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(54) Two-sided header system for hydraulic circuit of wall boilers

(57) Three-components are provided: an apparatus integrating into the centrifugal pump spiral a two-sided header and a coaxial air separator-filter wet well (1), a three-way valve (2) and a plate-type exchanger header (3). Said components (1, 2 and 3) are two-handed so to permit their placing in mounting phase on the base of the necessity. Then are provided the various canalizations (4), a plate-type exchanger (5) and the motors (6) to drive the different elements; all to be assembled onto a support base (7).

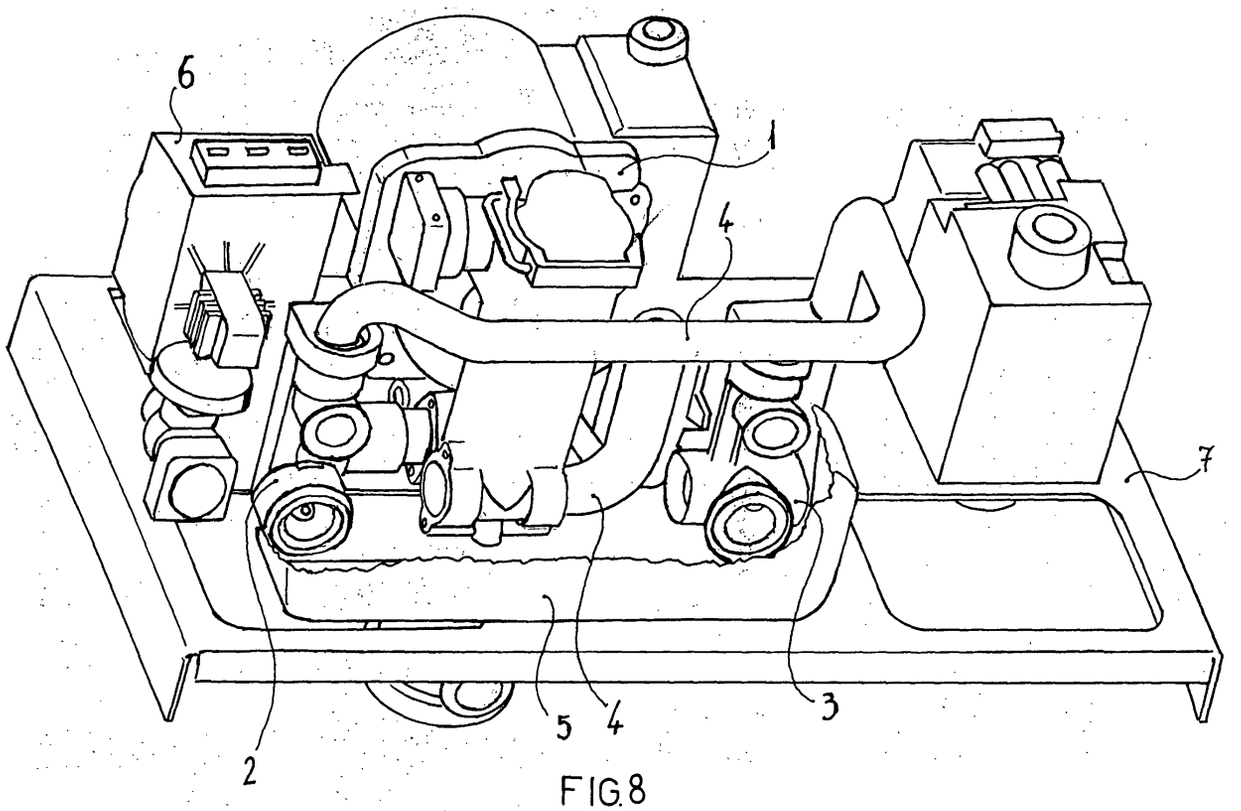

FIG.8

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Description

[0001] The invention refers to a new system to carry out hydraulic circuits for the wall boilers, that by the combined assembly of the two-sided header as described the the Patent Application BO2001A000188 with a particular three-way valve and a particular plate-type exchanger header, permits a two-sided header system. In this header system, during the making of the hydraulic circuit of the wall boilers, it is permited to provide the two-sided header in central position, or with the same outwardly on the right, or outwardly on the left in relation to the use necessity. The invented system permits to the wall boiler makers, having three two-sided equipped elements, i.e. a two-sided header, a three-way valve and a plate-type exchanger header, to realize: a) an encumbrance reduction both in storage, such as being the different elements bivalent it is not necessary to make different models of the same, than in assembly of the boiler being actuated an encumbrance reduction with consequent dimensions compacting; b) a consequent reduction of the production costs and of the assembly costs; and c) an integration of the different functions that gives better header performance and also an energetic saving. In the current use the different elements to be used in the wall boilers need to have additional parts that serve to hydraulic interfaces or each time, on the base of the boiler characteristics, different elements are provided to be mounted and connected in different way. This determines the necessity, in mounting phase, to have a big quantity of different elements to be used on the base of the different necessity and it does not permit to compact within limits the dimensions of the headers owing to the bigger encumbrance due to the no integrations of the different elements. The invented two-sided header system is characterized by three components: an apparatus integrating into the centrifulgal pump spiral a two-sided header and a coaxial air separator-filter wet well 1, as described in the Patent Application BO2001A 000188, a three-way valve 2 and a plate-type exchanger header 3. Said components 1, 2 and 3 are two-handed so to permit their placing in mounting phase on the base of the necessity. Said two-sided header system provides the various canalizations 4, a plate-type exchanger 5 and the motors 6 to drive the different elements.

