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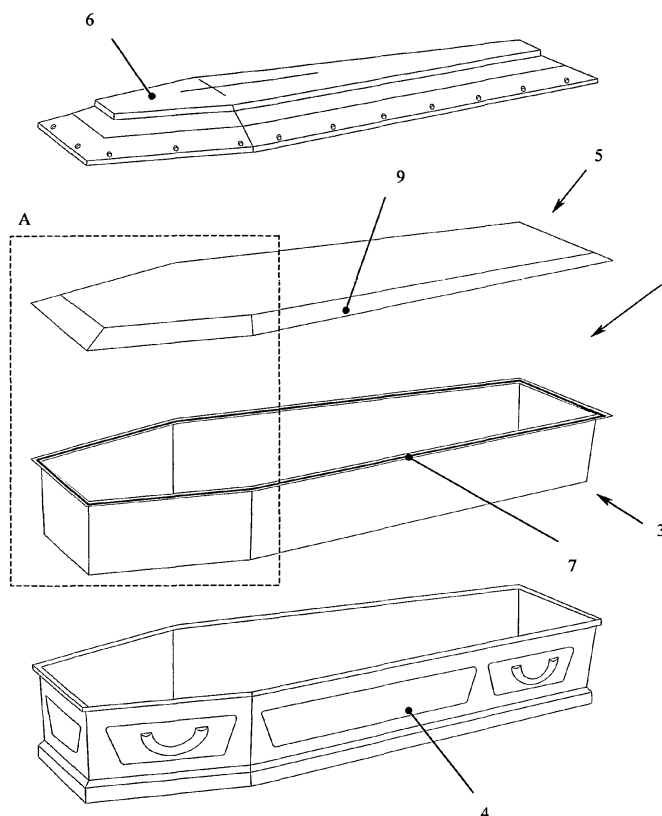
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(54) **Container made of plastic material for funeral use**

(57) A container for funeral use (1) is described, composed of at least one lower container (3) and of at least

one cover (5) that can be superimposed to such lower container (3), such container (3) and such cover (5) being made of at least one plastic material.



**FIG. 1**

## Description

**[0001]** The present invention refers to a container made of plastic material for funeral use, and in particular to a counter-coffin made of plastic material per funerary coffin or to an internal container made of plastic material of a cinerary urn.

**[0002]** The art proposes a great number of containers for funerary use for containing mortal remains and ashes of dead people, mainly made, depending on their specific use, as counter-coffins for coffins or internal containers of cinerary urns.

**[0003]** As known, a funerary coffin adapted to contain therein a corpse is generally composed of a coffin made of wooden material and of a counter-coffin made of zinc. The wooden coffin can indifferently be internal or external to the metallic coffin even if, due to aesthetic reasons, it is commonplace to arrange it externally: in this latter case, the corpse is obviously arranged inside the zinc coffin, generally called counter-coffin.

**[0004]** The metallic coffin must then be airtight closed through a welding (cold welding is also used, in addition to fire welding) that is continuous and extended on the whole periphery of the contact area of the elements to be welded.

**[0005]** In general, anyway, the materials to be used for building containers suitable for transporting corpses must ensure the mechanical resistance for the necessary support of the body and the tightness of the coffin, in order to prevent odours or organic liquids from going out of the coffin. For such purpose, the obvious needs of sturdiness of the coffin capable of offering more guarantees about the bier tightness and that would require the use of certain types and thickness of used materials, go against the further needs that require opposite characteristics: in fact, for example, the coffins aimed to inhumation or cremation should, on the contrary, be made with minimum thickness and soft wooden essences, that can be easily biodegraded and/or burnt. In particular, the same use of zinc for making the metallic counter-coffin creates numerous inconveniences. In fact, it requires, in case of cremation, the use of high temperatures inside the oven and generates, following the combustion, ashes e residuals that can be managed with difficulty, since they can ruin the refractory material of the oven itself.

**[0006]** Moreover, in case of inhumation, the zinc coffin is a cemetery waste that can be disposed of with difficulty.

**[0007]** Moreover, the welding operation of the cover of the zinc counter-coffin is cumbersome, generating vapours that are inhaled by the responsible operator. Moreover, since such operation is performed manually, sometimes the welding bead is not performed skilfully and has discontinuities that can make passageways for odours and organic liquids, strongly impairing the necessary airtight seals required for the coffin.

