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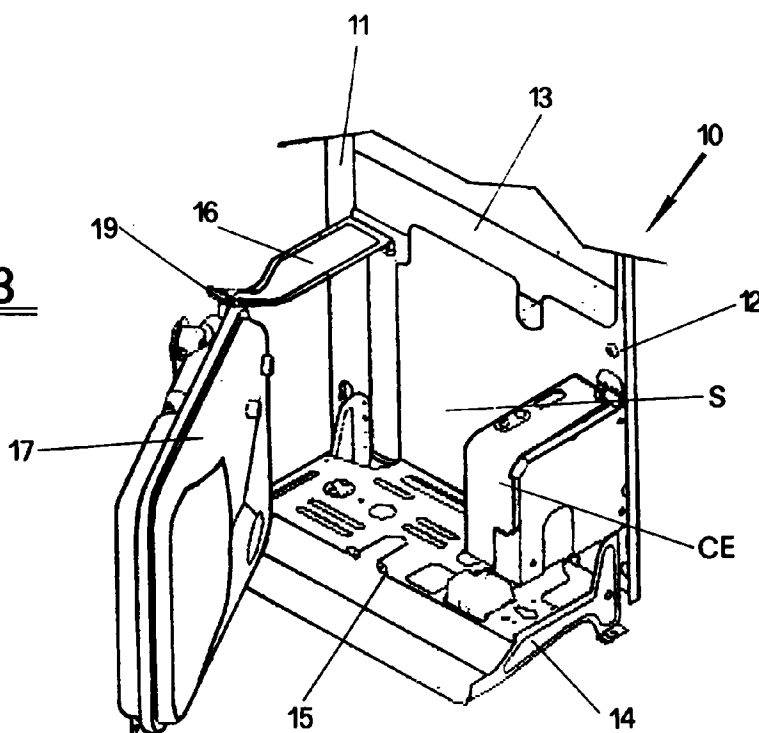
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(54) Gas-fired wall boiler with improved supporting frame and expansion tank arrangement

(57) The supporting frame (10) for gas-fired wall boilers and the like has a pair of parallel uprights (11,12) connected to each other by transverse elements (13). The expansion tank (17) is arranged in the front portion of the boiler and the supporting frame (10) is provided with two brackets (14,16), the first of which (14) is connected to the lower end of one of the uprights (11 or 12) of the boiler supporting frame (10) whereas the second

(16) is connected to the same upright (11 or 12), but above the first bracket (14). The expansion tank (17) is provided with hinging means (18,19) cooperating with corresponding hinging means arranged at the free ends of the two brackets (14,16) to permit the expansion tank to be pivotally connected to the supporting frame (10) and to be rotated about a vertical axis.

FIG. 3



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Description

[0001] This invention generally relates to gas-fired heating apparatus and more particularly gas-fired boilers to be installed on a wall which is of improved type as to the arrangement of its components and particularly the expansion tank.

[0002] Usually, the boilers of this type are installed on a wall by means of a supporting frame and the expansion tank of these gas-fired wall boilers is fastened to the rear portion of the boiler supporting frame, i.e. the frame portion facing the wall when the boiler is installed, whereas the other boiler components, i.e. the combustion chamber, the hydraulic assembly and so on, are fastened to the front portion of the supporting frame.

[0003] In this arrangement of the boiler components the electric control unit, the burner with associated manifold, the hydraulic assembly and the heat exchanger are made accessible without difficulty once the front cover of the boiler is removed, whereas the accessibility of the expansion tank is strongly compromised because it is installed in the rear portion of the supporting frame. Therefore, when the boiler maintenance requires also the removal of the expansion tank, the costs thereof are increasing because this operation is rather difficult and time consuming.

[0004] Another disadvantage due to the usual arrangement of the expansion tank in the rear portion of the boiler supporting frame is that the boiler takes relatively large overall dimensions and this negatively affects the boiler transport and installation operations.

[0005] The present invention aims at obviating the above disadvantages by providing a more rational arrangement of the expansion tank in the boiler supporting frame.

[0006] According to the invention this is obtained by providing a supporting frame for gas-fired wall boilers and the like, of the type having a pair of parallel uprights connected to each other by transverse elements, characterized in that the expansion tank is arranged in the front portion of the boiler and the supporting frame is provided with supporting means adapted to support the expansion tank in this location.