[0002] All said components to be assembled onto a support base 7. The three-way valve 2 to be used in the invented two-sided header system consists of a two-sided lateral inlet 2a from which the water gets in the same valve for then flows through one of the lateral inlet right 2b or left 2c in relation to the flow necessity toward the heating plant or toward the plate-type exchanger 5. The plate-type exchanger header 3 provides two two-handed outlets 3a and an inlet 3b to be in different way connected during the ' mounting phase on the base of the use necessity. The peculiarity of the invented system, pointed out in the drawings of sheets 1 and 2, is to have integrated inside the three-way valve 2 and inside the plate-type exchanger header 3 a pipe 2p and 3p for the quick connection of the ducts onto the sanitary circuit of the plate-type exchanger 5 with a particular semplification in mounting phase and with a big reduction of the total encumbrances. The two-sided header system is illustrated in indicative way in the drawings of sheets 1, 2, 3, 4, 5 and 6. In particular the sheets 1, 2 and 3 show the three elements 1, 2 and 3 all two-handed so to permit each time a different placing of the same onto the support base 7. Whereas the sheets 4, 5 and 6 show in schematic way the various embodiments to be actuated during the mounting phases. In sheet 1 is illustrated the plate-type exchanger header 3 and in detail fig. 1 is frontal view of the element 3 with section A-A. Fig. 2 is side view of the element 3 with section B-B. Fig. 3 is other view of the element 3. In sheet 2 is illustrated the three-way valve 2 and in detail fig. 4 is frontal view of the element 2 with sections A-A and B-B. Fig. 5 is side view with section C-C. In sheet 3 is illustrated the two-handed hydraulic header with coaxial air separator-filter wet well 1 as described in the Patent Application B02001A 000188 and in particular fig. 6 is lateral view of the total apparatus. Fig. 7 is frontal view of the same total apparatus 1. In sheet 4 fig. 8 is view of the two-sided header system in the embodiment with centrally the two-handed header with coaxial air separator-filter wet well 1 having on one side the three-way valve 2 and on the other side the exchanger header 3, all the elements directly connected by canalizations 4. In sheet 5 fig. 9 is view of an embodiment with the three-way valve 2 and the exchanger header 3 both placed on one side of the header with wet well 1. Said elements 2 and 3 to be placed both on the right side or on the left side in comparison with the header wet well 1. In sheet 6 fig. 10 i view of the same embodiment of sheet 4 but using derived connections. In the different embodiments, all the canalizations, the derivations, the closed means and all other components are to be provided in relation to the use necessity.

Claims

1. Two-sided header system for hydraulic circuit of wall boilers **characterized in that**:

   - three components are provided: an apparatus integrating into the centrifugal pump spiral a two-sided header and a coaxial air separator-filter wet well (1), a three-way valve (2) and plate-type exchanger header (3); and **in that**
   - said components (1, 2 and 3) are two-handed so to permit their placing in mounting phase on the base of the necessity; and that
   - the two-sided header system provides the various canalizations (4), a plate-type exchanger (5) and the motors (6) to drive the different elements, all to be assembled onto a support base (7).

2. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** the three-way valve (2) consists of a two-sided lateral inlet (2a) from which the water gets in the same valve for then flows through one of the lateral inlet right (2b) or left (2c) in relation to the flow necessity toward the heating plant or toward the plate-type exchanger (5).

3. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** the plate-type exchanger header (3) provides two two-handed outlets (3a) and an inlet (3b) to be in different way connected during the mounting phase on the base of the use necessity.

4. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** is integrated inside the three-way valve (2) and inside the plate-type exchanger header (3) a pipe (2p and 3p) for the quick connection of the ducts onto the sanitary circuit of the plate-type exchanger (5) with a particular semplification in mounting phase and with a big reduction of the total encumbrances.

5. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** an embodiment provides centrally the two-handed header with coaxial air separator-filter wet well (1) having on one side the three-way valve (2) and on the other side the exchanger header (3), all the elements directly connected by canalizations (4).

6. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** an embodiment provides the three-way valve (2) and the exchanger header (3) both placed on one side of the header with wet well (1); said elements (2 and 3) to be placed both on the right side or on the left side in comparison with the header wet well (1).

7. Two-sided header system for hydraulic circuit of wall boilers, as per claim 1, **characterized in that** an embodiment provides the use of derived connections.

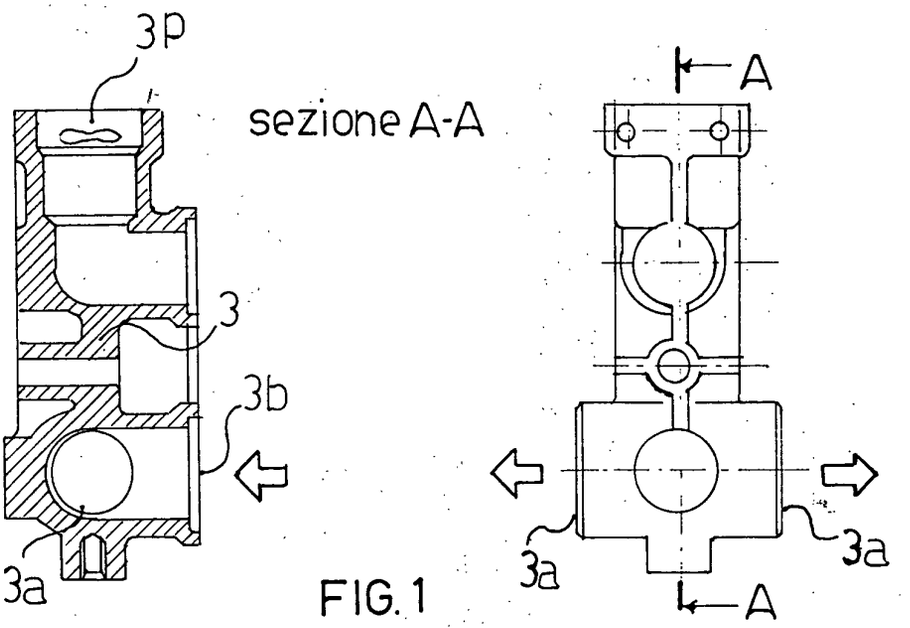


FIG. 1

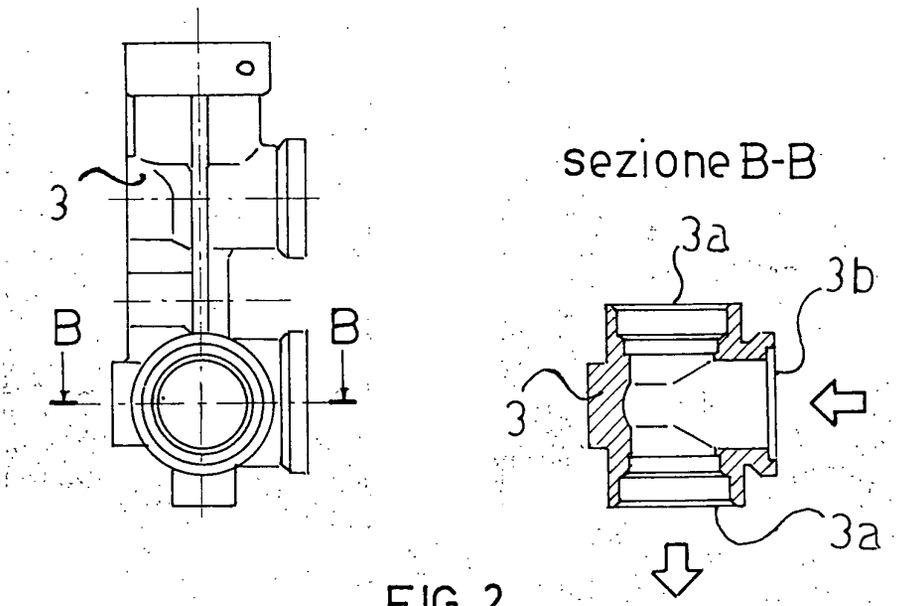


FIG. 2

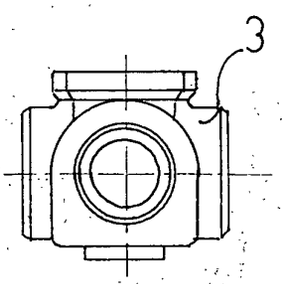


FIG. 3

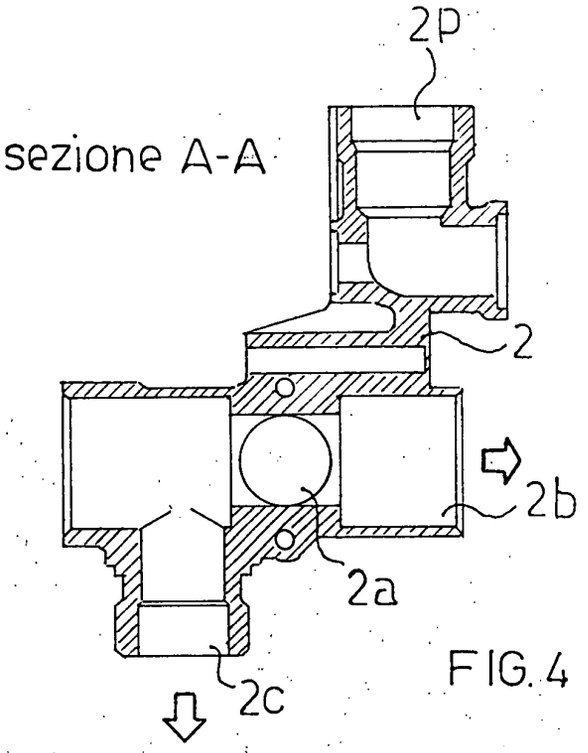
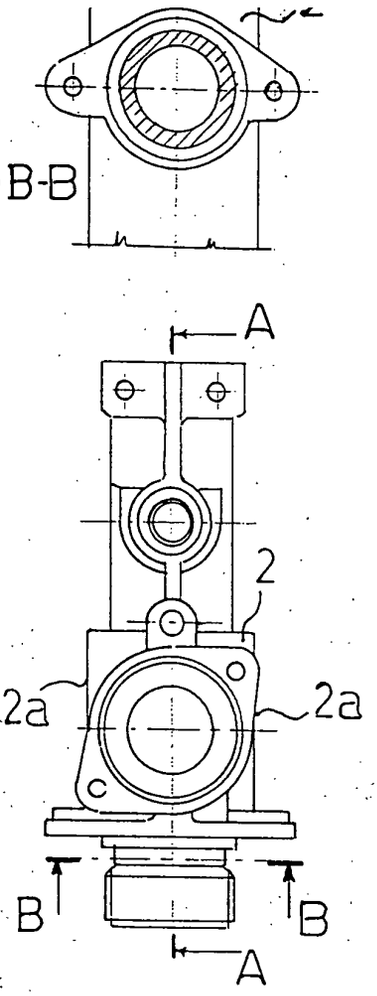

