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(54) METHOD, ARRANGEMENT AND USE RELATED TO MARKING OF OBJECTS

VERFAHREN, ANORDNUNG UND VERWENDUNG ZUR MARKIERUNG VON OBJEKTEN

PROCÉDÉ, AGENCEMENT ET UTILISATION RELATIFS AU MARQUAGE D'OBJETS

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WO-A1-83/02975 WO-A1-99/61741
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Description

Technical field for the invention

[0001] The present invention relates to a method for marking or colouring or destruction of objects of value, such as banknotes, according to the preamble of claim 1. The invention also relates to a device for accomplishing this method and a use for the method and the device.

Technical field

[0002] WO 99/61741 exemplifies a method and a device within the same technical field. Furthermore, FR 2 888 604 discloses a transport container for valuables comprising a device for marking and destruction of the valuables, the marking device comprising two compressible containers containing liquid medium, and a flattened and expandable container connected to gas generating means, which, when needed compresses the compressible containers for distribution of the liquid medium. Therefore, a reference is made to these documents for an understanding of the background technology.

[0003] One problem is to achieve a fast and efficient liquid flow from the container of liquid so that the best possible marking/colouration/destruction result is obtained. Also, an increase in the directions of work is desirable, as is the possibility of a space-economising size.

Object of the invention

[0004] One object of the present invention is to achieve a method and a device that when the need arises perform an extremely efficient marking/colouration/destruction of objects/instruments of value that are protected by alarms. This object is achieved by the method according to claim 1 and the device according to claim 4.

[0005] The method and the device according to the invention make possible a marking or a colouration or a destruction that is very efficient. The size of the device can easily be adapted to the spaces available. The device can have several direction of work. The device has both technical and economic advantages.

Short description of the drawings

[0006] Embodiments of the invention will be described more closely below, with reference to the enclosed drawings, in which

Figure 1 shows schematically in a cross section a space for valuables that is equipped with the devices according to the invention.

Figure 2 shows schematically in a lengthwise cut the space for valuables according to **Figure 1**, **Figure 3** shows schematically the device according to the invention in a cross section in a first position, **Figure 4** shows schematically the device according

to the invention in a cross section in a second position, where the first container has been emptied of liquid as a consequence of an alarm signal.

Figure 5 shows schematically an alternate embodiment of the device according to the invention in a cross section in a first position, and

Figure 6 shows schematically an additional embodiment of a device according to the invention, in cross section, in a first position.

Detailed description of the embodiments shown

[0007] In Figure 1 is shown a space 10 for valuables, in the form of for example a security bag or money cassette for an ATM etc, which for example contains stacked banknotes 100. The space 10 for valuables is alarmed so that an attempt at unauthorized removal of banknotes 100 triggers an alarm signal.

[0008] Inside the space 10, in the example shown, there are arranged four devices 20 according to the invention, the devices to be described in more detail below. Of course, the devices 20 can be varied as needed from one device and upwards in number.

[0009] The device 20 comprises a first container 30 that can be compressed and opened, and which contains a liquid 31 which serves as a means for marking, colouration or destruction. The container 30 is made from a flexible material, such as plastic or metal foil, sheet metal or similar. At the container 30 there is placed an opening means 32 for the container. The opening means 32 can, for example, be a sliding cutting knife, as exemplified in WO 99/61741, or an electric wire designed to cause melting or, PETN (penta-erythritol tetranitrate) fuse wire, a string of gun powder or some other purposeful alternative that can be applied at the container 30. The container 30 can alternatively be equipped with a score or a weakening that ruptures when load is applied.

[0010] Further, the device 20 comprises a flattened and expandable second container 40 in order to, if necessary, compress the first container 30 to apply the liquid substance 31 on the objects 100. The container 40 is made from a flexible material, such as for example plastic or paper or metal foil etc. Inside the flattened container 40, there is arranged a gas generating means 41. The gas generating means communicates with the alarm device, in order to be activated at the presence of an alarm signal, when the gas generating means produces a balloon-like inflation or expansion of the container 40. Passages through the container 40 for the required communications wires from for example the alarm device to the gas generating means are minimized and are sealed tight as necessary, so that the balloon-like inflation of the container 40 lasts for a long time, so that the liquid 31 is not able to return to the container 30, that is kept remaining in a flattened state. The colouration/marketing/destruction becomes very efficient.

