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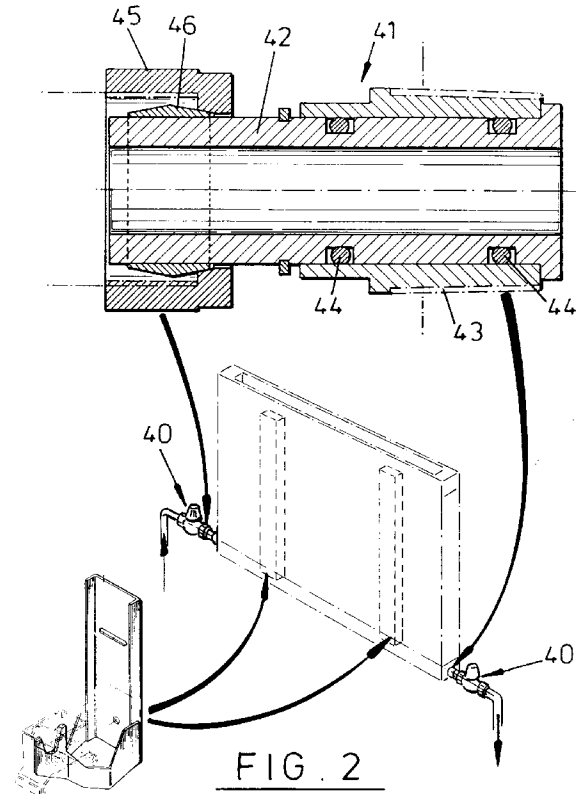
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Improvements relating to radiators.

A central heating radiator assembly comprising a radiator 2 having a water inlet I and a water outlet O collinear with each other. Respective rotary connection means 41 are provided to provide a rotary connection between the inlet and the outlet and a relatively fixed water pipework system to which the radiator is connected. A spindle 15 is mounted on the radiator collinear with the inlet and the outlet, and a wall mounted support 5 is provided, which is adapted to rotatably support the spindle 15 so that the radiator may be pivotally moved away from the wall.



The present invention relates to radiators, particularly to central heating radiators.

It is conventional practice to mount central heating radiators on the wall of a room. Generally, the radiator is mounted in a fixed position on the wall by means of a suitable support assembly. Problems may however arise when it is desired to paint or decorate the room. With the radiator in position, it will generally be impossible to paint or decorate behind the radiator. The options are therefore either to remove the radiator from its mounting (which may cause leakage of water in the room) or simply not to paint or decorate the inaccessible wall area behind the radiator.

A similar problem arises during cleaning operations (because it may be difficult to gain proper access behind the radiator) and this problem is particularly acute in hospitals, where cleanliness is all important.

It is an object of the present invention to obviate or mitigate the above disadvantages.

According to a first aspect of the present invention there is provided a central heating radiator assembly comprising a radiator having a water inlet and a water outlet collinear with each other, respective rotary connection means for providing a rotary connection between the inlet and the outlet and a relatively fixed water pipework system to which the radiator is connected, a spindle mounted on the radiator collinear with the inlet and the outlet, and a wall mounted support adapted rotatably to support said spindle whereby the radiator may be pivotally moved away from the wall.

Preferably, the spindle is carried by a bracket mounted on the radiator.

According to a second aspect of the present invention there is provided a kit of parts for pivotally mounting a central heating radiator on a wall or other support surface, the kit comprising a bracket incorporating a spindle, the bracket serving to mount the spindle on the radiator collinear with inlet and outlet pipework thereof, and a support adapted to be mounted on the wall and to support said spindle to allow pivotal movement of the radiator.

The kit preferably also comprises rotary connection means for providing respective rotary connections between the radiator inlet or radiator outlet and relatively fixed pipework of the central heating system in which the radiator will be provided.

Preferably the spindle carrying bracket comprises a body portion in which the spindle is mounted and a channel formation in which a lower seam of the radiator may be located so that the spindle is positioned collinear with the radiator inlet and outlet. Preferably this channel formation is provided on a limb which angles downwardly away from the body.

