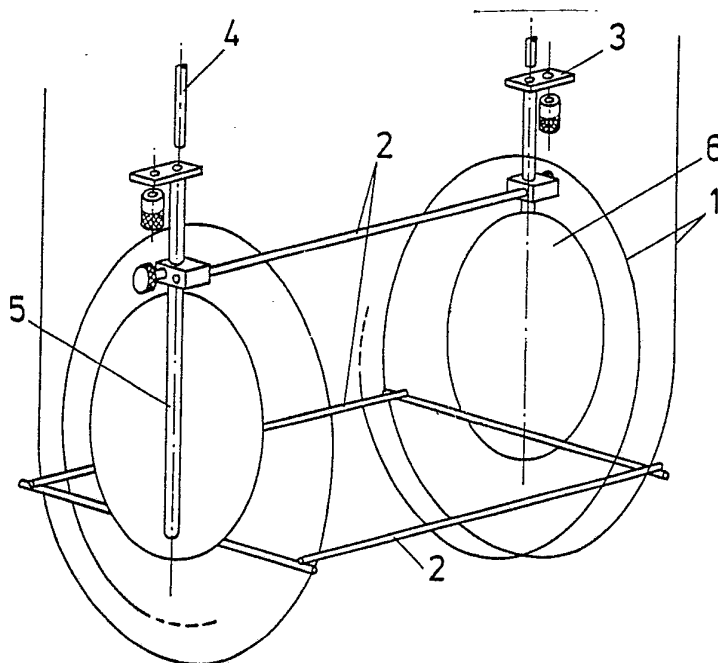




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification<sup>3</sup> : B01D 15/08; G01N 31/08</p>	<p>A1</p>	<p>(11) International Publication Number: WO 82/ 01663 (43) International Publication Date: 27 May 1982 (27.05.82)</p>
<p>(21) International Application Number: PCT/FI81/00081 (22) International Filing Date: 3 November 1981 (03.11.81) (31) Priority Application Number: 803503 (32) Priority Date: 10 November 1980 (10.11.80) (33) Priority Country: FI</p> <p>(71) Applicant (for all designated States except US): ORION-YHTYMÄ OY [FI/FI]; Nilsiäkatu 10-14, SF-00510 Helsinki 51 (FI).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): NORONEN, Aatto [FI/FI]; Ristiaallokonkatu 6 F 80, SF-02320 Espoo 32 (FI). SARESKIVI, Henrik [FI/FI]; Oskelantie 8 C 28, SF-00320 Helsinki 32 (FI). KUMLIN, Klaus [FI/FI]; Kaskilaaksontie 5 A, SF-02360 Espoo 36 (FI).</p>		<p>(74) Agent: BERGGREN OY AB; Kansakoulukuja 3 A, SF-00100 Helsinki 10 (FI).</p> <p>(81) Designated States: DE (European patent), FR (European patent), GB (European patent), JP, NL (European patent), US.</p> <p>Published With international search report.</p>

(54) Title: A FRAME FOR STORING AND ATTACHING A GAS CHROMATOGRAPH COLUMN



## (57) Abstract

A frame for the storing and fastening of a gas chromatograph column, whose body's (2) circumference is adjustable and which is equipped with guide supports (4, 5) to direct and secure the fastening of the frame.

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A frame for storing and attaching a gas chromatograph column

This invention relates to a frame for storing and attaching  
5 a gas chromatograph column.

Uptil now no corresponding frame has been in use. However,  
it has been necessary to bind metal columns, because unbound  
they would unwind and not remain wound. As is well known,  
10 glass columns have also been bound by surrounding the wound  
column with a band, but the significance of the band for  
the purpose mentioned here is quite negligible.

The Swedish patent specification 375 156 describes a device  
15 for holding a capillary column together, in which a single  
metallic spiral wire is twisted in place between each layer  
of the spiral column to achieve a sturdier spiral column.  
However, it is quite difficult to twist the binding spiral  
in place so that it is evenly wound in between each layer of  
20 the column. Furthermore, the arrangement in question hardly  
holds the column securely to the chassis of the chromato-  
graph and it in no way helps or guides the column into  
place during installation.

25 The object of this invention is to provide an improvement in  
the storing of a gas chromatograph column and in attaching  
it onto its place of operation. A further object of the  
invention is to achieve the aforementioned improvment in a  
simple and economic way.