[0011] The gas generating means 41 can for example be a charge of gun powder, a CO₂-container, gas gen-

erating chemicals or other purposeful gas generators. The gas generating means 41 also comprises an activator that initiates the gas generation process, for example a detonator cap or similar. The activator can also be a mechanical device and/or a cord of PETN. The gas generating means 41 can be encapsulated in a protective cover, for example a glass fibre sock, so that the risk of puncture of the container/balloon 40 is minimised.

[0012] The device 20 further comprises an outer cover 50 in the form of a square profile or rectangular profile with sides 51-54, where the side 54 has an opening 55 going along the cover/profile that allows liquid expulsion from the first container 30. The cover 50 can of course have any form chosen, depending on for example the amount of space available. The cover can for example be shaped as a reflecting gutter, where the gas containing balloon is placed between the inside/bottom of the gutter and the container of liquid.

[0013] The containers 30 and 40 are arranged inside the profile 50, as can be seen in Figure 3, and the liquid-holding container 30 uses up a large part of the inside space of the profile 50, while at the same time its opening means 32 coincides with the slit or opening 55. The flattened and inflatable container 40 is placed between the container 30 and the rear wall 52.

[0014] In the event of an alarm, the following takes place, starting at Figure 3. The opening means 32 is activated to open the container 30 so that a liquid 31 can flow out through the opening 55. The opening means 32 can also be constructed to open any encapsulation of the instruments of value 100 to increase the result of the colouration.

[0015] The gas generating organ 41 is activated to produce gas so that the flattened container 40 is inflated in a balloon-like manner, or expands, so that the container 30 is flattened or compressed because of the expansion of the container 40. Because of this, the liquid 31 will very quickly be forced out of the container 30 and end up on the banknotes or the instruments of value 100. This means that the process of marking or colouration or destruction becomes very fast and efficient, regardless of the direction of outflow of the liquid 31, which provides great freedom of placement for the device 20 according to the invention.

[0016] Figure 4 shows the device 20 after the process of emptying is complete. Backflow of the liquid to the container 30 is eliminated because of the expansion of the container 40. The ejection of liquid is symbolised by the arrow A. The long-lasting state of expansion of the container 40 achieved according to the invention is very advantageous.

[0017] Figure 5 shows an embodiment where, compared with what is shown in Figure 3, uses two second containers (expandable containers), 80a and 80b, inside of which gas generating means 81 and 82 are placed. Further, a two-component liquid is used, for example glue, as an agent of destruction, where the liquid components 83, 84 are kept each in its own first container

85a and 85b. At least one opening means 87 is arranged to, when needed, opening the liquid containers 85a and 85b. A device for mixing 90 (for example a perforated metal plate) is by preference placed at the opening 55', so that the liquid components 83,84 get a good mixing when they leave the device 20'. Details that have a corresponding item in Figure 3 have been indicated by the addition of a single quote.

[0018] In case of an alarm, the containers 85a and 85b are opened and the containers 80a and 80b expand and squeeze the liquid content out of the containers 85a and 85b, after which the liquids preferably are mixed in the mixing device 90 before the mixture of liquids ends up on the instruments of value 100.

