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(54) **Container for the collection of fragile hazardous waste**

(57) The container includes a cylinder (1) and a lid (2) provided with a hole (2.1) for the introduction of waste; inside the cylinder (1) there is a device, that reduces the gravitational fall down of waste, including a mobile base (1.3) and elastic means constituted by a spring (1.4), or a pantograph or a piston calibrated in function of the maximum assumed weight; a watertight bag (3) is collocated inside the container; the container can be equipped with wheels at the bottom; the regulation of the mobile base (1.3) can be realized by a pneumatic system, that includes a timely calibrated valve and that allows the outflow of air and activates an acoustic signal; the outflow of air coming from the container can be converted in a current or tension signal that is sent to an electronic equipment which produces the activation of an already registered audio visual-system.

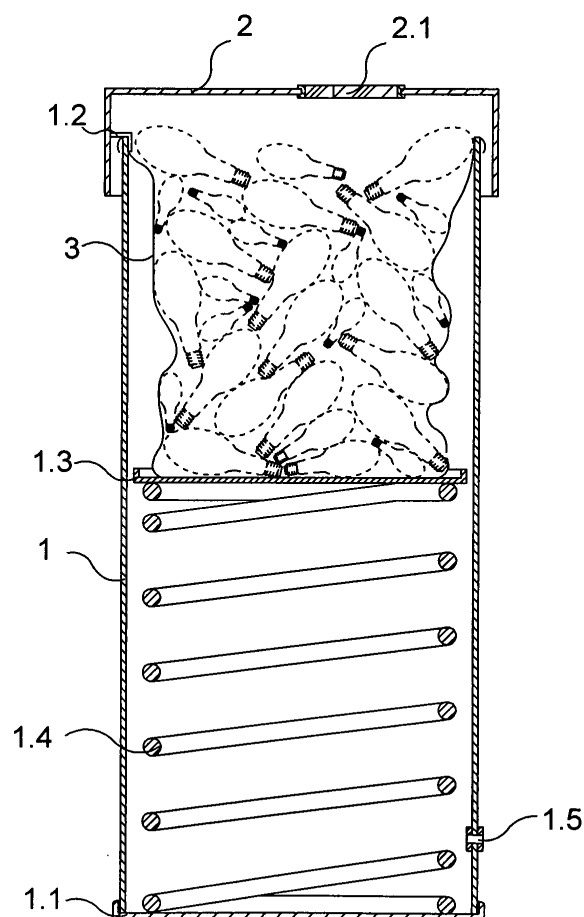


FIG. 4

Description

Technical field

[0001] The invention pertains to a container for the collection of dangerous fragile waste, particularly discharge lamps.

Background art

[0002] There exist today various models of container for collection of waste. A special type of waste, dangerous according to the law, is that of discharge lamps. These ones (fluorescent or reduced dimensions, bulb lamps, and low energy consume lamps) contain mercury based powders and phosphoric compounds. When exhausted the discharge lamps are collected in apposite containers next to technical electric installers, the retailers of electric material, the municipalities, the municipal or private companies, the department stores, the shopping centers, etc etc and then started to the operations for recycling.

[0003] This custom is unfortunately not followed by private citizens and by small companies, who put the exhausted lamps into garbage bins or into the ones for the separated collection of glass, with the logical and consequent effects on the environment.

Summary of the invention

[0004] The purpose of the invention is to offer to the users a container for the collection of brittle hazardous wastes, able to reduce the eventuality of breakage caused by introduction.

[0005] Another aim is that to provide a container for the collection of further products potentially hazardous for environment like batteries, mobile phones, metallic frames for glass, glass lens, toys, small home appliances, aerosol machines, plant protection products, photographic material and so on.

[0006] These and other purposes are reached by the container in object thanks to the characteristics described in the claim 1.

[0007] It includes an hollow cylinder closed by a bottom and a superior removable lid. This last one has an upper or lateral hole for the introduction of waste, whose borders are protected by a gasket. This hole can have a specific geometrical shape according to the type of material to introduce.

[0008] Inside of the container there is a device for the positioning of waste, that reduces the possibility of gravitational shock and therefore also of accidental breakages. Such a device, regardless of quantity of waste already stored, maintains the plan of load always at the same height, guaranteeing also a very good ergonomicity of load.

