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(71) Applicant: **Montserrat, Tomé Fernández**
San Nicolás, 8
Barcellona(ES)

(71) Applicant: **Benage, Asuncion Bertrán**
San Nicolás, 8
Barcellona(ES)

(72) Inventor: **Montserrat, Tomé Fernández**
San Nicolás, 8
Barcellona(ES)

(72) Inventor: **Benage, Asuncion Bertrán**
San Nicolás, 8
Barcellona(ES)

(74) Representative: **Bianchetti, Giuseppe**
Studio Consulenza Brevettuale Via Senato 24
I-20121 Milan(IT)

(54) Fuel oil rotary burner.

(57) A fuel oil rotary burner include a hollow rotary shaft (1) terminating at its outer end with a truncated cone atomizer cap (2) enclosed in an air impeller centrifugal device (3), there being inside said shaft a feed tube (4) driven by a pump (5), said tube being divided by a longitudinal diametrical partition (10) which forms a feed duct (11) of the fuel oil, in the direction of the outlet head (7), and a return duct (12), in the direction towards the opposite end of the head (7), said tube (4) being provided with a chamber (13), adjacent to the head (7), in which both halves (11) and (12) of the tube (4) communicate, and which is provided with an outlet (14) of the oil; this opening being provided with a desmodromic control valve (15) guided by a shank (16) which is subjected at its other end to the action of a compression spring (17) which tends to keep the valve in its closed position.

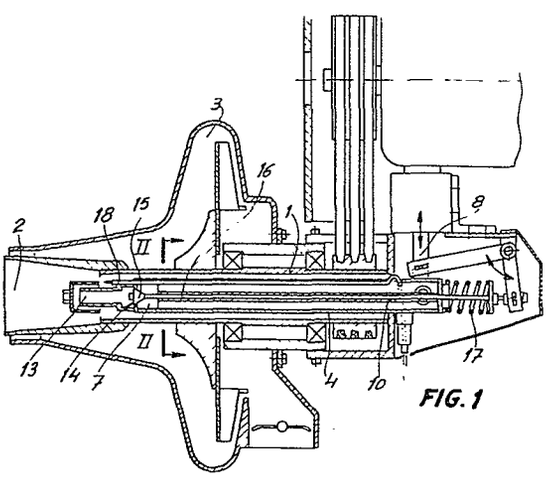

FIG. 1

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Fuel oil rotary burner

The present invention refers to a fuel oil rotary burner, of the type including a hollow rotary shaft, terminating at its outer free end , with a truncated cone atomizer cap, enclosed in an air impeller centrifugal device, having a fuel oil feed tube inside said hollow shaft, driven by a pump and from an outer reservoir to the burner; in its free end, this feed tube has a fuel oil output head and the other end of the aforesaid feed tube is connected to the feed pipe of the fuel oil from the pump, and to a return pipe connected to the reservoir.

In known fuel oil rotary burners, there is permanently a great flow in the return circuit of the fuel oil, even when the burner is working. Also, there is always a part of the fuel oil which does not flow at the end of the fuel oil feed tube, which produces irregularities on igniting.

The burner object of the present invention completely eliminates these disadvantages, enabling a pump to be used with almost half the conventional power. In essence, this burner is characterized in that the feed tube is divided by a longitudinal diametrical partition which forms a feed duct of the fuel oil, in the direction of the head, and a return duct, in the direction of the opposite end to the head, said tube being provided with a chamber adjacent to the

head, in which both halves of the tube communicate, and which is provided with an outlet of the fuel oil. In this opening, there is a desmodromic, or positive control valve, guided by a shank, crossing the supply tube axially, which is subjected, at its other end, to the action of a compression spring which tends to keep the valve against the opening of the head, in its closed position.

Other advantages and characteristics of the burner object of the present invention will be derived from the description made hereinbelow in relation to the annexed drawings, which illustrate, by way of unlimited example, a form of embodiment thereof.

Figure 1 is a side elevation view, cut along a middle vertical plane, of the rotary burner assembly;

Figure 2 shows a cross section of the feed tube of the burner taken along lines II - II of Figure 1 and

Figure 3 is a diagram of the complete circuit of the burner.

