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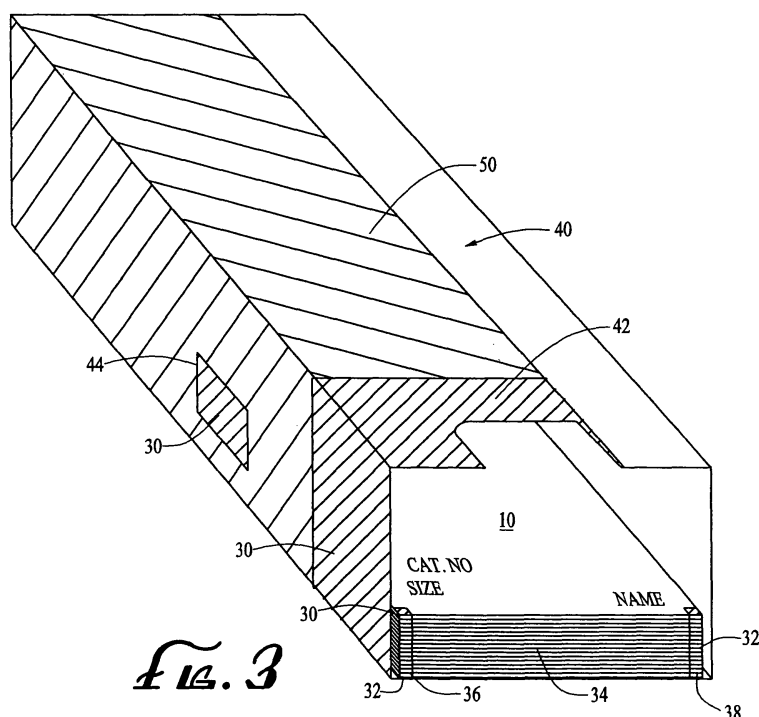
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(54) **Colored coding system for packaging materials**

(57) A color-coded packaging system is provided where a set of different colors are selected with each color (30) designated to signify a varying feature of a product such as a dimensions of a pouch (10) for receiving instruments for sterilization. Printed information or indicia printed on that pouch (10) are printed in a colored ink designating the size of that pouch (10). Multiple pouches (10) of the same size are packaged in boxes

(40) which have information or indicia printed thereon in the same color (30) so that the size of box (40) contents can be readily determined by the color (30) of the printing thereon. The storage area can also include designated color coded areas for placement of like colored boxes (40). The color coding of the storage area, the boxes (40) and the content of boxes (40) provides for easy selection of a desired product as a means for a quick visual inventory.



## Description

**[0001]** The present disclosure is directed to a system for storing multiple samples of various products, all of which have a feature or function which is similar but which each have at least one feature that is different, such as size. The system includes indicia on the product or the product packaging for readily identifying the nature of the product or that different feature or function of each of the stored products from a distance. More particularly, all of the packages having the same feature, and all of the containers holding the multiple packages with the same feature will have, in a readily visible location, a colored or other type of indicia printed thereon that is correlated to the variable feature. More specifically, in one intended use of the system, pouches used for packaging medical instruments are color coded. A user familiar with the color codes, upon viewing a pouch or a storage shelf containing multiple different size pouches, can readily locate a pouch of a specific size, or for a specific use, or fabricated from a specific material and then select the desired pouch for an intended purpose solely by viewing the one or more colors printed on the pouch or boxes of pouches.

## BACKGROUND

**[0002]** Numerous medical instruments are sterilized and reused. These instruments are typically cleaned, inserted into a sealable pouch and then sterilized. In dental offices for example, instruments are gathered after use, cleaned, and packaged in sterilizable pouches. The pouches are then sealed and subjected to a sterilizing environment such as an autoclave wherein steam or high temperature water vapor is used to sterilize the instruments. Alternatively, the pouch-enclosed instruments can be subjected to other sterilization techniques such as a sterilizing gas, for example, ethylene oxide, or exposure to radiation or UV light. The instruments are then stored in the sealed pouches for later use.

**[0003]** Typical sterilizing pouches are formed of two layers of sheet materials printed with identifying brand names and other information on an outward face. These pouches are available in numerous different widths and lengths and may also have different internal volumes by being formed with pleats or gussets. Still further, the pouch may be formed from front and back sheets of a paper or plastic material where at least on sheet or portion thereof is permeable to the sterilant but the sealed pouch is impermeable to bacterial or other contaminants. Examples of suitable materials are cellulosic papers, sheets formed from plastic fibers or fibrillated plastics, such as TYVEK® or clear impervious plastic films.