[0009] Such a device consists of a mobile base, whose distance from the bottom of the container is variable in function of the waste's charge. The distance is regulated

by means of an elastic element, such a spring, a pantograph or a piston calibrated in function of the assumed heavyweight or a pneumatic system. Such equipments maintain the mobile base in the position of maximum height, when the container is empty, and to oppose the downward motion when it is weighted down by the waste gathered on its base. In this way the distance between the hole in the lid and the mobile base or the last introduced waste is constant.

[0010] In the pneumatic system, an opportunely calibrated valve, permits the outflow of the air. Such a regulation allows the come down of the mobile base in a more logical way, without oscillations and well-proportioned to the weight of load. The outflow of air determines a constant speed flow that, intercepted by a Venturi's system, allows the generation of an acoustic signal. The outflow of air from the container can also be intercepted by a transducer, that detecting the air movement, converts it in electricity and then in a current or tension signal. Such an electric signal sent to an electronic equipment produces the activation of an already registered audiovisual system. The same electronic equipment using an outside signal by means of an electro-mechanical sensor, commands, when the container is full, the locking up of the hole on the lid.

[0011] The container is furnished with a watertight bag that, after its setting, avoids the outflow of fragment or powders that come from eventually broken waste. When the bag is full the operator replaces it warehousing it in a reserved area. By removing only the bag the integrity of the container is protected and the costs for new containers are reduced.

[0012] The container can be provided of wheels at the bottom.

[0013] The features of the device guarantee to the user of the service his own safety due to accidental breakages during loading operations.

[0014] The features of elegance, visibility and sobriety of this container make it suitable to be located both inside and outside of department stores, shopping centers, retail stores or in appropriate places reserved to garbage bins for separate collection of rubbish. It may therefore be used by private citizens and by small enterprises, that do not have an inner separate collection system.

Brief description of the drawings

[0015] Further features and advantages of the invention will emerge more clearly from the description of a way of execution, preferred but not exclusive, of the container under discussion, suggested but not limited in the enclosed drawings, of which:

- Figure 1 shows a later view of the container still empty;
- Figure 2 shows a top view of the container;
- Figure 3 shows a perspective view of the container's topside;

- Figure 4 shows a longitudinal section of the partially full container.

Detailed description of an example of preferred embodiment

[0016] In particular, the container includes a hollow cylinder 1 provided down with a bottom 1.1 and above with a removable lid 2. This last one is supported on the cylinder 1 by three brackets 1.2.

[0017] The lid 2 has a hole 2.1 for the introduction of waste. The edges of such a hole 2.1 are wrapped by a gasket 2.2 that avoids accidental damages to the hands of the user.

[0018] Inside of the cylinder 1 there is a device that keeps the height of gravitational fall down of waste constant. Such a device includes a base 1.3 below supported by a spring 1.4 that reaches the bottom 1.1 of the cylinder 1.

[0019] A polyethene bag 3 is collocated between the lid 2 and the base 1.3.

[0020] If the container should be used for the collection of exhausted discharged lamps, the above-mentioned hole 2.1 is rectangular and presents an half-round enlargement for the introduction of bulb lamps.

[0021] The user introduces the exhausted lamp into the container toward the hole 2.1 and collocates it into the polyethene bag 3, which base is sustained from the base 1.3.

[0022] As the number of introduced lamps increases, their weight beats down the base 1.3. But the progressive compression of the spring 1.4 partially contrasts this downward motion, so that the distance between the last introduced lamps and the hole 2.1 remains constant. Consequently, regardless of the volume occupied at the moment by the lamps inside the container, the presence of the above-mentioned device avoids the breakage of the lamps caused by the fall down. If it should unluckily happen, the polyethene bag 3 avoids the outflow of the fragments and powder outside the container.

[0023] On the wall of the hollow cylinder 1 a valve 1.5 is inserted that permit to the air to exit from the same one when the volume below to base 1.3 is reduced.

tograph or a piston calibrated according to the maximum assumed weight of waste or a pneumatic system; a watertight bag (3), inside of which waste are accumulated, is positioned inside the container between the lid (2) and the bottom (1.1).

2. - Container, according to claim 1, **characterized by** the fact that the pneumatic system includes an timely calibrated valve (1.5) that allows the outflow of air; the outflow of air from the container determines constant speed flow that, that intercepted by a Venturi's system, allows the generation of an audio signal.
3. - Container, according to claims 1 and 2, **characterized by** the fact that the outflow of air from the container can also be intercepted by a transducer that, detecting the movement of the air, converts it in electricity and then in a current or tension signal; such a electric signal sent to an electronic equipment produces the activation of an already registered audio-visual system.
4. - Container, according to claim 3, **characterized by** the fact that said electronic equipment, using an outside signal by means of an electro-mechanical sensor, commands, when the container is full, the locking up of the hole (2.1) of the lid (2).
5. - Container, according to claim 1, **characterized by** the fact that said hole (2.1) is rectangular and presents an half-round enlargement if the container is used for the collection of exhausted discharged lamps.