[0007] Suitably, said supporting means are arranged in the lower half of the supporting frame and are comprised of at least one bracket connected to one of the uprights of the boiler supporting frame.

[0008] Preferably, the supporting means are comprised of two brackets, the first of which is connected to the lower end of one of the uprights of the boiler supporting frame whereas the second is connected to the same upright, but above the first bracket.

[0009] Advantageously, the boiler expansion tank is provided with hinging means cooperating with corresponding hinging means arranged at the free end of said at least one bracket to permit the expansion tank to be pivotally connected to the supporting frame and to be rotated about a vertical axis.

[0010] Preferably, the boiler expansion tank is provided with hinging means cooperating with corresponding hinging means arranged at the free ends of the two brackets to permit the expansion tank to be pivotally connected to the supporting frame and to be rotated about a vertical axis.

[0011] Suitably, the boiler supporting frame is provided with locking means adapted to lock the expansion tank in the normal use position during the operation of the boiler.

[0012] A supporting frame for gas-fired wall boilers as that of the present invention, has some advantages of easy understanding. First at all, the fact that the expansion tank is mounted in the front portion of the frame, directly behind the boiler front cover, improves the accessibility thereof. Secondly, the fact that the expansion tank is pivotally connected to the boiler supporting frame permits the working space to be held clear during the maintenance and is not detrimental to the accessibility of the other boiler components, particularly the components arranged behind the expansion tank.

[0013] The present invention will be now described in more detail in connection to the accompanying drawings, wherein:

Fig. 1 is a perspective view of a supporting frame for prior art gas-fired wall boilers wherein it can be seen that the expansion tank is arranged in the rear portion of the supporting frame;

Fig. 2 is a perspective view of the lower half of the boiler supporting frame according to the present invention having the expansion tank arranged in its front portion in a first embodiment;

Fig. 3 is a perspective view similar to that of Fig. 2 in a second and preferred embodiment of the present invention having the expansion tank arranged in its front portion and rotated in order to permit the accessibility to the boiler components arranged therebehind.

Fig. 4 is a perspective view similar to Fig. 3 but with the expansion tank locked in the position of normal use.

[0014] Referring to Fig. 1 of the drawings, there is shown a conventional supporting frame for gas-fired wall boilers, in which the expansion tank, generally designated by V, is mounted in the rear portion of the frame T. As can be easily understood, the removal of the expansion tank V when the boiler has been already installed on the wall is rather difficult because it is necessary to unscrew the screws F fastening it to the upper portion of the frame T, operation per se already relatively difficult to be made, and remove it from the location in which it is housed by raising it in the direction of the arrow A.

[0015] Referring now to Figs 2, 3 and 4 of the drawings, there is shown the lower half of a supporting frame for gas-fired wall boilers according to the present invention, generally designated by 10. This supporting frame 10 is comprised of a pair of parallel uprights 11 and 12 which are connected to each other by means of one or more transverse elements 13 adapted to impart to the supporting frame the necessary stiffness and to support some components of the boiler.

[0016] In a first embodiment shown in Fig. 2, the uprights 11 is provided at its lower end with a bracket 14 and a bottom plate 15 which is intended to form the bottom of the boiler body and the support for components of the boiler. The expansion tank 17 of the boiler is arranged before the frame 10 and is pivotally connected to the free end of the bracket 14 by means of a rod 18 fastened thereto. This arrangement permits the expansion tank to be rotated about a vertical axis (rod 18) between two end positions, namely between the position of normal use and a position rotated with respect to the first one of an angle which permits the boiler components arranged in the space S behind the expansion tank, for example the electrical control unit CE, to be easily accessible.

[0017] In the preferred embodiment of the invention, shown in Figs 3 and 4 both the uprights 11 and 12 are provided at their lower ends with brackets 14, referred to as lower brackets. On the lower brackets 14 the bottom plate 15 is mounted.

[0018] Connected to the upright 11 and positioned above the lower brackets 14 is a third bracket 16, referred to as upper bracket, which has substantially the same length of the lower brackets 14.

