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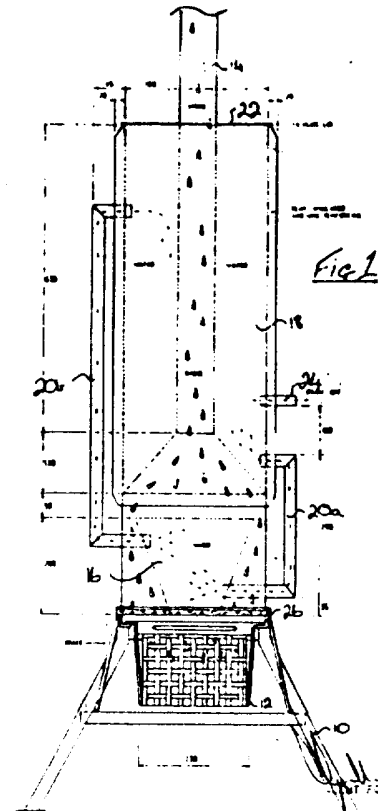
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(54) Title: COMBINED COOKER AND WATER HEATER

(57) Abstract:

The invention relates to a combined cooker and water heater which is intended to be easily transportable and which can make use of solid combustible materials, more particularly low grade coal, to provide cooking and water heating to poorer rural people in the third world.

The invention provides a combustion area located beneath a water heating and storage tank and a cooking grate which can be brought into contact with the combustion area when required.



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(56) Documents cited:

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US 1 283 265

DE-PS 446 984
DE-PS 549 626

GB 2 151 771
GB 999 942

COMBINED COOKER AND WATER HEATER

This invention relates to both cooking and water heating and sets out to provide apparatus to achieve both aims.

In the context of third world countries, there is a need in many countries to break away from the traditional methods of cooking and water heating by using scarce wood reserves. Many countries which once had abundant wood reserves are on the verge of desertification through mans basic need for fire to provide for cooking, lighting and heating.

Many countries in the third world however enjoy abundant reserves of coal of varying grades and it is the aim of this invention to provide an apparatus which is primarily intended to utilize coal for cooking and heating of water, thus creating a welcome departure from traditional use of wood.

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Therefore, according to the invention there is provided apparatus for combustion including in working combination a free standing framework adapted to suspend a fire basket, said fire basket being movable between at least two positions so that in a first position, it is located generally below a smoke extracting chimney which incorporates a first water heating tank, such that heat rising together with the smoke will impinge upon the water tank thus effecting a heat transfer to the water within the tank, said first tank including interconnecting piping to connect it to a second insulated storage tank located about the extended chimney, the second tank further including water inlet and outlet means; a removable cooking surface adapted to be brought into relationship with the fire basket when the latter is moved into its second position.

Further according to the invention, the apparatus may optionally include means adapted to fully enclose the combustion area together with apparatus to regulate the volume of air entering the combustion chamber thus rendering the apparatus safe for use indoors.

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In order that the nature of the invention may be more fully understood, one preferred embodiment will now be described by way of example with reference to the accompanying drawings in which:-

Fig. 1 shows a front partly sectioned elevation; and Fig. 2 a side elevation of a combustion apparatus in accordance with the invention.

In the ensuing description, like reference numerals will refer to the same parts throughout and the description is not to be construed in a manner likely to limit in any way the inventive concept.

Referring firstly to Fig. 1, reference numeral 10 indicates a free standing framework which is adapted to suspend a fire basket 12. In the view shown, the fire basket 12 is in a first position beneath a smoke extracting chimney 14 which includes a first water tank 16 positioned directly above the fire box 12. In this way, the heat and smoke generated by a fire impinges directly on water tank 16 causing rapid transfer of heat to the water within the tank.

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A second insulated water storage tank 18 is located around the extended chimney 14 and once again, a certain amount of heat is transferred from the chimney 14 to the water within tank 18, thus keeping the contents heated. Tank 18 is connected to tank 16 by means of two pipes 20a and 20b. Water upon gaining heat in tank 16 will rise up pipe 20b and pass into tank 18. As the water cools in tank 18 it will eventually pass back to tank 16 via pipe 20a, thus creating a convection flow between the two tanks.

Tank 18 may be filled easily by lifting lid 22 and introducing water. In more sophisticated versions, the incorporation of a ball valve would allow automatic filling as water is drawn off. Water may be removed from the tank via a tap or other arrangement at outlet 24.

Referring now to Fig. 2 of the drawings, the fire basket 12 can be seen extracted from the frame 10. In normal practice, the basket would merely be drawn out sufficiently to position it below a cooking grid 26 which is hinged about axis 28 and which would allow the user to move the grid 26 out of the way when not required for cooking.

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An underside sealing plate 30 can optionally be provided together with an air regulating vent 32 so as to enclose the combustion area in a more conventional arrangement which would ensure more thermal efficiency and safer operation in poorly ventilated areas, where heating is intended as opposed to cooking.