**[0004]** In typical embodiments, the pouch comprises first and second sheet material walls, the periphery of the walls being joined to define the pouch. One of the sheet material walls is preferably transparent and water vapor impervious, and one of said walls is preferably cellulosic and water vapor and sterilization gas pervious. The joinder of the walls defines a perimetrical seal about a partially closed volume within which the instruments are placed for sterilization. The pouch can also have a flap on one of the walls arranged to overlie the other of the walls in sealed relation to fully enclose the volume. Typically the two sheets are joined by heat sealing. However, if the pouch includes the flap a medically acceptable adhesive, which is unaffected by the sterilization process, can be applied to the flap so that the pouch seals are provided by both heat sealing and adhesives.

**[0005]** Multiple pouches (for example 100, 200, 500 etc.) of the same size are provided in a shelf pack or box. The user will typically order multiple shelf packages of the same size pouch as well as multiple packages of the other available sizes of pouches. For example, the user may purchase several packages of each of the 8-12 different sized pouches that may be available. This means that a working supply of pouches may comprise 50-100 boxes, each box containing 100 or more of a specific size. When these are all stored stacked on shelving it can be difficult to readily locate the desired size pouch for use in packaging the instruments and it may be necessary to handle multiple boxes and read the label on the face of the box to determine its contents. Further, while the identification of the contents of the box may be printed on the end flap, which is visible when stacked, to allow easy access to the contents of the box the end flap is typically removed from the box or at least folded out of view. To further add to the problem of locating the correct pouches, a further set of pouches may have a different use. For example they may be constricted of materials particularly chosen for autoclaving, ethylene oxide sterilization or other sterilization techniques such as radiation or UV exposure. Still further, in a facility with multiple physicians or different departments (i.e., surgery, radiology, pediatrics, etc.) each physician or each department may desire that their supply of pouches is segregated. This requires separate storage arrangements or some means to distinguish the various different pouch inventories.

**[0006]** Accordingly, there is a need for an easy means to segregate, label, discriminate and select similar products which have at least one feature, characteristic or function which is different when those similar products are all stored in the same storage area.

## SUMMARY

**[0007]** A color-coded packaging system is provided where a set of different colors are selected with each color designated to signify a varying feature. For example, pouches for packaging instruments for sterilization are available in different sizes to accommodate different sized contents. A specific color is assigned to each sized pouch and information

and indicia printed on that pouch is printed in a colored ink designating the size of that pouch. Multiple pouches of the same size are packaged in boxes which have information or indicia printed thereon in the same color so that the size of box contents can be readily determined by the color of the printing thereon. Both the pouch and the box can also have printing in a second color, selected from a second color coding system, to designate a second feature of the pouch. The storage area can also include designated color coded areas for placement of like colored boxes. The color coding of the storage area, the boxes and the content of boxes provides for easy selection of a desired product as a means for a quick visual inventory.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0008]** The invention will be further described as to an illustrative embodiments in conjunction with the attached drawings in which:

**[0009]** FIG. 1 is a top view of a representative first embodiment pouch incorporating features of the invention.

**[0010]** FIG. 2 is a sectional view thereof taken along line 2--2 in FIG. 1.

**[0011]** FIG. 3 is a perspective of a representative box containing multiple pouches, as shown in Figure 1, all having the same characteristic or feature.

**[0012]** FIG. 4 is a front view of multiple boxes, each box containing pouches, on a storage rack incorporating features of the invention.

