

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 554 473 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

15.05.1996 Bulletin 1996/20

(51) Int Cl.6: **F24D 19/02**

(21) Application number: **92101723.2**

(22) Date of filing: **03.02.1992**

(54) **A clamp, particularly for supporting radiators**

Klammer, insbesondere zur Befestigung von Heizkörpern

Pince, en particulier pour supporter des radiateurs

(84) Designated Contracting States:
AT BE CH DE ES FR GB LI NL PT

(30) Priority: **18.03.1991 IT BO910053 U**

(43) Date of publication of application:
11.08.1993 Bulletin 1993/32

(73) Proprietor: **IRSAP - IRSOL S.r.l.**
I-45031 ARQUA' POLESINE (IT)

(72) Inventor: **Zen, Alessandro**
I-45100 Rovigo (IT)

(74) Representative: **Jorio, Paolo et al**
Studio Torta,
Via Viotti, 9
I-10121 Torino (IT)

(56) References cited:
EP-A- 0 191 924 **EP-A- 0 386 301**

EP 0 554 473 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

The present invention relates to radiators having clamps for supporting such radiators.

It is known that hook-shaped clamps are currently used to support radiators and have several disadvantages such as the difficulty of fixing them to the wall of the building and the impossibility of adjusting their positions. The fixing of the clamps to the wall in fact requires the forming of a hole in the wall and the fixing of one end of the clamp in this hole by means of the injection of a quick-setting cement. Since at least two clamps are needed to support the radiator, it is clear that, with this type of attachment, it is impossible to adjust the radiator to the wall correctly. Moreover it is also difficult to adjust the depth of fixing of the hooks and, hence, the distance of the radiator from the wall of the building for the same reasons. Finally it must be stressed that hook-shaped clamps are not aesthetically pleasing which is in complete contrast to the current mode of operation of radiator manufacturers who are seeking to produce highly aesthetic radiators such as almost to be pieces of furniture themselves.

In the patent application EP-A-0 386 301 is described a radiator of the type having a bar further comprising a clamp that includes:

- a first body fixable to a fixed structure;
- means for adjusting the horizontal position of the first body relative to the fixed structure;
- a second body with the same longitudinal axis as the first body and fixed thereto;
- a third body external to the first body and coaxial to it; and
- a screw through the third body and screwed in a threaded hole formed in the second body, and provided of a head turned through the said third body.

The third body and the head above-described have a conformation as a truncated cone and from opposite parts extend themselves inside the space defined between two near columns of the radiator. The third body and the aforesaid head are wedges which are inserted by force between two columns to press these columns in opposite directions. The clamp illustrated in EP-A-0 386 301 explicates its support only in presence of two near columns and in particular such support can be effective only if these columns are horizontal because the weight of the radiator with vertical columns, overcoming the force explicated by the wedges against both the columns, makes the radiator slide downwards. The force exerted by the wedges to the columns could deform the said columns. The clamp described in EP-A-0 386 301 cannot support the radiator only through the header, cannot support the radiator that presents columns with a section different than the cylindrical one, cannot support a flag-form radiator, cannot support radiators with more lines of columns because the screw couldn't even ap-

proach the line of columns nearest to the wall of support, neither could support radiators with columns distant among them unless it is realized a screw of great dimension, a screw that would be unaesthetic. Moreover the clamp illustrated in EP-A-0 386 301 is not provided of the regulation of the position of the second body relative to the first body.

The object of the present invention is to provide a radiator which does not have the aforesaid disadvantages and which is easy to fix to the wall and is provided with systems for the adjustment of its position.

Further objects and advantages of the present invention will become evident during the description which follows.

On the basis of the present invention, there is provided a radiator according to the features of claim 1.

In order to provide a better understanding of the present invention a preferred embodiment will now be described, purely by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a perspective view of a clamp formed in accordance with the scope of the present invention; Figure 2 is a partially-sectioned side view of the clamp of Figure 1 in use; Figure 3 is a plan view of a part of the clamp of Figure 1;

Figure 4 is a partially sectioned view of a clamp similar to that of Figure 1 but provided with a system which allows it a greater longitudinal extension; Figure 5 is a partially-sectioned side view of part of the clamp of Figure 1 shaped differently from the corresponding one illustrated in Figures 1, 2 and 3; and

Figures 6 and 7 are side and plan views respectively of a clamp which differs from the clamp of Figure 1 in the different shaping of a portion thereof.

