



(19)

Europäisches Patentamt
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(11)

EP 0 719 986 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
08.03.2000 Bulletin 2000/10

(51) Int Cl.7: **F24C 15/08, F24C 3/14**

(21) Application number: **95120703.4**

(22) Date of filing: **29.12.1995**

(54) **Adjustable bottom tray designed for the cylinder compartment of space heaters burning gaseous fuels**

Größenveränderliche Bodenplatte für Gaszylinder von Gasheizungen

Plateau de fond ajustable pour bonbonne de gaz d'un appareil de chauffage fonctionnant à gaz

(84) Designated Contracting States:
BE DE FR GB GR

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(30) Priority: **30.12.1994 TR 138694**

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(43) Date of publication of application:
03.07.1996 Bulletin 1996/27

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DescriptionField of the Invention

[0001] The invention relates to an adjustable bottom tray, designed for the cylinder compartment of space heaters burning gaseous fuels, having a base section of the gas cylinder compartment incorporated in said heater.

[0002] Such an adjustable bottom tray is known from FR-A-1412499 in which the volume of the heater in packed condition is reduced by folding the whole bottom tray on to the front section of the heater.

[0003] In flueless LPG space heaters, the cylinder compartment is so designed as to accommodate cylinders of a maximum gas capacity of 26,2 liters for Turkey and of a size that will be determined according to the standards and requirements of countries in which the appliance is to be sold.

[0004] It is an object of the invention to provide an adjustable bottom tray designed for the cylinder compartment of space heaters burning gaseous fuels, having a base section of the gas cylinder compartment incorporated in said heater, wherein the volume of the heater in the packed condition can be reduced and the size increased for housing the gas cylinder before usage so that the heater is kept balanced in the packed condition.

[0005] In order to solve this object the adjustable bottom tray according to the invention is characterized by an articulation provided between at least two parts of said tray, one of which is a back part movable with respect to the other part and developed for the purpose of reducing the volume of the heater in the packed condition and deployed to increase the size for housing the gas cylinder before usage, the articulation is of the hinge or the pin type and further stabilisation means are provided beneath the other part for keeping the heater balanced.

[0006] Further advantages embodiments are stated in the sub claims.

[0007] The invention will provide cost savings in packaging, storage and transportation by reducing the sizes of the appliance, still complying with the requirements of the related standards of the countries in which the appliance is to be used.

[0008] The dimensions of the compartment will permit the easy introduction and removal of the cylinder for both situations. The bottom tray must have sufficient mechanical strength to resist deformation under the load of a full cylinder and have a proper shape to position the cylinder vertically.

[0009] The system according to the invention plays a significant role in conservation of environment by reducing the use of plastic based packaging materials that should be used for the delivery of the appliance to the user. From the same point to view, lessening of the dimensions of packaging will decrease the needs of transportation and thus providing less consumption of fuels

for transportation vehicles, and thus making a contribution to conservation of environment.

[0010] The invention will now be described in more detail with respect to the accompanying drawings in which it is shown:

5 FIG 1 an example of the bottom tray in which the back part 1 is to be folded on the front part 2 showing in

10 Fig. 1a) the usage position in which the bottom tray is retracted. The back part 1 of the bottom tray is movable and the front part 2 of the bottom tray is stationary;

15 Fig. 1b) the packaging position in which the bottom tray is folded. Reference numeral 3 depicts a support of wood, styropor, etc;

20 Fig. 1c) the packaging position wherein the bottom tray is folded. Reference numeral 4 depicts a snap on castor.

25 FIG. 2 an example of the bottom tray in which the back part 1 is to be folded under the front part 2 showing in

30 Fig. 2a) the usage position in which the bottom tray is retracted. The back part 1 of the bottom tray is movable and the front part 2 of the bottom tray is stationary;

35 Fig. 2b) the packaging position in which the bottom tray is folded. A support 3 consisting of wood, styropor, etc. is provided;

40 Fig. 2c) the packaging position in which the bottom is folded. Reference numeral 4 depicts a snap on castor.

45 FIG 3 an example of the bottom tray in which the movable part is rotated to be positioned inside the stationary part showing in

50 Fig. 3a) the usage position wherein the back part 1 of the bottom tray is movable and the front part 2 of the bottom tray is stationary. Reference numeral 7 depicts a fastener;

55 Fig. 3b) the usage position in a top view;

Fig. 3c) the packaging position with a support 3 made of wood, styropor, etc.;

Fig. 3d) the packaging position in a top view.

