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(54) **Adjustable or retractile bottom tray designed for the cylinder compartment of space heaters burning gaseous fuels, especially LPG**

(57) Adjustable /retractile bottom tray (base section) having at least two different parts, is designed for the cylinder compartment incorporated in the portable / mobile domestic flueless space heaters burning gaseous fuels especially LPG (liquefied petroleum gases), in order to make the sizes of the appliances smaller to reduce costs of storage, transportation and materials for packaging.

The device works by folding one of the parts on or under the other part or reducing its size with other methods for the same purpose during the packaging of the appliance and later increasing the size to its usage position by the user before the usage of the appliance.

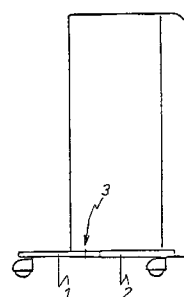


FIG. 5a

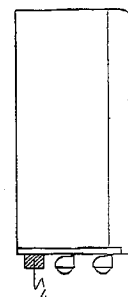


FIG. 5c

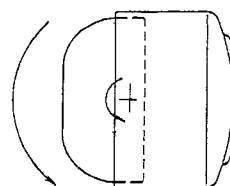


FIG. 5b



FIG. 5d

FIG. 5

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Description

Field of the Invention

The patent defines ways of decreasing the sizes of the bottom tray (base section), designed for the cylinder compartment incorporated in mobile domestic flueless space heaters burning gaseous fuels, especially LPG for the purpose of making the sizes of the appliance smaller to reduce costs of storage, transportation and packaging.

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

Whereas the bottom tray in the widely used space heaters is comprised of only one stationary part (section) up till now, the invention is made up of at least two different parts working by folding one of the parts (movable) on or under the other part (stationary) or by reducing its size with other methods for the same purpose during packaging of the appliance and later increasing the size to its original dimension by the user before the usage of the appliance.

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.

This improved system 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 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.

Working Principle and Technical Features of the Retractable Bottom Tray

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

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

Casing of the appliance can be manufactured less in depth than the bottom tray to save material (Fig. 4). 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.

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

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 balance 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).

In the model in which the movable back part is to be slid under the stationary front part in order to reduce the size of the appliance during packaging and to be retracted to its original position during the usage, any type of fastener can be used to fix the two parts and increase the strength of the bottom tray (Fig. 3).

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. 5c-5d) 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. 5a-5b). 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.

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 placed between the burner assembly and cylinder compartment by a suitable locking system 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. 6a). 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. 6b). Also, if snap-on castors are used, these can be kept unassembled to the appli-

ance and placed in the packaging, and then can be assembled by the user before usage (Fig. 6c).

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.

DRAWINGS

FIG. 1 Example of the bottom tray in which the back part 1 is to be folded on the front part 2 showing in

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;

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

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

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

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;

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

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

FIG 3 Example of the retractile bottom tray showing in

Fig. 3a) 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. A fastener 3 is provided for fastening the back and front parts 1 and 2 to each other.

5 Fig. 3b)

the packaging position in which the bottom tray is slide under.

FIG. 4

Standard application of a conventional bottom tray (stationary and one part).

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FIG. 5

Example of the bottom tray in which the movable part is rotated to be positioned inside the stationary part showing in

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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 3 depicts a fastener;

20 Fig. 5b)

the usage position in a top view;

Fig. 5c)

the packaging position with a support 4 made of wood, styropor, etc.;

25 Fig. 5d)

the packaging position in a top view.

FIG. 6

Example of the bottom tray in which the movable part is to be folded on and fixed to the separator panel showing in

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Fig. 6a)

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 3 depicts a fastener and reference numeral 4 a separator panel;

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Fig. 6b)

the packaging position comprising a locking system 5 and a support 6 of wood, styropor etc.;

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Fig. 6c)

the packaging position showing a snap-on castor 7.

Claims

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1. A bottom tray, which constitutes the base section of the cylinder compartment incorporated in the mobile domestic flueless space heaters burning gaseous fuels, especially LPG, having at least two parts (movable back and stationary front) which is developed for the purpose of reducing the volume of the heater in the packed condition, and which enables reduction of the size of the base section in the packed condition, and increase of the size before usage.

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2. A bottom tray as claimed in claim 1, wherein the movable part is fixed to the stationary part by fasten-

ers to secure the balance of the heater and to increase the strength of the base section.