As illustrated in Figures 1, 2 and 3, a clamp generally indicated 1 is fixed to a wall 2 of a building to enable the support of a radiator. The clamp 1 has a system for adjusting its position relative the wall 2 and a system for adjusting its longitudinal extension. The clamp 1 includes a first body 3 for fixing to the wall 2, a second body 4 intended to be connected mechanically at one end to the body 3 and at the other end having a vice 5 which will clamp a cylindrical bar 6 of the radiator.

With reference to Figures 1 and 2, the body 3 is cup-shaped and has four side walls 7 arranged in two parallel pairs and a base wall 8 which, in use, faces the wall 2. The wall 8 has a central through-slot 11 through which the threaded shank of a screw 12 may project into an expansion plug 13 arranged in the wall 2. The longitudinal axis of the slot 11 lies in a plane parallel to that defined by the face of the wall 2 whereby, by arranging this axis of the slot 11 in line with one of the two cartesian axes definable on the wall 2, it is possible to adjust the position of the body 3 along the selected cartesian axis.

Clearly the adjustment is carried out before the screw 12 is screwed in completely. The central part of one side wall 7 is formed with a through slot 14 with its longitudinal axis parallel to the longitudinal axis of the body 3.

With reference to figures 1, 2 and 3, the body 4 includes a prismatic portion 15 which, in use, will be housed coaxially within the body 3. The portion 15 is formed with a threaded hole 16 perpendicular to the longitudinal axis of the portion 15 itself and in line with the slot 14. A screw 17 passes through the slot 14 and, when screwed into the hole 16, fixes the bodies 3 and 4 together mechanically. Clearly it is possible to adjust the axial position of the body 4 relative to the body 3 before the screw 17 is screwed in completely.

The vice 5 is constituted by two hooked jaws 18 and 21 of which the jaw 18 is formed integrally with the portion 15 and the jaw 21 is fixed to the jaw 18 by a screw 22. The jaws 18 and 21 have the same geometric conformation and, in particular, they include a thicker portion 23 by which the jaws 18 and 21 are fixed together, and a thinner portion 24 which clamps the bar 6. The portion 23 of the jaw 18 projects from an end face of the portion 15 or preferably, from a lower region of this face. The jaws 18 and 21 have substantially constant widths along their longitudinal axes, this width being substantially equal to that of the body 3. The faces of the jaws 18 and 21 which face each other have a first part, defined by the portion 23, which lies in a plane perpendicular to the said end face of the portion 15, and a second part, defined by the portion 24, which describes a semi-cylindrical surface. The shape of the second part of these faces of the jaws 18 and 21 enables the vice 5 to define a clamping surface which is almost completely cylindrical and of a diameter substantially equal to the external diameter of the bar 6.

The flat face of the portion 23 of the jaw 18 is formed with a threaded blind hole 25 coaxial with a through hole 26 in the portion 23 of the jaw 21. The screw 22 passes through the hole 26 and is screwed into the hole 25 until its head comes to bear against a shoulder 27 formed in the hole 26. The flat face of the jaw 21 fits against the corresponding flat face of the jaw 18 just as the end face of the portion 23 of the jaw 21 fits against the upper part of the end face of the portion 15.

In use, a hole is first made in the wall 2 and the plug 13 is then placed in it. Subsequently the screw 12 is screwed in to a minimum extent so that the position of each body 3 relative to the wall 2 and to the other bodies 3 can be adjusted, taking account of the fact that several clamps 1 are used to support a radiator. The bar 6 is then clamped in the vice 5 by the initial placing of the bar 6 on the hooked jaw 18 and the subsequent fixing of the jaw 21 to the latter. Finally, the radiator being raised, each portion 15 is introduced into the corresponding body 3. It is now possible first to adjust the axial position of the body 4 relative to the body 3 and then to fix the two together by the screw 17.