The bracket may be adapted for mounting on a "double radiator" in which case two of said channel formations will be provided, one for location over each

seam of the radiator.

The wall mounted support for the spindle is preferably a hook-like formation having an upwardly opening recess in which the spindle may be received. Preferably the hook-like formation is provided at the lower end of an elongate wall mounted bracket.

Preferably also a catch supported directly or indirectly on the wall is provided and serves to engage a fixture on the radiator so as to retain the latter in the upright position, the catch being releasable to permit pivotal movement of the radiator away from the wall. The catch may be mounted on the abovementioned elongate wall mounted bracket.

The invention will be further described by way of example only with reference to the accompanying drawings in which:

Fig. 1 is a partially exploded perspective view illustrating the pivotal mounting of a radiator; and Fig. 2 illustrates a rotary coupling for use in combination with the radiator illustrated in Fig. 1.

Referring to Fig. 1, there is illustrated a bracket assembly 1 for pivotally mounting a "double-radiator" 2 on a wall or other vertical support surface 3. As shown in the drawings, the "double radiator" 2 is comprised of two radiators 2a and 2b mounted together in generally parallel relationship. The radiators 2a and 2b are of conventional construction and each includes a respective lower seam 4a, 4b. A common inlet I and outlet O are provided for the radiators 2a and 2b. The inlet I and outlet O are collinear and are positioned at a lower region of the radiator assembly 2.

The bracket assembly 1 comprises an elongate, generally U-shaped wall bracket 5 having at one end thereof a hook formation 6 mounted on support arms 7. These arms 7 are such that the hook 6 is spaced away from the wall bracket 5 and that the arms 7 define an open area 8 as shown.

Formed in the wall bracket 4 are two mutually perpendicular elongate slots 9 as well as further apertures 10. The slots 9 serve to receive screws 11 and their mutual perpendicularity ensures that the wall bracket 4 may be fixed vertically on the wall 3. Further fixing screws (not shown) will be provided through apertures 10 to complete fixing of the bracket 5 to the wall 3. With the wall bracket 5 so mounted, the hook 6 is spaced away from the wall by a distance such that (when the radiator is mounted in position - see below) the hook 6 is midway between the two radiators 2a and 2b.

The mounting of the radiator assembly 2 on the bracket assembly 1 is by means of a mounting bracket 12. This bracket 12 has a generally rectangular body having four sides 12a-d as shown. Depending downwardly away from the two opposite sides 12a, 12c are two limbs 13 each terminated by a respective U-shaped channel formation 13a, 13b. The distance between the inner surfaces of the two limbs of any one channel formation 13a, 13b, is such that a radiator

seam 4a, 4b, may be located therein. Furthermore, the distance between the sides 12a, 12c, (of the mounting bracket 12) is such that the bracket 12 may be located between the radiators 2a and 2b with their seams 4a, 4b being received within respective ones of the channel formations 13a, 13b.

The two sides 12b, 12d, of the bracket 12 are each formed with an aperture 14 (the two apertures 14 being in register with each other). A pin 15 is located as a tight fit through the two apertures 13.

It will be appreciated from the foregoing description that the bracket 12 is positioned on the radiator assembly 2 by locating the body of the bracket 12 between the two radiators 2a, 2b such that the radiator seams 4a, 4b, are located in the U-section channels 13a, 13b. The pin 15 is thus also located between the radiators 2a, 2b and is coaxial with the inlet I and outlet O.

To mount the radiator assembly 2 on the wall 3, it is simply necessary to lower the radiator assembly 2 towards the hook formations 6 such that the pins 14 of each mounting bracket 12 are received in, and supported by, a respective one of the hook formations 6. More particularly, the hook formations 6 each locate within the rectangular body of the bracket 12 and therefore support the pins 14 between the body sides 12b, 12d. With the mounting brackets 9 so positioned, one of the U-shaped channels 13a, 13b, locates in the space 7.

