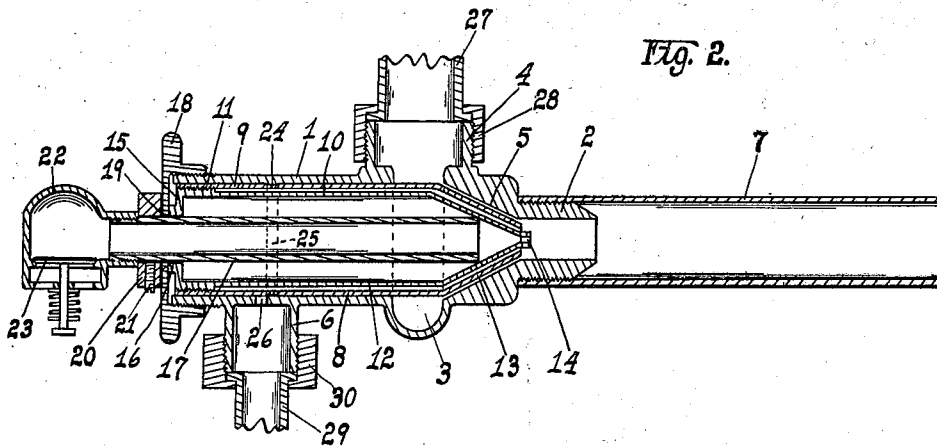


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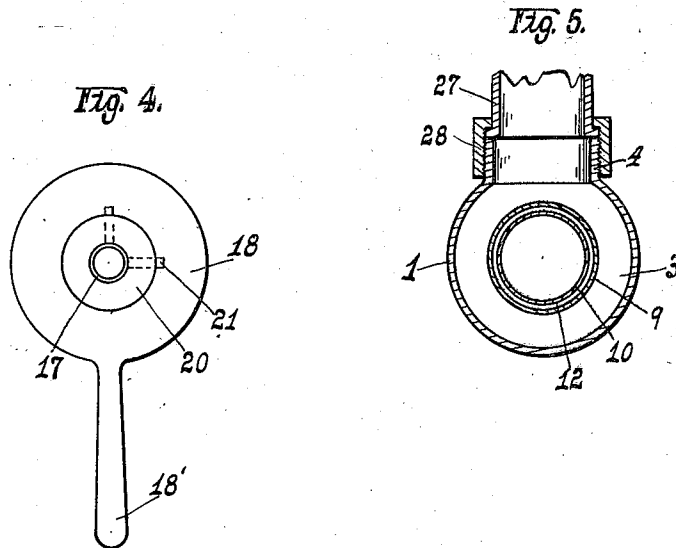
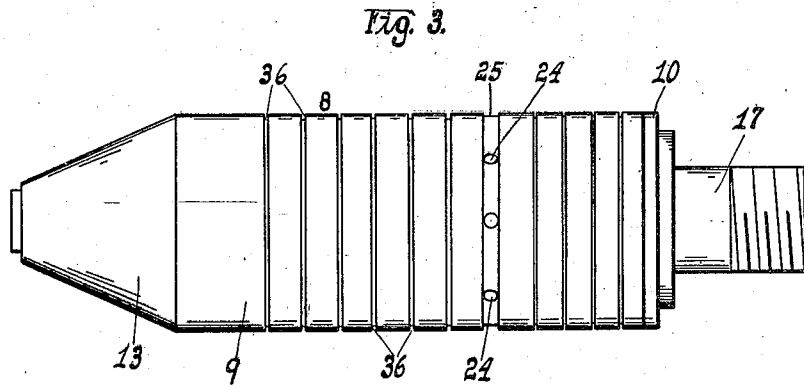
Fig. 2.



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1,429,434.

Patented Sept. 19, 1922.
2 SHEETS—SHEET 2.



Inventor
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UNITED STATES PATENT OFFICE.

ADOLPH W. JONES, OF OAKLAND, CALIFORNIA.

OIL BURNER.

Application filed January 24, 1920. Serial No. 353,779.

To all whom it may concern:

Be it known that I, ADOLPH W. JONES, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Oil Burners, of which the following is a specification.

My invention is an improved oil burner which as a unit controls the mixing of oil, steam and air.

Referring to the annexed drawing, forming a part of this specification, in which the reference characters of this specification indicate the corresponding parts in the several views:

Figure 1 is a side view of my burner in position in a furnace which is shown in section.

Figure 2 is a longitudinal section of my burner.

Figure 3 is a side view of the burner valve.

Figure 4 is a front end view of the burner with the air cage removed.

Figure 5 is a cross section of the burner taken on line 5-5 of Figure 1.

