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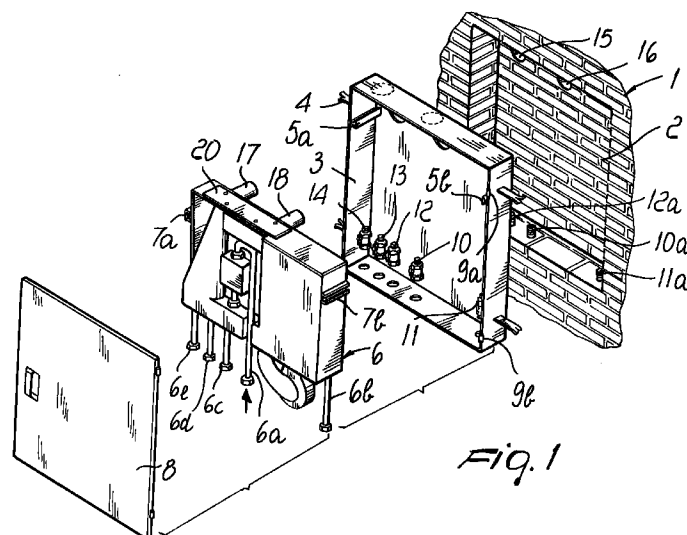
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I-46033 Casteldario (Mantova) (IT)**(54) Wall-mounted boiler**

(57) The boiler has a frame (3) insertable into a niche (2) formed in a wall and provided with a combustion air inlet port (15), an exhaust gas venting port (16), a gas delivery union (10a), heating system delivery and return unions (11a, 12a), a cold water inlet union and a hot water outlet union. Wall ties (4) protruding from the frame (3) can be built into brickwork (1) surrounding the niche (2), guides (5a, 5b) are fixed inside of the frame (3), and a door (8) hinged to the frame (3) lies flush with the wall. The body (6) of the boiler has slides (7a, 7b) for

mounting on the guides (5a, 5b) and is concealed by the door (8). Quick couplings (10, 11, 12, 13, 14) connect a gas duct (6a), heating system delivery and return ducts (6b, 6c), and hot water outlet and cold water inlet ducts (6d, 6e) of the boiler (6) to the respective unions (10a, 11a, 12a) provided in the niche (2). Connectors (17, 18) rigidly coupled to a plate (19) connect the ports (15, 16) in the niche (2) to respective openings provided in the body (6) of the boiler.

*Fig. 1***EP 0 791 792 A1**

Description

The invention relates to a wall-mounted boiler.

Wall-mounted boilers are used in systems for heating houses, with the optional combined production of hot water.

The success of these conventional boilers, which are gas-fired, is due particularly to their small bulk, since they can currently be installed as wall-mounted fixtures, for example on the walls of kitchens or on balconies.

The aim of the present invention is to provide a wall-mounted boiler that has improved characteristics in relation to the installation method.

With this aim in view, there is provided a wall-mounted boiler, as defined in the appended claims.

Advantageously, the boiler according to the invention comprises a frame that is adapted to be fixed to the wall of the niche and to support the boiler body so that it is detachably associated therewith.

Further characteristics and advantages will become apparent from the description of a preferred but not exclusive embodiment of the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is an exploded view of components of the invention;

figure 2 is a view of the plate of the connectors for connection to the air inlet and burnt-gas venting ducts.

With reference to the above figures, the reference numeral 1 designates the masonry or brickwork of a wall of a house that comprises the blind niche 2, in which the boiler according to the invention is adapted to be contained without protruding at all.

Said boiler comprises the frame 3, which is to be fixed to the walls of the niche by means of wall anchors or wall ties 4, and is adapted to support, at the guides 5a and 5b, the boiler body, which is generally designated by the reference numeral 6 and rests on the guides at slides 7a and 7b.

The frame 3 is provided with a door 8, which is connected to the frame 3 by hinges 9a and 9b. The door 8 is aligned with, i.e., lies substantially flush with, the outer surface of the masonry 1 when the frame 3 is fixed in the niche 2; in this manner one achieves complete concealment of the boiler body, which remains accommodated within the frame 3 behind the door 8.

Of course, if the niche 2 is a through opening that affects the entire thickness of the masonry 1, the frame 3 may be provided with two doors that are co-planar with respect to the two outer surfaces of said masonry.