Although one bracket assembly 1 is shown, it should be appreciated that two such assemblies will generally be provided (see also Fig. 2), one towards each end of the radiator 2 which will itself be fitted with two of the mounting brackets 12.

It will thus be appreciated that the upper edge of the radiator assembly 2 is able to pivot downwardly away from the wall by virtue of rotation of the pins 15 in the hook formations 6. During such pivotal movement, that U-shaped channel 13a or 13b within space 7 is able to move therein so that the pivotal movement is not hindered.

In normal use of the central heating system, the radiator assembly 2 will of course need to be maintained vertical and therefore, a catch assembly 20 is provided to restrain the radiator assembly 2 against unwanted pivotal movement.

The catch assembly 20 comprises a U-shaped bracket 21 which pivotally supports a catch member 22 which is engageable with a bracket 23 fixed to the rear side of radiator 2b. The bracket 21 is intended to be supported on the wall bracket 5 and for this purpose the distance between the inner surfaces of the limbs of the bracket 21 is such that the bracket 20 may be positioned with its limbs locating on the outside of the limbs of the wall bracket 5. Each limb of the bracket 21 is formed with two elongate slots 24 which serve to receive small bolts (not shown) which will pass through apertures 25 in the limbs of wall bracket

5. These apertures 25 are each associated with a nut 26 into which the aforementioned small bolts are received. It will be noted from Fig. 1 that a plurality of the apertures 25 (and associated nuts 26) are provided at different positions along the wall bracket 5 and this is to ensure that the bracket 21 may be positioned at different heights. Furthermore, the elongate nature of the slots 24 permit further height adjustment for bracket 21.

The catch member 22 is pivotally mounted on a shaft 27 and projects through a slot 28 in the bracket 21. A coil spring 29 serves to bias the catch member 22 downwardly into the slot 28. As shown in the drawings, the lower side of the catch member is formed with a hook 30 which is associated with a chamfered surface region 31 of the catch member.

A lever 32 is pivotally mounted as at 33 on the front of bracket 21 so as to engage against the under-surface of catch member 22. The lever 32 will extend behind the radiator assembly 2 and beyond one end thereof. When the radiator assembly 2 is in the "upright" position, the hook 30 of the catch member 22 engages the bracket 23 and the spring 29 ensures that this engagement is maintained. To "lower" the radiator, lever 32 is operated to raise the catch against the bias of spring 29 and release the catch from bracket 22. The radiator may now be lowered. When the radiator is raised again, the upper edge of bracket 23 will ride against the chamfered surface region 31 and cause the catch member 22 to be raised against the bias of spring 29 until the hook 30 can once again engage behind bracket 23.

Referring now to Fig. 2, the inlet I and outlet O of the radiator assembly 2 are each associated with a valve 40 mounted on the central heating pipework. These valves will be open during normal use of the central heating system (to permit water to flow through the radiator assembly) but may be closed when desired. To permit the radiator assembly 2 to pivot relative to the valves and pipework, the rotary coupling 41 shown in Fig. 2 may be employed. This coupling comprises a central tubular member 42 provided at one end with a rotary collar 43 which may be screwed into a standard boss at the inlet I or outlet O of the radiator assembly 2. O-ring seals 44 are provided as shown to prevent water from the radiator leaking between the tubular member 42 and collar 43.

The left hand end of the tubular member 42 is for location in the valve body, on which the coupling 41 is mounted by means of a lock nut 45 and an olive 46.

It will thus be appreciated that pivotal movement of radiator assembly 2 is permitted by virtue of rotation of the collar 43 (which is fast with the radiator) around the tubular member 42.

Although the invention has been specifically described with reference to the mounting of a double radiator, it should be appreciated that the invention is also applicable to the pivotal mounting of a single

radiator. For such a radiator, the illustrated mounting bracket 12 may be modified so as to include only one channel formation 13a or 13b for location over the bottom seam of the single radiator so that the bracket 12 locates behind the radiator. If appropriate, the hook formation 6 may be located closer to the wall 3 than in the case of the double radiator. It should be noted that the bracket assembly may be constructed so as to permit adjustment of the distance of hook formation 6 away from the wall so that the bracket assembly may be used for a variety of different radiators.