[0019] Figure 6 shows an embodiment where an inflatable second container/balloon 110 is used, inside of which a gas generating means 111 is placed to produce the inflation effect. In this case, three liquid components 121, 122, 123 are used, which are kept each in its own container 124-126, as is shown in the figure. An opening means 130, in the form of e.g. PETN fuse wire, is arranged so that in the event of an alarm, it will open the containers 124-126 so that their contents, with the aid of the balloon 110, are distributed over the valuable object 100. Further, a mixing device 190 is used to achieve a desired mixing of the components 121-123 when the liquids flow out. The mixing device 190 in this case includes a double grating or double raster which contains holes that are mutually displaced to produce a good mixing effect. It is often advantageous to also arrange separate devices 200 for opening e.g. the bags or cassette compartments in which the instruments of value are stored. Such opening means can for example be implemented as PETN fuse wire. Details that have corresponding items in Figures 3 and 4 have been indicated by the addition of a double quote.

[0020] In the event of an alarm, the sequence of activation is normally that the opening means 200 is activated before the opening means 130, after which the gas generating means 111 is activated. Alternatively, the opening means 200 and the opening means 130 can be activated simultaneously whereafter the gas generating means 111 is activated. Additional possibilities for variation do of course exist even in this case.

[0021] It shall be understood that the number of expanding containers and the number of liquid containers can of course be varied according to need. The same applies to exit openings and the number of gas generators, the number of opening means, the mixing means etc.

[0022] It shall be understood that the device according to the invention can easily be varied both as regards to size and shape within the framework of the scope of the invention. It can for example also be bent or angled.

[0023] It is also possible to, in certain cases, leave out the profile 50, 50', 50" and thereby arrange a geometry in the value space itself that takes over the container fixing and force receiving function of the profile etc.

[0024] The device 20, 20', 20" can, as needed, have two or more openings 55, 55', 55" and opening means 32; 87; 130 so that the liquid ejection process is accelerated.

[0025] The shown inflatable second containers are preferentially made from an elastic (stretchable) material to better accommodate the required expansion requirements.

[0026] If aggressive chemicals and liquids, for example acids, are used, the choice of material for the liquid containers must be made accordingly. If so-called fingerprint marking is used, the container/containers can be adapted to this as needed.

[0027] As has been emphasised above, it is a very important property of the device according to the invention that the inflated balloon retains its inflated state for a long time in order to optimize the colouration etc. The gas generating means is placed inside the balloon, and at the same time, the container/balloon is gas proof.

[0028] Because the balloon is flattened in its original form it is resistant to external attacks and sabotage.

[0029] It shall be understood that many variations are possible within the scope of the invention.

[0030] The invention is thus not limited to that which is shown and described, it should be understood that changes and modifications of that are obviously possible within the scope of the following patent claims.

Claims

1. Method for marking or colouration or destruction of objects of value (100), such as banknotes, where at least one liquid medium (31;83,84;121-123) which is contained in at least one compressible and openable container (30;85a,85b;124-126) is used, **characterised by** that at least one flattened and expandable container (40;80a,80b;110) is used in order to, when needed, compress the compressible container (30;85a,85b;124-126) for distribution of the liquid medium (31;83,84;121-123) on the objects of value (100), and that at least one gas generating means (41,81,82;111) is used inside the expandable container (40;80a,80b;110) so that at an alarm signal the gas generator will expand the expandable container (40;80a,80b;110).
2. Method according to claim 1, **characterised by** that the liquid-containing container (30;85a,85b;124-126) is punctured or opened at an alarm signal.
3. Method according to claim 1 or 2, **characterised by** that the expandable container (40;80a,80b;110) is expanded in a balloon-like fashion and achieves a lasting increase in volume that ensures the effect of the liquid medium (31;83,84;121-123) on the objects of value.

4. Device for marking or colouration or destruction of objects of value (100) such as banknotes, where the device (20; 20'; 20") comprises at least one liquid medium (31;83,84;121-123) which is placed in at least one compressible and openable container (30; 85a, 85b;124-126), **characterised by** that the device (20, 20', 20") comprises at least one flattened and expandable container (40;80a,80b;110), and that at least one gas generating means (41;81,82; 111) is placed inside the expandable container (40; 80a,80b;110) to implement expansion of the expandable container at an alarm signal.

5. Device according to claim 4, **characterised by** that at the liquid-containing container (30;85a,85b; 124-126) is arranged at least one device (32;87;130) to open the liquid container at an alarm signal.