**[0008]** The art has also proposed containers made of plastic material for transporting corpses, like those disclosed in EP1702602, US5301398, DE102004020543,

US5680682, CA2126941, US5481785, DE4225266, GB2334946, DE19744331, FR2858212, US5201980, US5301398.

**[0009]** Such known containers however are generally aimed for an emergency use in the field, for example in case of severe natural disasters or war conflicts that cause a high number of victims, in order to allow the removal of great numbers of corpses in a short time, using such temporary containers that are cheaper and more easily adapted to be transported with respect to traditional coffins. In such context, therefore, the realisation of known plastic containers does not solve the specific problems of which plastic material is more suitable to make a container whose use is not only temporary, but that must comply with the strict law requirements imposed by various national standards pertaining to the construction characteristics for coffins and to the cautions for funereal transports.

**[0010]** The art further proposes caissons made of plastic reinforced by fibre glass or other material that can be easily disinfected, in which a coffin only made of wood can be laid during its handling, in order to guarantee a perfect seal during transports, due to hermetic gaskets with which such caissons are equipped.

**[0011]** A cinerary urn, typically made of the most various materials such as granite, marble, etc., is instead adapted to house therein a zinc container, equipped with a cover made of the same material, containing the ashes obtained from the cremation of a corpse.

**[0012]** The zinc container must then be airtightly sealed by welding the cover (the cold welding is also used, in addition to the fire welding) continuously and extensively along the whole periphery of the contact area of the elements to be welded.

**[0013]** In time it has been detected how the zinc container of the cinerary urns is a cemetery waste that is difficult to dispose of. As answer to such problem, the art has proposed cinerary urns made of biodegradable material, like those disclosed in HU3463, KR100858332, EP1588684, CN2500294, JP2000000277, DE19744-331, JP10165463, DE4204404: the realisation of such known containers however does not solve the specific problems of which plastic material is most suitable for making a container whose use is not only for environmental protection purposes, but that has adequate features of sturdiness, stiffness and airtight seal.

**[0014]** Moreover, the welding operation of the cover of the internal zinc container is cumbersome, generating vapours that are inhaled by the responsible operator.

**[0015]** Therefore, object of the present invention is solving the above prior art problems by providing a container made of plastic material for funeral use, and in particular a counter-coffin made of plastic material for funerary coffin or an internal container made of plastic material of a cinerary urn, that is more practical, cheaper and lighter than the similar containers for funerary use of the prior art.

**[0016]** Another object of the present invention is pro-

viding a container made of plastic material for funeral use, and in particular a counter-coffin made of plastic material for funerary coffin or an internal container made of plastic material of a cinerary urn, that has the features of sturdiness, stiffness and airtight seal required by the standards and the similar containers for funerary use of the prior art.

**[0017]** Moreover, an object of the present invention is providing a container made of plastic material for funeral use, and in particular a counter-coffin made of plastic material for funerary coffin or an internal container made of plastic material of a cinerary urn, in which the welding of the cover is easier and quicker, guaranteeing a maximum airtight seal.

**[0018]** Another object of the present invention is providing a container made of plastic material for funeral use, and in particular a counter-coffin made of plastic material for funerary coffin, that can be easily ignited in case of cremation, reducing the required combustion heat and removing the production of ashes that can be managed with difficulty.

**[0019]** The above and other objects and advantages of the invention, as will result from the following description, are obtained with a container made of plastic material for funeral use, and in particular a counter-coffin made of plastic material for funerary coffin or an internal container made of plastic material of a cinerary urn as claimed in claim 1. Preferred embodiments and non-trivial variations of the present invention are the subject matter of the dependent claims.

**[0020]** It will be immediately obvious that numerous variations and modifications (for example related to shape, sizes, arrangements and parts with equivalent functionality) can be made to what is described, without departing from the scope of the invention as results from the enclosed claims.