FIG. 4 an example of the bottom tray in which the movable part is to be folded on and fixed to the separator panel showing in

Fig. 4a) the usage position when the back part 1 of the bottom tray is movable and the front part 2 of the bottom tray is stationary. Reference numeral 7 depicts a fastener and reference numeral 6 a separator panel;

Fig. 4b) the packaging position comprising a locking system 5 and a support 3 of wood, styropor etc.;

Fig. 4c) the packaging position showing a snap-on castor 4.

FIG 5 a standard application of a conventional bottom tray (stationary and one part).

[0011] In LPG heaters, cylinder compartment and the bottom tray have the function of keeping the cylinder inside the appliance decoratively.

[0012] The bottom tray can not be smaller than the dimensions required in the standards to provide a balanced support for the cylinder.

[0013] Casing of the appliance can be manufactured less in depth than the bottom tray to save material (Fig. 5). The back part of the tray extending out from the casing, limits the reduction of the packed size. Taking this into consideration, it is envisaged that the bottom size of the bottom tray is to be reduced temporarily in the packed condition and then to be increased to the usage dimension with a simple action by the user before using the heater.

[0014] The working principle of the invention as claimed by this patent can be explained in the following examples.

[0015] In the model in which the bottom tray is composed of one movable back and one stationary front parts, the movable back part is folded on or under the stationary front part in order to reduce the sizes of the appliance during packaging and later it is brought to its original position so that the cylinder can be placed inside the appliance during the usage.

The fixing of the two parts can be secured by using several types of fasteners, such as hinges, etc. When the castors are taken inside by any of the methods, the bal-

ance of the heater is maintained by placing supports made of styropor, wood or similar material under the heater (Fig. 1b, Fig. 2b). Also, if snap-on castors are used, these can be kept unassembled to the heater and placed in the packaging, and then can be assembled to the user before usage (Fig. 1c, Fig. 2c).

[0016] In the model in which the bottom tray is composed of one movable rotary back and one stationary front parts, the movable back part which can rotate around its axis by the use of a suitable fastener is rotated to be positioned inside the stationary front part to reduce the size of the appliance during packaging (Fig. 3c-3d) and it is brought to its enlarged position with the same method so that the cylinder can be placed inside the appliance during usage (Fig. 3a-3b). The movable part is fixed to the stationary part by a suitable locking system to prevent its movement and to increase the rigidity of the bottom tray when the cylinder is to be placed during the usage. The position of the castors on the both movable and stationary parts are so designed that they will be in best position with each other to balance the appliance in packaging and usage, and also extra supports can be used to balance the appliance in packaging if needed.

[0017] In another model in which the movable part fixed to the stationary part by suitable means is folded to the locked position on the separator panel 6 placed between the burner assembly and cylinder compartment by a suitable locking system 5 during packaging and later, by releasing the lock it is pulled down and fixed to the stationary part to increase the rigidity of the bottom tray during usage (Fig. 4a). When the castors fixed to it are taken inside by folding of the movable part, the balance of the appliance is maintained by placing suitable supports under the appliance (Fig. 4b). Also, if snap-on castors are used, these can be kept unassembled to the appliance and placed in the packaging, and then can be assembled by the user before usage (Fig. 4c).

[0018] It is possible that the invention which is developed for the bottom tray of the cylinder compartment incorporated in the mobile domestic flueless space heaters burning LPG, which works by folding, sliding forward or rotating in during packaging and by retracting, folding out or rotating out to its original position before usage in order to constitute a proper support surface for the LPG cylinder, can be rearranged or changed by experienced and well informed persons to abiding by the main principles mentioned above. It must be considered that the invention is not limited with the examples described in details and shown in the figures but instead includes any type of changes that is to be made based on the principles explained above.

55 Claims

1. An adjustable bottom tray designed for the cylinder compartment of space heaters burning gaseous fu-

els having a base section of the gas cylinder compartment incorporated in said heater characterised by an articulation provided between at least two parts of said tray, one of which is a back-part (1) movable with respect to the other part (2) and developed for the purpose of reducing the volume of the heater in the packed condition and deployed to increase the size for housing the gas cylinder before usage, the articulation is of the hinge or the pin type and further stabilisation means (3) are provided beneath the other part (2) for keeping the heater balanced.