The radiator may be fixed to a vertical wall, parallel

thereto, or simultaneously to the vertical wall and to the floor like a flag. In the first case, depending on the vertical or horizontal disposition of the longitudinal axis of the slot 11, either the height of the clamp 1 relative to the floor or the distance between two clamps 1 at the same level can be determined by the adjustment of the body 3. In the second case, in which the clamps are disposed on the floor, depending on the disposition of the axis of the slot 11 along two horizontal cartesian axes, either the distance of the clamps 1 from each other and from an edge of the floor or the perpendicularity of the axis along which the clamps 1 are fixed relative to the vertical wall can be determined by the adjustment of the body 3. The adjustment of the axial position of the body 4 relative to the body 3 enables the distance of the radiator from the wall 2 to be determined.

With reference to Figure 4, a clamp 1 for supporting a radiator at a very large distance from the wall 2 will now be described. In this case, the clamp 1 includes a spacer member 31 having a portion 32 of smaller longitudinal extent similar to the portion 15 in that it is introduced into the body 3, and a hollow portion 33 of larger longitudinal extent similar to the body 3 in that it accepts the portion 15 of the body 4 within it. The portion 32 is formed with a threaded blind hole 34 into which the screw 17 is screwed and thus fixes the member 31 to the body 3. A side wall of the portion 33 is formed with a hole 35 through which a screw 36 may be screwed into the hole 16 so as to fix the body 4 to the member 31.

With reference to Figure 5, a body 4 is described which differs from that illustrated in Figure 1 in the different internal conformation of the vice 5 because of the different peripheral profile of the section of the bar 6. This in fact has a section with a substantially elliptical profile whereby, in order to achieve the proper clamping thereof, the inner faces of the hooked jaws 18 and 21 of the vice 5 together define a semi-elliptical surface.

With reference to Figures 6 and 7, a clamp 1 is now described which is adapted to support a radiator having a bar 6 with a semi-ovoidal profile in section and having bars 41 which project perpendicularly from the bar 6 and which are a short distance apart. More particularly, the bar 6 has a rectangular section with two longer straight sides, a shorter straight side outside the vice 5 and a shorter side within the vice 5 which is formed as an arc of a circle. The inner faces of the portions 24 of the jaws 18 and 21 have a first semi-circular zone which will mate with a part of the said circular side and a second straight zone which will mate with the corresponding longer straight side of the section of the bar 6. Moreover each portion 24 has a free end 42 which is turned inwardly at right angles so as to embrace the bar 6 almost completely by fitting over a respective part of the shorter straight side of the section of the bar 6. Since the distance between the bars 41 is less than the width of the portions 24, these differ from those illustrated in Figure 1 in that they taper in width so that the said ends 42 can be disposed between the bars 41.

From what has been described above, the advantages achieved by the present invention will be clear.

More particularly, by the use of the clamps 1, it is possible to adjust not only the position of the radiator relative to the wall 2 but also its distance from the latter and these adjustments are easy to carry out. Moreover the clamps 1 are quick and easy to fix to the wall 2 since the fixing not involve complicated operations to be carried out on the latter, the positioning of an expansion plug being sufficient. The body 3 of the clamp 1 remaining fixed, it may present a body 4 with a vice adapted, by its shape, to clamp bars 6 of different sections. Moreover the clamp 1 may be arranged, by means of the member 31, to support radiators at great distances from the wall 2. It should be stressed that the structural simplicity of the clamp 1 makes it cheap to produce. Finally, it may be stated that, compared with clamps currently in use, the clamp 1 is aesthetically pleasing since the various fixing screws are hidden in the corresponding slots or holes.

The clamp 1 could be fixed to any fixed structure. The bar 6 may have a peripheral profile different from those described and illustrated. Moreover, the body 3 may have several slots 14 in the same wall 7 or in different walls 7, just as the portion 15 may have several holes 16 in the same face or in different faces; thus it is possible to modify the relative angular positions of the bodies 3 and 4. The portion 15 of the body 4 could also be allow in order to achieve a saving in material. In this case it is also possible to vary the shape of the body 3 and of the portion 15 for example so that the portion 15 receives the body 3 within it; naturally, in this case, the slot 14 would be formed in a wall 7 of the body 3. It is clear that the peripheral development of the body 3 and of the portion 15 illustrated are not limiting in that it is possible to define a different shape, for example cylindrical, therewith. The clamp 1 is preferably made of metal but the use of different materials, such as wood or plastics material is not excluded.