6. Device according to claim 4 or 5, **characterised by** that it contains a profile (50;50';50") with at least one opening (55;55';55") for liquid outflow from a compressible container (30;85a,85b;124-126).

7. Device according to claim 6, **characterised by** that the containers (30,40) are arranged inside the profile (50) so that the compressible container (30) lies in contact with one side (54) of the box profile (50) where the opening for the liquid outflow (55) is situated, and that the expandable container is placed between the compressible container (30) and a profile side (52) on the opposite side relative to the opening (55).

8. Device according to claim 6 or 7, **characterised by** that a device for mixing (90;190) is arranged at the opening (55';55") for liquid outflow so that different liquid components can be mixed when liquid is distributed.

9. Use of a method according to any one of claims 1-3, **characterised by** that the method is used in connection with payment machines, automatic banking machines, ATM-machines, spaces where valuables are kept or similar devices to achieve marking or destruction of banknotes and similar items.

10. Use of a device according to any one of claims 4-8, **characterised by** that the device is used in connection with payment machines, automatic banking machines, ATM-machines, spaces where valuables are kept or similar devices to achieve marking or destruction of banknotes and similar items.

Patentansprüche

1. Verfahren zur Markierung oder Färbung oder Zerstörung von Wertgegenständen (100), wie beispiels-

- weise Banknoten, wobei mindestens ein flüssiges Medium (31; 83, 84; 121-123) genutzt wird, das in mindestens einem zusammendrückbaren und öffn-
baren Behälter (30; 85a, 85b; 124-126) enthalten ist, **dadurch gekennzeichnet, dass** mindestens ein abgeflachter und ausdehnbarer Behälter (40; 80a, 80b; 110) genutzt wird, um bei Bedarf den zusam-
mendrückbaren Behälter (30; 85a, 85b; 124-126) zur Verteilung des flüssigen Mediums (31; 83, 84; 121-123) auf den Wertgegenständen (100) zu-
sammenzudrücken, und dass mindestens ein Gaserzeugungsmittel (41, 81, 82; 111) innerhalb des ausdehnbaren Behälters (40; 80a, 80b; 110) genutzt
wird, so dass bei einem Alarmsignal der Gaserzeu-
ger den ausdehnbaren Behälter (40; 80a, 80b; 110) ausdehnt.
2. Verfahren nach Anspruch 1, **dadurch gekenn-
zeichnet, dass** der Flüssigkeit enthaltende Behälter (30; 85a, 85b; 124-126) bei einem Alarmsignal punk-
tiert oder geöffnet wird.
3. Verfahren nach Anspruch 1 oder 2, **dadurch ge-
kennzeichnet, dass** der ausdehnbare Behälter (40;
80a, 80b; 110) in einer ballonartigen Weise ausge-
dehnt wird und eine dauerhafte Volumenerhöhung
erreicht, welche die Wirkung des flüssigen Mediums
(31; 83, 84; 121-123) auf den Wertgegenständen si-
cherstellt.
4. Vorrichtung zur Markierung oder Färbung oder Zer-
störung von Wertgegenständen (100), wie beispiels-
weise Banknoten, wobei die Vorrichtung (20; 20'; 20''
) mindestens ein flüssiges Medium (31; 83, 84;
121-123) umfasst, das in mindestens einem zusam-
mendrückbaren und öffn-
baren Behälter (30; 85a,
85b; 124-126) platziert ist, **dadurch gekennzeich-
net, dass** die Vorrichtung (20, 20', 20'') mindestens
einen abgeflachten und ausdehnbaren Behälter (40;