In the drawing 1 indicates a burner casing preferably of cylindrical shape, formed with an outlet nipple or mixing chamber 2, an annular channel 3, a steam inlet nipple 4 with which said channel communicates, a conical valve seat 5 between said channel and said reduced inner end and an oil inlet nipple 6. A tube 7 is screwed on the reduced end 2 which is externally threaded. In the casing 1 is slidably fitted a valve sleeve 8 formed in two sections, an outer section 9 and an inner section 10. The outer end of the outer section 9 is internally threaded to receive an externally threaded annular flange 11 on the outer end of the inner section 10 whereby the inner section is supported in the outer section. The inner section being smaller in diameter than the outer section an annular oil space 12 is provided therebetween. The inner end of the outer section 9 is tapered, forming a conical valve closure 13 to fit the seat 5 to shut off the burner. The inner end of the inner section 10 is tapered to an outlet 14 parallel to the tapered end of the outer section, continuing the oil space 12 through the inner end of the valve. The outer end of the inner section 10 is closed by an end wall 15 provided with an opening 16 through which a tube 17 extends to the

tapered inner end wall of the section. A cap 18 screws on the outer end of the burner casing 1, which is externally threaded, said cap being provided with an opening 19 through which the tube 17 extends. A handle 18' extends from the cap 18 for turning the cap. A collar 20 fits on the tube 17 against the wall of the cap 18 and is secured on said tube by a set screw 21. An air cage 22 screws on the outer end of the tube 17 which is externally threaded, in which cage is an intake valve 23. The outer valve section 9 is provided with a plurality of circumferentially arranged inlet ports 24 communicating with a circumferential groove 25 in the outer surface of the section, which groove is adapted to register with an inlet port 26 in the wall of the casing 1, said port 26 leading from the oil inlet nipple 6. The steam inlet 4 is connected to the end of a steam pipe 27 by a union 28. The oil inlet 6 is connected to the end of an oil pipe 29 by a union 30. The tube 7 and reduced end 2 extend through the wall of a furnace 35.

By turning the cap 18 in one direction the valve sleeve 8 is moved to the left, unseating the valve sleeve 8 and bringing the groove 25 into registration with port 26, whereupon oil passes through inlet 6, port 26; groove 25, ports 24, space 12, into mixing chamber 2; steam passes from inlet 4 through channel 3 between the valve closure 13 and seat 5, into mixing chamber 2, and air enters the cage 22 through valve 23, which is opened by the action of the steam passing into the mixing chamber 2, and passes through tube 25, the inner end of inner section 10, outlet 14, into mixing chamber 2, where the oil, steam and air are mixed before passing out of the tube 7 into the furnace 35. By turning the cap 18 in the other direction the valve sleeve 8 is moved to the right until the closure 13 engages the seat 5 and the groove 25 passes out of registration with the port 26 shutting off the steam and oil and closing the burner. The outer section 9 of the valve sleeve 8 is provided with a series of annular water sealing grooves 36. The air in the space between the tube 17 and the inner shell 10 forms an insulation to prevent the air in the tube 17 from cooling the oil in the space 12.

Having described my invention, I claim:
1. A burner including a casing formed

with an outlet mixing chamber, a steam inlet and an oil inlet, a valve sleeve controlling the admission of oil and steam into said mixing chamber, and an air intake valve for admitting air into said mixing chamber under the influence of the action of the steam therein.

2. A burner including a casing formed with an oil inlet, a steam inlet, an outlet mixing chamber, and a valve seat between said outlet mixing chamber and said steam inlet, a valve sleeve including an outer shell, an inner shell, said shells being spaced apart to form an oil space therebetween and having outlets at their inner ends, a valve closure on the inner end of said outer shell for engaging the valve seat, an oil inlet in said casing, the outer valve shell having an inlet port, a steam inlet, an air tube extending into the inner valve shell, an air cage on the outer end of said tube, and means for moving said valve sleeve in said casing to move the inlet port of said outer valve shell into or out of registration with said oil inlet and said valve closure into or out of engagement with said valve seat.

3. A burner including a casing formed with an oil inlet, a steam inlet, an outlet mixing chamber, and a valve seat between said outlet mixing chamber and said steam inlet, a valve sleeve including an outer shell, an inner shell, said shells being spaced apart to form an oil space therebetween and having outlets at their inner ends, a valve closure on the inner end of said outer shell, for engaging the valve seat, an oil inlet in said casing, the outer valve shell having an inlet port, a steam inlet, an air tube extending into the inner valve shell, an air cage on the outer end of said tube, a cap through which

said tube extends screwing on said casing, a collar on said tube engaging the outside of said cap, said cap when turned causing the valve sleeve to move and the inlet port and the valve closure into or out of register with said oil inlet and into and out of engagement with said valve seat.

4. A burner including a casing formed with an oil inlet, a steam inlet, an outlet mixing chamber, an annular channel communicating with said steam inlet, and a valve seat between said channel and said outlet chamber, and a valve sleeve for engaging said seat to control the admission of steam into said outlet mixing chamber and for admitting oil into said mixing chamber.

5. A burner including a casing formed with an oil inlet, a steam inlet, an outlet mixing chamber, a valve sleeve for controlling the admission of steam and air into said mixing chamber, said valve sleeve being provided with an annular groove in its periphery and with a plurality of circumferentially spaced ports in its wall communicating with said groove, said valve sleeve having a space therein, with which said ports communicate, leading to said outlet mixing chamber, said groove registering with said oil inlet when the valve is open to admit oil into said mixing chamber with the steam and air.

6. A burner including a casing formed with a steam inlet, an oil inlet, and a mixing chamber, air inlet means, and a valve sleeve for controlling the admission of oil, steam into said mixing chamber said valve sleeve varying the amount of air used through the air inlet means.

In testimony whereof I affix my signature.
ADOLPH W. JONES.