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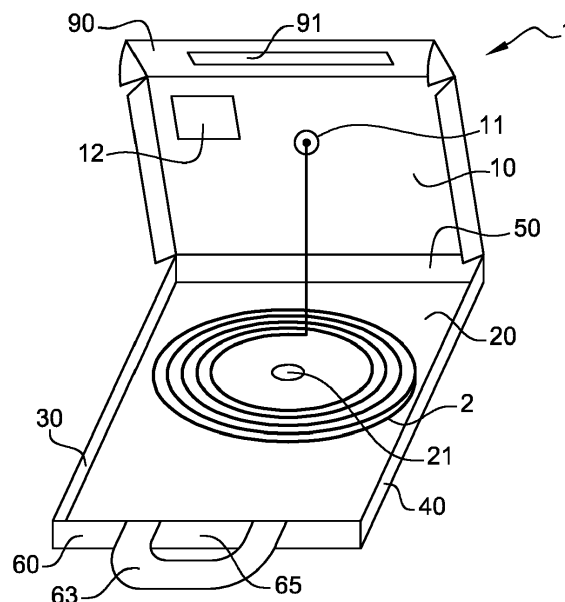
DISPENSING CONTAINER FOR DISTRIBUTING A COILED CABLE AND DISTRIBUTION METHOD

- (57)

A dispensing container (1) for a first coiled cable (2) therein and distribution method, the container (1) comprising two main faces (10, 20) opposite to each other and parallel to each other, one main face (10) comprises a delivery slot (11) to allow extraction of the first cable
- (2)

from said delivery slot (11), the other main face (20) comprises a feeding slot (21) to allow a second cable (2') to enter inside said container (1) and then to be extracted jointly or separately with the first cable (2) from said delivery slot (11).

Fig. 1



Description

[0001] The present invention relates to a dispensing container for distributing a coiled cable and distribution method.

[0002] A dispensing container for coiled cable is normally made of a closed box for stockage and shipment of a coiled cable. The coiled cable can be electrical cable or other string with a certain rigidity. Such container is used frequently for the installation of electrical cables in work area of domestic or industrial construction. To distribute a coiled cable stored in the container in work area, an user needs to first open the container and then extracts the coiled cable for the further operation like installation of cable in the construction. During such operation, the coiled cable likes to tangle, and even be possibly broken during the distribution by sharp tools like screws in work area.

[0003] One solution to solve the problem of cable-tangle is wounding a cable directly and then storing such coiled cable into a container with a special internal form which serves as a hub for the coiled cable. US4019636 discloses a shipping and dispensing container containing a coiled cable in such container. According to this document, coiled cable may be dispensed from outside of the container for easy tangle-free installation without snarls or backlash.

[0004] However, such container requires a special and complicate internal form. Such container has two bosses extending inwardly of the container on each side of two parallel wall panels of the container. The coiled cable is placed in the open space between two bosses and the open center of coiled cable is over the bosses. As a result, the coiled cable can rotate around the bosses during the distribution of cable.

[0005] Besides, such container requires two tubes interlocked with each other to distribute coiled cable from outside of the container. The two tubes are secured around an opening of the container with the flange of one tube abutting internal side of the container and the flange of another tube abutting external side of the container. As a result, the coiled cable can be distributed though the tubes holes from outside of the container without snarls or backlash.

[0006] Furthermore, to distribute several cables at the same time, several such containers need to be arranged in the work area and cables are extracted separately from each container. In such an arrangement, the containers are not stable and can move in different directions during the cable distribution. As a result, it is not convenient to distribute several cables from such containers.

[0007] It is, accordingly, an object of the present invention to provide a new and improved relatively inexpensive, and easy to fabricate dispensing container for a coiled cable and a new method to distribute the cable from outside of the dispensing container without snarls or backlash. Such container can be used to store, to ship, and to distribute coiled cable. Such containers are par-

ticularly useful to distribute several coiled cables together from outside of the containers in a space limited work area without the containers dispensing at the work area.