sezione A-A
2P
2
2b
2a
2c

FIG. 4


sezioneB-B
A
2
2a
2a
B
B
A

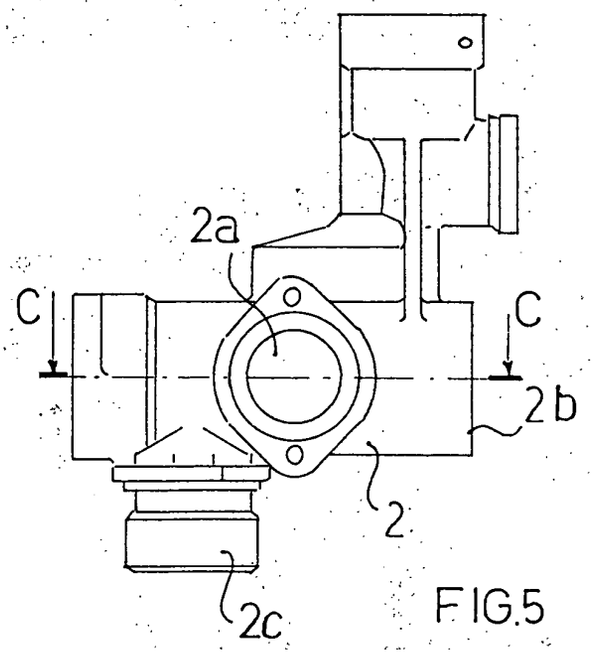
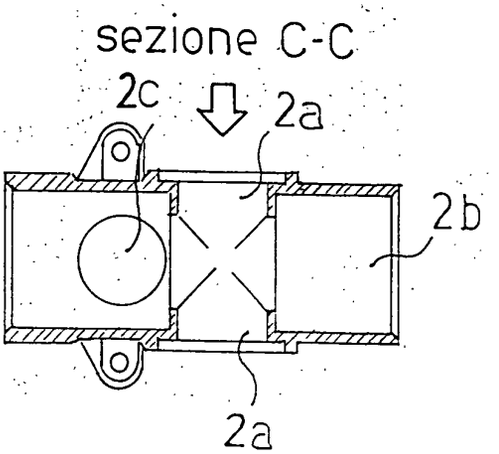