Claims

1. A radiator of the type having a horizontal bar and further comprising a clamp including:
 - a first body (3) fixable to a fixed structure (2);
 - a second body (4) with the same longitudinal axis as the first body (3) and fixed thereto; and
 - first means for adjusting the position of the first body (3) relative to the fixed structure (2);
 characterised in that it includes a vice (5) for clamping said bar (6) of the radiator, defined by a first hooked lower jaw (18) carried by the second body (4) and a second hooked jaw (21) which is to clamp the said bar (6) against the first hooked jaw (18).
2. A radiator according to Claim 1, characterised in that radiator the clamp includes second means for adjusting the axial position of one of the bodies (3 or 4) relative to the other; one of the bodies (4 or 3) being inside the other.
3. A radiator according to Claim 2, characterised in that radiator the clamp includes at least one through slot (14) formed in the said outer body (3 or 4) with its longitudinal axis parallel to that of the bodies (3 and 4), at least a first threaded hole (16) formed in the inner body (4 or 3) in line with the said slot (14), and a first fixing screw (17) for passing through the said slot (14) to be screwed into the said first hole (16); the second body (14) being movable along its own longitudinal axis before the first screw (17) is screwed in completely.
4. A radiator according to a least one of the preceding Claims, characterised in that the first hooked jaw (18) is formed integrally with the second body (4) and in that the second hooked jaw (21) is fixed to the first jaw (18) by a second screw (22).
5. A radiator according to Claim 4, characterised in that the said hooked jaws (18 and 21) have substantially identical geometrical shapes and, in particular, they each include a first portion (23) of greater thickness in correspondence with which the mechanical connection between the jaws (18 and 21) is formed, and a second portion (24) of lesser thickness which achieves the clamping of the said bar (6).
6. A radiator according to Claim 5, characterised in that the faces of the hooked jaws (18 and 21) which face each other each have a first part, defined by the said first portion (23), which lie in a plane and a second part, defined by the said second portion (24), which describes a surface substantially identical to the lateral surface of the part of the bar (6) to be clamped.
7. A radiator according to Claim 6, characterised in that the clamp includes a second threaded hole (25) formed in the first portion of the first hooked jaw (18) and a third through hole (26) formed in the first portion (23) of the second hooked jaw (21); the second screw (22) passing through the third hole (26) and being screwed into the second hole (25) until its head comes to bear against a shoulder (27) formed in the third hole (26).
8. A radiator according to Claim 2, characterised in that the said hooked jaws (18 and 21) are of substantially constant width which is preferably equal to the width of the outer body (3 or 4).

9. A radiator according to at least one of Claims 1 to 7, characterised in that the hooked jaws (18 and 21) have a width which tapers towards their free ends.
10. A radiator according to any one of the preceding Claims, characterised in that the bodies (3 and 4) have a prismatic shape.
11. A radiator according to any one of Claims 1 to 9, characterised in that the bodies (3 and 4) have a cylindrical shape.
12. A radiator according to any one of the preceding Claims, characterised in that a spacer member (31) is provided between the bodies (3 and 4) and has a first portion (32) which is shaped like the second body (4) and is fixed in the same manner as the latter to the first body (3) and a second portion (33) shaped like the first body (3) and fixed in the same manner as the latter to the second body (4).