Claims

1. - Container for the collection of brittle hazardous wastes, which includes a cylinder (1) equipped down with a bottom (1.1), provided or not of wheels, and a removable lid (2); the removable lid (2) has an upper or lateral hole (2.1) for the introduction of waste, with edges protected by a gasket (2.2); said container is **characterized by** the fact of having inside the cylinder (1) a device that keeps the height of gravitational fall down of waste constant; such a device includes a mobile base (1.3), under which is collocated an elastic element such a spring (1.4), a pan-

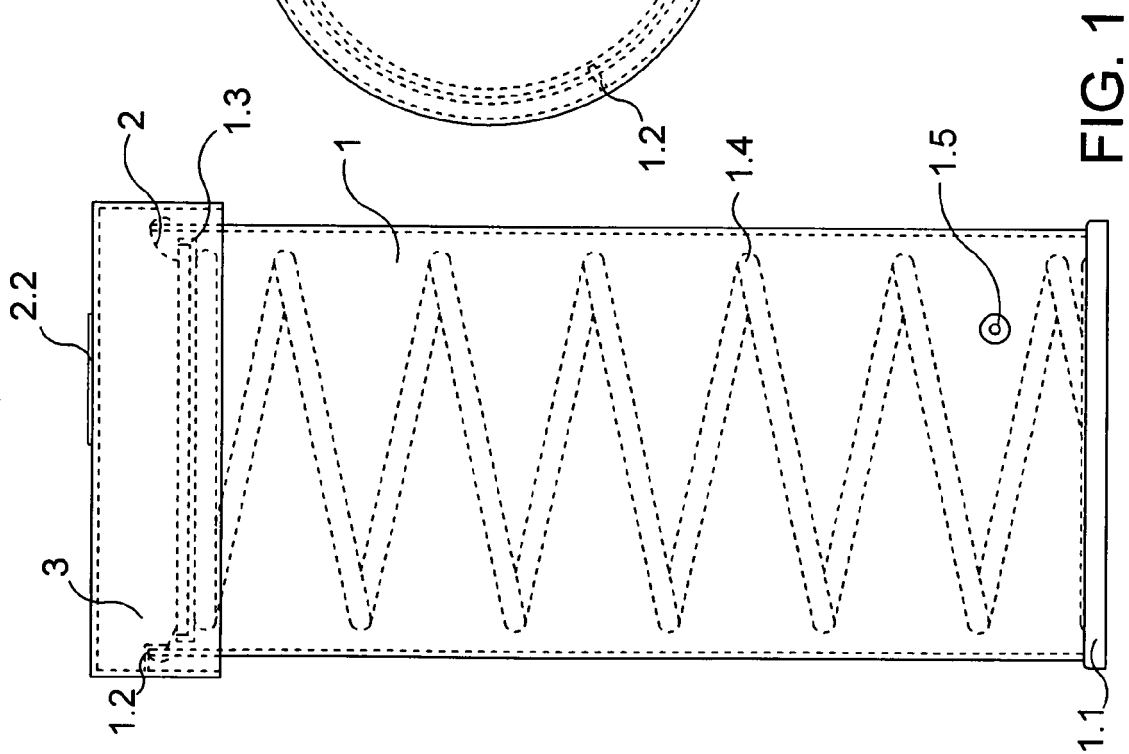