80a, 80b; 110) umfasst, und dass mindestens ein
Gaserzeugungsmittel (41, 81, 82; 111) innerhalb des
ausdehnbaren Behälters (40; 80a, 80b; 110) plat-
ziert ist, um die Ausdehnung des ausdehnbaren Be-
hälters bei einem Alarmsignal zu implementieren.
5. Vorrichtung nach Anspruch 4, **dadurch gekenn-
zeichnet, dass** an den Flüssigkeit enthaltenden Be-
hälter (30; 85a, 85b; 124-126) mindestens eine Vor-
richtung (32; 87; 130) angeordnet ist, um den Flüs-
sigkeitsbehälter bei einem Alarmsignal zu öffnen.
6. Vorrichtung nach Anspruch 4 oder 5, **dadurch ge-
kennzeichnet, dass** sie ein Profil (50; 50'; 50'') mit
mindestens einer Öffnung (55; 55'; 55'') zum Ausfluss
von Flüssigkeit aus einem zusammendrückbaren
Behälter (30; 85a, 85b; 124-126) enthält.
7. Vorrichtung nach Anspruch 6, **dadurch gekenn-
zeichnet, dass** die Behälter (30, 40) innerhalb des
Profils (50) angeordnet sind, so dass der zusamen-
drückbare Behälter (30) an einer Seite (54) des Kas-
tenprofils (50) anliegt, wo sich die Öffnung zum Aus-
fluss von Flüssigkeit (55) befindet, und dass der aus-
dehnbare Behälter zwischen dem zusammendrück-
baren Behälter (30) und einer Profilseite (52) an der
gegenüberliegenden Seite bezogen auf die Öffnung
(55) platziert ist.
8. Vorrichtung nach Anspruch 6 oder 7, **dadurch ge-
kennzeichnet, dass** eine Vorrichtung zum Mischen
(90; 190) an der Öffnung (55'; 55'') zum Ausfluss von
Flüssigkeit angeordnet ist, so dass verschiedene
Flüssigkeitskomponenten gemischt werden können,
wenn Flüssigkeit verteilt wird.
9. Nutzung eines Verfahrens nach einem der Ansprü-
che 1 bis 3, **dadurch gekennzeichnet, dass** das
Verfahren im Zusammenhang mit Bezahlautomaten,
Bankautomaten, Geldautomaten, Räumen, wo
Wertgegenstände aufbewahrt werden, oder ähnli-
chen Vorrichtungen genutzt wird, um die Markierung
oder Zerstörung von Banknoten oder ähnlichen Ar-
tikeln zu erreichen.
10. Nutzung einer Vorrichtung nach einem der Ansprü-
che 4 bis 8, **dadurch gekennzeichnet, dass** die
Vorrichtung im Zusammenhang mit Bezahlautomaten,
Bankautomaten, Geldautomaten, Räumen, wo
Wertgegenstände aufbewahrt werden, oder ähnli-
chen Vorrichtungen genutzt wird, um die Markierung
oder Zerstörung von Banknoten oder ähnlichen Ar-
tikeln zu erreichen.

Revendications

1. Procédé pour marquer, colorer ou détruire des objets
de valeur (100), tels que des billets de banque, au
moins un milieu liquide (31 ; 83, 84 ; 121-123) qui
est contenu dans au moins un contenant compres-
sible et pouvant s'ouvrir (30; 85a, 85b; 124-126)
étant utilisé, **caractérisé en ce qu'**au moins un con-
tenant aplati et expansible (40 ; 80a, 80b ; 110) est
utilisé afin de comprimer, si nécessaire, le contenant
compressible (30 ; 85a, 85b; 124-126) pour la répar-
tition du milieu liquide (31 ; 83, 84 ; 121-123) sur les
objets de valeur (100), et qu'au moins un moyen de
production de gaz (41, 81, 82; 111) est utilisé dans
le contenant expansible (40 ; 80a, 80b ; 110), de sor-
te que, lors du déclenchement d'un signal d'alarme,
le producteur de gaz entraîne la dilatation du conte-
nant expansible (40 ; 80a, 80b ; 110).
2. Procédé selon la revendication 1, **caractérisé en ce
que** le contenant renfermant le liquide (30 ; 85a, 85b;
124-126) est percé ou ouvert lors du déclenchement