2. An adjustable bottom tray according to claim 1, characterized in that the back part (1) is foldable about the front part (2).

3. An adjustable bottom tray according to claim 3, characterized in that the back part (1) is rotatably mounted on the front part (2) for positioning it inside and outside of the front part.

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2. Un plateau de fond ajustable selon la revendication 1, caractérisé en ce que la partie arrière (1) est repliable par rapport à la partie avant (2).

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3. Un plateau de fond ajustable selon la revendication 1, caractérisé en ce que la partie arrière (1) est montée rotative sur la partie avant (2) de manière à pouvoir être positionnée à l'intérieur et à l'extérieur de la partie avant.

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1. Größenveränderliche Bodenplatte für Gaszylinder von Gasheizungen mit einem Bodenabschnitt des in der Heizeinrichtung angeordneten Gaszylinders, gekennzeichnet durch eine Gelenkverbindung, die zwischen mindestens zwei Teilen der Platte vorgesehen ist, von denen eins ein Rückteil (1) ist, das gegenüber dem anderen Teil (2) beweglich ist, so daß die Größe der Heizeinrichtung im verpackten Zustand reduziert und zur Aufnahme des Gaszylinders vor Gebrauch erhöht werden kann, wobei die Gelenkverbindung scharnierartig oder drehzapfenartig ausgestaltet ist und ferner eine Stützeinrichtung (3) unterhalb des anderen Teiles (2) zur Abstützung der Heizeinrichtung vorgesehen ist.

2. Größenveränderliche Bodenplatte gemäß Anspruch 1,
dadurch gekennzeichnet, daß das Rückteil (1) um das Vorderteil (2) klappbar ist.

3. Größenveränderliche Bodenplatte nach Anspruch 3,
dadurch gekennzeichnet, daß das Rückteil (1) am Vorderteil (2) drehbar angeordnet ist, um es innerhalb oder außerhalb des Vorderteiles zu positionieren.

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Revendications

1. Un plateau de fond ajustable destiné au compartiment pour bonbonne d'appareils de chauffage à

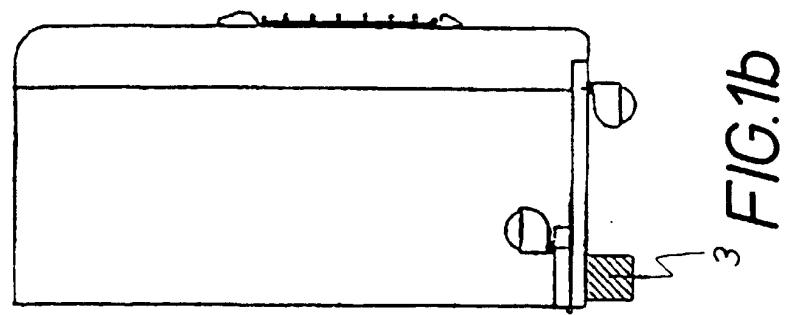
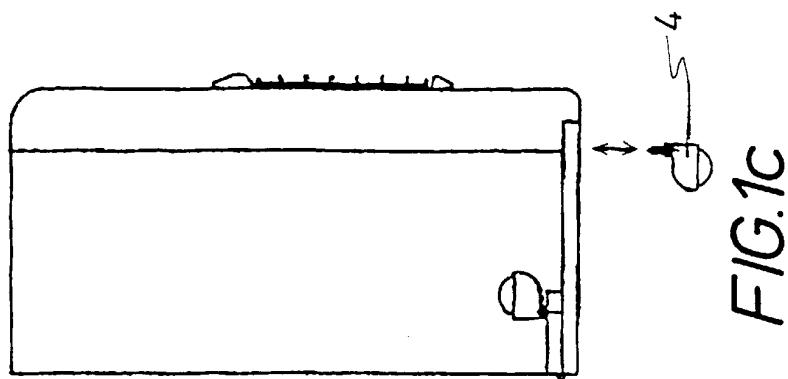
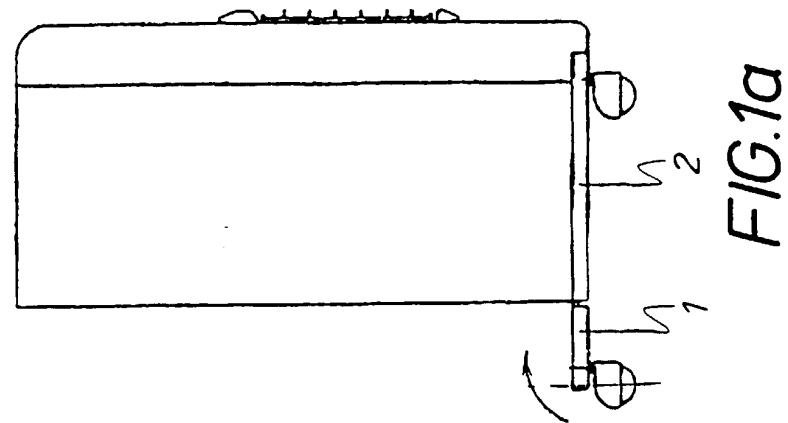