As mentioned above, the fuel oil rotary burner concerned is of the type which include a hollow rotary shaft 1, terminating at its free outer end, with a truncated cone atomizer cap 2, enclosed in an air impeller centrifugal device 3.

Inside the aforesaid hollow shaft 1, there is a fuel

oil feed tube 4, which is driven by a pump 5 (Fig.3), and extending from an outer reservoir 6 to the burner.

This feed tube 4 is provided, at its free end, with an outlet head 7 of the fuel oil, the other end of said feed tube 4 being connected to the feed pipes 8 of the fuel oil from the pump 5 and to a return pipe 9 connected to the reservoir 6.

The feed pipe 4 is divided, by a longitudinal diametrical partition 10 (Fig. 2), which forms a feed duct 11 of the fuel oil, in the direction of the outlet head 7, and a return duct 12, in the direction towards the opposite end of the head 7, said tube 4 being provided with a chamber 13, adjacent to the head 7, in which both halves 11 and 12 of the tube 4 communicate.

This chamber 13 is provided with an outlet 14 of the fuel oil, a desmodromic, or positive control valve 15 being provided, guided by a shank 16, said shank passing axially along feed tube 4, and being subjected at its other end, to the action of a compression spring 17, which tends to keep the control valve 15 against the outlet 14 of the head 7, in its closed position.

The head 7 is provided with a device 18 for the electrical ignition of the burner, comprising an electrode fixed to the wall of the feed tube 4 and insulated from the same, whose end is near to the edge of the

head 7, a spark being produced , as desidered, in the outlet area of the fuel oil, which leads to the ignition of the burner.

In the return pipe 9 connected to the reservoir 6 (Fig. 3), there is a single pressure valve 19 for regulating the fuel oil flow.

When the desmodromic, or positive control valve 15 is in its closed position and the drive pump 5 of the fuel oil is operating, a closed circuit is established through which the fuel oil flows, and which comprises reservoir 6, pump 5, feed pipe 8, feed tube 4, formed by feed duct 11 and return duct 12, return pipe 9 and pressure valve 19, for regulating the flow, so that when the desmodromic or positive control valve 15 is in the open position, the return flow to the reservoir 6 drops, and nearly all the pumped fuel oil leaves through the head 7 of the feed tube 4.

We can therefore see that with the burner object of the present invention, the advantages enumerated above are obtained, i.e. that with a less powerful pump, practically half the power required in known systems, the fuel oil is shifted, this always being hot, even at the start of the cycle.

Claims :

1. Fuel oil rotary burner, of the type which include a rotary hollow shaft, terminating at its free end, in a truncated cone atomizer cap, enclosed in an air impeller centrifugal device, there being a feed tube inside said hollow shaft, of the fuel oil, driven by a pump from a reservoir outside the burner, said supply tube being provided at its free end, with a fuel oil outlet head and the other end of the said feed tube is connected to the fuel oil feed pipe from the pump and a return pipe to the reservoir, characterized in that the feed tube is divided by a longitudinal diametrical partition which forms a feed duct of the fuel oil, in the direction of the head, and a return duct, in the direction towards the opposite end of the head, said tube being provided with a chamber, adjacent to the head, in which both halves of the tube communicate, and which is provided with an outlet for the fuel oil; this opening is provided with a desmodromic or positive control valve guided by a shank which, crossing the supply tube axially, is subjected at its other end to the action of a compression spring which tends to keep the valve against the opening of the head, in its closed position.

2. Fuel oil rotary burner, according to claim 1, characterized in that the head is provided with an electrical ignition device of the burner, comprising an electrode fixed to the wall of the supply tube and in-

sulated from it, whose outer end is near to the edge of the head, a spark being produced in the outlet area of the fuel oil, leading to the ignition of the burner.

3. Fuel oil rotary burner, according to claims 1 and 2, characterized in that in the return pipe connected to the reservoir, there is a single pressure valve for regulating the flow of fuel oil.