- d'un signal d'alarme.
3. Procédé selon la revendication 1 ou 2, **caractérisé en ce que** le contenant expansible (40 ; 80a, 80b ; 110) est dilaté en forme de ballon et réalise une augmentation durable de volume qui assure l'effet du milieu liquide (31 ; 83, 84 ; 121-123) sur les objets de valeur.
 4. Dispositif pour marquer, colorer ou détruire des objets de valeur (100) tels que des billets de banque, le dispositif (20 ; 20' ; 20") comprenant au moins un milieu liquide (31 ; 83, 84 ; 121-123) qui est placé dans au moins un contenant compressible et pouvant s'ouvrir (30 ; 85a, 85b; 124-126), **caractérisé en ce que** le dispositif (20, 20', 20") comprend au moins un contenant aplati et expansible (40 ; 80a, 80b; 110), et **en ce qu'**au moins un moyen de production de gaz (41; 81, 82; 111) est placé dans le contenant expansible (40; 80a, 80b; 110) pour appliquer une dilatation du contenant expansible lors du déclenchement d'un signal d'alarme.
 5. Dispositif selon la revendication 4, **caractérisé en ce qu'**au niveau du contenant renfermant un liquide (30 ; 85a, 85b; 124-126) au moins un dispositif (32 ; 87 ; 130) est agencé pour ouvrir le contenant de liquide lors du déclenchement d'un signal d'alarme.
 6. Dispositif selon la revendication 4 ou 5, **caractérisé en ce qu'**il contient un profilé (50 ; 50' ; 50") avec au moins une ouverture (55 ; 55' ; 55") pour l'écoulement du liquide à partir d'un contenant compressible (30 ; 85a, 85b ; 124-126).
 7. Dispositif selon la revendication 6, **caractérisé en ce que** les contenants (30, 40) sont agencés à l'intérieur du profilé (50) de sorte que le contenant compressible (30) repose en contact avec une face (54) du profilé en forme de boîte (50) au lieu où se situe l'ouverture pour l'écoulement du liquide (55), et que le contenant expansible est placé entre le contenant compressible (30) et une face profilée (52) sur la face opposée par rapport à l'ouverture (55).
 8. Dispositif selon la revendication 6 ou 7, **caractérisé en ce qu'**un dispositif de mélange (90 ; 190) est agencé au niveau de l'ouverture (55' ; 55") pour l'écoulement du liquide afin que différents composants liquides puissent être mélangés lorsque le liquide est réparti.
 9. Utilisation d'un procédé selon l'une quelconque des revendications 1 à 3, **caractérisée en ce que** le procédé est utilisé en liaison avec des machines de paiement, des guichets automatiques bancaires, des machines ATM, des espaces à l'intérieur desquels des objets de valeur peuvent être conservés
 10. Utilisation d'un dispositif selon l'une quelconque des revendications 4 à 8, **caractérisée en ce que** le dispositif est utilisé en liaison avec des machines de paiement, des guichets automatiques bancaires, des machines ATM, des espaces à l'intérieur desquels des objets de valeur peuvent être conservés ou des dispositifs similaires pour réaliser le marquage ou la destruction de billets de banque et autres articles similaires.