FIG. 1



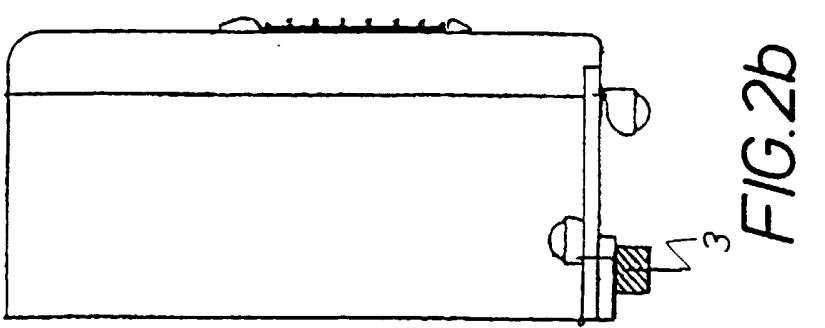
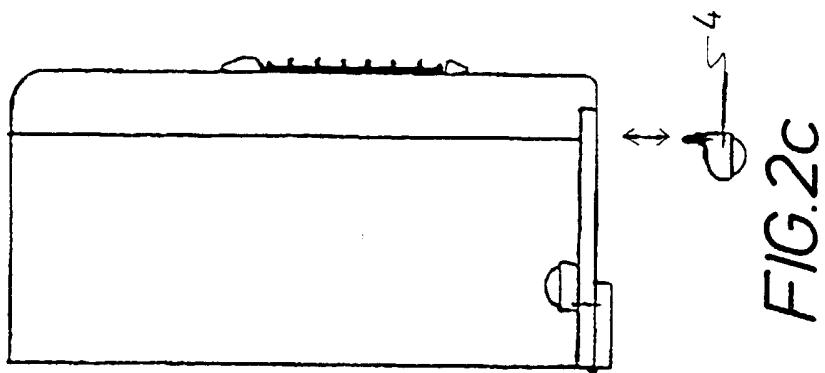
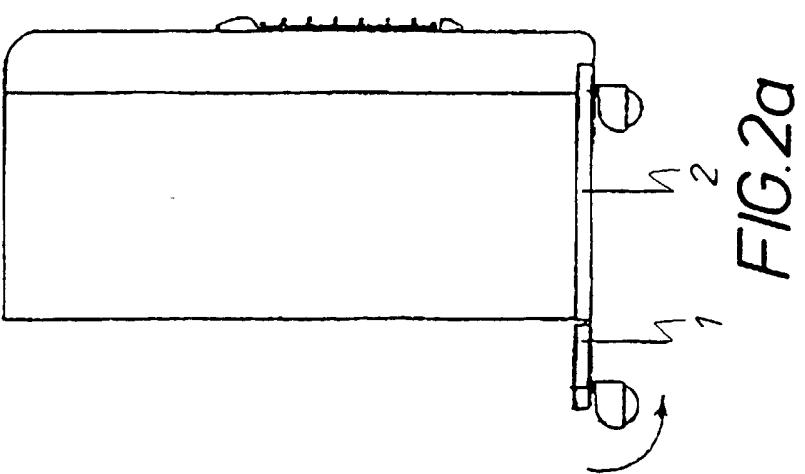


