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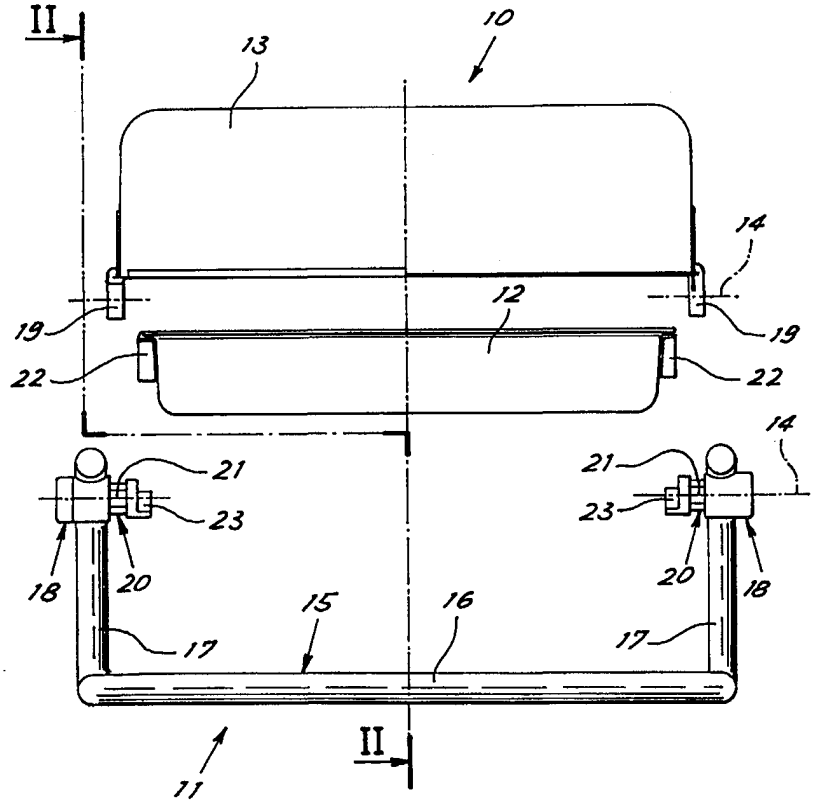
(54) Title: FOOD WARMER WITH IMPROVED STRUCTURE

(57) Abstract

A food warmer comprises a supporting frame (11), a tank (12) and a closing cover (13) rotating around a horizontal axis (14). The supporting frame comprises a tubular element (15) formed to identify ground support lengths (16, 16', 25) and lengths (17) to which are constrained two opposing elements (18) for hinging of the cover along the above–mentioned horizontal axis (14). The tank is also supported on the pair of hinging elements (18).



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"Food warmer with improved structure"

The present invention relates to a food warmer of the type comprising a double-boiler heating tank and a turning opening cover.

In the prior art this type of food warmer comprises a relatively complex frame made up of supporting legs interconnected by lower or base cross pieces and upper cross pieces to give the frame the necessary stiffness to support the relatively heavy tank in a removable manner and permit rotation of the cover without deformation. The upper cross pieces generally consist in all or in part of a horizontal ring in which the tank is inserted and supported.

These known structures are relatively costly and heavy and are often readily deformable by blows. In addition they are not beautiful.

The general purpose of the present invention is to obviate the above mentioned shortcomings by making available a food warmer with a simple and light but very strong structure and designed to avoid the use of strengthening cross pieces and permitting in particular the elimination of the upper tank-supporting ring.

In view of this purpose it was sought to provide in accordance with the present invention a food warmer comprising a supporting frame, a tank and a closing cover rotating around a horizontal axis and characterized in that the supporting frame comprises a tubular element

formed to identify ground supporting lengths and lengths to which are constrained two opposing hinging elements for the cover along the horizontal axis with the tank being supported on the pair of hinging elements.

To clarify the explanation of the innovative principles of the present invention and its advantages compared with the prior art there are described below with the aid of the annexed drawings possible embodiments thereof by way of non-limiting example applying said principles. In the drawings:

- Fig. 1 shows an exploded front view of a food warmer in accordance with the present invention,
- Fig. 2 shows a partial cross section view along plane of cut II-II of Fig. 1, and
- Figures 3 to 9 show side views of possible alternative embodiments in accordance with the present invention.