Patentansprüche

1. Heizkörper jener Art, die einen horizontalen Stab aufweist, und der weiterhin eine Klemme mit folgendem umfaßt:
- einen ersten Körper (3), der an einer feststehenden Konstruktion (2) befestigt werden kann,
- einen zweiten Körper (4), der die gleiche Längsachse wie der erste Körper (3) aufweist und daran befestigt ist, und
- ein erstes Mittel zum Einstellen der Position des ersten Körpers (3) relativ zur feststehenden Konstruktion (2),
- dadurch gekennzeichnet, daß sie einen Schraubstock (5) zum Festklemmen des Stabs (6) des Heizkörpers enthält, wobei der Schraubstock durch eine von dem zweiten Körper (4) getragene erste untere Hakenspannbacke (18) und eine zweite Hakenspannbacke (21), die den Stab (6) an die erste Hakenspannbacke (18) klemmen soll, definiert wird.
2. Heizkörper nach Anspruch 1, dadurch gekennzeichnet, daß die Klemme ein zweites Mittel zum Einstellen der Axialposition eines der Körper (3 oder 4) relativ zum anderen enthält, wobei sich einer der Körper (4 oder 3) in dem anderen befindet.
3. Heizkörper nach Anspruch 2, dadurch gekennzeichnet, daß die Klemme mindestens einen in dem äußeren Körper (3 oder 4) ausgebildeten durchgehenden Schlitz (14), dessen Längsachse parallel zu der der Körper (3 und 4) verläuft, mindestens ein in dem inneren Körper (4 oder 3) ausgebildetes erstes
- Gewindeloch (16), das mit dem Schlitz (14) fluchtet, und eine erste Befestigungsschraube (17), die durch den Schlitz (14) gesteckt und in das erste Loch (16) geschraubt werden kann, enthält, wobei der zweite Körper (4) entlang seiner eigenen Längsachse bewegt werden kann, bevor die erste Schraube (17) ganz eingeschraubt ist.
4. Heizkörper nach mindestens einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die erste Hakenspannbacke (18) an dem zweiten Körper (4) angeformt ist und daß die zweite Hakenspannbacke (21) durch eine zweite Schraube (22) an der ersten Spannbacke (18) befestigt ist.
5. Heizkörper nach Anspruch 4, dadurch gekennzeichnet, daß die Hakenspannbacken (18 und 21) im wesentlichen identische geometrische Formen haben und daß sie insbesondere jeweils einen ersten Abschnitt (23) größerer Dicke, entsprechend dem die mechanische Verbindung der Spannbacken (18 und 21) hergestellt ist, und einen zweiten Abschnitt (24) geringerer Dicke enthalten, der das Festklemmen des Stabs (6) bewirkt.
6. Heizkörper nach Anspruch 5, dadurch gekennzeichnet, daß die zueinander weisenden Flächen der Hakenspannbacken (18 und 21) jeweils einen von dem ersten Abschnitt (23) definierten ersten Teil, die in einer Ebene liegen, und einen von dem zweiten Abschnitt (24) definierten zweiten Teil aufweisen, der eine im wesentlichen mit der seitlichen Fläche des festzuklemmenden Teils des Stabs (6) identische Fläche beschreibt.
7. Heizkörper nach Anspruch 6, dadurch gekennzeichnet, daß die Klemme ein in dem ersten Abschnitt der ersten Hakenspannbacke (18) ausgebildetes zweites Gewindeloch (25) und ein in dem ersten Abschnitt (23) der zweiten Hakenspannbacke (21) ausgebildetes drittes durchgehendes Loch (26) aufweist, wobei die zweite Schraube (22) durch das dritte Loch (26) geht und in das zweite Loch (25) geschraubt wird, bis ihr Kopf an einer in dem dritten Loch (26) ausgebildeten Schulter (27) zu liegen kommt.
8. Heizkörper nach Anspruch 2, dadurch gekennzeichnet, daß die Hakenspannbacken (18 und 21) eine im wesentlichen konstante Breite aufweisen, die vorzugsweise gleich der Breite des äußeren Körpers (3 oder 4) ist.
9. Heizkörper nach mindestens einem der Ansprüche 1 bis 7, dadurch gekennzeichnet, daß sich die Breite der Hakenspannbacken (18 und 21) zu ihren freien Enden verjüngt.

10. Heizkörper nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Körper (3 und 4) eine prismatische Form aufweisen.
11. Heizkörper nach einem der Ansprüche 1 bis 9, dadurch gekennzeichnet, daß die Körper (3 und 4) eine zylindrische Form aufweisen.
12. Heizkörper nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß zwischen den Körpern (3 und 4) ein Abstandsglied (31) vorgesehen ist, das einen ersten Abschnitt (32), der wie der zweite Körper (4) geformt und auf die gleiche Weise wie letzterer an dem ersten Körper (3) befestigt ist, und einen wie der erste Körper (3) geformten zweiten Abschnitt (33), der auf die gleiche Weise wie letzterer an dem zweiten Körper (4) befestigt ist, aufweist.

