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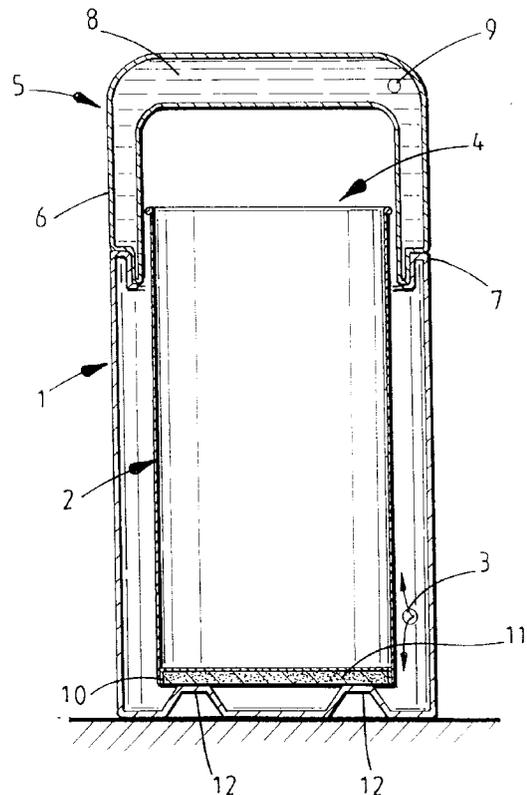
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(54) **Fire-retardant enclosure**

(57) A fire-retardant enclosure, for example a litter bin, has a hollow hood (5) of fire-resistant material filled with a thermally absorbent fluid (9) such as water. In the event of a fire in the enclosure heat energy from the flames is absorbed by the fluid and the melting of the hood is significantly delayed. Should the hood eventually melt the fluid is released and it douses the fire. The invention significantly reduces the likelihood of a litter bin being rendered unusable as the result of a fire.



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## Description

The present invention relates to a fire-retardant enclosure, particularly but not exclusively, a litter bin of the kind having a hood.

Metal litter bins are traditionally used in applications where fire-resistance is required. However, whilst the metal itself does not melt during a fire any non-metallic trimmings or coatings (e.g. paint) are damaged or destroyed by the heat.

Contemporary litter bins are often constructed from thermoplastics such as polyolefinic plastics which have many desirable properties for litter bins. For example, they do not corrode, they are resilient and resist impact without permanent deformation, they are resistant to many common chemicals and can be formed into complex coloured shapes for both aesthetic and functional features of a product. However such plastics are not fire-resistant and have a relatively low melting point.

A typical litter bin in use comprises an outer container of polyolefinic plastics material lined with an inner metallic receptacle. The receptacle may itself be lined with a removable and disposable sack. Such litter bins are often fitted with hoods, either separate or integral with the outer container, so as to prevent wind from displacing litter from an exposed opening of the receptacle and to discourage birds and animals from scavenging its contents. Whilst the plastics material may be fire-retardant and does not ignite, the receptacle is generally in close proximity to the outer container so that should a fire occur in the litter its heat radiates from the walls of the metallic receptacle and causes the plastics outer container to melt. Moreover, heat and flames propagate from the receptacle opening towards the hood which then also melts.

Hence, although the outer container and hood are often constructed from plastics with fire-retardant properties it has been found that the litter bin is still destroyed by melting when the temperature with the bin reaches a predetermined level.

It is an object of the present invention to obviate or mitigate the aforesaid disadvantages.

According to the present invention there is provided a fire-retardant enclosure having a wall at least part of which is hollow and filled with a thermally absorbent substance.

Preferably the enclosure comprises an at least partially hollow hood.

In the event that a fire occurs in an enclosure of this kind energy from the fire is spent in raising the temperature of the thermally absorbent substance before the hollow hood reaches melting point, thereby significantly delaying the onset of melting for the hood and allowing further time for the fire to burn itself out.

Preferably the thermally absorbent substance is a fire dousing fluid so that when the hood begins to melt the fluid escapes and douses the fire. The fluid may be of any suitable type e.g. water.

The hollow hood may be made from any suitable material but in one preferred embodiment it is thermoplastics. The thermoplastics may be fire-retardant.

The enclosure may be a litter bin which has an inner receptacle with an opening facing the hood, and outer container.

A clearance may be provided between the outer container and the inner receptacle.

Preferably the inner receptacle has an insulated base.

A specific embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawing in which a litter bin according to the present invention is shown in a front sectioned view.

The litter bin comprises an outer container 1 of fire-retardant material, such as thermoplastics, lined with an inner metallic receptacle 2 of, for example, zinc-plated steel.