3. A bottom tray as claimed in claim 1 and claim 2, wherein the movable back part is folded on or under the stationary front part or the movable back part is slid on or inside the stationary front part during packaging and is to be retracted to the original position during usage.
4. A bottom tray as claimed in claim 1 and 2 wherein the movable back part which can rotate around its axis by the use of a fastener is rotated to be positioned inside the stationary front part during packaging and it is again rotated out to the enlarged position so that the cylinder can be placed on it during usage.
5. A bottom tray as claimed in claim 1 and claim 2 wherein the movable back is folded on and fixed to the separator panel placed between the cylinder compartment and burner assembly during packaging and it is pulled down and fixed to the stationary part during usage.

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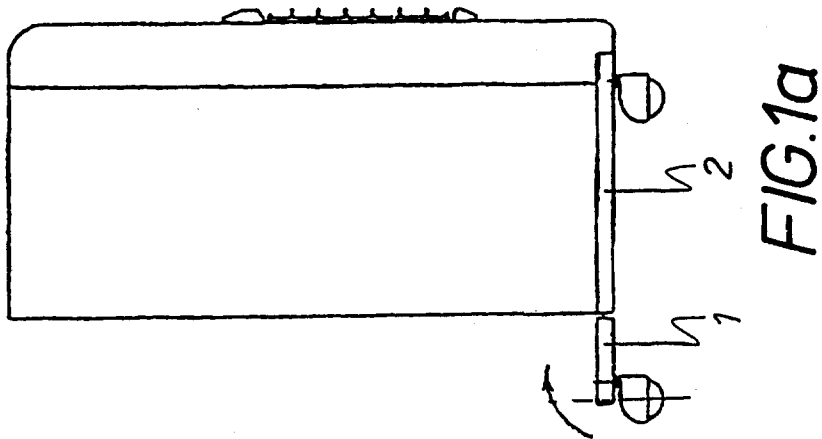
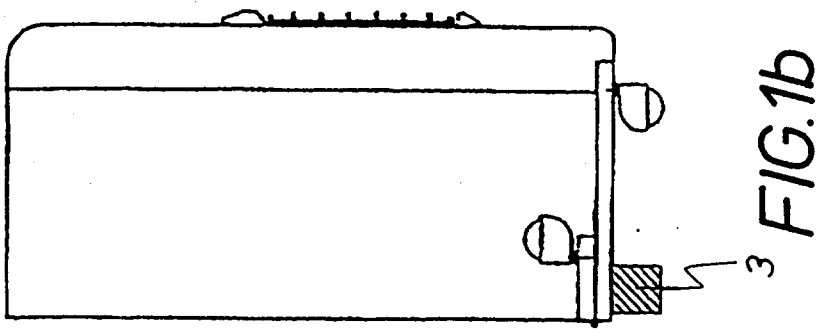
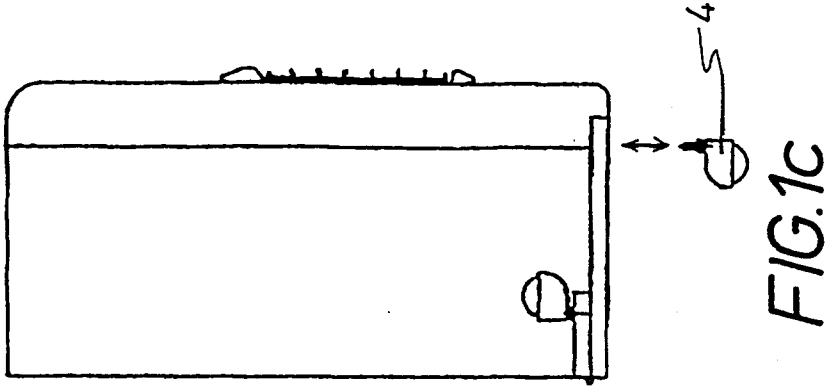