Revendications

1. Radiateur du type ayant une barre horizontale, et comprenant en outre une pince qui comporte :

un premier corps (3) destiné à être fixé sur une structure fixe (2),

un second corps (4) ayant le même axe longitudinal que le premier corps (3) et fixé à ce corps, et

un premier dispositif d'ajustement de la position du premier corps (3) par rapport à la structure fixe (2),

caractérisé en ce qu'il comprend un étau (5) de serrage de la barre (6) du radiateur, délimité par une première mâchoire inférieure (18) à crochet portée par le second corps (4) et une seconde mâchoire (21) à crochet destinée à serrer la barre (6) contre la première mâchoire (18) à crochet.

2. Radiateur selon la revendication 1, caractérisé en ce que la pince comporte un second dispositif d'ajustement de la position axiale de l'un des corps (3 ou 4) par rapport à l'autre, l'un des corps (4 ou 3) étant placé dans l'autre.

3. Radiateur selon la revendication 2, caractérisé en ce que la pince comprend au moins une fente débouchante (14) formée dans le corps externe (3 ou 4) avec son axe longitudinal parallèle à celui des corps (3 et 4), le premier trou taraudé au moins (16) étant formé dans le corps interne (4 ou 3) dans l'alignement de la fente (14), et une première vis de fixation (17) destinée à passer dans la fente (14) afin qu'elle se visse dans le premier trou (16), le second corps (4) étant mobile le long de son propre axe longitudinal avant vissage total de la pre-

mière vis (17).

4. Radiateur selon l'une au moins des revendications précédentes, caractérisé en ce que la première mâchoire (18) à crochet est formée en une seule pièce avec le second corps (4), et en ce que la seconde mâchoire (21) à crochet est fixée à la première mâchoire (18) par une seconde vis (22).
5. Radiateur selon la revendication 4, caractérisé en ce que les mâchoires (18 et 21) à crochet ont des configurations géométriques pratiquement identiques et, en particulier, elles comportent chacune une première partie (23) de plus grande épaisseur à laquelle correspond la connexion mécanique formée entre les mâchoires (18 et 21), et une seconde partie (24) de plus faible épaisseur qui assure le serrage de la barre (6).
6. Radiateur selon la revendication 5, caractérisé en ce que les faces des mâchoires (18 et 21) à crochet tournées l'une vers l'autre ont chacune une première portion délimitée par la première partie (23) qui se trouve dans un plan et une seconde portion délimitée par la seconde partie (24) qui définit une surface pratiquement identique à la surface latérale de la partie de la barre (6) qui doit être serrée.
7. Radiateur selon la revendication 6, caractérisé en ce que la pince comporte un second trou taraudé (25) formé dans la première partie de la première mâchoire (18) à crochet et un troisième trou débouchant (26) formé dans la première partie (23) de la seconde mâchoire (21) à crochet, la seconde vis (22) passant dans le troisième trou (26) et se visant dans le second trou (25) jusqu'à ce que sa tête vienne en appui contre un épaulement (27) formé dans le troisième trou (26).
8. Radiateur selon la revendication 2, caractérisé en ce que les mâchoires (18 et 21) à crochet ont une largeur pratiquement constante qui est de préférence égale à la largeur du corps externe (3 ou 4).
9. Radiateur selon l'une au moins des revendications 1 à 7, caractérisé en ce que les mâchoires (18 et 21) à crochet ont une largeur qui diminue vers leur extrémité libre.
10. Radiateur selon l'une quelconque des revendications précédentes, caractérisé en ce que les corps (3 et 4) ont une forme prismatique.
11. Radiateur selon l'une quelconque des revendications 1 à 9, caractérisé en ce que les corps (3 et 4) ont une forme cylindrique.
12. Radiateur selon l'une quelconque des revendica-

tions précédentes, caractérisé en ce qu'un organe entretoise (31) est placé entre les corps (3 et 4) et a une première partie (32) dont la configuration est analogue à celle du second corps (4) et fixée de la même manière que ce dernier sur le premier corps (3), et une seconde partie (33) ayant une forme analogue à celle du premier corps (3) et fixée de la même manière que ce dernier au second corps (4).

5

10

15

20

25

30

35

40

45

50

55

FIG.1