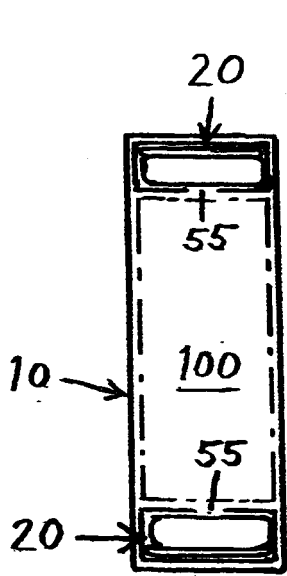


FIG. 1

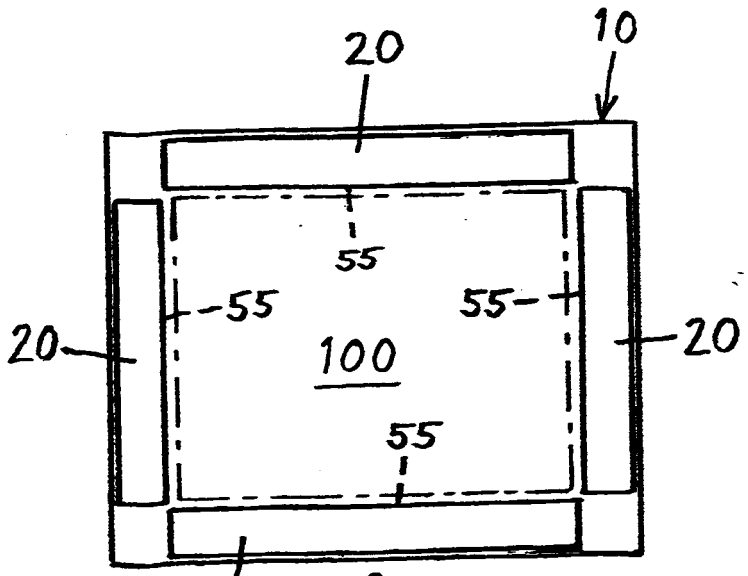


FIG. 2

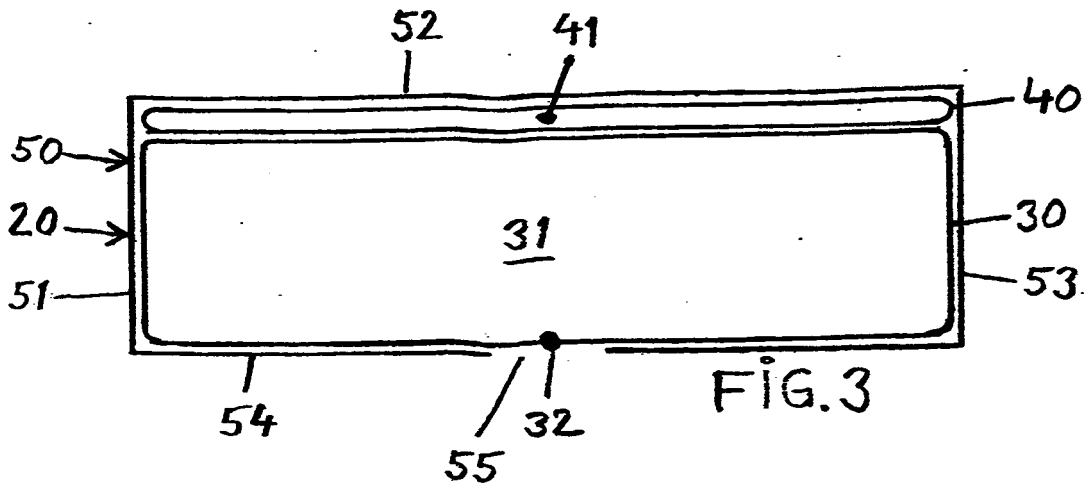


FIG. 3

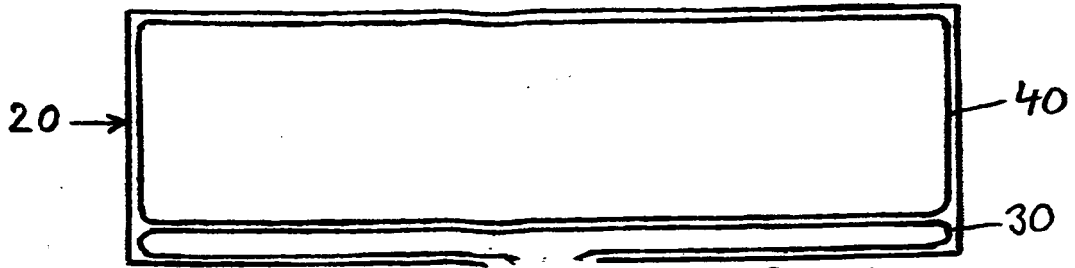


FIG. 4