FIG. 1

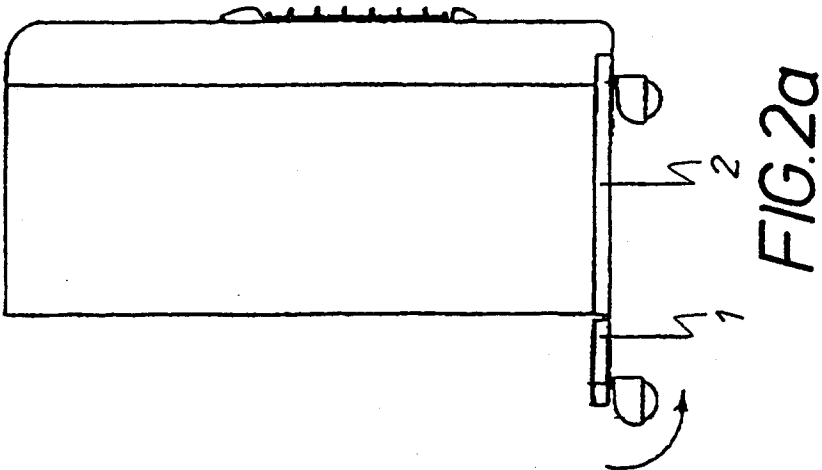
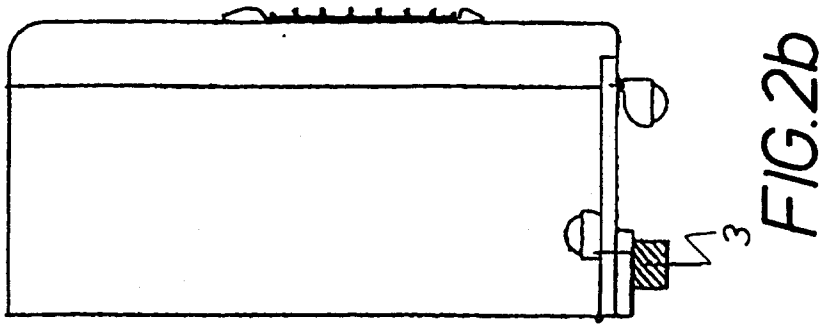
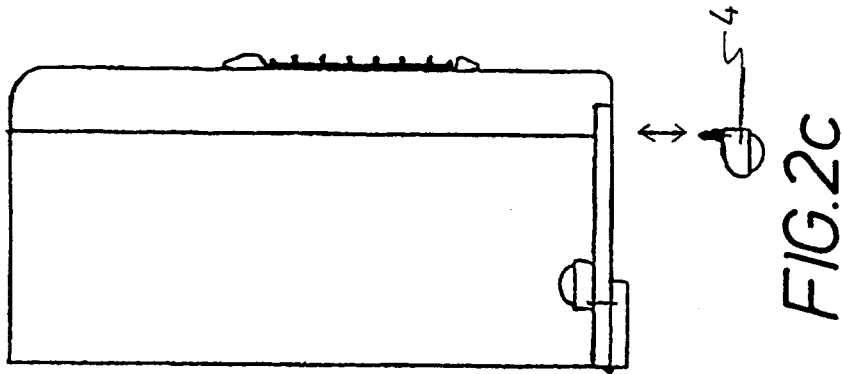