**[0021]** The present invention will be better described by some preferred embodiments thereof, provided as a nonlimiting example, with reference to the enclosed drawings, in which:

- Figure 1 shows a side and exploded perspective view of a funerary coffin equipped with a preferred embodiment of the counter-coffin made of plastic material according to the present invention;
- Figure 2 shows an enlarged view of the detail in box A of the counter-coffin made of plastic material of Figure 1; and
- Figure 3 shows a side and exploded perspective view of a cinerary urn equipped with a preferred embodiment of the internal container made of plastic material according to the present invention.

**[0022]** With reference to the Figures, it is possible to note that a preferred embodiment of the container for funeral use 1 according to the present invention is composed of at least one lower container 3 and of at least one cover 5 that can be superimposed to such lower con-

tainer 3, such container 3 and such cover 5 being made of a plastic material.

**[0023]** In a preferred embodiment thereof, as shown for example in Figures 1 and 2, the container for funeral use 1 according to the present invention is a counter-coffin adapted to be preferably arranged inside a funerary coffin according to the prior art composed of a coffin 4 and of a related cover 6, such lower container 3 being then adapted to contain therein a corpse.

**[0024]** In a preferred alternative, as shown for example in Figure 3, the container for funeral use 1 according to the present invention is an internal container adapted to be preferably arranged inside a cinerary urn according to the prior art composed of a vase 8 and of a related cover 10, such lower container 3 being then adapted to contain therein the ashes of a corpse.

**[0025]** Depending on resistance and stiffness tests made by the Applicant, it resulted that the above plastic material is preferably a thermosetting material. Still more preferably, such thermosetting material is polyethylene, and in particular a Low Density Poly-Ethylene LDPE, and still more preferably reticulated polyethylene. Possibly, it is possible to provide for an increase of the structural characteristics of the above material by adding suitable charges or additives.

**[0026]** The above thermosetting material for making the container for funeral use 1 according to the present invention in fact allows obtaining the following advantageous characteristics with respect to other plastic materials:

- better shape stability;
- better stiffness;
- change of heat-welding;
- cremation temperature lower than the zinc one, lower ashes and residuals being produced and lower fuel consumption in case of container for funeral use 1 used as counter-coffin.

**[0027]** In fact, differently from what has been proposed by the prior art, the Applicant has dealt with a previously neglected problem, by experimentally selecting among the numerous types of known plastic materials those that are better suited for producing a container for funeral use 1, evaluating as suitable for the examined application the following other families of plastic composites for the following reasons:

- PVC: it frees HCl in case of combustion;
- polystyrene: excessive stiffness and too high glass temperature, production of toxic fumes during combustion;
- polypropylene: it does not reticulate or reticulates with difficulty apart from when added with additives;
- High Density Poly-Ethylene HDPE: it reticulates with difficulty.

**[0028]** Obviously, the production methods for the con-

tainer for funeral use 1 according to the present invention are several and substantially belong to the known prior art. In general, anyway, the container for funeral use 1 according to the present invention advantageously allows the easy and cheap production of the related container 3 and cover 5 made in a single piece in the above thermosetting material through simple stamping workings.

**[0029]** Although it is clear that, even only for simplifying the production processes, the container 3 and the cover 5 are made in the same above material, nothing prevents that, where this is necessary or required by particular structural and/or legal needs, they are, on the contrary, made differently with two different thermosetting materials, without therefore departing from the scope of the present invention.