30 According to the present invention there is provided a frame  
the body of which is adjustable so that the wound column can  
be tightened securely onto the body; and that the frame that  
has guide supports that function together with corresponding  
35 parts on the chromatograph chassis to direct the frame and  
at the same time the ends of the column into their operating  
position.



The invention is described more specifically in the following text by referring to the attached drawings, in which

figure 1 illustrates a frame in accordance with the invention as viewed from diagonally in front and

figure 2 illustrates the same frame in operation.

In figure 1 the column is indicated by the number 1. Rods that form the frame are, in turn, indicated by the number 2 and the parts with which the frame is fastened to the gas chromatograph are indicated by the number 3. Bushing-like parts 5 into which the pegs 4 that are fastened to the gas chromatograph are supposed to be shoved, are fastened to the sides of the frame. A guide plate 6, whose purpose is to direct the warming or cooling air along the wound column and not through the column's center, may be furthermore included on the described frame on both ends of the frame. An essential characteristic of a frame according to the invention is that one of the, in this case, three rods 2 that form the frame is movable. The purpose of the movability is to achieve the possibility of tightening the structure so that it is secured that the wound column stays sturdily in place. The mentioned tightening can be of course accomplished using many other, as such, known methods.

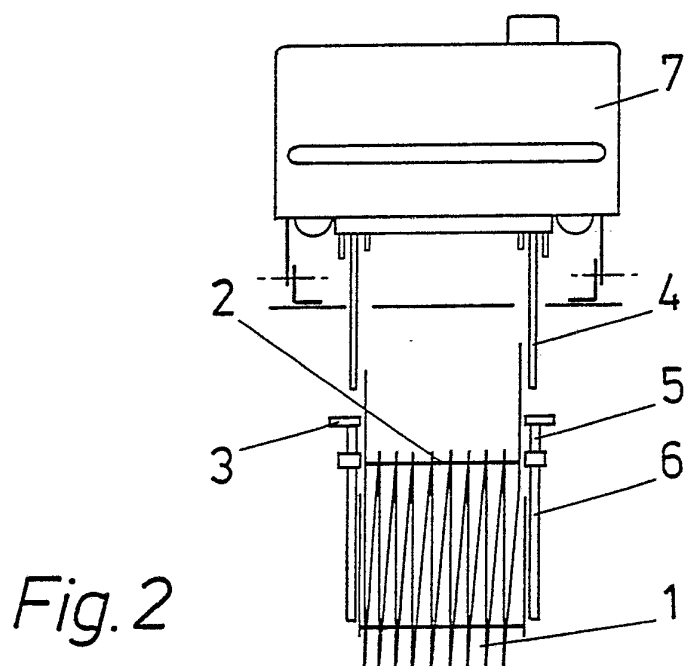
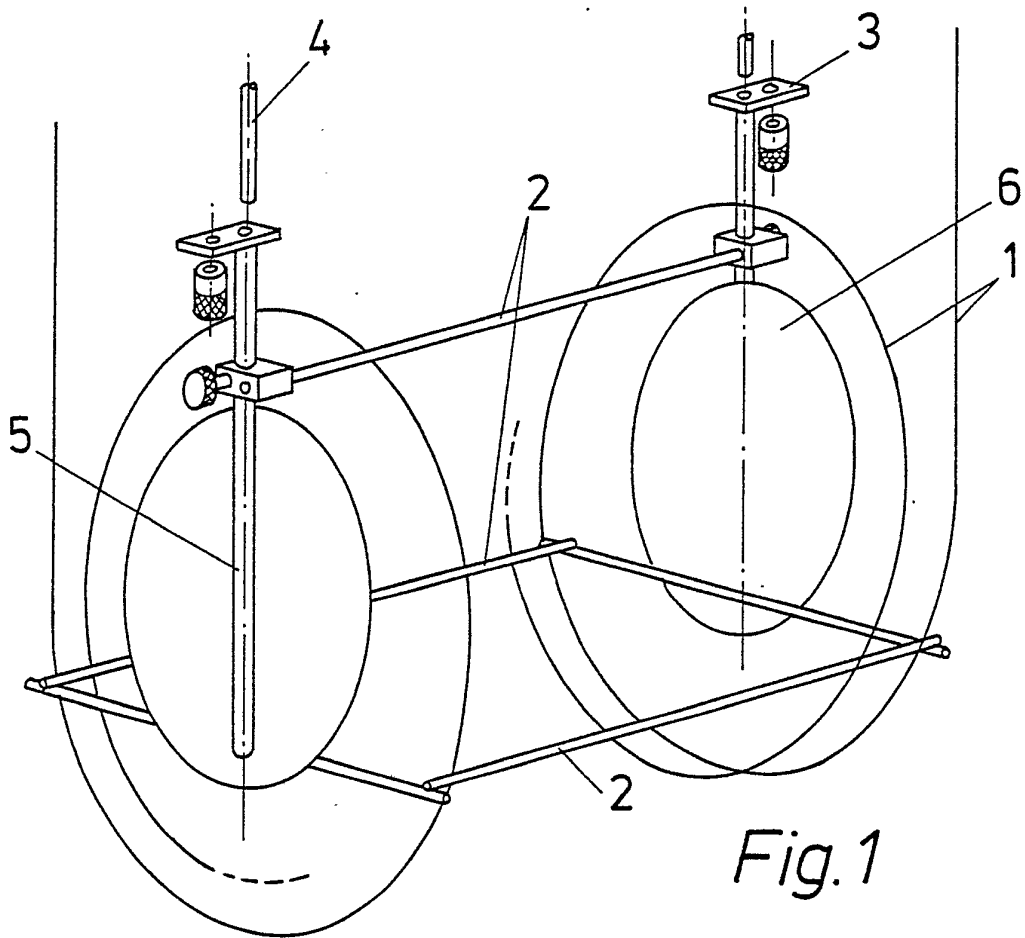
In describing the functioning of a frame according to the invention reference is made to figure 2. The figure illustrates a frame according to the invention in the position it is in just before starting to install it into place. As the figure shows the bushing-like parts 5 and pegs 4 are parallel, so that the bushing-like parts 5 can be pushed directly over the pegs 4. It is advantageous to first push the frame over the pegs 4 only a small distance and then fasten the ends of the column 1 to the seats that are reserved for them and the securance of the frame to the gas chromatograph chassis is achieved after this. The fastening

