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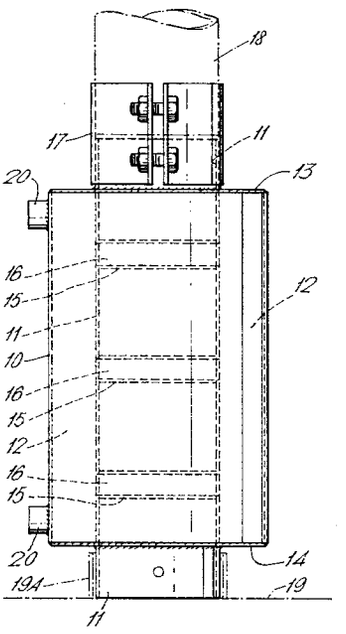
(71) Applicant: **CRAIGAVON HEAT EXCHANGERS LIMITED, 4, The Firs Ballyhannon Road, Portadown, BT63 5TA County Armagh (GB)**

(72) Inventor: **Mulholland, William James, 64 Abercorn Park, Portadown County Armagh Northern Ireland (GB)**

(74) Representative: **Huskisson, Frank Mackie et al, Fitzpatricks 48 St. Vincent Street, Glasgow, G2 5TT Scotland (GB)**

(54) Water heater.

(57) To be interposed in a flue, a water heater comprising inner and outer peripherally-interspaced tubular members (11, 10). The inner members (11) projects at both ends beyond the outer member (10) and is dimensioned for fitment between and integration with spaced and mutually-adjacent ends of axially-aligned flue sections (18, 19A). Walls (13, 14) bridge directly between the ends of the outer member (10) and the periphery of the inner member (11) and sealed to both thus to define a peripherallycontinuous watertight chamber (12) between the two members (10, 11). Three parallelly spaced watertight tubes extend between openings in the inner member (11) and fitted therein in sealed relation with the peripheries thereof whereby the tubes participate in water circulation with the chamber. Nozzles (20) adjacent to opposite ends of the outer member (10) provide for integration of the chamber and tubes into a water circulation system.



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WATER HEATER

This invention relates to a water heater.

According to the present invention, there is provided a water heater to be interposed in a flue, the water heater comprising inner and outer peripherally-interspaced tubular members whereof the inner projects at both ends beyond the outer and is dimensioned for fitment between and integration with spaced and mutually-adjacent ends of axially-aligned flue sections, walls bridging directly between the ends of the outer member and the periphery of the inner member and sealed to both thus to define a peripherally continuous water-tight chamber between the two members, and nozzles at or adjacent opposite ends of the outer member for integration of the chamber into a water circulation system.

Preferably, at least one watertight tube extends between openings in the inner tubular member, the tube fitted therein in sealed relation with the peripheries thereof whereby the tube participates in water circulation.

Two or more tubes are provided preferably parallel and at normal to the tubular members.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a side elevation of a water heater according to the present invention in the installed attitude.

Fig. 2 is a plan view of the heater.

Referring to the drawings, outer and inner peripherally-interspaced tubular members of a water heater to be interposed in a flue above a boiler and of annular shape in horizontal cross-section when in its upright installed attitude are

denoted 10 and 11 respectively. The inner member 11 projects at both ends beyond the outer member and is dimensioned for fitment between and integration with spaced and mutually-adjacent ends of axially-aligned flue sections. Walls 13 and 14 bridge directly between the ends of the outer member and the periphery of the inner member and sealed to both to define a peripherally continuous watertight chamber or jacket 12 between the two members 10 and 11. Outlet and inlet nozzles 20 are provided at or adjacent to opposite ends of the outer member 10 for integration of the chamber 12 into a water circulation system. A series of three spaced parallel watertight tubes 15,normal to the members 10, 11, extend between openings in the inner member 11. The tubes 14 are fitted in openings in sealed relation with the peripheries thereof. The cavities 16 in the tubes 15 and the chamber 12 allows water to be heated to be circulated therethrough.

The water heater is installed in an upright attitude in a flue immediately above a boiler 19 and in a flue section 19A and a clampable collar 17 is provided for securing the extension above the top wall 13 in a flue section 18 and the nozzles 20 are connected up to a water circulation system for integration of the chamber and cavities therewith. Water circulates through the cavities and chamber and is heated as exhaust gases from combustion of a fire in the boiler 19 pass up through the flue for escape up the chimney.

The installed attitude of the water heater depends on the attitude of the flue: if the flue is vertical then the water heater is upright, and if the flue is horizontal then so is the water heater.

The watertight tubes 15 may lie in parallel planes but be angularly displaced one with each other.