It will be apparent to persons skilled in this field of the art that the combustion apparatus herein shown is extremely simple and robust. Its free standing design makes it extremely useful to rural people and, whilst it is intended that the apparatus should be fired using coal, it is possible to utilize practically any solid combustible material.

It is believed that the invention constitutes an improvement in the state of the art which will be readily apparent to persons skilled in the field.

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CLAIMS

1. Apparatus for combustion which includes in working combination, a free standing framework adapted to suspend a fire basket, characterised in that the fire basket is movable between at least two positions so that in a first position, it is located generally below a smoke extracting chimney which is located about a first water tank adapted to optimise heat transfer to the water within the tank, said first tank including means interconnecting it to a second preferably insulated water storage tank located about the extended chimney, said second water storage tank including separate means for water inlet and outlet.

2. Apparatus for combustion as claimed in Claim 1. including a removable cooking surface adapted to be brought into relationship with the fire basket when the latter is moved into a second position.

3. Apparatus for combustion as claimed in Claim 2. where the removable cooking surface comprises a hinged grating which may be conveniently folded out of the way when not required.

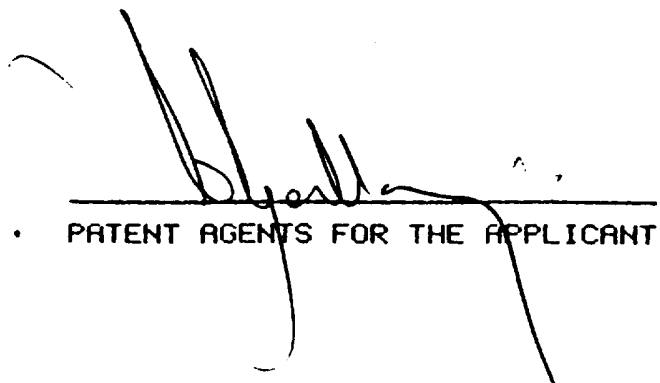
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4. Apparatus for combustion substantially as claimed in Claim 1. further characterised by the enclosure of the combustion area and the provision of suitable means to regulate the volume of air entering the combustion zone.

~~5. Apparatus for combustion substantially as herein described and as illustrated in the accompanying drawings.~~

16/10/89

DATED this 16TH day of OCTOBER 1989.