can be done by any known method, of which fastening with the help of friction or a nut and screw system can be mentioned.

- 5 As the explanation above reveals the mechanician's hands are free to fasten the ends of the column to the chromatograph 7, because the column 1 rests on the frame and the frame in turn rests on the pegs 4. As a result the fastening occurs quickly and safely without danger of breaking the
- 10 column and the column also stays in place since it is supported by the frame, in which case, for example the quick movements of the cover cannot break the column.

What is claimed is:

1. A frame, for the storing and attaching of a gas chromatograph column, the body of which is made of, for example, metal rods or such; characterized in that the  
5 body (2) of which is adjustable so that the wound column (1) can be tightened securely onto the body (2); and that the frame that has guide supports (5) that function together with corresponding parts (4) on the chromatograph chassis to direct the frame and at the same time the ends of the column  
10 into their operating position.
  
2. A frame according to patent claim 1, characterized in that the guide supports consist of bushing-like parts (5) on the frame and pegs (4) that are attached  
15 to the gas chromatograph and are intended to be pushed into the bushing-like parts (5).
  
3. A frame according to patent claim 1, characterized in that it is also equipped with guide plates  
20 (6) to direct the warming/cooling air that is blown toward the wound column (1) to flow along the wound column (1).



# INTERNATIONAL SEARCH REPORT

International Application No PCT/FI81/00081

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>2</sup> According to International Patent Classification (IPC) or to both National Classification and IPC <sup>3</sup> <p style="text-align: center; font-size: 1.2em;">B 01 D 15/08; G 01 N 31/08</p>														
<b>II. FIELDS SEARCHED</b> <p style="text-align: center;">Minimum Documentation Searched <sup>4</sup></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Classification System</th> <th style="width: 80%;">Classification Symbols</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">IPC 3 US C1</td> <td style="padding: 5px;">B 01 D 15/08, G 01 N 31/08 <u>23</u>:230R, 232C, 253R, 254R,E, 255R,E; <u>73</u>:23.1; <u>210</u>:31C, 656-659</td> </tr> </tbody> </table> <p style="text-align: center; font-size: 0.8em;">Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>5</sup></p> <p style="padding: 5px;">SE, NO, DK, FI classes as above</p>			Classification System	Classification Symbols	IPC 3 US C1	B 01 D 15/08, G 01 N 31/08 <u>23</u> :230R, 232C, 253R, 254R,E, 255R,E; <u>73</u> :23.1; <u>210</u> :31C, 656-659								
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