[0008] According to the invention, a dispensing container for a first coiled cable therein, comprises two main faces opposite to each other and parallel to each other. One main face comprises a delivery slot to allow extraction of the first cable from the delivery slot, the other main face comprises a feeding slot to allow the free end of a second cable to enter inside the container. Then the free end of the second cable is extracted from the delivery slot together with the free end of the first cable, from outside of the container without snarls or backlash of cables. The open space between feeding and delivery slots of the container defines not only an extracting path of the second cable inside the first container, but also a stabilizing path attaching the second cable to the first container which limits the movement of the container during the distribution of two cables.

[0009] According to the invention, the delivery slot is aligned with the feeding slot of the dispensing container following an axis perpendicular to the main faces of the container. In such arrangement, the two slots follow a straight line which guides the free end of second cable to enter the first container through the feeding slot and then go out of the first container from the delivery slot. As a result, the user does not need to open the container and can extract two cables separately or jointly from outside of the container.

[0010] According to the invention, the delivery slot locates at the center of one main face of the dispensing container and the feeding slot locates at the center of the other main face of the dispensing container. In such arrangement, the two slots follow a straight line which guides the free end of the second cable to enter the first container through the feeding slot and then go out of the first container from the delivery slot. Furthermore, the gravitational center of the dispensing container locates at the geometrical center of the dispensing container during the distribution of two cables, as a result, the dispensing container is stable during the distribution of cables.

[0011] According to the invention, the opening areas of the delivery slot and the feeding slot of the dispensing container are equal. Such arrangement simplifies the fabrication process of the container.

[0012] According to the invention, the delivery slot and the feeding slot of the dispensing container have circular forms. The circular forms of the two slots reduce the friction between the container and the cable, which facilitates the extraction of the cable and protects the cable from abrasion during the distribution.

[0013] According to the invention, the delivery slot and the feeding slot of the dispensing container have folding tabs. Such folding tabs are parts of the container, they can be easily hinged outwardly from the container to form slots before the distribution of cable and easily hinged inwardly to the container to cover slots after the distribution of cable. With such arrangement, the cable can be

stored and shipped inside the container without contact with the external environment, like the dust, the humidity, or other hostile materials.

[0014] According to the invention, the dispensing container can be formed using one piece of blank, preferably the light-weight material blank like a cardboard blank. Such blank includes fold lines forming various edges of the container. The top face and bottom face of the container are constructed to have sufficient strength to hold the coiled cable (typically having a weight of about 2 to 3 kg). Such container can be shipped and stored without occupying space.

[0015] According to the invention, a set of at least two dispensing containers comprising a first dispensing container with first coiled cable therein, and a second dispensing container with second coiled cable therein. The two containers are disposed close to each other, so that the two slots of first container are aligned with the two slots of second container. With such arrangement, the slots and the open spaces in-between form a straight path from the feeding slot of the second container to the delivery slot of the first container. This straight path guides the second coiled cable to be extracted, starting from the delivery slot of the second container, then passing through the feeding slot of the first container and then getting out from the delivery slot of the first container. With such arrangement, all containers are attached together by cables. As a result, the cables can be distributed separately or jointly from the delivery slot of the first container without the containers dispensing at the work area.

[0016] According to the invention, a set of at least two containers are superposed following a vertical axis perpendicular to the main faces of the containers, the vertical axis serves as the alignment line the containers. With such arrangement, the cables can be extracted separately or jointly from the delivery slot of the top container, and the containers are attached together by the cables. Besides, the superior containers and coiled cables therein block the movements of inferior containers. Furthermore, the contact surface area between the support and the set of containers is no larger than the area of main face of the bottom container, so that the set of containers can be installed in a work area with limited support surface.

[0017] According to the invention, the set of at least two containers, the first container comprising a first guiding component, the second container comprising a second guiding component. The first guiding component can be identical to the second guiding component, or complementarily shaped to the second guiding component. For example, the shape of the guiding component can be a protrusion, a pit, an indentation, a notch, or a punctum. With such arrangement, the guiding components can cooperate with each other and then facilitate alignment of the set of containers.