2a
C
C
2b
2
2c

FIG.5


sezione C-C
2c
2a
2b
2a

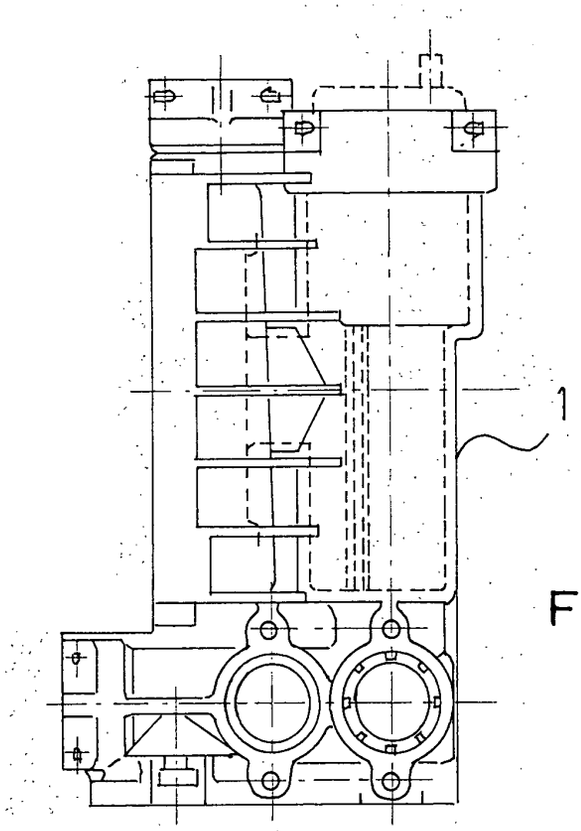


FIG. 6