FIG. 2

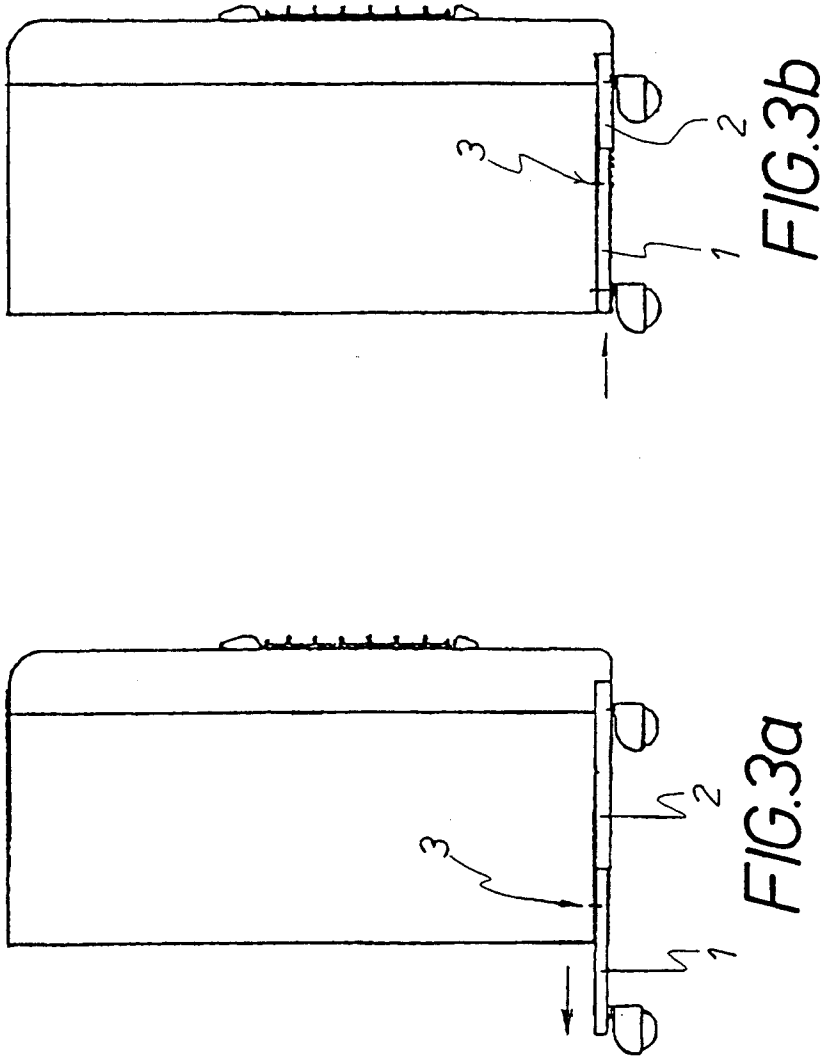


FIG. 3

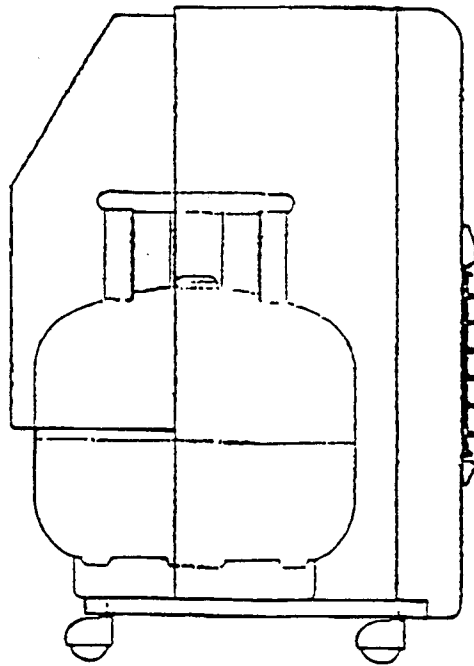


FIG. 4

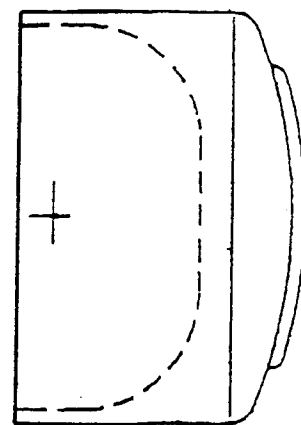
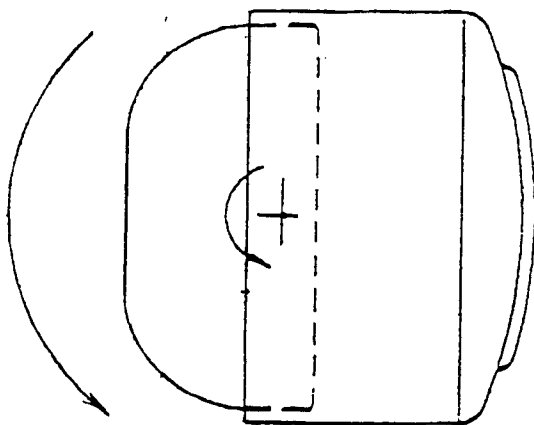
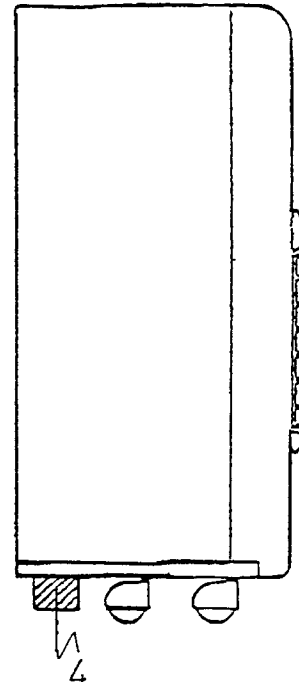
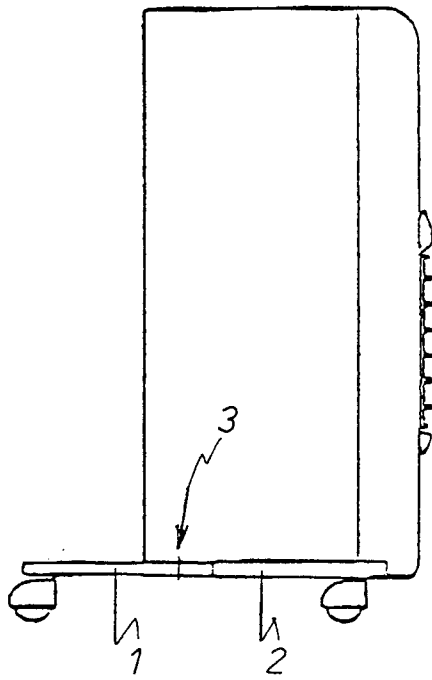