[0018] According to the invention, a method of distributing a set of at least two containers with coiled cables

therein, said method comprising:

- extracting the second coiled cable from the delivery slot of the second container,
- entering the second coiled cable through the feeding slot of the first container,
- extracting the second coiled cable and the first coiled cable from the delivery slot of first container.

[0019] Before distributing the set of at least two containers using said method, the set of at least two containers are disposed close to each other. The user first opens each container and insert the free end of coiled cable therein to the delivery slot of the container, then the user closes each container. After this preparation, the user follows said method in the current invention to extract cables separately or jointly from outside of the containers without cable snarls or backlash. The user can also align the containers by the cooperation between guiding components of containers, for example, by inserting the protrusion of first container to the pit of second container. As a result, the feeding slots and the delivery slots of containers are aligned following an axis perpendicular to the main faces of containers, the user can easily insert the second cable to the feeding slot of the first cable, and then pull the second cable through the interior of the first container to the delivery slot of the first container, then the use can distribute the cables separately or jointly from outside of the containers. This method can be used on site after the set of at least two containers with coiled cables therein has been transported separately to the work area. This method can also be used off site to extract the free ends of all cables from the delivery slot of the first container, then the set of at least two containers is transported to the work area for the user to distribute cables separately or jointly from outside of the containers.

[0020] The invention is described in detail hereinafter with reference to figures, which show only preferred embodiment of the invention:

Figure 1 is a perspective view of the dispensing container according to the invention, with a coiled cable therein.

Figure 2 is a top perspective view of a set of at least two dispensing containers during the distribution of coiled cables jointly from the delivery slot of the first container.

Figure 3 is a side perspective view of a set of at least two dispensing containers during the distribution of coiled cables jointly from the delivery slot of the first dispensing container.

Figure 4 is a perspective view of a set of at least two dispensing containers with guiding components co-

operating with each other for the alignment of dispensing containers.

[0021] Figure 1 illustrates a demonstrative embodiment of a dispensing container according to current invention. The dispensing container 1 of current invention is formed as a box, that is, right parallelepiped, having six square or rectangular external faces, each couple of opposite faces having substantially the same dimensions. The dispensing container 1 comprises a first main face 10 having a delivery slot 11 for the distribution of cables from outside of the dispensing container 1, a second main face 20 having a feeding slot 21 to accept an external cable to be inserted inside the dispensing container 1, and four side walls 30, 40, 50, 60 perpendicular to and hinged with these two main faces 10, 20.

[0022] The first main face 10, hinged with the edge of the side wall 50 which is parallel to the edge formed by the intersection of the second main face 20 and the side wall 50. When the user pivots the first main face 10 about the edge hinging the first main face 10 and the side wall 50, the dispensing container 1 can be closed and the first main face 10 is opposite to and parallel to the second main face 20 of the dispensing container 1.

[0023] The internal surface of the second main face 20 is for the placement of a coiled cable 2 which is embodied by the side walls 30, 40, 50, 60 of the dispensing container 1. The coiled cable 2 can be wound around a hub, or wound directly without a hub and attached by a fixing means like an elastic band to prevent cable straying during the distribution.

[0024] The delivery slot 11 of the first main face 10, and the feeding slot 21 of the second main face 20 can be formed by a cutout, each having a center somewhat at said main face 10, 20 of the dispensing container 1. The form of the delivery slot 11 and the feeding slot 21 can be rectangular, square, circular, oval, or other form. Nevertheless, circular forms of the delivery slot 11 and the feeding slot 21 are preferred since such forms reduce the friction between the dispensing container 1 and the coiled cable 2, which facilitates the extracting of the coiled cable 2 and protects the coiled cable 2 from abrasion during the distribution of the cable.

[0025] The delivery slot 11, the feeding slot 21 in said main face 10, 20 of the dispensing container 1, can also be formed by a pulling tab which is one part of said main face 10, 20. The pulling tab protects the remaining coiled cable 2 inside the dispensing container 1 from hostility (dust, humidity, friction, etc.) in external environment.