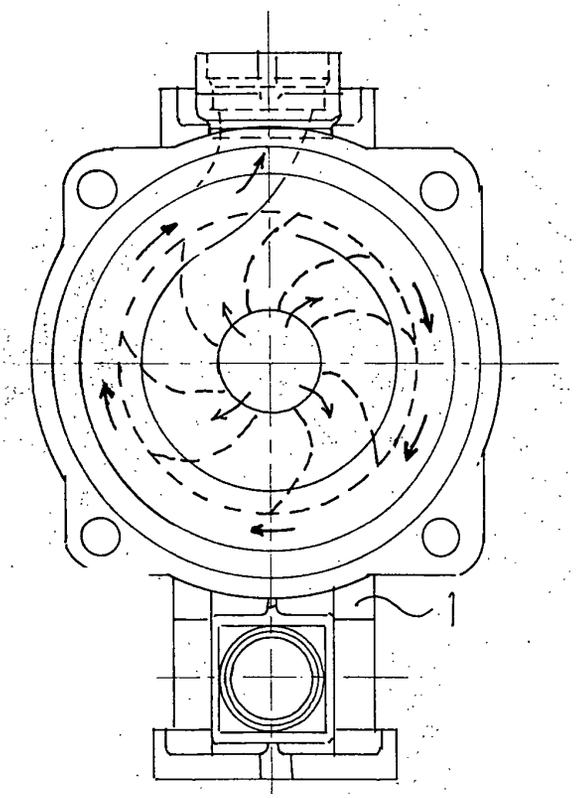


FIG. 7

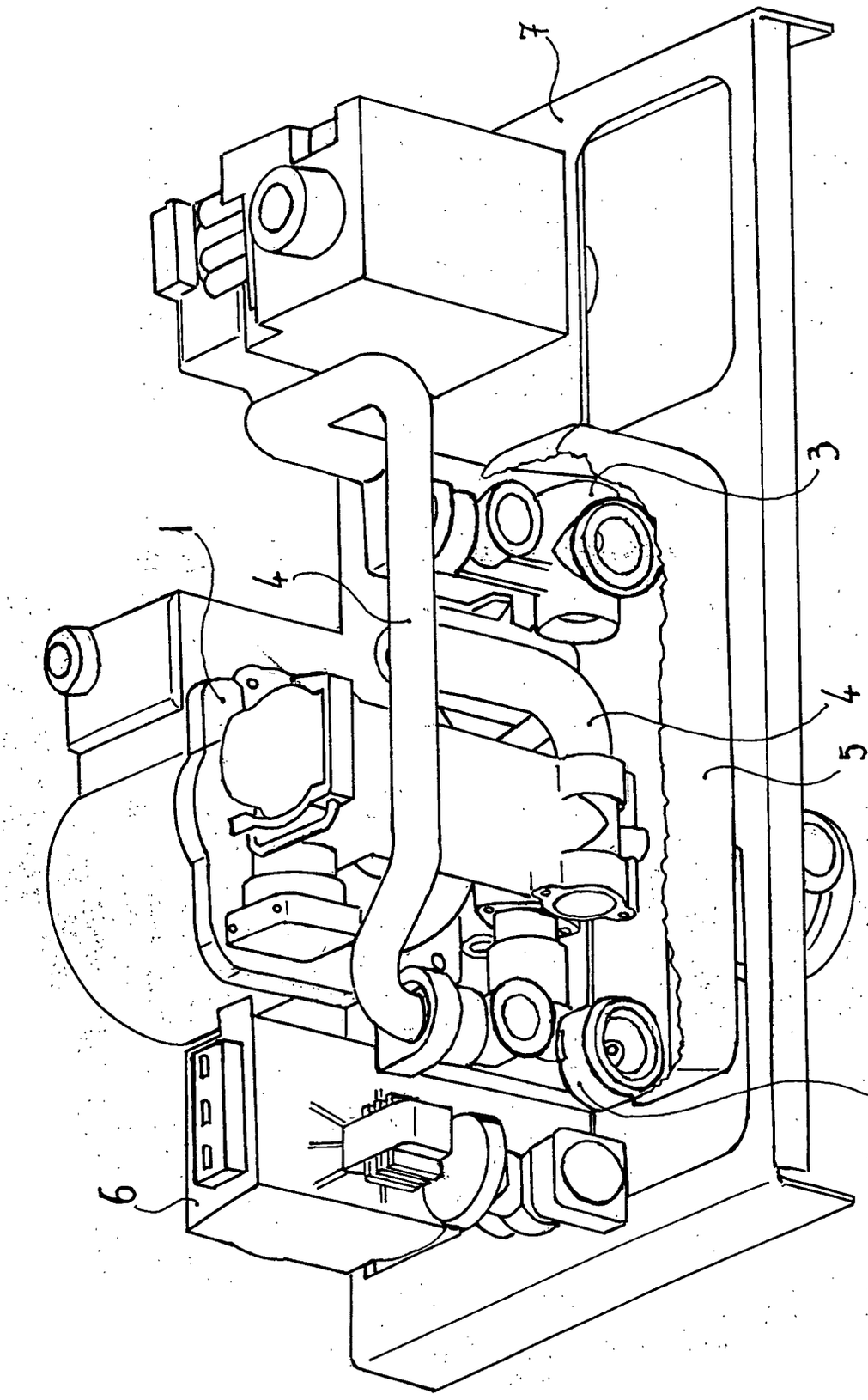


FIG.8