**[0030]** Obviously, welding of the cover 5 on the container 3 can occur according to any known technique, for example through poly-fusion heat-welding plates or heat-welding pliers and/or beads of adhesive or two-component material. In a preferred embodiment of the container for funeral use 1 according to the present invention like the one shown in particular, for example, in the Figures, the container 3 is however equipped with at least one perimeter edge 7 corresponding to a similar perimeter edge 9 of the cover 5, such edge 9 being overlapped to the edge 7 of the container 3 upon placing the related cover 5 onto the container 3 itself. Along such edge 7 and/or 9, then resistor heat-welding means are arranged, suitable to at least partially melt the plastic material of which such edges 7, 9 are made and to mutually weld them. In a first preferred embodiment thereof, the resistor heat-welding means are integrated into the container for funeral use 1 according to the present invention and are preferably made as at least one electric resistance filament 11 suitably immersed into the plastic material of the edge 7 and/or 9 or arranged on the surface along such edge 7 and/or 9, such electric resistance filament 11 having its two electric terminals 13 going out of such edge 7 and/or 9 adapted to be connected to a source of electric energy, such as for example a generating set, an electric battery or, simply, suitably modulated mains current, and supplied with current upon welding. In this case, in order to proceed then with the heat-welding of the cover 5 onto the container 3 in a practical and quick way, it is enough to place the cover 5 onto the container 3, by overlapping the related edges 7, 9, and to supply with current the electric resistance filament 11 by connecting its own electric terminals 13 to the source of electric energy, for example by means of normal electric terminals. Heating by dissipation of electric power of the electric resistance filament 11 then generates the at least partial melting of the plastic material of the edges 7 and 9 in contact, and the related heat-welding between these latter ones. Obviously, the continuity with which the electric resistance filament 11 is arranged along the edge 7 and/or 9, making for example a serpentine to increase the heat exchange surface between filament 11 and plastic material of the

edges 7, 9, guarantees the actual continuity and homogeneity of the welding and the necessary airtight seal of the container for funeral use 1 according to the present invention.

**[0031]** In another preferred embodiment thereof (not shown), the resistor heat-welding means are external to the container for funeral use 1 and are made as at least one electric resistance filament coated with at least one layer of polyethylene, at least one of such edges 7 and/or 9 being equipped on its perimeter with at least one groove suitable to house therein such filament upon heat-welding the cover 5 onto the container 3. Obviously, such coated electric resistance filament has electric terminals suitable to allow the connection to the source of electric energy.

**[0032]** In this case, in order to proceed with heat-welding the cover 5 onto the container 3, it is enough to place the coated electric resistance filament inside the groove of the edge 7 or 9 and to overlap the cover 5 to the container 3. By supplying with current the coated electric resistance filament through its own electric terminals connected to the source of electric energy, heating by dissipation of electric power of the electric resistance filament generates the melting of its own coating made of polyethylene and the related heat-welding between the edges 7 and 9. Obviously, also in this case, there is a continuity with which the coated electric resistance filament guarantees the actual continuity and homogeneity of the welding and the necessary airtight seal of the container for funeral use 1 according to the present invention, such continuity being determined by the shape and development of the groove.

## 35 Claims

1. Container for funeral use (1) composed of at least one lower container (3) and of at least one cover (5) that can be superimposed to said lower container (3), **characterised in that** said container (3) and said cover (5) are made of at least one plastic material.
2. Container for funeral use (1) according to claim 1, **characterised in that** it is a counter-coffin adapted to be arranged inside a funerary coffin composed of a coffin (4) and of a related cover (6), said lower container (3) being adapted to contain therein a corpse.
3. Container for funeral use (1) according to claim 1, **characterised in that** it is an internal container adapted to be arranged inside a cinerary urn composed of a vase (8) and of a related cover (10), said lower container (3) being adapted to contain therein the ashes of a corpse.
4. Container for funeral use (1) according to claim 1,

