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(54) **IMPERVIOUS CONNECTION BETWEEN TWO LENGTH-ADJUSTABLE CONDUITS**

(57) The invention relates to an impervious connection between telescopically-interconnectable conduits or chimneys, which does not require the usually-needed joints. In this way, the invention forms a module between the two conduits, having a length which can be adjusted

owing to the telescopic nature of the constituent conduits. The invention comprises a sealing ring (3) which is fitted on and slides along the smaller-diametered conduits (1), for which purpose the external end (5) of the ring (3) is pushed using suitable tool(s) such as to move the ring axially.

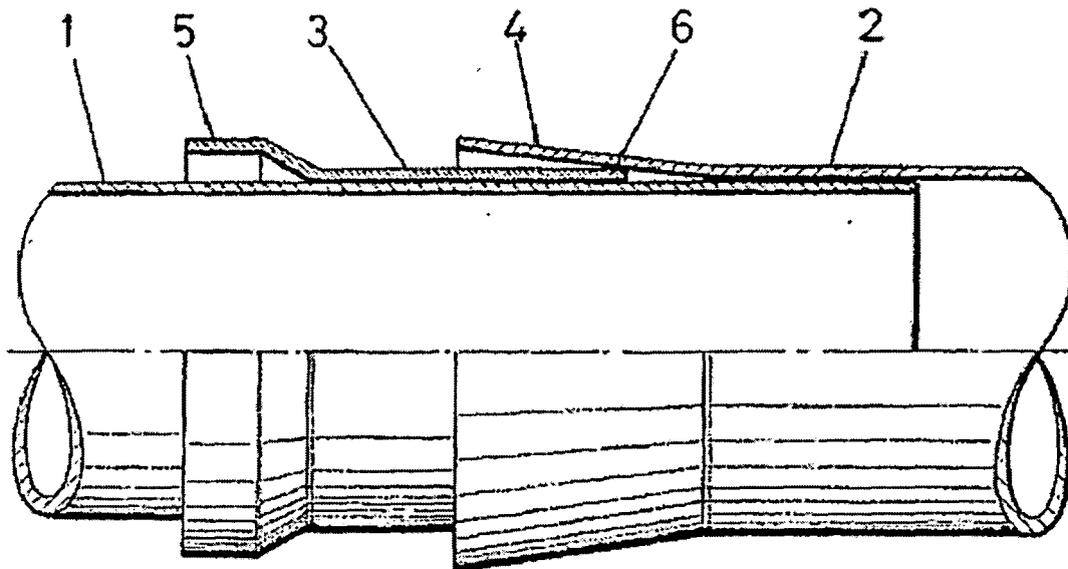


FIG.1

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Description

OBJECT OF THE INVENTION

[0001] The invention relates to an impervious connection between telescopically-interconnectable conduits or chimneys, the two elements concerned constituting one single module whose length can be adjusted owing to the telescopic nature of the two conduits that form it, a sealing ring also being involved in the connection process, which is fitted onto the conduit with the smaller diameter so that it eventually lies between this conduit and a widened section that is formed by the mouth of the conduit with the greater diameter, all of which is achieved without it being necessary to resort to any supplementary sealing gaskets made of synthetic material.

[0002] The aim of the invention is to make the connection at the desired length by adjusting the two conduits that constitute an extendible module, and to do so with a complete guarantee that they will be totally impervious.

BACKGROUND TO THE INVENTION

[0003] Different types of adjustable-length chimney modules are known to exist and these are formed with two elements that are connected to each other telescopically, that is to say concentrically and with a difference in diameter between the two elements that enables the conduit with the smaller of the two diameters to slide into the larger one, thereby modifying the length of the module itself between the male end and the female end, in some cases this invention is equipped with a sealing ring made of synthetic material that is fitted with a view to guaranteeing that the two cylindrical surfaces connected together are completely impervious, whereas in other cases the assembly is not equipped with a sealing ring and so imperviousness is not guaranteed.

[0004] Fitting a sealing gasket gives rise to a series of problems and drawbacks, which include ageing and the problems associated with this process, the difficulties involved in adjusting the length of the module and the considerable economic cost of the sealing gasket, plus the fact that in other circumstances it is simply not possible to use sealing gaskets, for example in situations where the conduits are metallic and the chimneys will have to work under high pressure and be subjected to high temperatures.