4. Rotary burner according to claims 1 to 3, characterized in that when the desmodromic, or positive control valve is in the closed position and the fuel oil drive pump is operating, a closed circuit is established, through which the fuel oil flows, and which comprises the reservoir, the pump, the supply pipe, the supply tube with its supply and return ducts, the return pipe and the pressure and regulating valve of the flow, whereas when the desmodromic or positive control valve is in the open position, the return flow to the reservoir drops and nearly all the fuel oil pumped leaves through the head of the supply tube.

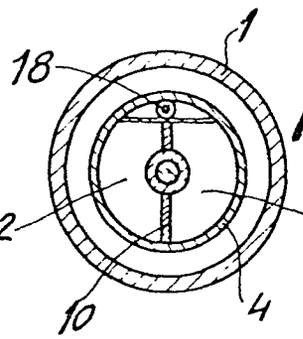

FIG.2

FIG.1

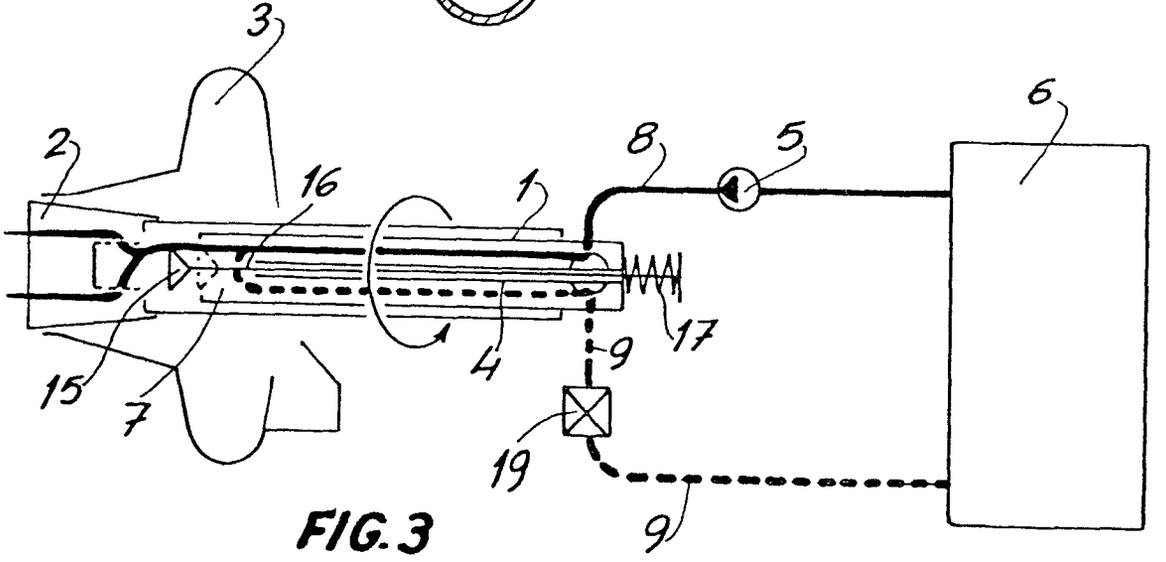

FIG.3

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EUROPEAN SEARCH REPORT

0026426
Application number
EP 80105688.8

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	GB - A - 874 741 (SOCIETE ANONYME GENERALE THERMIQUE PROCEDES BROLA) + Totality + --	1	F 23 D 11/04
X	GB - A - 861 562 (MOTLEY) + Page 1, line 70 - page 3, line 76; fig. 1-4 + --	1,3,4	
	AT - B - 206 557 (SOCIETE ANONYME GENERALE THERMIQUE PROCEDES BROLA) + Description of fig. 1, page 1, line 25 - page 2, line 26 + --	1	TECHNICAL FIELDS SEARCHED (Int.Cl. 3) F 23 D 11/00 F 23 Q 3/00
	AT - B - 191 054 (VERLOOP) + Totality + --	1	
	DE - A1- 2 409 336 (KLÖCKNER & CO) + Page 1, line 1 - page 3, line 12; claims; fig. 1-4 + --	1,4	
	DD - A - 101 485 (KLENGEL) + Totality + ----	1,2	

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
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O: non-written disclosure
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T: theory or principle underlying the invention
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D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	19-01-1981	TSCHÖLLITSCH

EPO Form 1503.1 06.78