FIG. 2



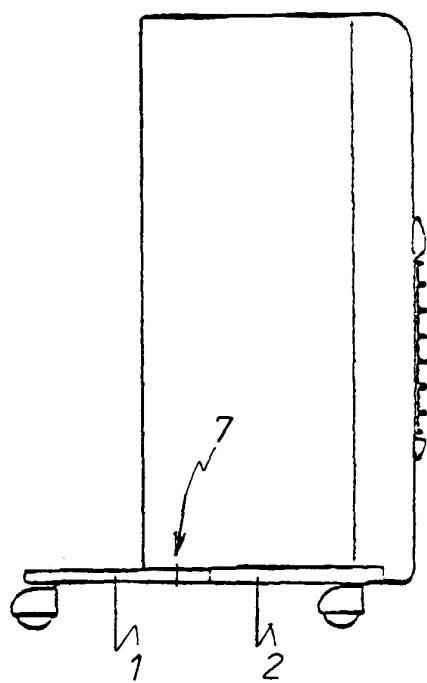


FIG. 3a

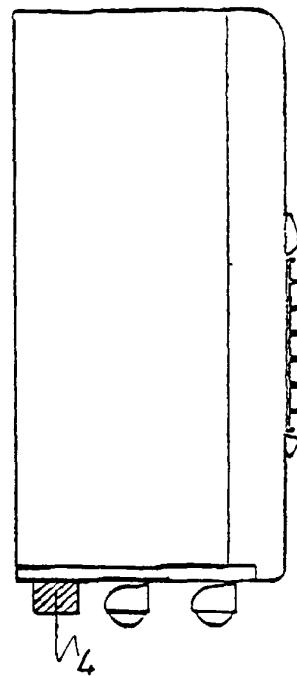


FIG. 3c

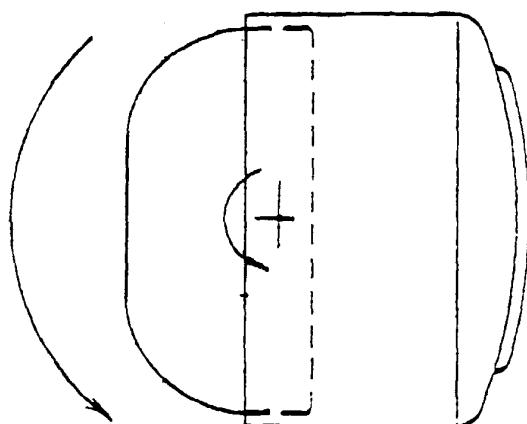


FIG. 3b

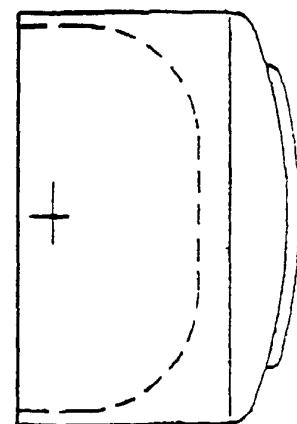