DESCRIPTION OF THE INVENTION

[0005] The connection that is the object of the invention has been devised to overcome the problem explained above, and it is based upon a simple yet highly effective solution, the invention being preferably and basically envisaged for application in modules for chimneys and other similar constructions, for two conduits where the smaller diameter one fits telescopically into the other, for which the length of the assembly can be established by sliding

the smaller diameter conduit only so far into the larger one or by inserting further in.

[0006] A perfect connection is obtained with the aid of a sealing ring that is placed onto the smaller-diameter conduit, which is totally flat throughout its entire length, but especially along the section where it is fixed to the other conduit, whereas the mouth of the second conduit, that is to say the conduit with the greater diameter, is slightly tapered, widening out towards the open end, enabling a section of the sealing ring to be inserted between this tapered section and the side surface of the conduit with the smaller diameter, in such a way that once the two conduits have been connected at the required length, the sealing ring is moved axially, by pushing it from the outer end, which will be shaped in a suitable way to permit this pushing action, thereby achieving a connection and an impermeable adjustment between the two conduits that have to constitute the module for a chimney or another suitable application.

[0007] Therefore, the sealing ring that is used in the connection process gives the invention a metal-to-metal seal with the elastic or permanent adaptation of the three surfaces that meet at the connection zone, these surfaces belonging to the two conduits that are connected to each other telescopically plus the surface of the sealing ring itself, which manages to ensure that the assembly is immobilised axially with the retention of the telescopically-connected conduits.

[0008] Apart from the arrangement that the open end of the sealing ring must have to allow for the axially pushing movement, the inner end, that is to say the end that lies between the two surfaces of the two conduits that are connected to each other, i.e. the one that is responsible for the sealing process, may either be completely flat or folded over, but if it is folded over it can be folded either outwards or inwards, or folded over to form any other suitable shape, which in any case will invariably be determined by the nature of the sealing zone at the point of connection, and it can be supplemented with a clamp or any other system aimed at increasing the retention between the two conduits or devised to make the process easier, thereby ensuring that the assembly has a perfect finish from an aesthetic perspective.

DESCRIPTION OF DRAWINGS

[0009] In order to complement this description, and with the objective of enabling better comprehension of the characteristics of the invention, in accordance with an example of the preferred embodiment of same and as an integral part of the description, we have included a set of drawings of an illustrative and non-restrictive nature, representing the following:

Figure 1.- This figure shows a side elevation view and a quarter cross-section of the two cylindrical conduits connected to each other, with the sealing ring inserted to form the basic element in the connecting

process.

Figure 2.- This figure shows different shapes that can be used to finish off the inner end of the sealing ring that is involved in the connecting process.

PREFERRED EMBODIMENT OF THE INVENTION

[0010] It can be seen from the figures that are shown that the sealing ring (3) is an essential part of the connection process for two metallic conduits (1) and (2) that are joined telescopically to each other, and that this sealing ring (3) adapts perfectly to the conduit with the smaller diameter (1), sliding along it, whereas the one with the larger diameter, to match the connecting end of the other conduit, has a tapered section (4) that widens towards its open edge, in such a way that once the two conduits (1) and (2) are connected telescopically to each other at the desired length, the sealing ring (3) is slid axially into the interior of the assembly until it lies in the widened part along the tapered section (4), as can be seen in Figure 1, the sealing ring (3) being moved axially because the outer end (5) is pushed with the aid of a suitable tool or tools, whereas the inner end (6) of the sealing ring (3) may be flat as is shown at the top of Figure 2 in the 1st option, forming the impervious adjustment between the two conduits (1) and (2) or, as alternative arrangements, the end of the sealing ring (3) could be folded over (6'), either inwards or outwards, as can be seen in the 2nd and 3rd options shown in Figure 2, or it can even be arched (6'') as in the last two options shown in Figure 2, also facing either inwards or outwards, which as has already been pointed out shows the different options for the inner end (6) of the sealing ring (3), in such a way that however the flat end (6) is arranged, folded back over itself (6') or curved (6''), an impervious fit is obtained for the connection between the two metallic conduits (1) and (2), and none of the sealing gaskets that are generally necessary are required for this invention.

Claims

1. st. - An impervious connection between two length-adjustable conduits, which being applied to modules in chimneys and similar constructions formed by the telescopically connecting two metallic conduits to each other, is **characterised by** the fact that it is composed of a sealing ring that is slid onto the conduit with the smaller diameter, whereas the end of the conduit with the larger diameter is tapered, widening where it is connected to the small-diameter conduit where the end that matches the sealing ring is positioned, the inner end of the sealing ring forming an impervious fit between the two conduits, after it has been axially pushed onto the outer end of the ring.

