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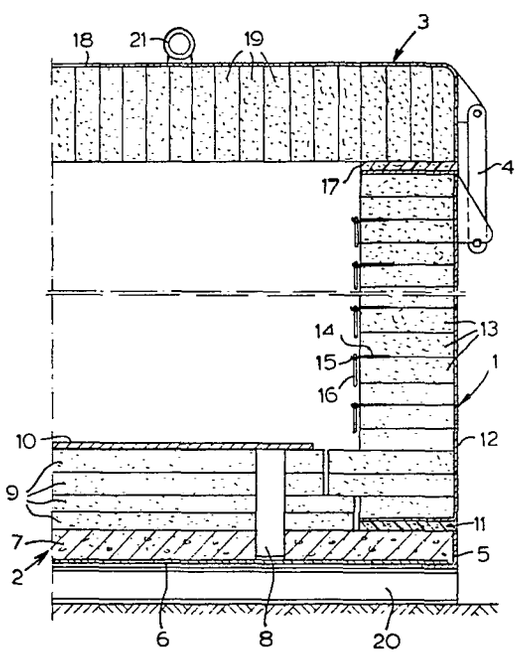
(54) Furnace, especially a ceramic or heating furnace.

(57) The problem that the constructor of an electrically heated felt furnace has to place thousands of little pins (15) for suspending the resistance elements (16) between the felt layer, is overcome by providing strips (14)having a great number of these pins or hooks. One can either put the strip itself or his pins between the felt layers.



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A FURNACE.

The present invention relates to a furnace, particularly a ceramic or heating furnace, consisting of a casing, the jacket and bottom of which are coated with a heat-insulating material and the open top is adapted to be closed with a cap, which is also coated with heat-insulating material, and heating means being provided. Such a furnace is generally known.

A disadvantage of the known furnace is that after the termination of the burning process the cap has to be left open for some time before the, then cooled, products can be taken from the furnace and the furnace can be loaded again, so that there is a loss in time and heat.

It is the object of the present invention to provide a furnace of the above mentioned type, which does not have said disadvantage.

This object is achieved in that in the furnace according to the invention the bottom of the casing is formed by a bottom plate construction on which the jacket of the casing rests removably, and the cap is secured to the jacket by means of disengageable connection means.

In this way it is possible after the termination of the burning process to lift the jacket with closed cap from the bottom plate

and to place it on another bottom plate, after which a next burning process can be started immediately, whereas the product on the first bottom plate can cool. If, however, the products as achieved do not permit such a rather unequal cooling, then it is possible first to remove the cap and to leave the furnace open for some time, before placing the jacket with cap on another bottom plate.

The bottom plate construction does advantageously comprise a lower layer of concrete or a similar material on which, while leaving the outer portions of the top surface uncovered, the insulating material is provided, whereas the lower side of the jacket of the casing rests on said outer portions under intermediary of a layer of sealing insulating material, whereby the heat insulating material with which the bottom plate is coated, is connected by means of a scalariform joint to the heat-insulating material with which the jacket is coated.

The heat-insulating material is preferably formed by layers of a felt material. In this way the jacket and cap have a considerably small weight relative to the known furnace which is coated with ceramic material, so that said portions can be lifted easily.

When using felt material for the heat-insulating material of the bottom plate construction uprights are secured in the layer of concrete, which uprights extend through the felt layers, as provided on the layer of concrete, and carry at their tops a load-supporting plate of ceramic material.

When using electric resistance elements to heat the furnace the walls of the jacket are coated with a pile of horizontally deposed layers of the felt material, whereas at certain places between two of said layers a strip of ceramic material is clamped, which is

provided with pins from which the electric resistance elements are suspended.

Because of what is mentioned above it is no longer necessary for a constructor of furnaces to provide numerous little pins separately. Furthermore there is practically no contact between the elements and the furnace wall, so that there is no direct heat-flow to said wall, so that the furnace is more economic and it is possible to let the burning process take place up to a higher temperature.

The above mentioned strips can be formed according to two mutually different embodiments. The first embodiment is characterized by the feature that the pins consist of inwardly, freely protruding hooks.