The inner receptacle 2 is received in the outer container 1 such that there is a clearance 3 between them, thereby providing an insulating air gap. The receptacle 2 has a top opening 4 into which litter may be placed and which, if required, supports a removable plastics sack liner (not shown).

The outer container 1 supports a hood 5 that in combination with the outer container 1 forms an enclosure around the inner receptacle 2 save for one or more apertures (not shown) in a side wall 6 of the hood 5 through which litter may be dispensed. The hood 5 is connected to an upper rim 7 of the outer container 2 at a level below the top opening 4 of the inner receptacle 2 and may be fixed thereto or removable. The outer container 1 and/or hood 5 may have a door (not shown) giving access to the inner receptacle for litter removal purposes.

While the outer container 2 is constructed from a single skin moulding, the hood 5 is formed from a double-walled moulding defining a hollow interior cavity 8. Before sealing the cavity 8 it is filled with a liquid 9 (for example, water) having a high boiling point and the ability to douse fires.

A base 10 of the inner receptacle 2 may have an insulating block 11 in contact with a raised portions 12 of a base of the outer container 1.

In the event that contents of the litter bin are set alight, heat energy from the fire is absorbed by the liquid in the hood 5 as its temperature is raised. Depending on the thermal capacity of the liquid and its volume, the hood 5 can withstand a fire for a significantly longer period of time than previous litter bin designs without it reaching melting point. In this time the fire will have often expired and the litter bin will remain undamaged. Alternatively if the fire continues the lower skin of the hood will melt and the liquid will be released from the cavity 8 and will fall into the inner receptacle 2 under gravity thereby dousing the fire. In this instance the litter bin, although no longer fire retardant, is still useable.

The air gap 3 and insulating block 11 disposed be-

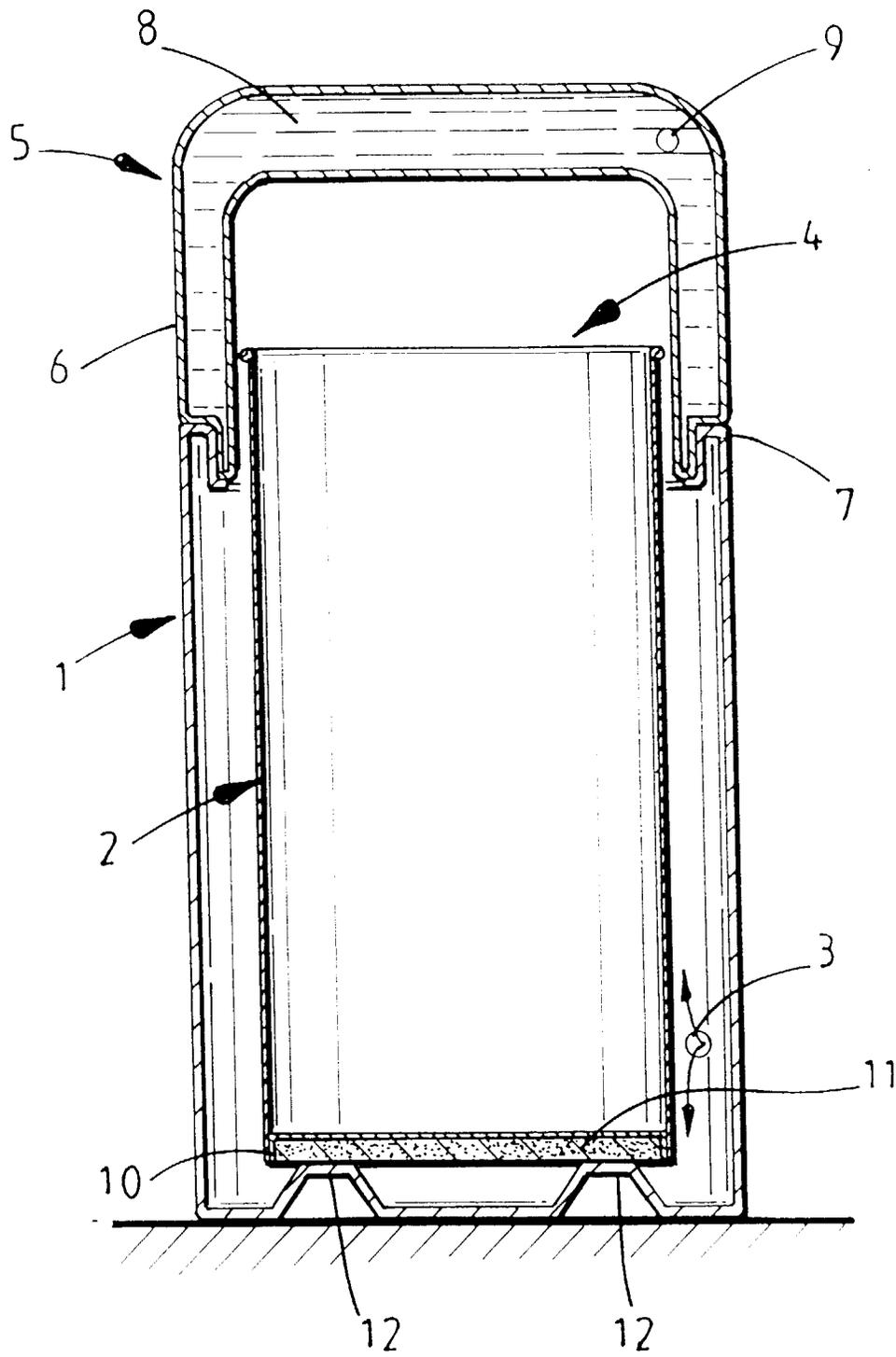
tween the inner receptacle 2 and the outer container 1 reduce the amount of heat radiation from the inner receptacle so that there is a reduced tendency for the outer container 1 to melt during a fire.