The preparation of the frame 3 in the niche 2 is followed, at the appropriate time, by the mounting of the boiler body 6, connecting said body to the lines of the utilities, which lead into said niche 2: accordingly, the gas duct 6a is connected by means of a first quick cou-

pling 10 passing through a hole formed in the frame 3 to the union 10a, the delivery 6b and the return 6c ducts of the heating system are connected by means of second and third quick couplings 11 and 12 passing through holes formed in the frame 3 to the unions 11a and 12a, and finally the hot water outlet duct 6d and the cold water inlet duct 6e are connected, by means of fourth and fifth quick couplings 13 and 14 passing through holes formed in the frame 3, to a cold water inlet union and a hot water outlet union, not shown in the figure.

A combustion air inlet duct and an exhaust gas venting duct lead into the niche 2, at the port 15 and at the port 16 respectively, and are connected to the boiler body 6 by means of the connectors 17 and 18 that are advantageously rigidly coupled to the plate 19 and are located at a pair of openings that are provided in the back of said body 6, on a rear panel of the boiler.

A similar pair of openings, closed by the plate 20, is also present on the top panel of the boiler body 6, and said openings can be connected to the connectors 17 and 18 if the ports 15 and 16 are present in the top of the niche 2.

From the above description, the advantageous characteristics of the invention are evident; by means of its concealment inside the masonry, it offers complete elimination of space occupation and it also provides great ease in installation operations, with the possibility of dividing said operations into two stages that can be distant in time from each other without any limit; the first stage consists in fixing the frame 3 in the niche 2 and the second stage consists in associating the boiler body 6 with the frame 3.

The described invention is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept; thus, for example, in the case of particularly thin masonry, a slight protrusion of the boiler may occur, and in this case the doors that close the frame will not be perfectly co-planar with respect to the outer surfaces of said masonry but will protrude slightly.

In the practical execution of the invention, all the details may be replaced with other technically equivalent elements; furthermore, the materials employed, as well as the shapes and the dimensions, may be any.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Wall-mounted boiler, characterized in that its thickness and the means it comprises are adapted to allow its substantially complete insertion in a niche formed in a conventional masonry structure, particularly of a dwelling house.

2. Wall-mounted boiler according to claim 1, characterized in that it comprises a frame that is adapted to be fixed to the wall of the niche and to support the boiler body so that it is detachably associated therewith. 5

3. Wall-mounted boiler according to claim 2, characterized in that the frame fits in a niche that does not pass through the entire thickness of the masonry, said frame having a door that is arranged so as to substantially not interrupt the outer surface of said masonry. 10

4. Wall-mounted boiler according to claim 2, characterized in that the frame fits in a niche that passes through the entire thickness of the masonry, said frame having has two doors that are arranged so as to substantially not interrupt the two outer surfaces of said masonry. 15

5. Wall-mounted boiler according to claim 1, characterized in that it comprises quick couplings for the connection of the boiler body to the lines of the utilities that are connected thereto, and with connectors for connection to the combustion air inlet and exhaust gas venting ducts. 20

6. Wall-mounted boiler according to claim 5, characterized in that the connectors for connection to the combustion air inlet and exhaust gas venting ducts are rigidly coupled to a plate and are selectively associable with the boiler body at one of two pairs of openings, provided in rear and upper panels of said boiler. 25

7. A wall-mounted boiler in combination with a supporting frame (3), characterized in that it comprises: 30

wall ties (4) connected to said frame (3) and adapted to be built into brickwork (1) surrounding a niche (2) provided with a combustion air inlet port (15), an exhaust gas venting port (16), a gas delivery union (10a), heating system delivery and return unions (11a, 12a), a cold water inlet union and a hot water outlet union, 35

guides (5a,5b) fixed to said frame (3) at an internal surface thereof, 40

slides (7a,7b) connected to the body (6) of said wall-mounted boiler and detachably mounted on said guides (5a,5b), and 45