It is also possible, however, that the pins of the strip are provided between two layers of heat-insulating material, and that the pins are provided with a protrusion to keep the resistance elements spaced from the layers. The pins may have a lens-shape when considered in cross-section and, starting at the protrusion, they may have a T-shaped cross-section. Thereby the lowest possible heat transfer by conduction is achieved.

When using burners to heat the furnace said burners may advantageously be provided in the cap. Thus after termination of the burning process the cap with the valuable burners and pertaining protection means can be placed on another jacket which is already loaded. In this way the valuable apparatus can be used continuously and the furnace is not useless during the cooling period. If the burnt or heated products do not permit the furnace to be suddenly and completely opened, then a simple intermediate cap may be provided which remains on the furnace when the main cap and the burners are removed.

It is also possible that the burners and protection means are mounted on a displaceable frame and to remove only this frame and to place it on a successive furnace if a quick cooling action is not desired.

It is remarked that a so-called bell-furnace is known which is composed of a bell-shaped section which rests on a bottom and can be lifted as a whole from said bottom. In this type of furnace the load cannot cool equally after being burnt.

The invention is further described on the basis of the drawing, in which

fig. 1 is a cross-section through a part of the furnace according to the invention;

fig. 2 is a perspective view, in which the way of securing the electric resistance elements is shown;

fig. 3 is a plane view of a second embodiment of a strip, and

fig. 4 is a cross-section according to the line IV-IV of fig. 3.

As shown in fig. 1 the furnace comprises a jacket 1, which rests disengageable on a bottom plate construction 2, whereas the jacket is closed at its top by means of a cap 3 which is removably secured on the jacket by means of latches 4.

The bottom plate construction 2 comprises a frame which is formed by angle-irons 5 in which the steel plate 6 is placed. On the plate 6 a layer of concrete 7 is provided, in which the uprights 8 are received. On the plate of concrete 7 layers 9 of felt material are provided, whereas on the uprights 8 a plate 10 rests,

are formed by burners, characterized in that the burners are provided in the cap.