[0026] In one variant embodiment of current invention, the delivery slot 11 is aligned with the feeding slot 21 following an axis perpendicular to the first main face 10 and the second main face 20 of the dispensing container 1. As a result, the delivery slot 11 and the feeding slot 21 define a straight path which facilitates the insertion and the extraction of an external cable through the dispensing container 1. During the distribution of an external cable, this external cable enters the dispensing container 1

through the feeding slot 21 and then, following the straight path defined by the delivery slot 11 and the feeding slot 21, goes directly to the outside of the dispensing container 1 through the delivery slot 11 the dispensing container 1. This external cable can be distributed separately or jointly with a coiled cable inside the dispensing container 1 from outside of the dispensing container 1. Such operation is particularly practical during the distribution of the cable in a space limited work area.

[0027] In another variant embodiment, the delivery slot 11 locates at the center of the first main face 10 and the feeding slot 21 locates at the center of the second main face 20 of the dispensing container 1. As a result, the delivery slot 11 and the feeding slot 21 define a straight path which facilitates the insertion and the extraction of an external cable from outside the dispensing container 1. Furthermore, the gravitational center of the dispensing container 1 locates at the geometrical center of the dispensing container 1, consequently, the dispensing container 1 is stable during the distribution of cables from outside of this container 1.

[0028] To verify the remaining quantity of the coiled cable inside the dispensing container 1, the first main face 10 of the dispensing container 1 has an opening window 12. When the dispensing container 1 is closed, the opening window 12 of the first main face 10 locates over the radial part of the coiled cable 2 placed on the internal surface of the second main face 20 of the dispensing container 1. The user can see the remaining quantity of the coiled cable 2 through the opening window 12 without opening the dispensing container 1. The opening window 12 can be a cutoff, or a slot with a tab, or a slot closed by a transparent film which protects the coiled cable 2 from dust and humidity at the outside the dispensing container 1.

[0029] To facilitate the transportation of the dispensing container 1, a hand portion 63 is cut at the central part of the side wall 60 hinged with the first main face 10 and the second main face 20. An opening 65 for the transportation of the dispensing container 1 is cut in the central part of the hand portion 63.

[0030] Panel 90, hinged with the edge of the first main face 10 which is parallel to the edge formed by the intersection of the first main face 10 and the side wall 50. Panel 90 has a rectangular slit 91. The edges of slit 91 are parallel to edges of the panel 90. The lengths of two edges of the slit 91 which are parallel to the hinge line between the panel 90 and the first main face 10, are sufficiently long to accept the hand portion 63 entering through the slit 91 and leaving the opening 65 of the hand portion 63 outside of the dispensing container 1, when the dispensing container 1 is closed.

[0031] The dispensing container 1 of current invention is especially useful for distributing jointly or separately several cables. As illustrated in figure 2 and figure 3, a set of at least two such dispensing containers comprising a first dispensing container 1 with a first coiled cable 2 therein, and a second dispensing container 1' with a sec-

ond coiled cable 2' therein. The user first opens each dispensing container 1, 1', then inserts the free end of each coiled cable 2, 2' through the delivery slot of each dispensing container 1, 1' to dispose the free end of each coiled cable 2, 2' outside of each dispensing container 1, 1', and then the user closes these two dispensing containers 1, 1'. After such preparation, the user disposes these two dispensing containers 1, 1' close to each other, to align the delivery slot 11 and the feeding slot 21 of the first dispensing container 1 with the delivery slot and the feeding slot of the second dispensing container 1', following an axis perpendicular to the four main faces of these two dispensing containers 1, 1'. Such alignment defines a straight path between the two delivery slots and the two feeding slots of these two dispensing containers 1, 1'. Following this path, the user can insert the free end of the second coiled cable 2' into the feeding slot 21 of the first dispensing container 1, push the free end of the second coiled cable 2' through the delivery slot 11 of the first dispensing container 1 to the outside of the first dispensing container 1. With such arrangement, the dispensing containers 1, 1' are attached together by the coiled cables 2, 2'. As a result, the user can distribute the coiled cables 2, 2' jointly or separately from outside of the dispensing containers 1, 1' without dispersing the dispensing containers 1, 1' in the work area.