With reference to the drawings, Fig. 1 shows a food warmer indicated generally by reference number 10 and comprising a supporting frame 11, a double-boiler heating tank 12 and a closing cover 13 rotating around a horizontal axis 14. As may be seen in broken lines in Fig. 2 the tank can support a heater 24.

The supporting frame comprises a tubular element 15 formed to identify ground support lengths 16 and lengths 17 to which are constrained two opposing hinging elements 18 for the cover 13 along the horizontal axis 14.

The hinging elements 18 are designed to project towards each other from the frame and their facing ends support

constraint means for the tank 12. The cover is thus hinged on the hinging elements between each of the facing ends and the tubular frame.

In particular the cover comprises on opposite sides overturned forks 19 for rotatable engagement around said axis in corresponding grooved seats 20 present in the hinging elements. As may be well seen in Fig. 2, to avoid detachment of the cover during rotation the forks 19 have a mouth of a width less than the inside diameter of the fork with the interior being circular. The corresponding seat in the pivot element is provided with a cylindrical bottom and with diameter slightly less than the inside diameter of the fork but with opposing flats 21 parallel along two vertical planes separated by a distance slightly less than the width of the fork opening. The forks can thus engage with and disengage from the seats when the cover is rotated into the closed position shown in the drawings, while in the other positions it is not possible to withdraw the forks from the seats 20.

Advantageously, to anchor the tank to the frame in a removable manner the tank comprises on opposite sides overturned forks 22 for non-rotatable engagement in corresponding shaped seats provided on the facing ends of the hinging elements so as to provide the above mentioned constraint means. The tank thus comprises the supports for its engagement with the frame instead of being inserted in a supporting ring.

Since the frame extends vertically only at the sides of

the tank and the cover, removal of the tank and rotation of the cover are facilitated.

With the frame formed with a tubular element bent to provide both ground support and side supporting arms for the facing hinging elements arranged in an offset manner high stiffness and stability of the entire structure are obtained without the need of upper cross pieces between the hingings and thus permitting support of the tank only at its ends.

The food warmer in accordance with the present invention is simple, less costly and lighter with respect to those of the prior art. In addition there is greater freedom of choice in the overall appearance.

The exact form of the tubular element can be changed in accordance with specific desires. For example the frame of Figures 1 and 2 has the support lengths formed in a central section shaped like the horizontal letter U of the tubular element while the lengths to which are constrained the hinging elements are near two ends of the tubular element. The side sections are inclined to center the tank and cover over the supporting U. This form can be changed as is clear from Figures 3 to 9 where possible alternative embodiments are shown.

For example the embodiments of Figures 3 to 5 differ by different inclinations and bends of the side support arms. The embodiments of Figures 6 to 8 have the ground supports provided by a central rectilinear length 16' and by the free ends 25 of the tubular element. While in the

embodiments 6 and 7 the hinging elements extend virtually along the hinging axis, in the embodiments of Figures 8 and 9 these elements comprise plates 26, 27 for fixing to the tubular element. The embodiment of Fig. 9 also has ground support parts bent in opposite directions.

From Fig. 3 it is also clear that in all the embodiments the rotation of the cover is free of obstructions while keeping the frame dimensions reduced to the minimum so as to have a very compact food warmer.

Naturally the above description of an embodiment applying the innovative principles of the present invention is given merely by way of example and therefore is not to be taken as a limitation of the patent right claimed here. For example the tank can have any plan and need not be rectangular.

CLAIMS

1. Food warmer comprising a supporting frame (11), a tank (12) and a closing cover (13) rotating around a horizontal axis (14) characterized in that the supporting frame comprises a tubular element (15) formed to identify ground support lengths (16,16',25) and lengths (17) to which are constrained two opposing elements (18) for hinging of the cover along the above mentioned horizontal axis (14) with the tank also being supported on the pair of hinging elements (18).

2. Food warmer in accordance with claim 1 and characterized in that the supporting lengths are formed at least in a central length (16,16') of the tubular element and the lengths to which are constrained the hinging elements (18) are between said central length and two ends of the tubular element .