Although the invention has been described with specific reference to the use of the bracket 12 for positioning the spindle 15 on the radiator, other constructions are possible. Thus, the spindle or spindles may be welded on the radiator collinear with the inlet and outlet. In particular, some types of radiator have a water inlet conduit and a collinear water outlet conduit extending over parts of their length in a direction parallel to the plane of the radiator but spaced rearwardly therefrom. In this case, each such conduit (which is effectively in the form of an elbow) may be associated with a spindle (eg. in the form of a stud) welded or otherwise affixed to the respective conduit so as to have a centre line collinear with the inlet and outlet. The studs may be located in wall-mounted supports so as to permit pivotal movement of the radiator.

Claims

1. A central heating radiator assembly comprising a radiator having a water inlet and a water outlet collinear with each other, respective rotary connection means for providing a rotary connection between the inlet and the outlet and a relatively fixed water pipework system to which the radiator is connected, a spindle mounted on the radiator collinear with the inlet and the outlet, and a wall mounted support adapted rotatably to support said spindle whereby the radiator may be pivotally moved away from the wall.
2. A radiator assembly as claimed in claim 1, wherein the spindle carries a bracket for supporting the radiator.
3. A radiator assembly as claimed in claim 2, wherein the radiator carrying bracket comprises a body portion in which the spindle is mounted and a channel formation in which a lower seam of the radiator may be located so that the spindle is positioned collinear with the radiator inlet and outlet.
4. A radiator assembly as claimed in claim 3, wherein the body portion has aligned apertures in opposed walls thereof, and said spindle is mounted in the apertures.
5. A radiator assembly as claimed in any one of claims 2 to 4, wherein the channel formation is provided on a limb which angles downwardly away from the body.
6. A radiator assembly as claimed in any one of claims 2 to 5, wherein the radiator carrying bracket is adapted for mounting a "double radiator" and two of said channel formations are provided.
7. A radiator assembly as claimed in any preceding claim, wherein the wall mounted support for the spindle is a hook-like formation having an upwardly opening recess in which the spindle may be received.
8. A radiator assembly as claimed in claim 7, wherein the hook-like formation is provided at a lower end of an elongate wall mounted bracket.
9. A radiator assembly as claimed in claim 7 or claim 8, wherein the hook-like formation is provided at the ends of two spaced arms between which pivotal movement of the bracket is permitted.
10. A radiator assembly as claimed in any preceding claim, wherein a catch is provided directly or indirectly on the wall and serves to engage a fixture on the radiator so as to retain the radiator in an upright position, the catch being releasable to permit pivotal movement of the radiator away from the wall.
11. A radiator assembly as claimed in claim 10 when dependent from claim 8, wherein the catch is mounted on the elongate wall bracket.
12. A kit of parts for pivotally mounting a central heating radiator on a wall or other support surface, the kit comprising a bracket incorporating a spindle, the bracket serving to mount the spindle on the radiator collinear with inlet and outlet pipework thereof, and a support adapted to be mounted on the wall and to support said spindle to allow pivotal movement of the radiator.
13. A kit of parts as claimed in claim 12, wherein the kit further comprises rotary connection means for providing respective rotary connections between the radiator inlet or radiator outlet and relatively fixed pipework of the central heating system in which the radiator will be provided.
14. A central heating radiator assembly substantially as hereinbefore described, with reference to the accompanying drawings.

15. A kit of parts for pivotally mounting a central heating radiator on a wall or other support surface substantially as hereinbefore described, with reference to the accompanying drawings.