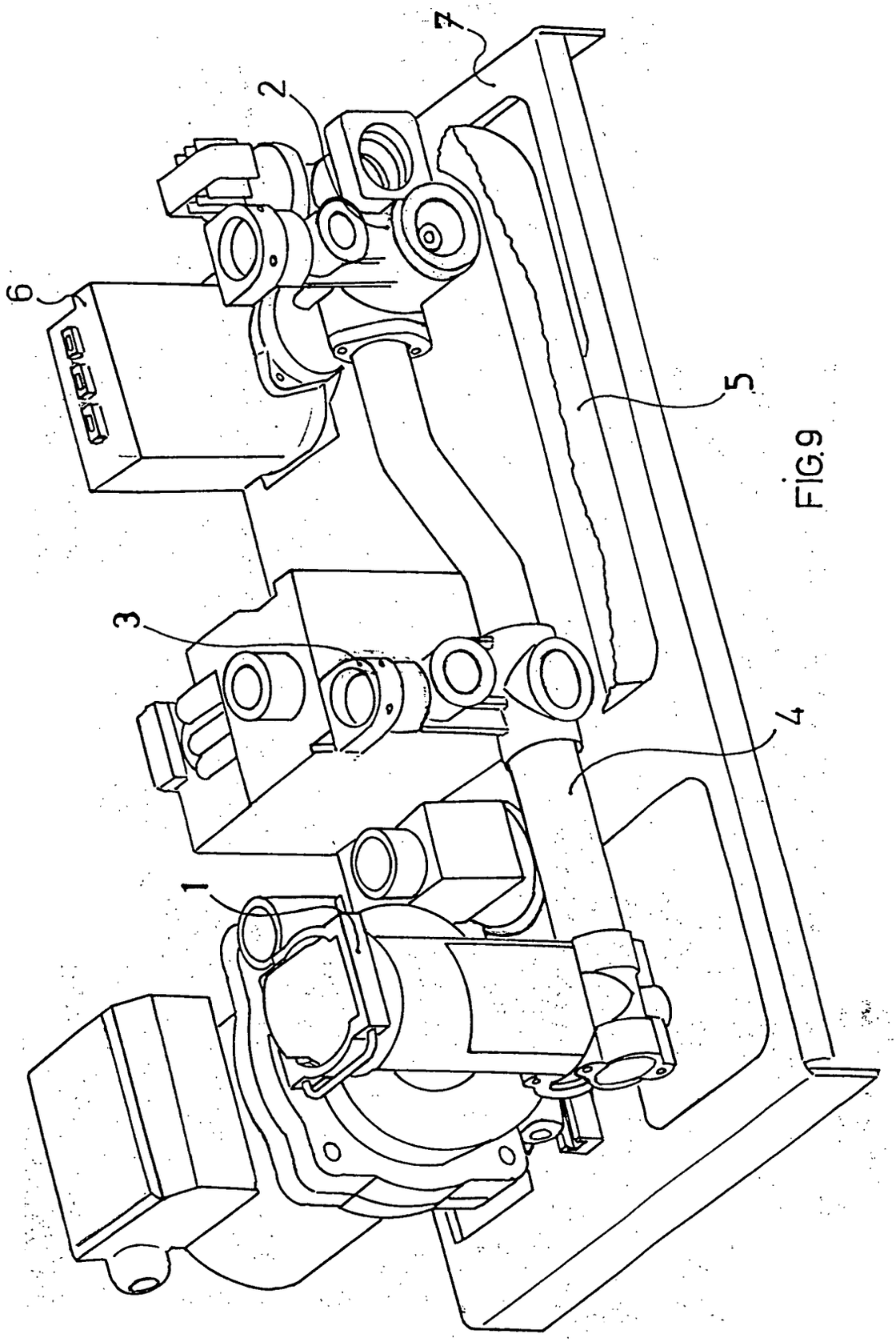


FIG.9

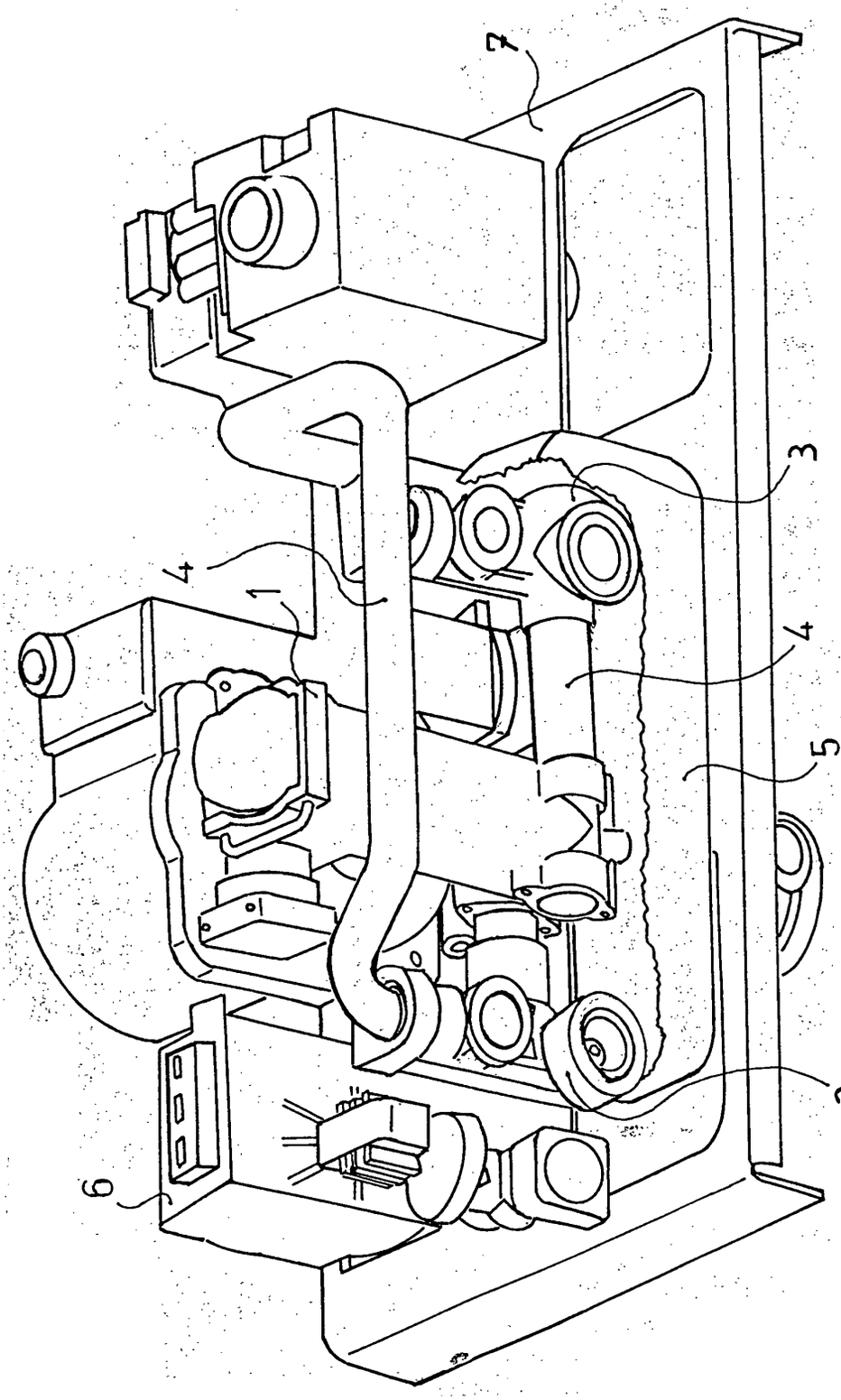


FIG.10