[0019] The expansion tank of the boiler is designated by 17. According to a feature of the invention, this expansion tank 17 is arranged before the frame 10 and is pivotally connected by means of hinges 18 and 19 to the free ends of the lower bracket 14 and the corresponding upper bracket 16, respectively. This arrangement permits the expansion tank to be rotated about a vertical axis between two end positions, namely between a first position which is that of normal use shown in Fig. 4, and a second position rotated with respect to the first one of an angle, preferably greater than 180°, shown in Fig. 3, which permits the boiler components arranged in the space S behind the expansion tank, for example the electrical control unit CE, to be easily accessible.

[0020] In order to lock the expansion tank 17 in its position of normal use during the operation of the boiler, conventional fastening means are provided, which, in Figs. 2 and 4, are represented by a screw 20 fastening the lower horizontal side of the expansion tank 17 to the bottom plate 15.

[0021] This particular arrangement of the expansion tank clearly has some advantages.

[0022] First at all, the expansion tank 17 of the boiler is directly accessible because it is arranged before the

supporting frame 10 in its lower half behind the boiler cover and is pivotally connected to one of its sides, thus allowing also the other components of the boiler to be easily accessed.

[0023] Secondly, the expansion tank 17 can be easily removed when maintenance is required. As a matter of fact, it is sufficient to unscrew the screw 20 locking it to the bottom plate 15 and remove the hinging pins 18 and 19 from the ends of the lower bracket 14 and the upper bracket 16 by bending slightly upwards the upper bracket 16.

[0024] Finally, with the expansion tank 17 arranged before the boiler supporting frame 10 a greater reduction of the overall dimensions of the boiler is obtained. Of course, this aids the easy of transport and installation of the boiler and increases the use possibilities.

Claims

1. Supporting frame (10) for gas-fired wall boilers and the like, of the type having a pair of parallel uprights (11,12) connected to each other by transverse elements (13), characterized in that the expansion tank (17) is arranged in the front portion of the boiler and the supporting frame (10) is provided with supporting means (14,16) adapted to support the expansion tank (17) in this location.
2. Supporting frame according to claim 1, characterized in that said supporting means (14) are arranged in the lower half of the supporting frame (10) and are comprised of at least one bracket (14) connected to one of the uprights (11 or 12) of the boiler supporting frame.
3. Supporting frame according to claim 1, characterized in that said supporting means (14,16) are comprised of two brackets (14,16), the first of which (14) is connected to the lower end of one of the uprights (11 or 12) of the boiler supporting frame (10) whereas the second (16) is connected to the same upright (11 or 12), but above the first bracket (14).
4. Supporting frame according to claims 1 and 2, characterized in that the boiler expansion tank (17) is provided with hinging means (18) cooperating with corresponding hinging means arranged at the free end of said at least one bracket (14) to permit the expansion tank to be pivotally connected to the supporting frame (10) and to be rotated about a vertical axis.
5. Supporting frame according to claims 1 and 3, characterized in that the boiler expansion tank (17) is provided with hinging means (18,19) cooperating with corresponding hinging means arranged at the free ends of the two brackets (14,16) to permit the expansion tank to be pivotally connected to the sup-

porting frame (10) and to be rotated about a vertical axis.

6. Supporting frame according to the preceding claims, characterized in that said boiler supporting frame (10) is provided with locking means (20) adapted to lock the expansion tank (17) in the normal use position during the operation of the boiler.