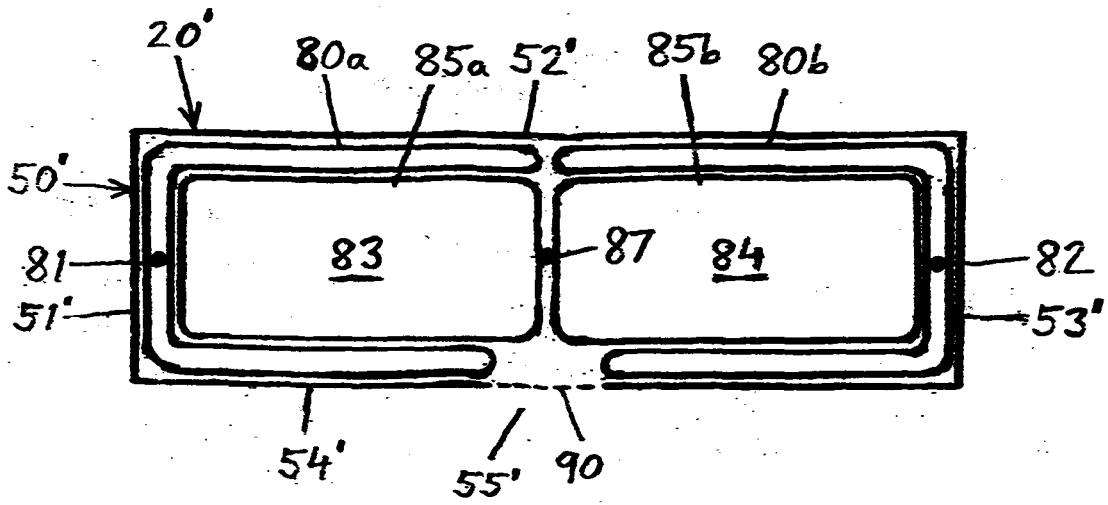


FIG. 5

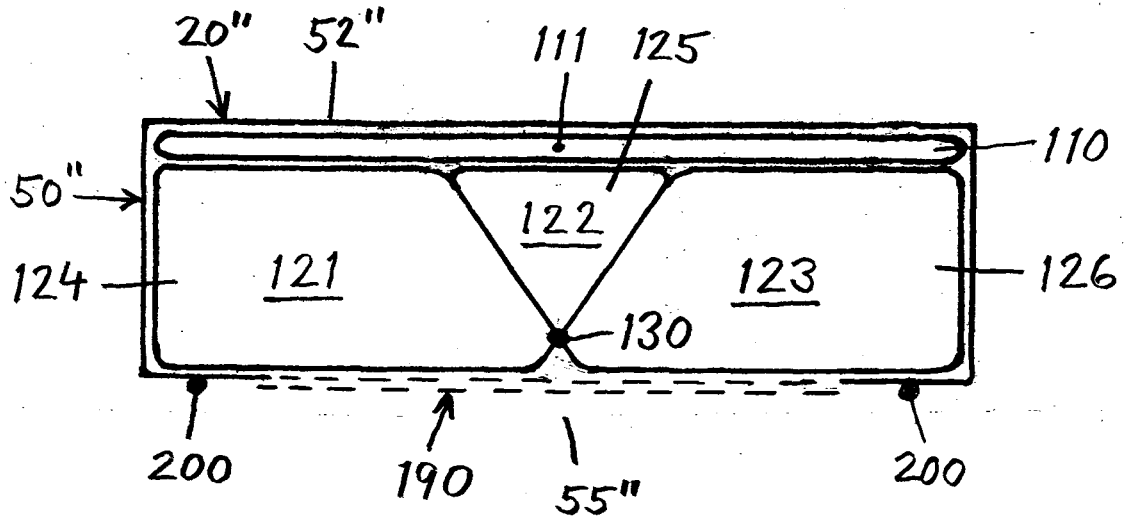


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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