12. A furnace according to claim 11, characterized in that the burners are mounted on a removable frame.

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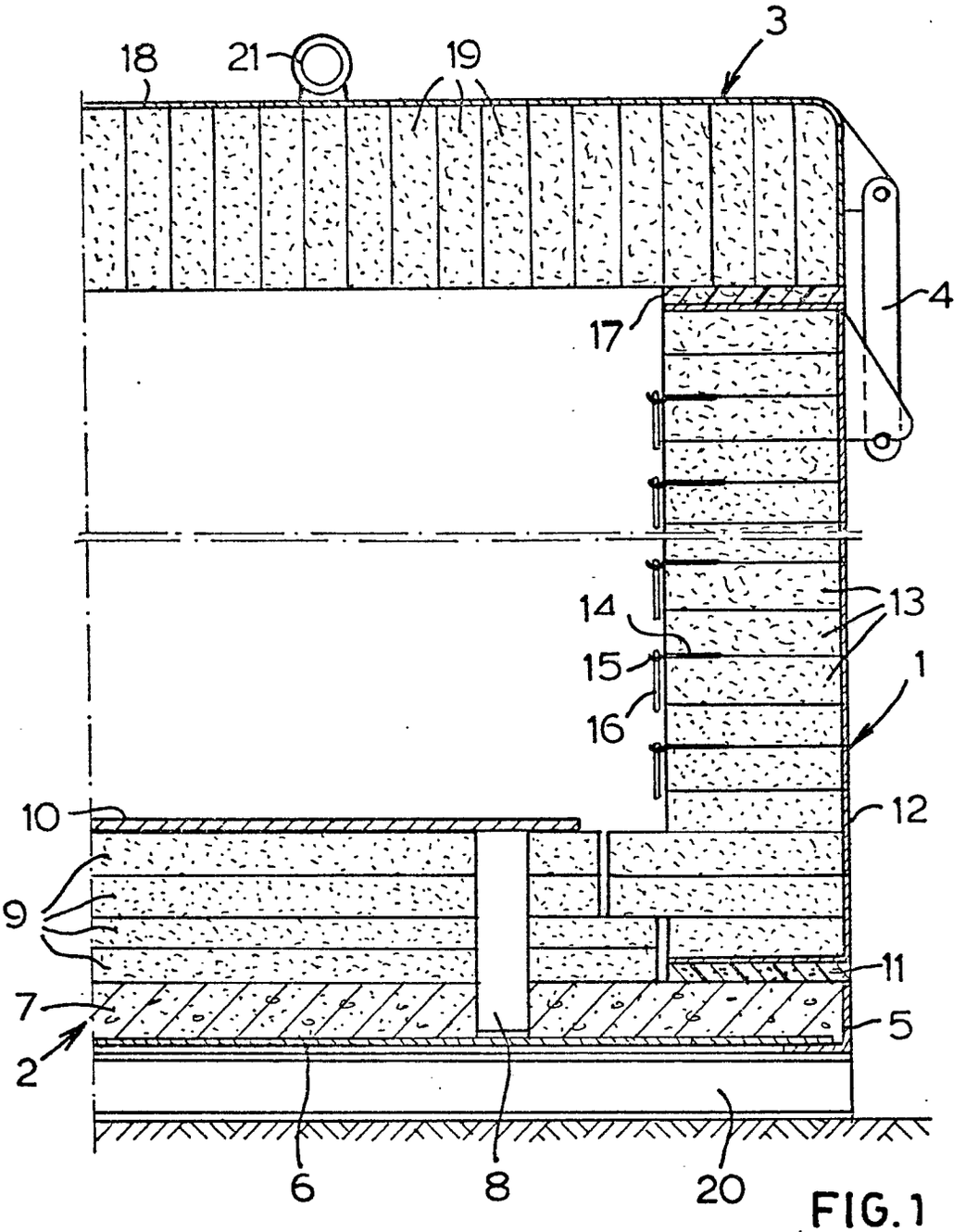

FIG. 1

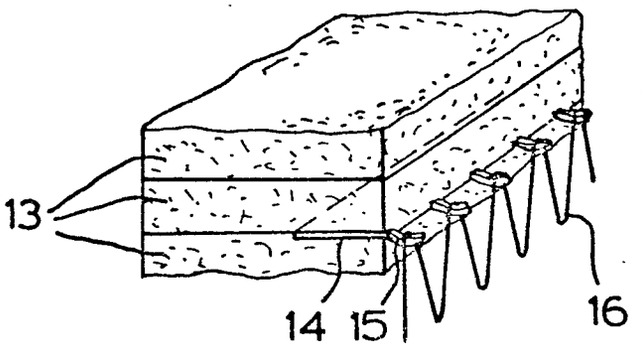

FIG. 2

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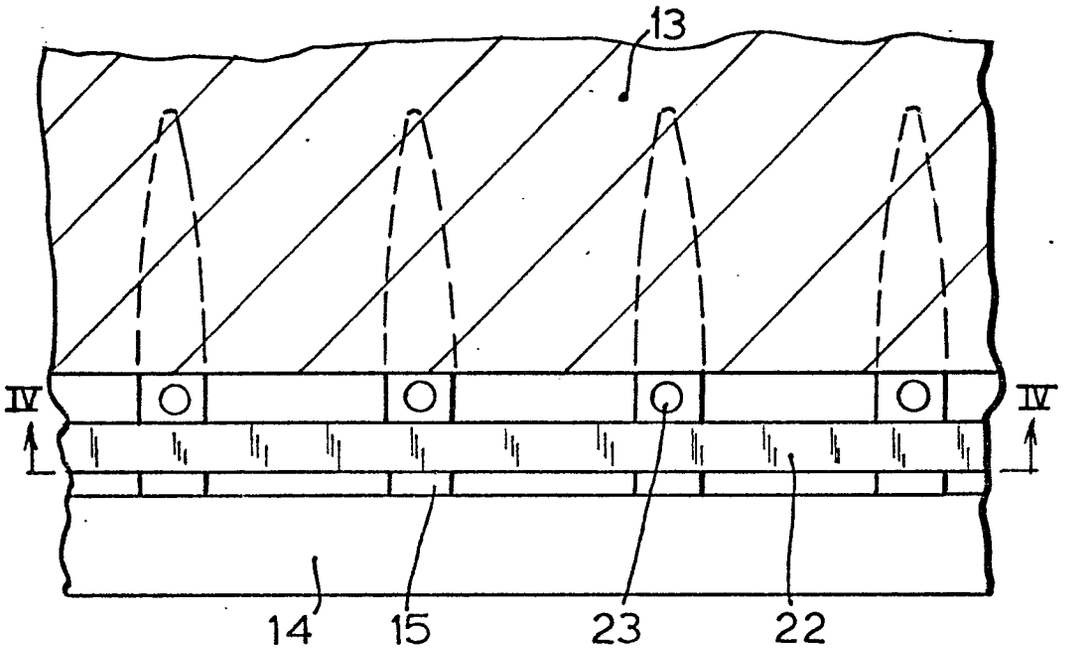