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FIG. 1

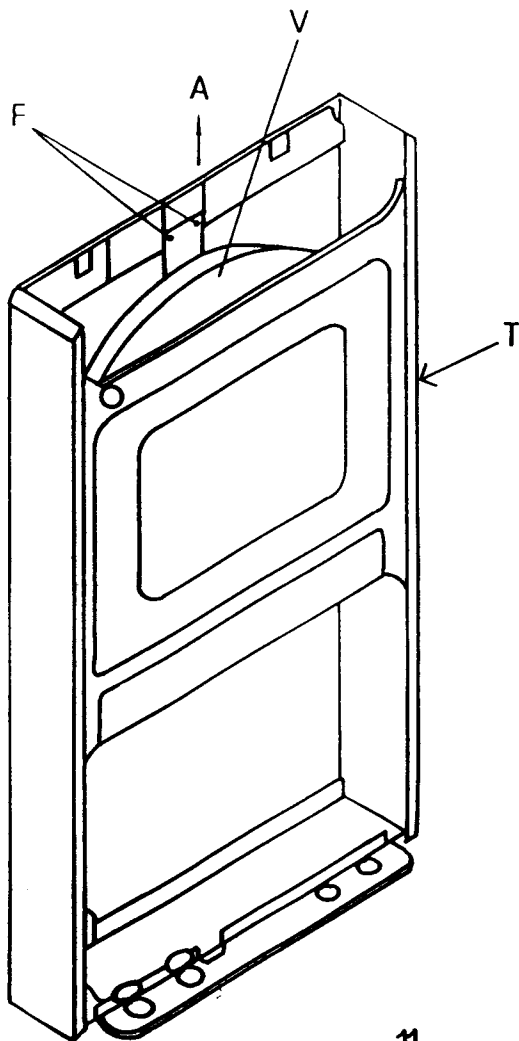


FIG. 2

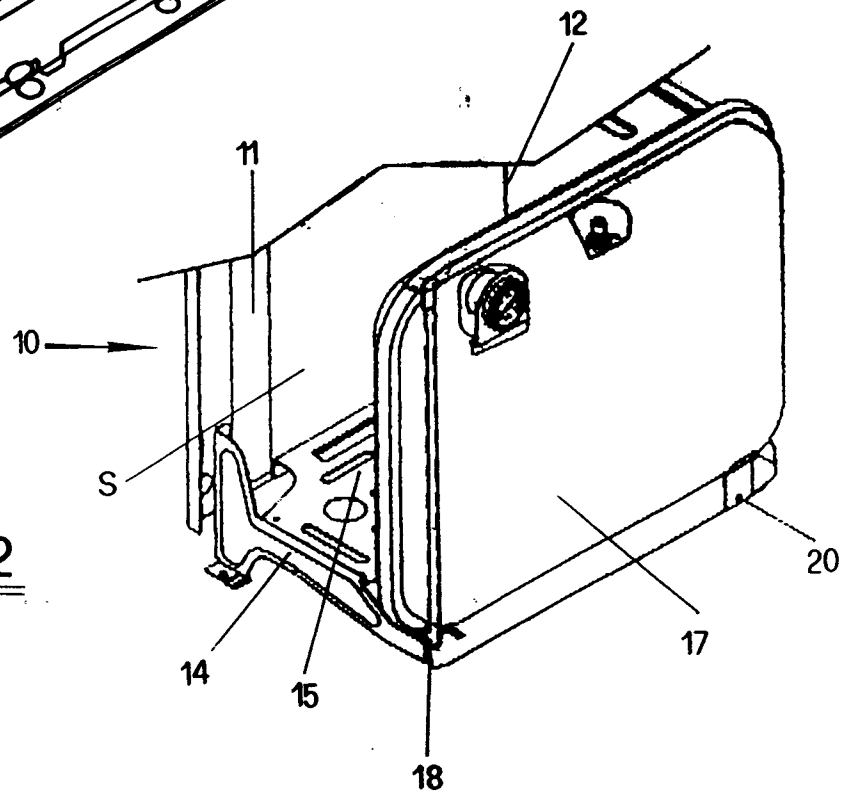


FIG. 3

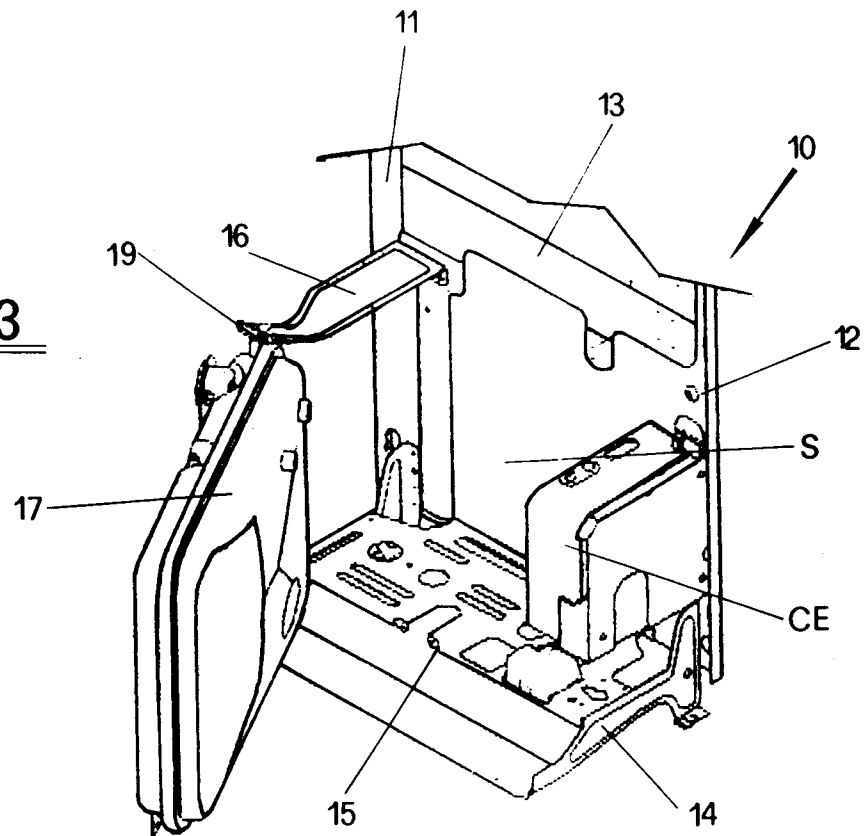
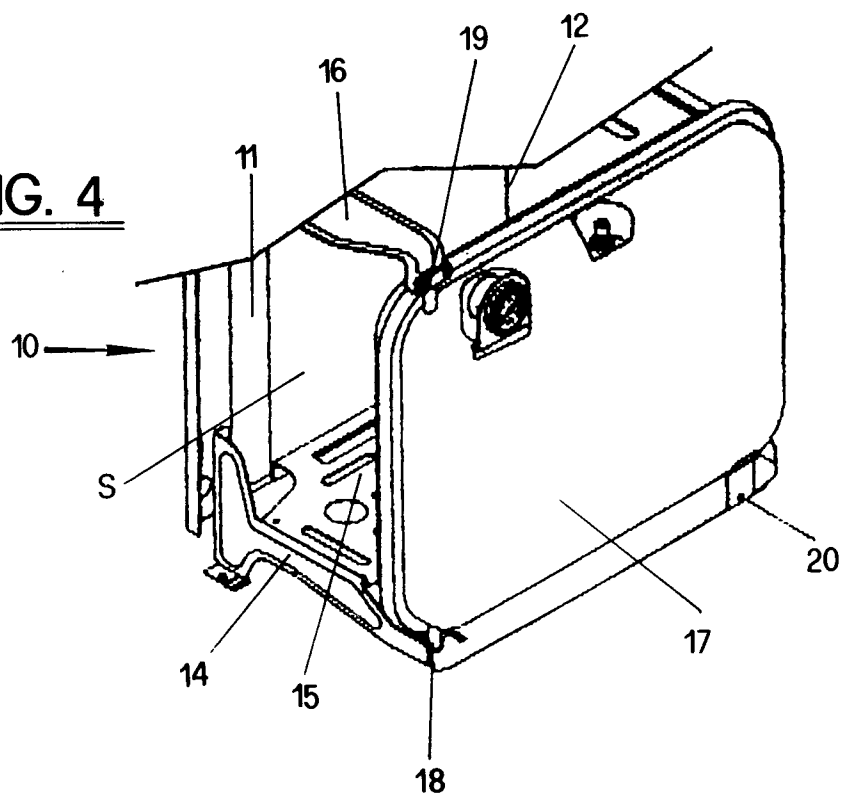


FIG. 4





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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 98111477.0
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)
A	AT 402851 B (VAILLANT GESELLSCHAFT M.B. H.) 25 September 1997 (25.09.97), the whole document. --	1	F 24 H 9/02 F 24 D 3/10
X	Gas-Wandthermen für Neubau und Modernisierung. Zeitschrift Heizung Lüftung Haus-technik, November 1997, Vol. 48, No. 11, page 26. ----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 6)
			F 24 H 1/00 F 24 H 9/00 F 24 D 3/00 F 16 M 1/00 E 05 D 3/00 E 05 D 7/00 E 05 D 15/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 12-10-1998	Examiner ENDLER
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