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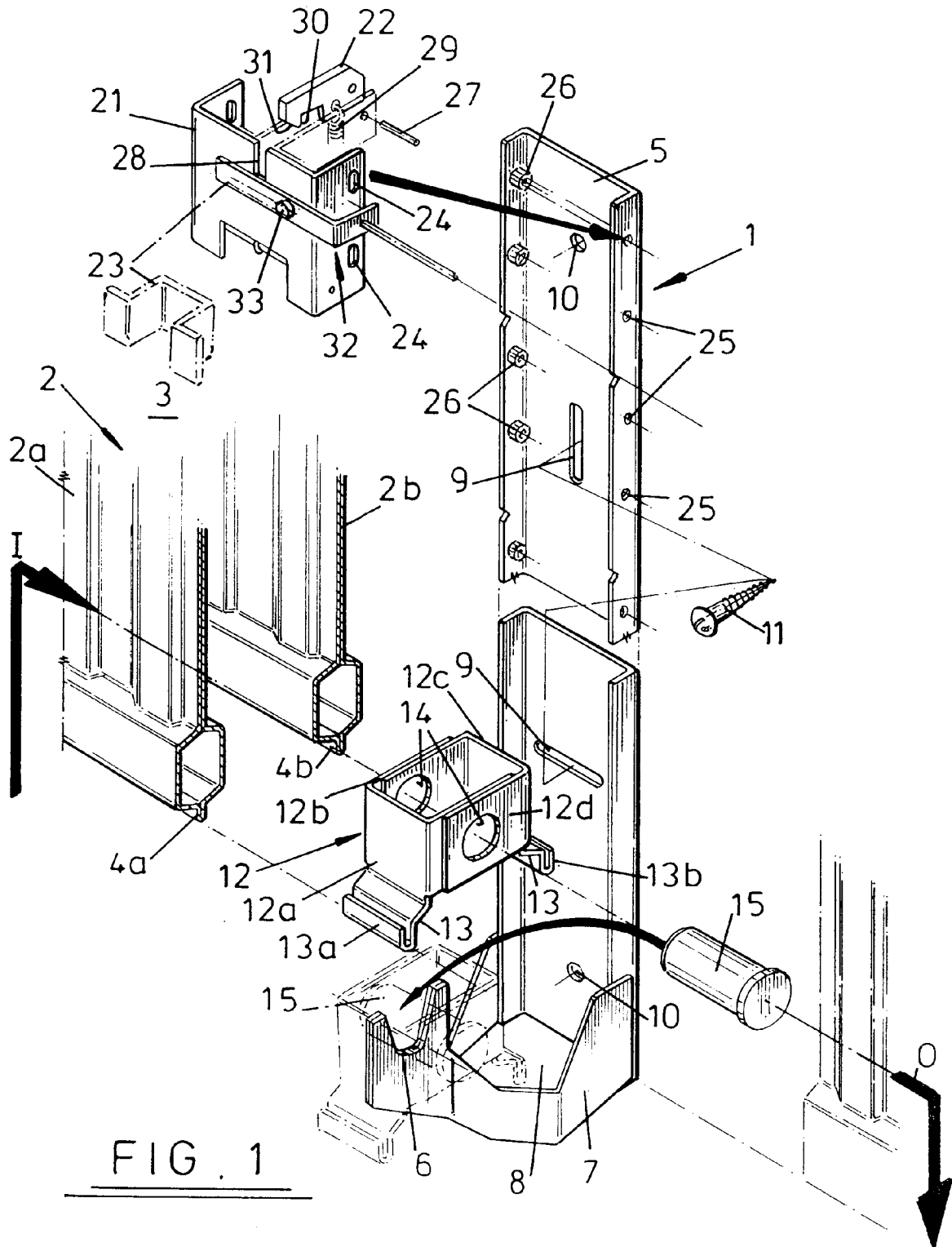