FIG. 3

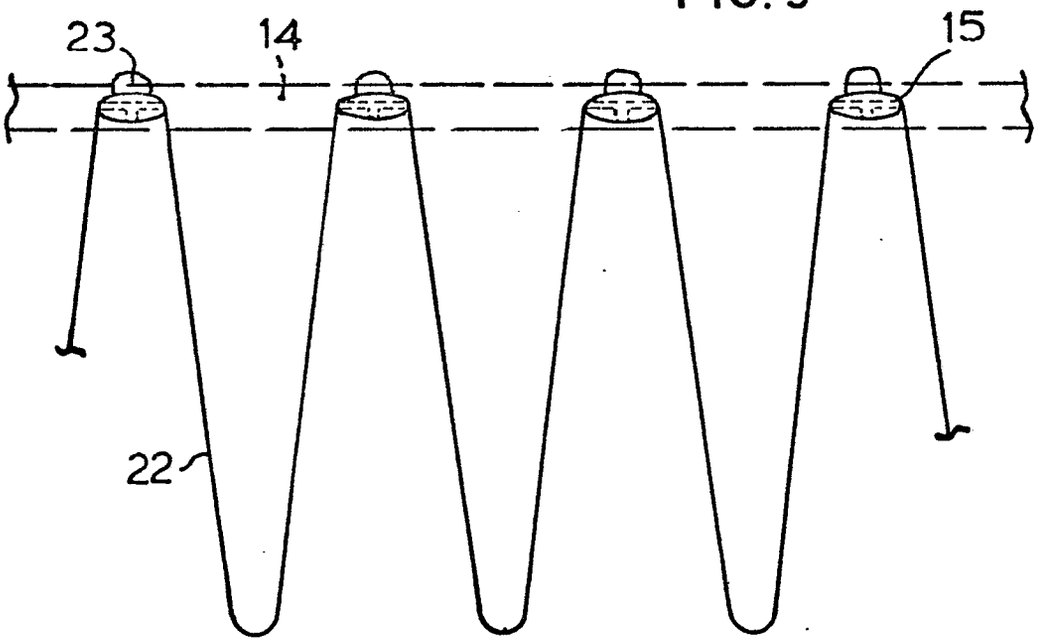

FIG. 4

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EUROPEAN SEARCH REPORT

0032775
Application number
EP 81 20 0061

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	GB - A - 590 358 (FALLON) * Claims 1-3; figures * --	1
	GB - A - 819 982 (HEURTEY & CIE) * Claims 1-3 * --	1
	GB - A - 2 001 155 (GRANGES WEDA AB) * Claims 1-10 * --	3
	US - A - 3 990 203 (JAMES R. GREAVES) * Claim 1; figure 1 * --	4
	US - A - 4 088 825 (VICTOR H. CARR) * Claim 1; figure 1 * -----	5

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

F 27 B 11/00
F 27 D 1/00

TECHNICAL FIELDS SEARCHED (Int. Cl.³)

F 27 B
F 27 D
C 21 D

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	17-02-1981	COULOMB

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