FIG. 1

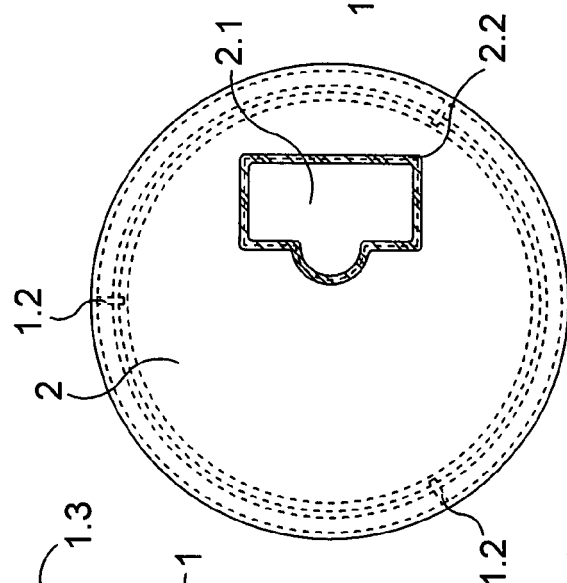


FIG. 2

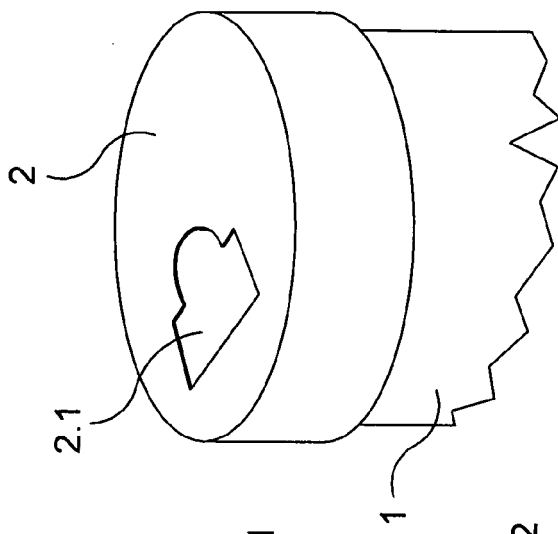


FIG. 3

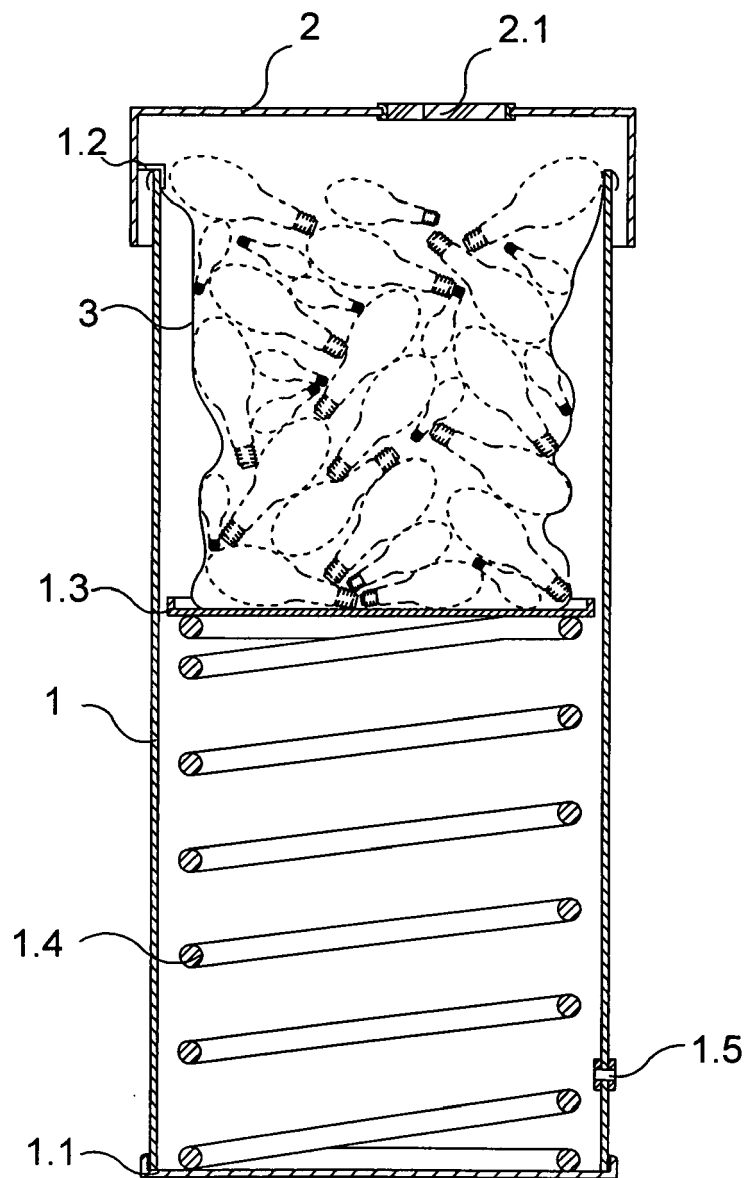


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 42 5890

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			B65F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 8 May 2006	Examiner Wartenhorst, F
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 42 5890

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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08-05-2006

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