CLAIMS

1. A water heater to be interposed in a flue, the water heater characterised by inner and outer peripherally-interspaced tubular members (11,10) whereof the inner (11) projects at both ends beyond the outer (10) and is dimensioned for fitment between and integration with spaced and mutually-adjacent ends of axially-aligned flue sections (18, 19A) walls (13, 14) bridging directly between the ends of the outer member (10) and the periphery of the inner member (11) and sealed to both thus to define a peripherally continuous watertight chamber (12) between the two members (10,11) and nozzles (20) at or adjacent opposite ends of the outer member (10) for integration of the chamber (12) into a water circulation system.

2. Water heater as claimed in Claim 1, characterised by at least one watertight tube (15) extending between openings in the inner tubular member (11), the tube (15) fitted therein in sealed relation with the peripheries thereof whereby the tube (15) participates in water circulation.

3. Water heater as claimed in Claim 2, characterised by two or more tubes 15 being provided parallel to each other and normal to the tubular members (10, 11).

4. Water heater as claimed in Claim 3, characterised by the tubes (15) being angularly displaced one with each other.

Fig.1.

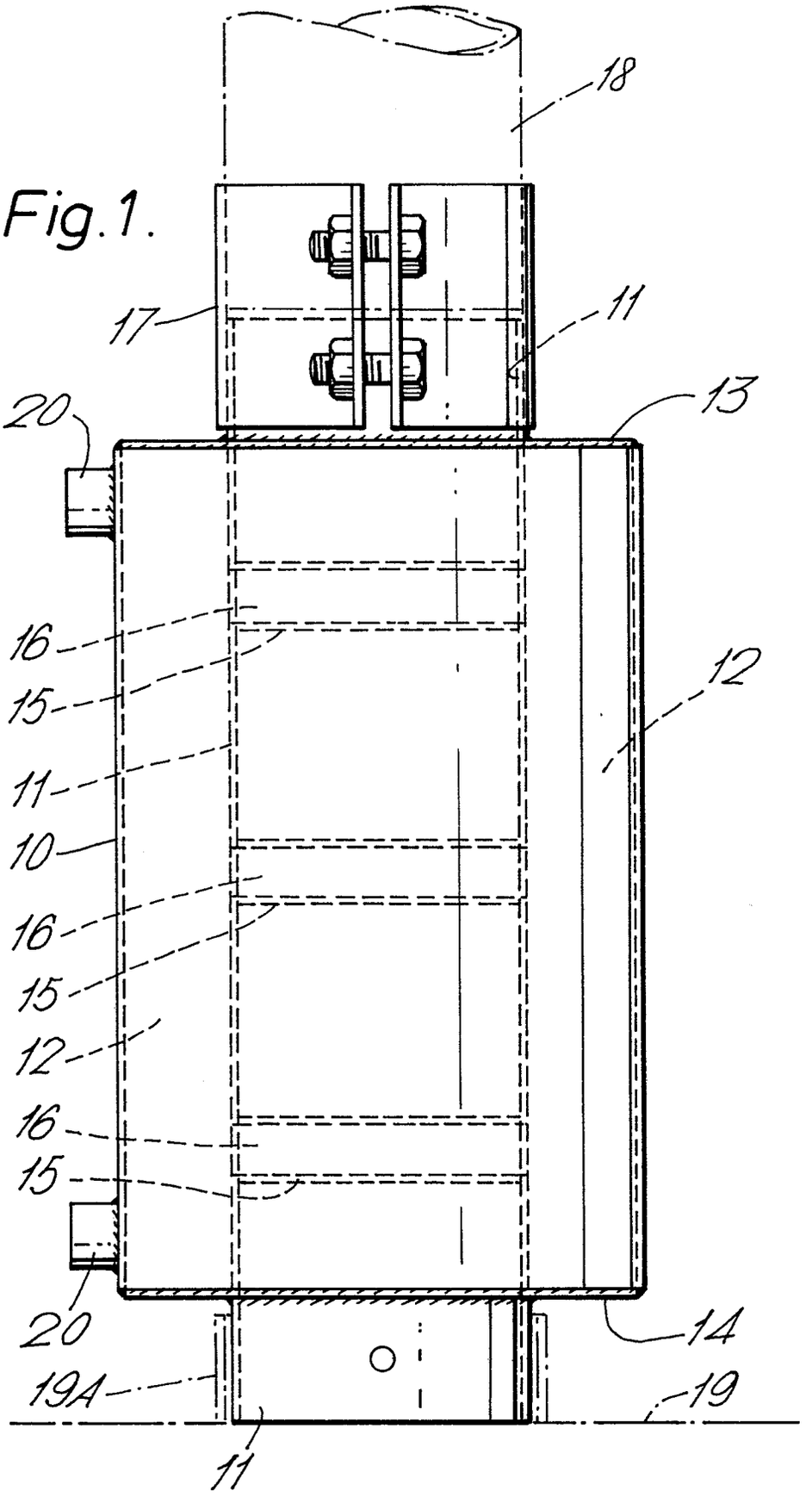

Fig. 2.