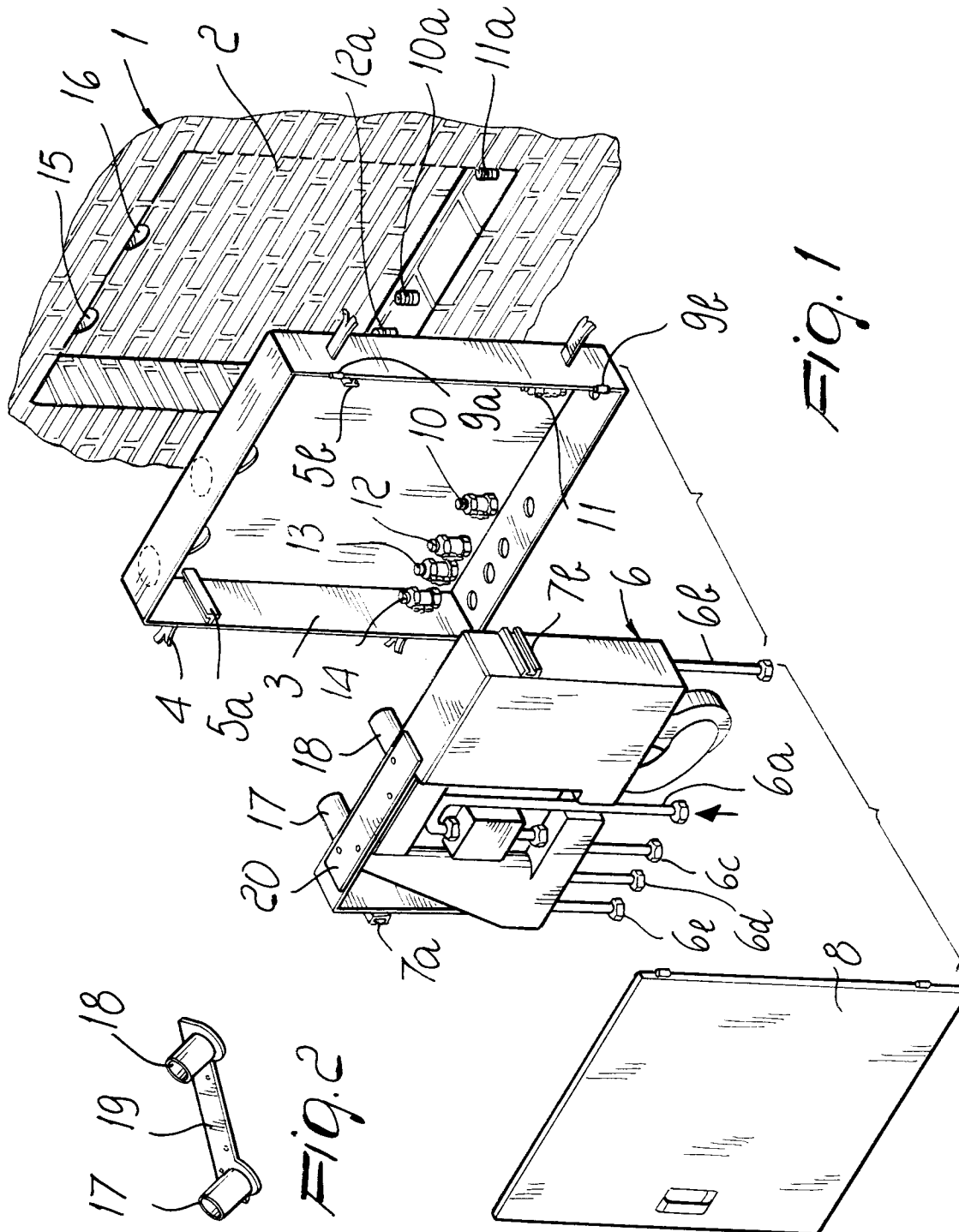
at least one door (8) connected by hinge elements (9a,9b) to said frame (3), said door (8) being positionable substantially flush with the outer surface of said brickwork surrounding said niche (2) when closed, whereby to conceal said body (6) of said boiler within said frame (3). 50

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8. A wall-mounted boiler in combination with a supporting frame (3) according to claim 7, characterized in that said boiler comprises:

a gas duct (6a) provided with a first quick coupling (10) passing through said frame (3) for connection to a gas delivery union (10a), heating system delivery and return ducts (6b,6c) provided with second and third quick couplings (11,12) passing through said frame (3) for connection to heating system delivery and return unions (11a, 12a), and hot water outlet and cold water inlet ducts (6d,6e) provided with fourth and fifth quick couplings (13,14) passing through said frame for connection to cold water inlet and hot water outlet unions.

9. A wall-mounted boiler in combination with a supporting frame (3) according to claim 7, characterized in that said boiler comprises at least one connector member (17,18,19) passing through said frame (3) for connection to a combustion air inlet port (15) and an exhaust gas venting port (16).





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EUROPEAN SEARCH REPORT

Application Number
EP 96 10 2627

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE-B-10 77 850 (ZECH) * claim 3; figure 3 * ---	1	F24H9/02 F24H9/06
X	GB-A-2 145 204 (TI GLOW WORM LTD) 20 March 1985 * the whole document * ---	1	
X	GB-A-2 222 871 (POTTERTON INT LTD) 21 March 1990 * abstract * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F24H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 July 1996	Examiner Van Gestel, H
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