FIG. 5

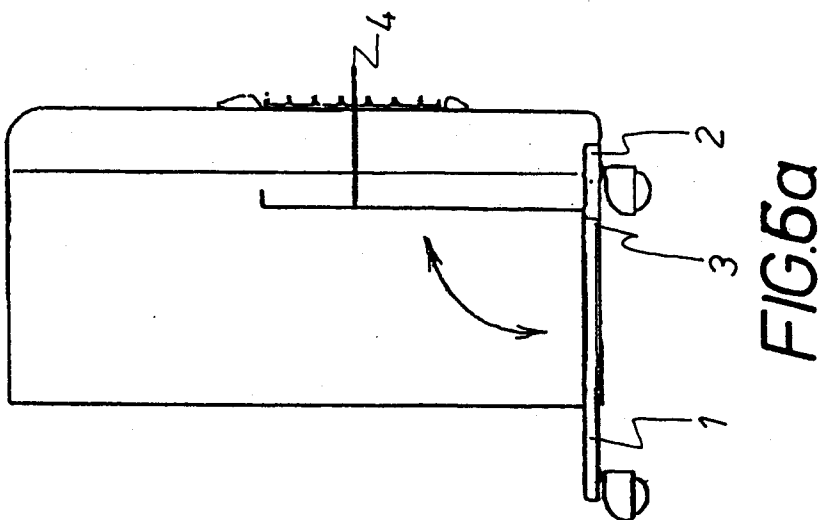
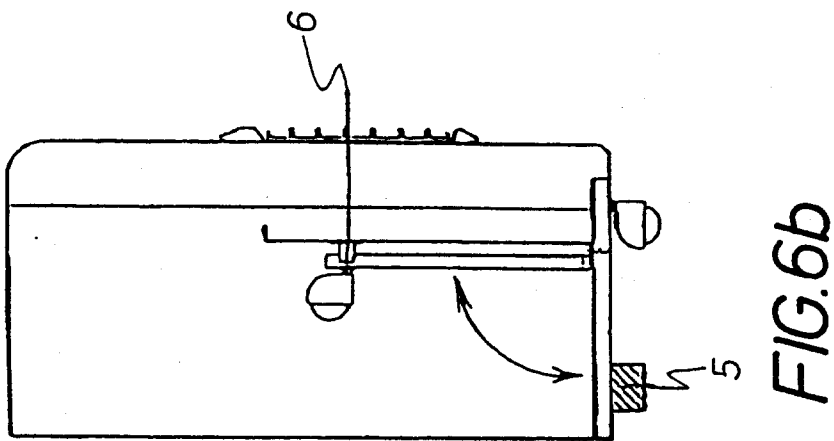
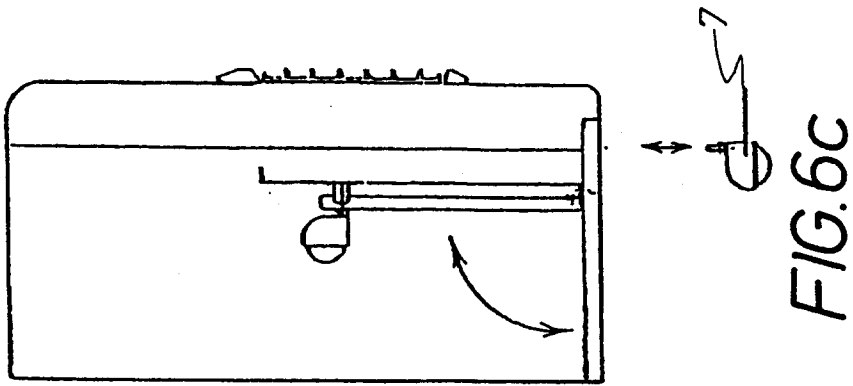


FIG. 6