FIG. 1

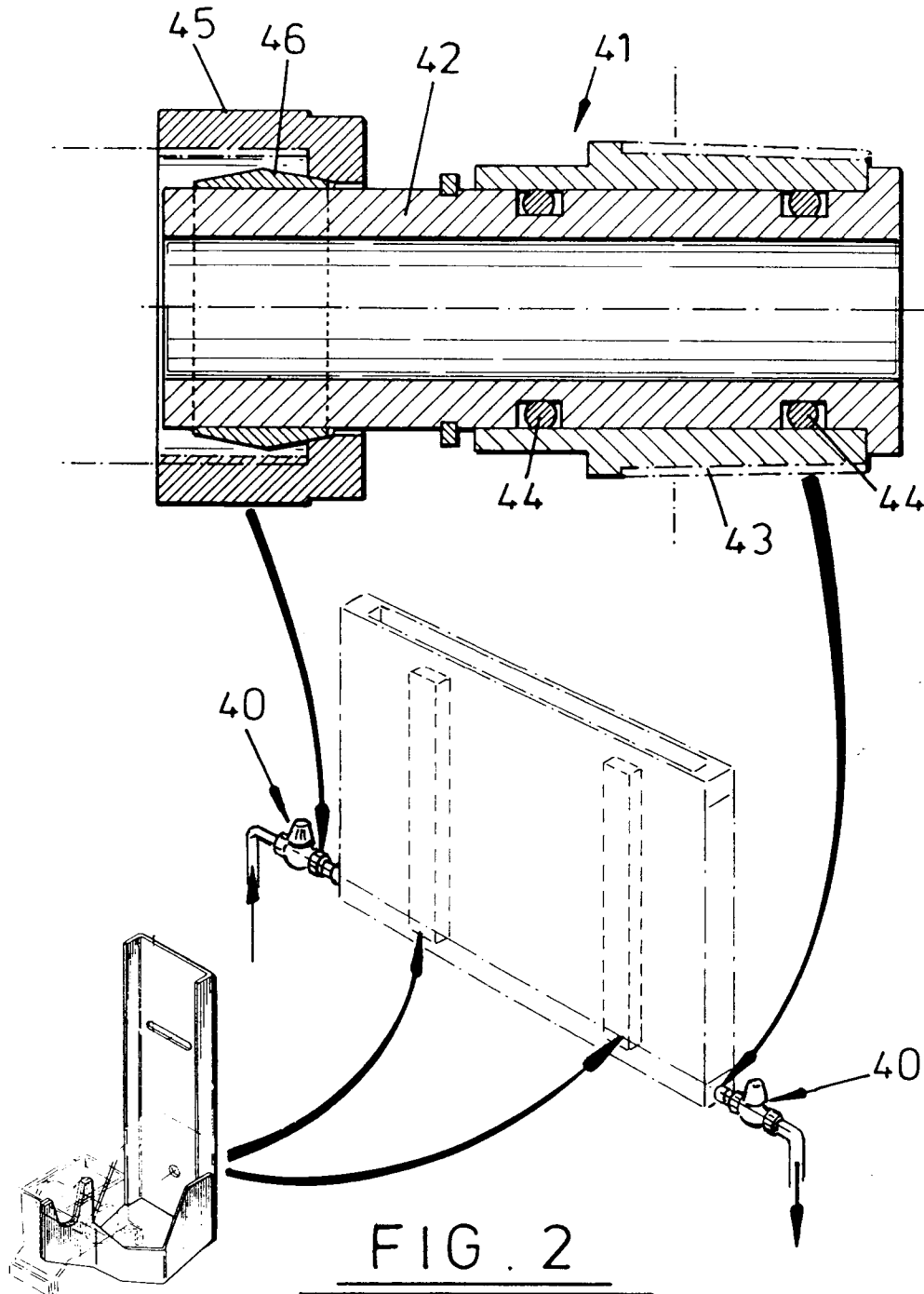


FIG. 2



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 91 31 1746

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.5)
X	GB-A-2 224 427 (CRILLY) * abstract; figures * ---	1, 7, 8, 10, 11, 12, 13	F24D19/02
X	GB-A-2 150 685 (CUNNINGHAM) * abstract * -----	1, 12, 13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F24D
Place of search	Date of completion of the search	Examiner	
THE HAGUE	04 FEBRUARY 1992	VAN GESTEL H. M.	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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