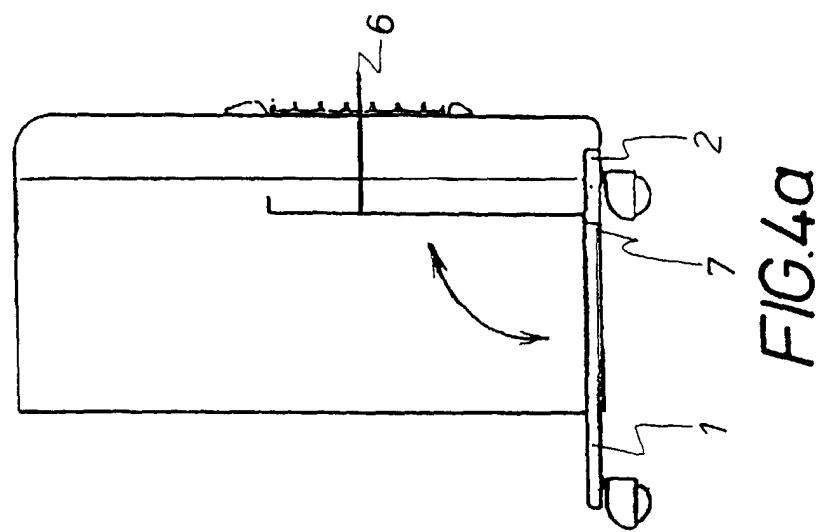
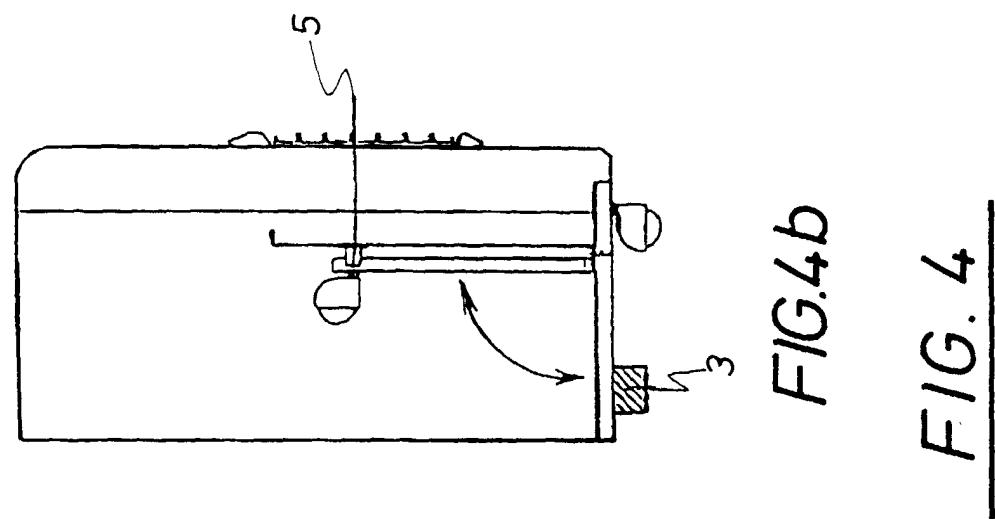
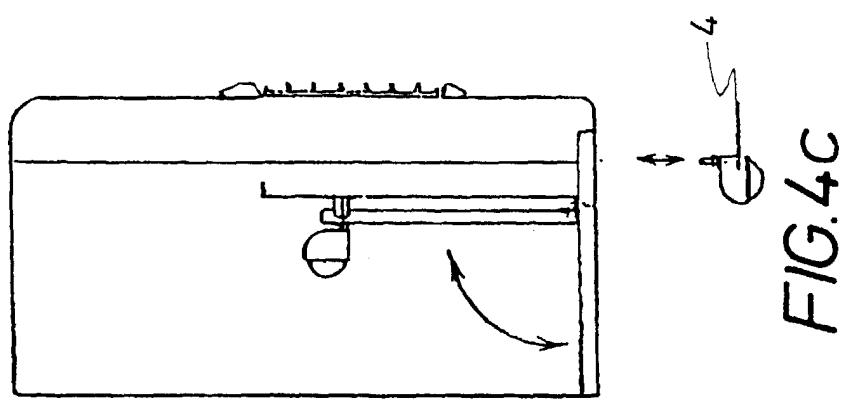


FIG. 3d

FIG. 3



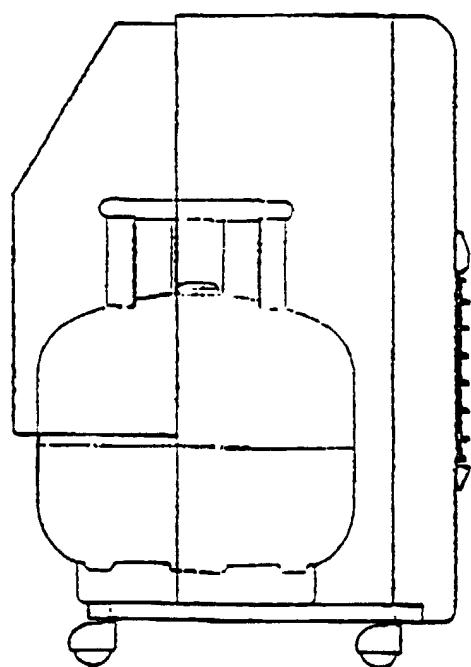


FIG. 5