[0032] Referring to figure 4, in a demonstrative embodiment of the set of at least two dispensing containers of current invention, the first dispensing container 1 comprises a first guiding component 16 and the second dispensing container 1' comprises a second guiding component 16'. The first guiding component 16 can be identical to or shaped complementarily to the second guiding component 16', so that two guiding components 16, 16' can cooperate to facilitate alignment of these two dispensing containers 1, 1'.

[0033] The dispensing container 1 of current invention can be formed by a blank including fold lines forming the various edges. This blank is preferably light-weighted blank like a cardboard blank. Such blank can be shipped and stored without occupying much space. The dispensing container can be used as an individual container for distributing a coiled cable, or used with a coiled cable therein for shipping, storing, and distributing of said coiled cable.

Claims

1. A dispensing container (1) for a first coiled cable (2) therein, the container (1) comprising two main faces (10, 20) opposite to each other and parallel to each other, **characterized in that** one main face (10) comprises a delivery slot (11) to allow extraction of the first cable (2) from said delivery slot (11), the other main face (20) comprises a feeding slot (21) to allow a second cable (2') to enter inside said container (1) and then to be extracted jointly or sepa-

ately with the first cable (2) from said delivery slot (11).

2. The dispensing container (1) according to claim 1, wherein the delivery slot (11) is aligned with the feeding slot (21) following an axis perpendicular to the two main faces (10, 20) of the container (1).
3. The dispensing container (1) according to any of the previous claims, wherein the delivery slot (11) locates at the center of one main face (10) of the container (1) and the feeding slot (21) locates at the center of the other main face (20) of said container (1).
4. The dispensing container (1) according to any of the previous claims, wherein the delivery slot (11) and the feeding slot (21) of the container (1) have circular forms.
5. The dispensing container (1) according to any of the previous claims, wherein the delivery slot (11) and the feeding slot (21) of the container (1) have folding tabs to close the slots (11, 21) for isolating the coiled cable (2) from external environment.
6. The dispensing container (1) according to any of the previous claims, wherein the container (1) is formed from a single cardboard blank including fold lines forming the various edges of said dispensing container (1).
7. A set of at least two dispensing containers (1, 1') according to any of the previous claims comprising a first dispensing container (1) with first coiled cable (2) therein, and a second dispensing container (1') with second coiled cable (2') therein, **characterized in that** said containers (1, 1') are disposed close to each other, so that the slots (11, 21) of first container (1) are aligned with the slots (11', 21') of second container (1') following an axis perpendicular to the main faces (10, 20, 10', 20') of containers (1, 1'), allowing second coiled cable (2') to enter through the feeding slot (21) of first container (1) and then to be extracted jointly or separately with first coiled cable (2) from the delivery slot (11) of first container (1).
8. The set of at least two dispensing containers (1, 1') according to claim 7, wherein the containers (1, 1') are superposed following a vertical axis perpendicular to the main faces (10, 20, 10', 20') of said containers (1, 1') to align said containers (1, 1').
9. The set of at least two dispensing containers (1, 1') according to any one of claims 7 and 8, wherein the first container (1) comprising a first guiding component (16), the second container (1') comprising a second guiding component (16'), **characterizing in that** said first guiding component (16) is complemen-

tary shaped with regard to said second guiding component (16') so that said two guiding components (16, 16') can cooperate together, and then to facilitate alignment of said containers (1, 1').

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10. Method for distributing coiled cables (2, 2') from the set of at least two dispensing containers (1, 1') according to any one of claims 7 to 9, said method comprising:

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- extracting the second coiled cable (2') from the delivery slot (11') of the second container (2'),
- entering the second coiled cable (2') through the feeding slot (21) of the first container (1),
- extracting jointly or separately the second coiled cable (2') and the first coiled cable (2) from the delivery slot (11) of the first container (1).

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11. The method for distributing coiled cables (2, 2') from the set of at least two dispensing containers (1, 1') according to claim 10, said method comprising:

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- aligning the containers (1, 1') and distributing the coiled cables (2, 2').