It will be appreciated that numerous modifications to the above described design may be made without departing from the scope of the invention as defined in the appended claims. For example, the liquid within the hood may be any suitable material having thermally absorbent properties. In addition, the or each litter dispensing aperture may be provided in a side wall of the container or in a region between a door of the litter bin and the hood.

Moreover, it is to be understood that the present invention is not limited to litter bins but has application to other enclosures having a hood or a roof. For example it is envisaged that the present application could be used in kiosks, portable cabins or other such enclosed shelters for which there are fire risks.

### Claims

1. A fire-retardant enclosure having a wall at least part of which is hollow and filled with a thermally absorbent substance. 25
2. A fire-retardant enclosure according to claim 1, wherein there is provided an at least partially hollow hood filled with a thermally absorbent substance. 30
3. A fire-retardant enclosure according to claim 1 or 2, wherein the thermally absorbent substance is a fire dousing fluid. 35
4. A fire-retardant enclosure according to claim 3, wherein the fire dousing fluid is water.
5. A fire-retardant enclosure according to any one of claims 1 to 4, wherein the enclosure is manufactured from thermoplastics. 40
6. A litter bin having a wall at least part of which is hollow and filled with a thermally absorbent substance. 45
7. A litter bin according to claim 6, comprising an at least partially hollow hood filled with a thermally absorbent substance.
8. A litter bin according to claim 6 or 7, wherein the thermally absorbent substance is a fire dousing fluid. 50
9. A litter bin according to claim 8, wherein the fire dousing fluid is water. 55
10. A litter bin according to any one of claims 6 to 9, manufactured from a fire-retardant thermoplastics.
11. A litter bin according to any one of claims 6 to 10, further comprising an outer container in which there is received an inner receptacle with an opening facing the hood.
12. A litter bin according to claim 11, wherein there is a clearance between the inner receptacle and the outer container.
13. A litter bin according to claim 12, wherein the clearance is in the form of an air gap.
14. A litter bin according to any one of claims 11 to 13, in which the inner receptacle has an insulated base.
15. A fire-retardant enclosure substantially as hereinbefore described with reference to the accompanying drawing.
16. A fire-retardant litter bin substantially as hereinbefore described with reference to the accompanying drawing.





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EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 1252

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	GB 2 281 026 A (ROTATIONAL MOULDINGS LTD) 22 February 1995 * page 1, line 1 - line 6 *	1-10	B65F1/14
Y	* page 4, line 12 - page 5, line 17; figures 1-3 *	11-13	
Y	US 3 206 061 A (FELDMAN) 14 September 1965 * the whole document *	11-13	
X	US 1 832 056 A (SPENCER) 17 November 1931 * the whole document *	1-4,6-9 14	
X	GB 2 271 502 A (ROTATIONAL MOULDINGS LTD) 20 April 1994 * the whole document *	1-10	
X	DE 35 02 119 A (NOLDE) 24 July 1986 * the whole document *	1-4,6-9	
A	US 4 158 424 A (CARMACK) 19 June 1979		
A	FR 2 487 206 A (HEFENDEHL) 29 January 1982		
A	FR 2 487 205 A (HEFENDEHL) 29 January 1982		
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>25 May 1998</b>	Examiner <b>Martens, L</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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