3. Food warmer in accordance with claim 1 and characterized in that said central length is shaped virtually like a horizontal letter U.

4. Food warmer in accordance with claim 1 and characterized in that the hinging elements (18) are designed to project from the frame towards each other with the facing ends supporting tank constraint means (23,22) and the cover (13) being hinged on the hinging elements between each of said facing ends and the frame.

5. Food warmer in accordance with claim 4 and characterized in that the tank (12) comprises on opposite

sides overturned forks (22) for removable engagement in corresponding seats (23) on said facing ends of the hinging elements to provide said constraint means.

6. Food warmer in accordance with claim 4 and characterized in that the cover (13) comprises on opposite sides overturned forks (19) for rotatable engagement around said axis in corresponding seats (20) in the hinging elements.

Tav. I

Fig. 1

Fig. 2

Tav. II

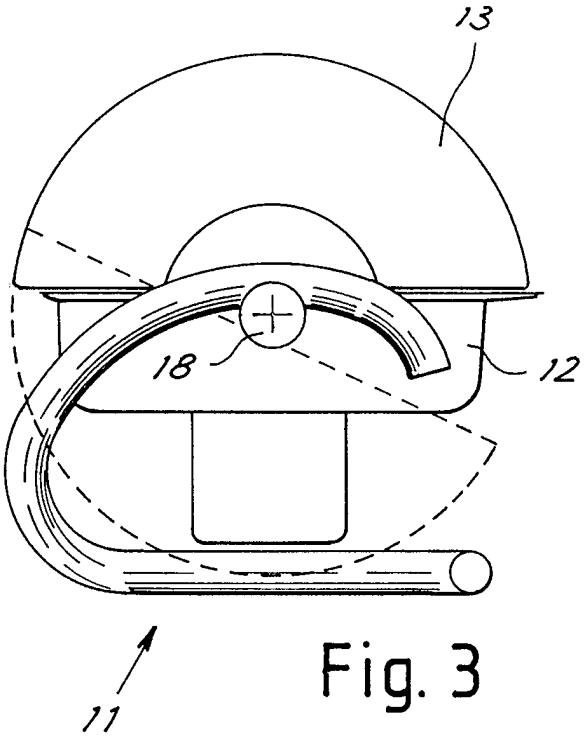

Fig. 3

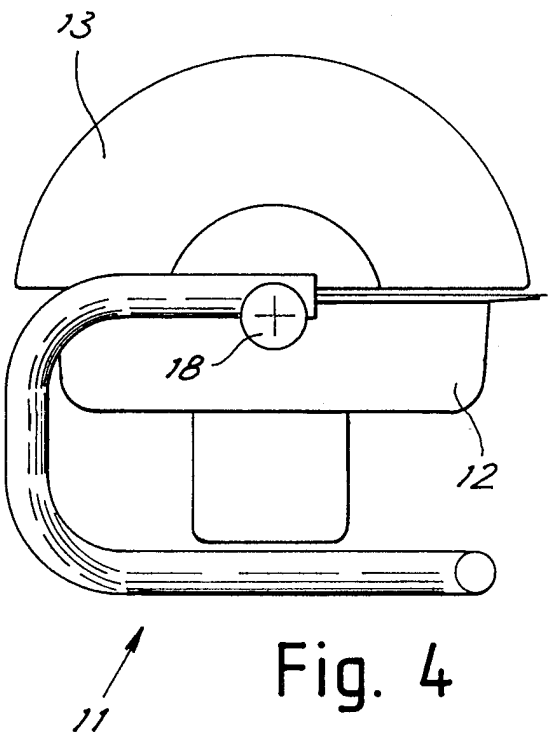

Fig. 4

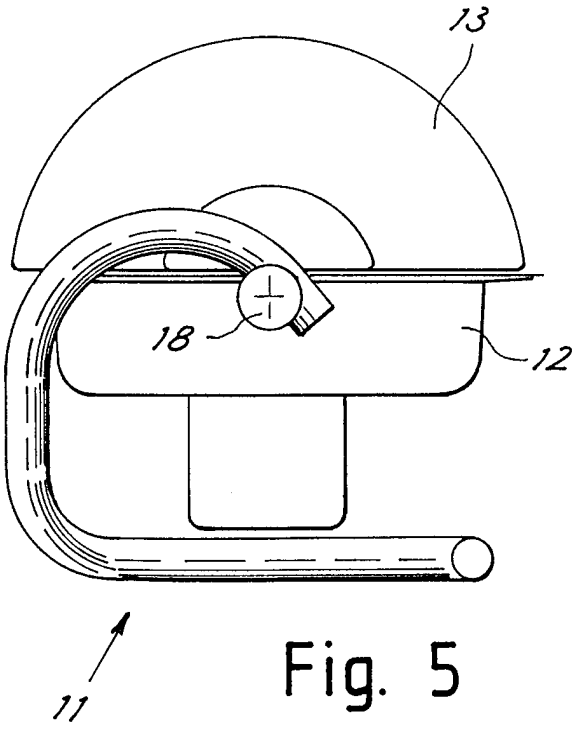

Fig. 5

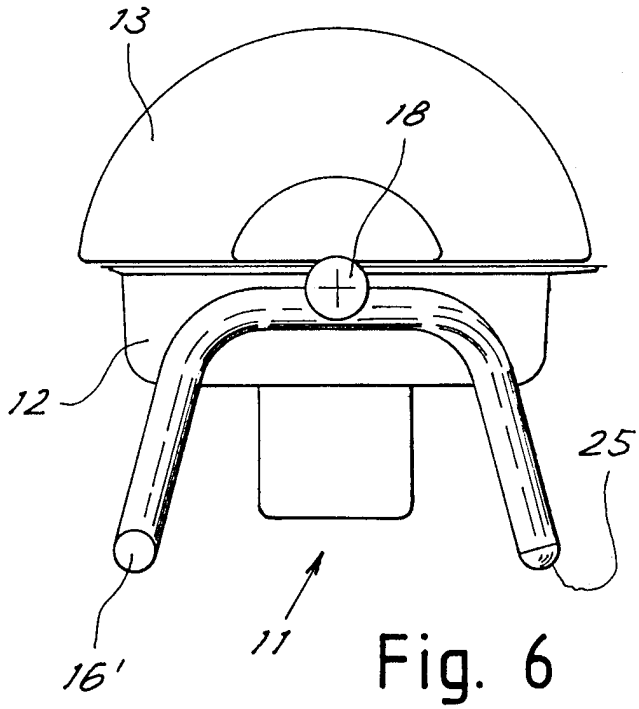

Fig. 6

Tav. III

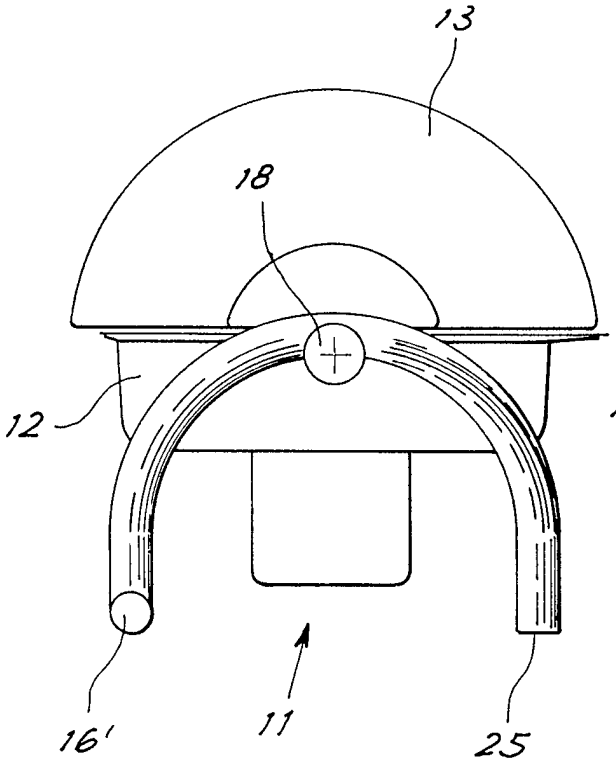

Fig. 7

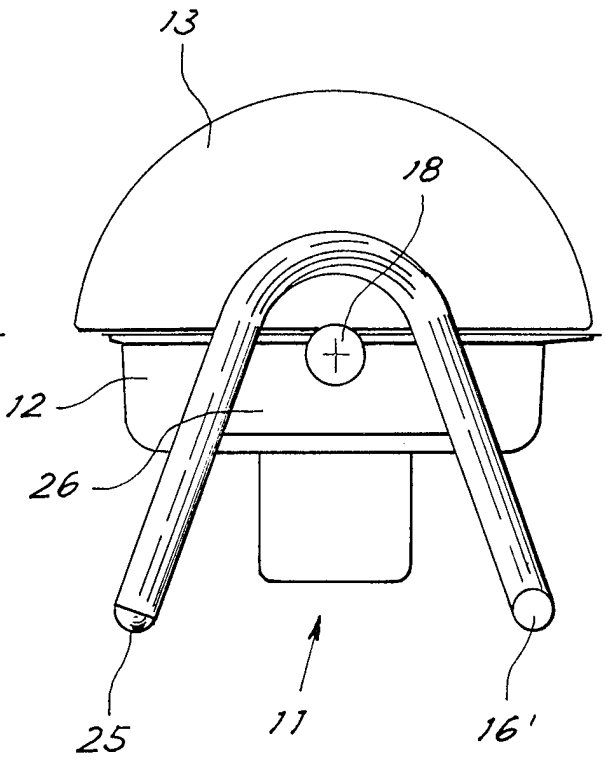

Fig. 8

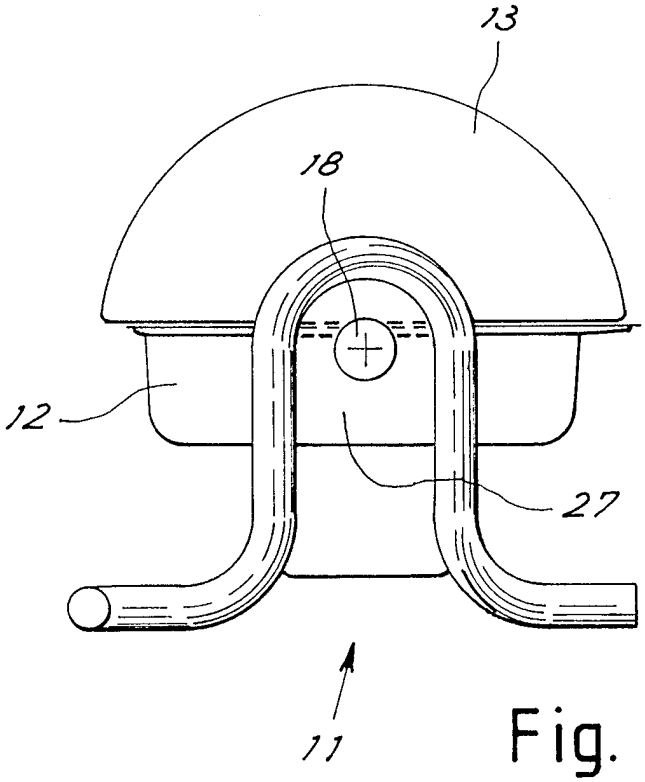

Fig. 9

INTERNATIONAL SEARCH REPORT

Inte .ional Application No
PCT/EP 97/05580

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A47J36/24

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 6 A47J

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 94 23629 A (SPRING AG METALLWARENFABRIK ESCHLIKON) 27 October 1994 see page 3, line 15 - page 5, line 23; figures 1-5	1,4,6
A	US 4 320 849 A (B. YELLIN) 23 March 1982 see column 2, line 5 - line 48; figures 1,4-8,11	1,2,4-6
A	US 2 832 331 A (G. SCHWANK, W. FRANKEN) 29 April 1958 see column 2, line 32 - line 47; figures 1,2,4,8	1-3
P,A	EP 0 737 436 A (TABLE TOP ENGINEERING & DESIGN SRL) 16 October 1996 see abstract; figures 1-4	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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29 January 1998	05/02/1998

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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