2. nd. - An impervious connection between two length-adjustable conduits, as in Claim 1, **characterised by** the fact that the outer end of the sealing ring is shaped in such a way that it is easy to apply the pushing action at that end, in order to make the aforementioned ring slide axially along the conduit with the smaller diameter.

3. rd. - An impervious connection between two length-adjustable conduits, as in the previous claims, **characterised by** the fact that the inner end of the sealing ring can either be completely flat or folded over, either outwards or inwards, or folded over to form any other suitable shape that guarantees an impervious adjustment between the two connected conduits.

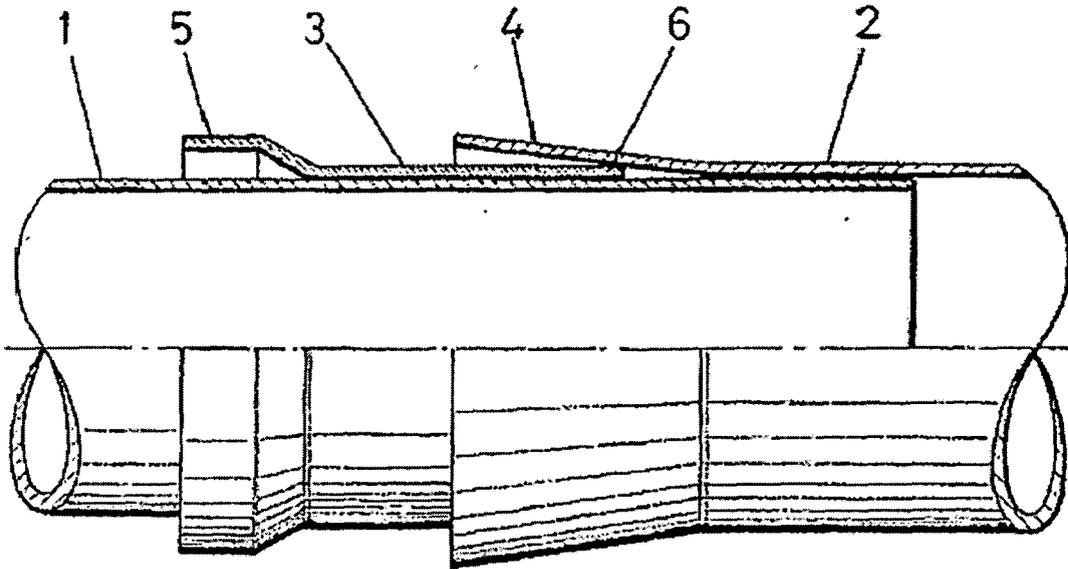


FIG. 1

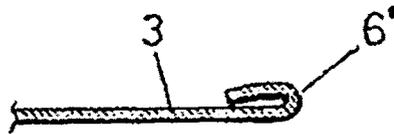
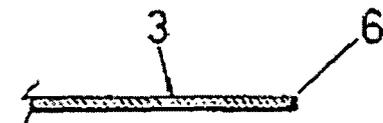
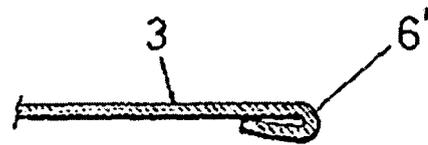


FIG. 2



INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2005/000304

A. CLASSIFICATION OF SUBJECT MATTER IPC ⁷ F16L27/12, F16L25/10, F23J13/04 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC ⁷ F16L, F23J Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CIBEPAT,EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ES 2194612 A1 (DINAK SA) 16.11.2003, title; abstract; figure 1	1-3
Y	WO 9720173 A2 (THOMA NORBERT) 05.06.1997, abstract; page 2, last paragraph; figures 1,2	1-3
A	US 1987372 A (SCHELLHAMMER ALFRED L) 08.01.1935, the whole document.	1
A	EP 0598331 A1 (OSTENDORF KUNSTSTOFFE GMBH & C) 25.05.1994, abstract; figure 1	1
A	FR 2300955 A1 (RAGOT CLAUDE) 10.09.1976, description; figures	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input checked="" type="checkbox"/> See patent family annex.
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search	Date of mailing of the international search report 01 August 05 (01.08.2005)	
Name and mailing address of the ISA/ SPTO	Authorized officer	
Facsimile No.	Telephone No.	

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INTERNATIONAL SEARCH REPORT
Information on patent family members

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