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Fig. 1

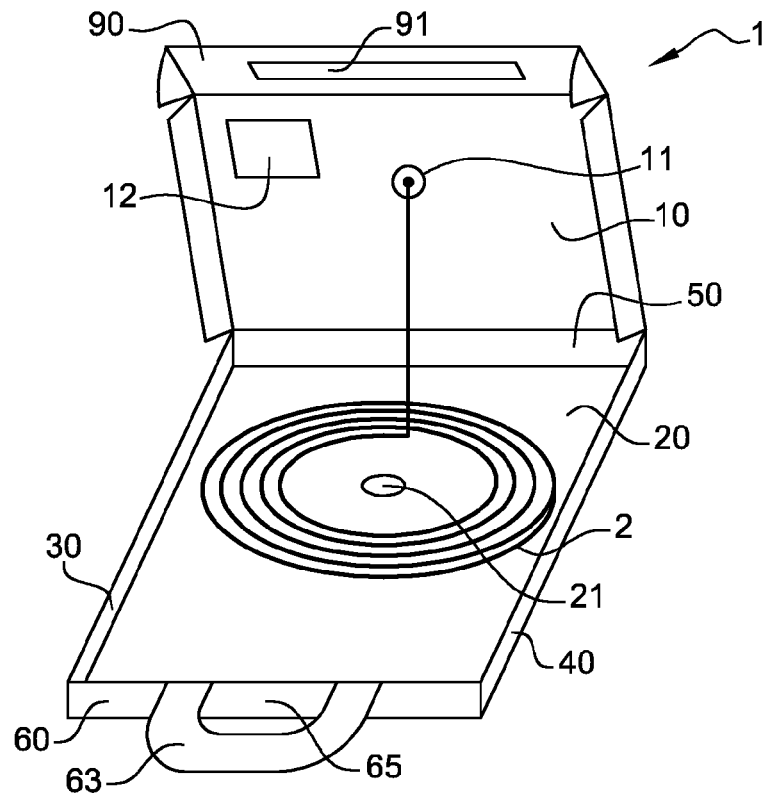


Fig. 2

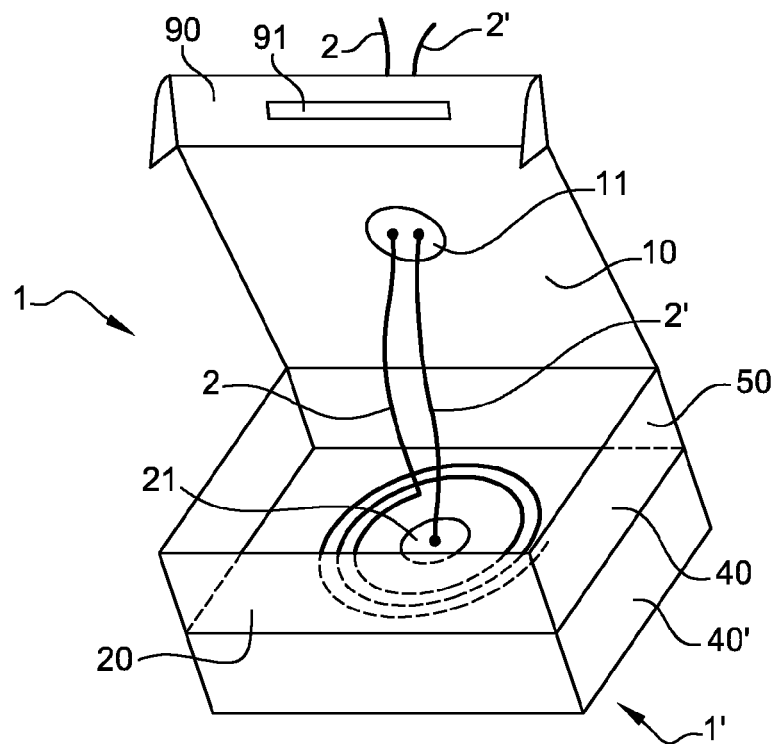


Fig. 3

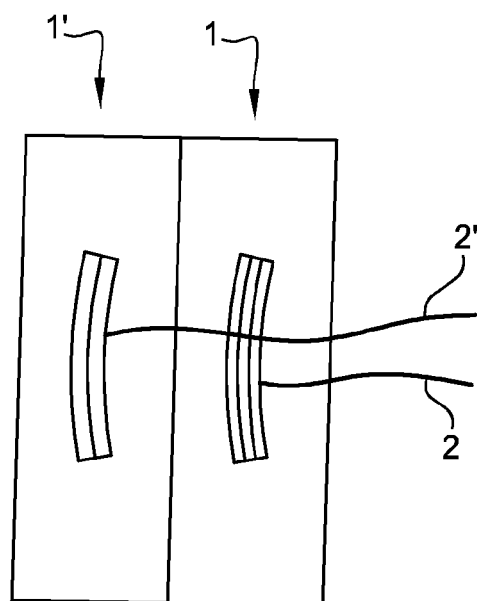
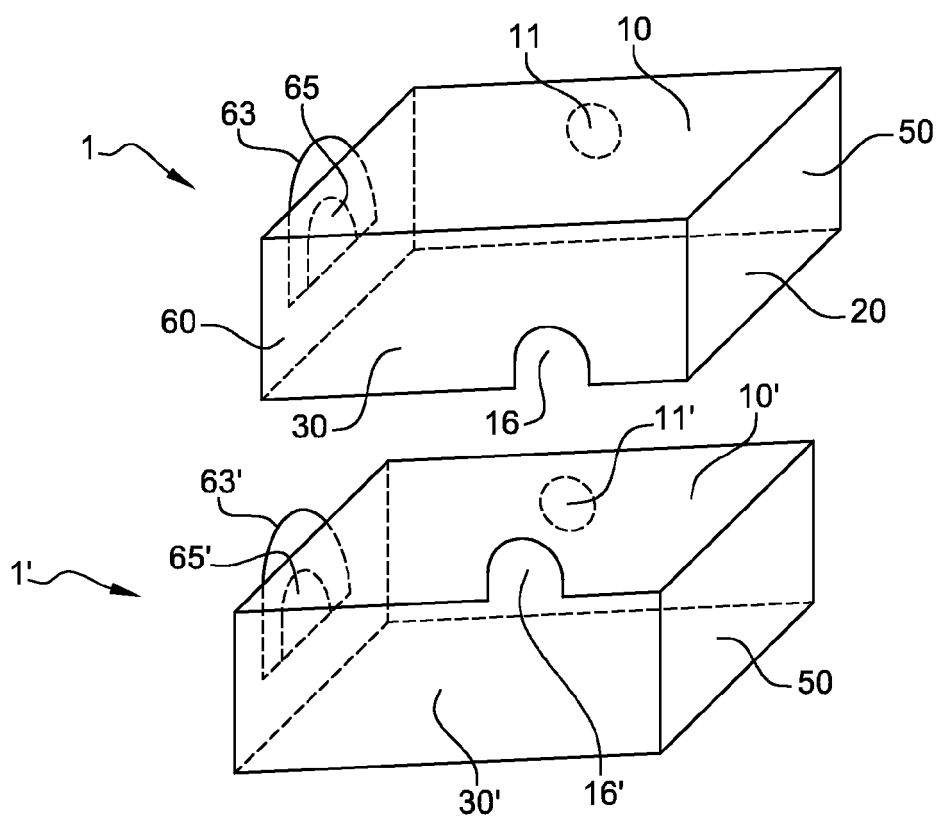


Fig. 4





EUROPEAN SEARCH REPORT

Application Number

EP 22 30 6371

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	US 2008/191436 A1 (GALGANO RICHARD [US] ET AL) 14 August 2008 (2008-08-14) * paragraphs [0025] - [0027], [0051] - [0053]; figure 9 *	1, 2, 5-8, 10, 11	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65H B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		16 February 2023	Pussemier, Bart
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 22 30 6371

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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