**characterised in that** said plastic material is a thermosetting material.

5. Container for funeral use (1) according to claim 4,  
**characterised in that** said thermosetting material is polyethylene. 5
6. Container for funeral use (1) according to claim 4,  
**characterised in that** said thermosetting material is Low Density Poly-Ethylene LDPE. 10
7. Container for funeral use (1) according to claim 4,  
**characterised in that** said thermosetting material is reticulated polyethylene. 15
8. Container for funeral use (1) according to claim 1,  
**characterised in that** said container (3) is equipped with at least one perimeter edge (7) corresponding and overlapped to a similar perimeter edge (9) of said cover (5), resistor heat-welding means being arranged along said edge (7) and/or (9). 20
9. Container for funeral use (1) according to claim 8,  
**characterised in that** said resistor heat-welding means are at least one electric resistance filament coated with at least one layer of polyethylene, at least one of said edges (7; 9) being equipped on its perimeter with at least one groove suitable to house therein said filament. 25  
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10. Container for funeral use (1) according to claim 8,  
**characterised in that** said resistor heat-welding means are at least one electric resistance filament (11) having two electric terminals (13) going out of said edge (7) and/or (9), said electric terminals (13) being adapted to be connected to a source of electric energy and to be supplied with current upon welding. 35
11. Container for funeral use (1) according to claim 10,  
**characterised in that** said electric resistance filament (11) is arranged along said edge (7) and/or (9) with a serpentine behaviour. 40
12. Container for funeral use (1) according to claim 10,  
**characterised in that** said electric resistance filament (11) is immersed into said plastic material of said edge (7) and/or (9), or said electric resistance filament (11) is arranged on the surface along said edge (7) and/or (9) . 45  
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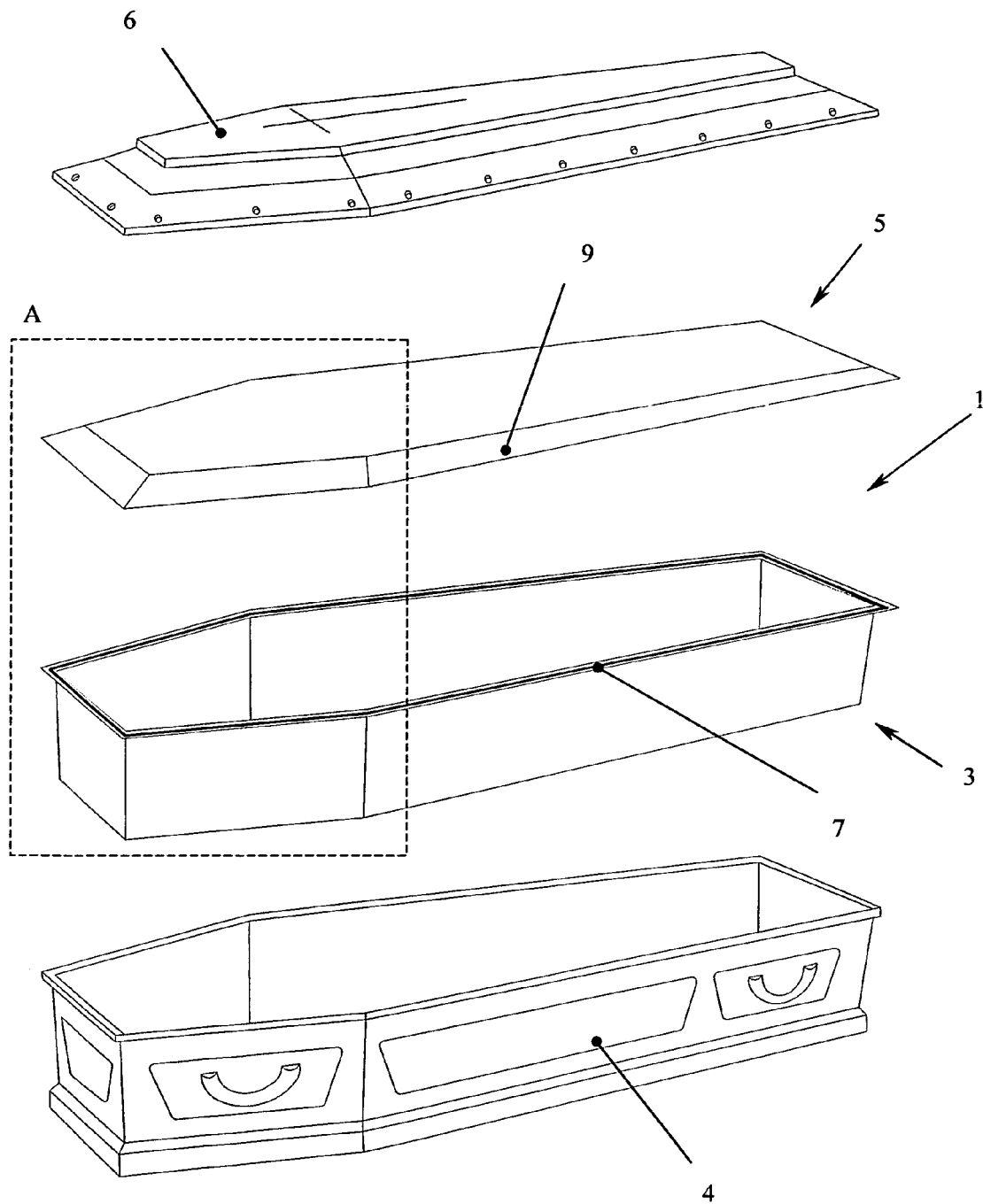