PATENT AGENTS FOR THE APPLICANT

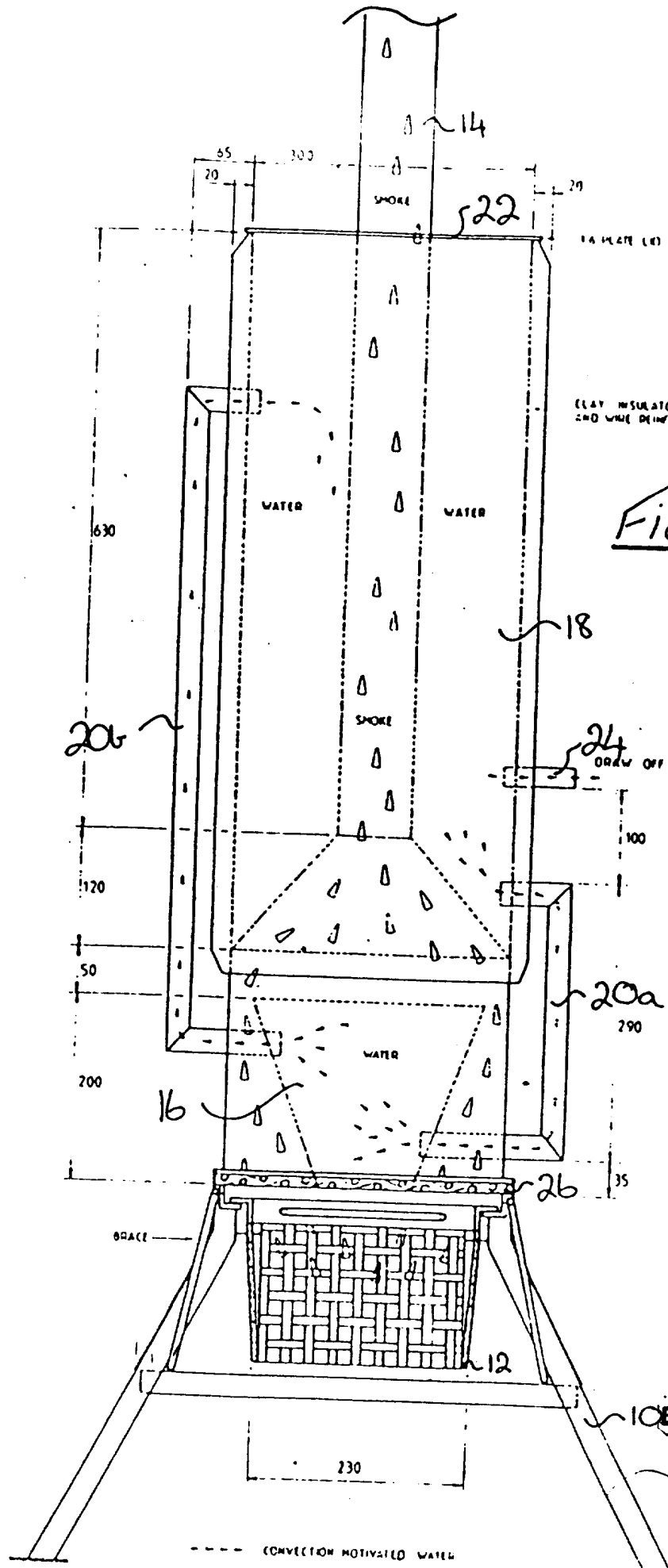
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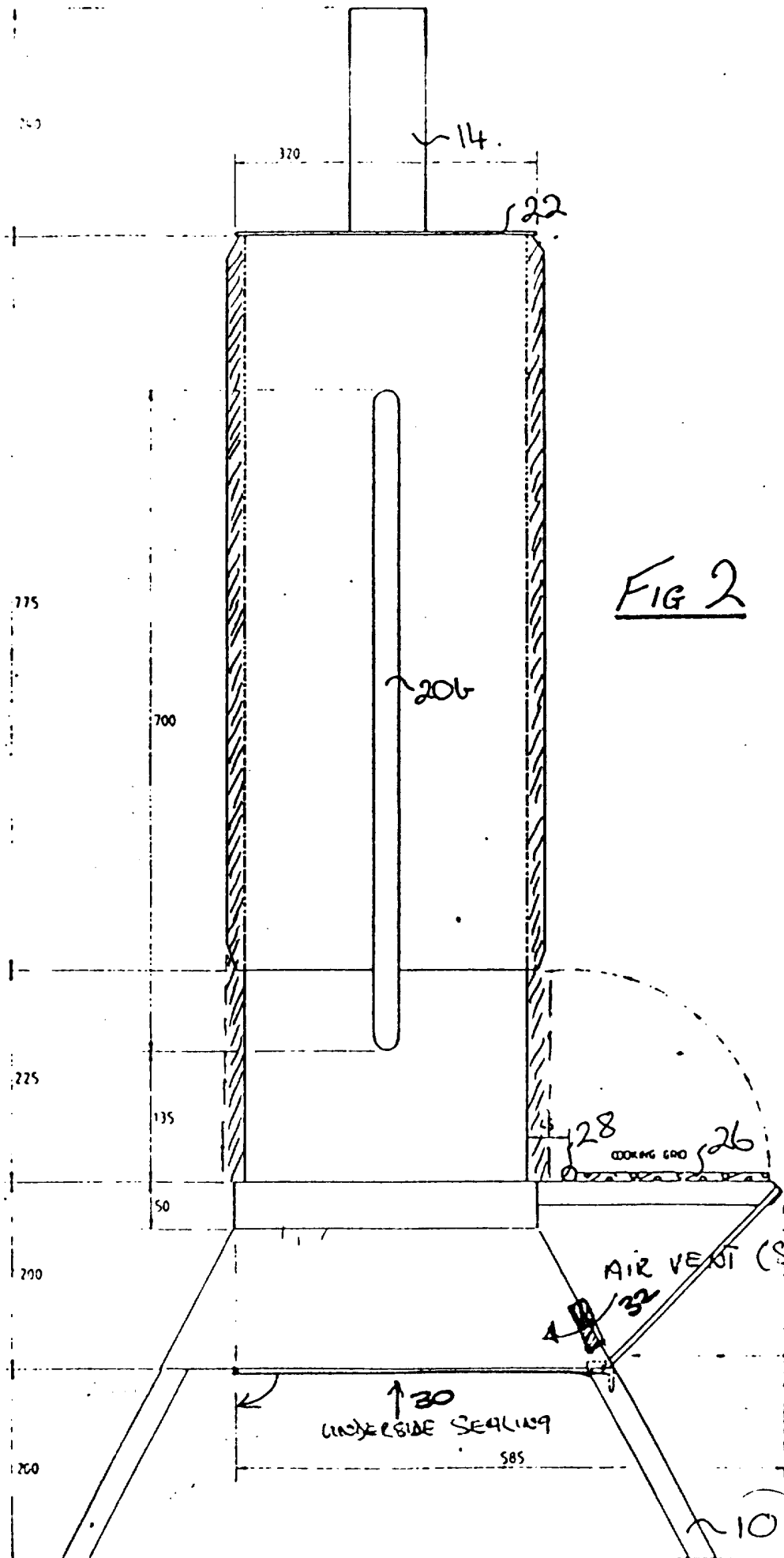
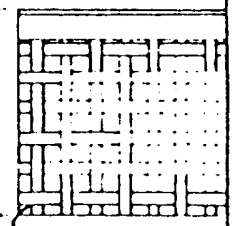


FIG 2

SLIDING FIRE BASKET



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