FIG. 1

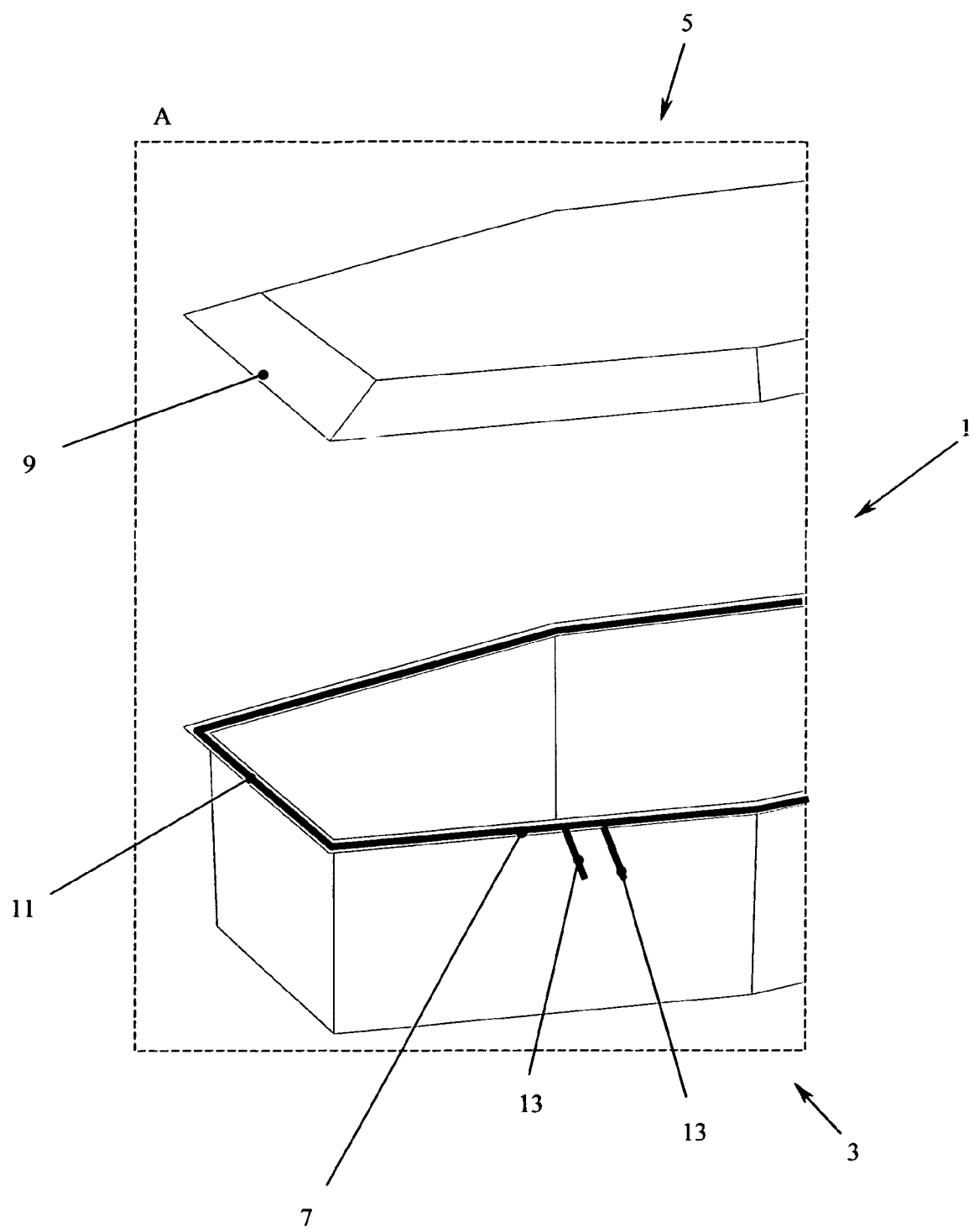
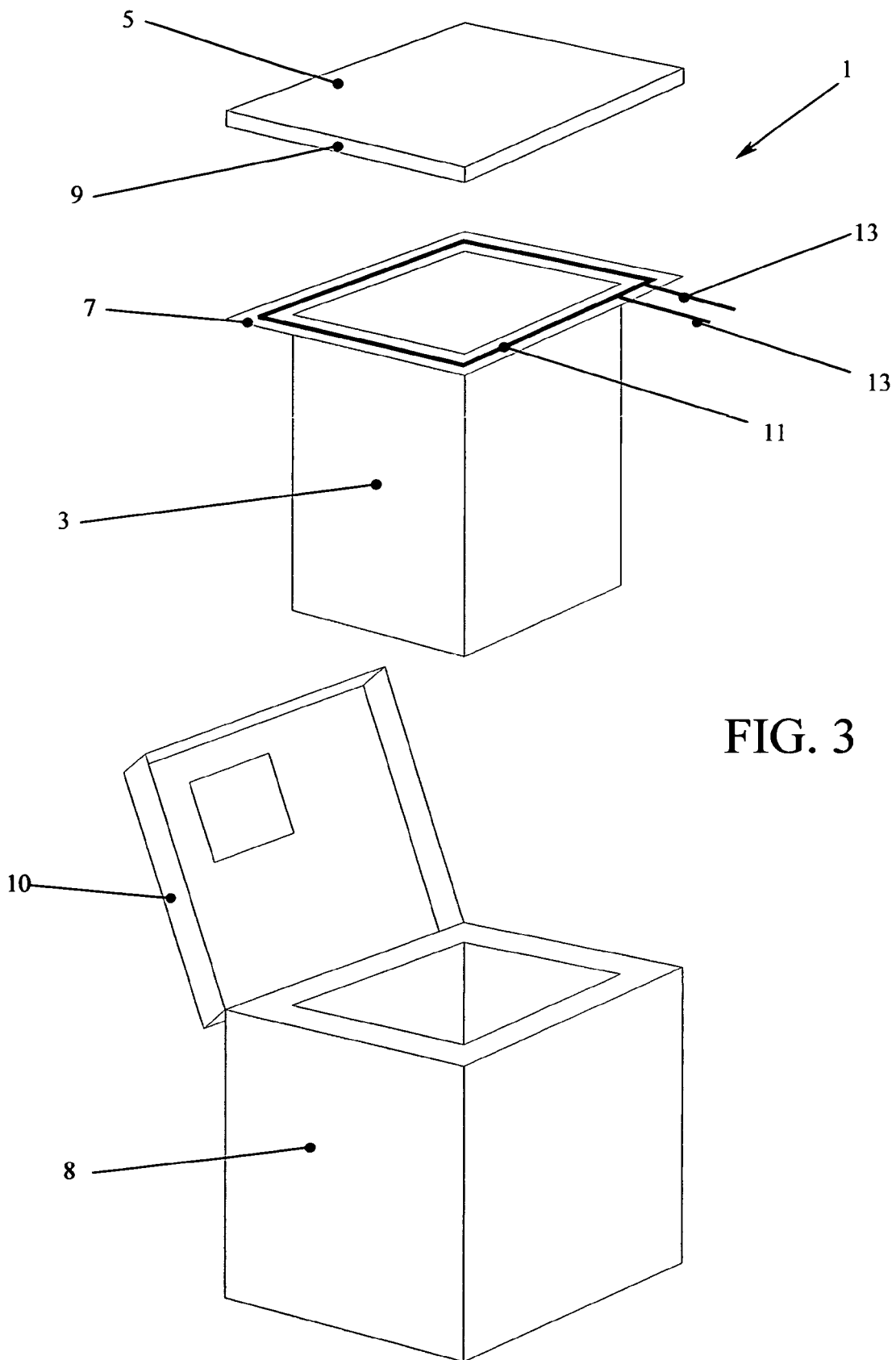


FIG. 2





**REFERENCES CITED IN THE DESCRIPTION**

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