**[0013]** FIG. 5 is a view of a first embodiment of a box end flap incorporating features of the invention.

**[0014]** FIG. 6 is a view of a second embodiment of a box end flap incorporating features of the invention.

**[0015]** FIG. 7 is a top view of a second embodiment of a pouch incorporating features of the invention.

#### DETAILED DESCRIPTION

**[0016]** FIGS. 1 and 2 show a typical pouch 10 incorporating features of the invention. In a preferred embodiment the pouch 10 comprises a first or lower sheet 12, typically a planar sheet material, of a suitable printable barrier material, such as a printable cellulosic medical grade paper which is impermeable to external contaminants, will not decompose under sterilization conditions, and is pervious to steam, water vapor and sterilization gases. A second or upper sheet 14 is a planar sheet, also impermeable to external contaminants and will not decompose under sterilization conditions, but is impervious to water vapor, steam and typical sterilizing gases. It is typically a transparent plastic such as polyester, or a polyester/polyolefin laminate. The second sheet overlies the first sheet and is heat sealed thereto along three sides to form a perimeter seal line 16 created a pouch with an open end 18 to form the pouch 10. The opposite end, also referred to as the lower end 34 of the pouch 10, is closed. Following insertion of an instrument into the pouch the open end 18 is closed. One alternative means of sealing is to fold over a flap 20, which is part of the lower sheet 12 and is coated with an adhesive, and attach the flap to the upper sheet 14. Attachment may be provided by a contact adhesive 22 which is pre-applied to the flap and is covered by a removable piece of release paper (not shown). An alternative is to use heat sealing techniques, which are known in the art, to seal the upper sheet 14 to the lower sheet 12 thus sealing the instrument within the pouch 10.

**[0017]** Printed on the first sheet 12 in various locations 24, 26, 28, which may be visible through the transparent second sheet 14 or alternatively printed on the lower surface of the first sheet, are various different pieces of information such as the manufacturer's name, trademark, various certification marks, a specified use of the pouch or its intended contents and the pouch product code, dimensions and other characteristics. The printing locations identified in Figure 1, 3 and 7 are merely representative and are not intended to limit the location of the information or the purpose of the printed information. A feature of the invention is that some or all of the printing on the pouch is in a color, in accordance with an established color code system, that is used to designate the size of the pouch. As an example Table 1 lists 12 different pouch sizes and the colors, referred to as a first color 30, chosen to represent the various pouch sizes.

POUCH SIZE width x length (inches)	COLOR (PANTONE COLORS)
3.5 x 5.25	RED (PMS 185)
2.75 x 9.0	GREEN (PMS 3415)
3.5 x 9.0	ORANGE (PMS 144)
2.25 x 4.0	SILVER (PMS 5497)
5.25 x 6.5	BLUE (PMS 293)
8.5 x 15.0	PINK (PMS 212)

(continued)

POUCH SIZE width x length (inches)	COLOR (PANTONE COLORS)
3.25 x 12.0	PURPLE (PMS 258)
4.25 x 12.0	GOLD (PMS 118)
8.0 x 12.0	BLACK
5.25 x 12.0	BROWN (PMS 469)
10.5 x 16.0	BABY BLUE (PMS 283)
13.25 x 20.0	FOREST GREEN ( PMS3435)

**[0018]** The color coding allows one familiar with the coding system, upon viewing the colored printing on the first or lower sheet 12, to immediately know the size of the pouch. For example if the first color 30 used for the printing is red the pouch is 3.5" x 5.25". As an added feature, the first color 30 is also applied on the first sheet at the corners 32 of the initially sealed lower end 34 of the pouch so that it can be observed by viewing the initially sealed lower end 34 of the pouch 10. Colored left and right rectangles 36, 38 on the pouch sealed end are merely representative locations and other locations or combinations of locations on the sealed lower end 34, such as a solid stripe or a series of rectangles across the lower end of the pouch 10 can be utilized. The purpose of this feature is explained below.

**[0019]** Figure 3 shows a box 40 with the end flaps 60 removed. The box 40 contains multiple pouches 10 all of the same size and therefore all having the same color print which also matches the color of the left and right rectangular areas 36, 38. The box 40 shown in Figure 3 also has at least a first and second area 42, 44 printed in the same color as on the pouch 10. For example, if the box contains 2.75 in x 9.0in pouches the first color 30 is green and the printing on each pouch 10, the left and right rectangles 36, 38, and the first and second areas 42, 44 on the box 40 are all the same color green. Even though the colored printing on the left and right rectangles 36, 38 is applied to the top of the lower sheet 12, it tends to penetrate the material of the first sheet as well as the exposed end of the lower sheet 12 at the initially sealed lower end 34 of the pouch 10. Therefore, even when the pouches 10 are stacked in the box 40 an individual viewing the open end of the box can see the color of the left and right rectangles 36, 38. In addition, the ends of the pouches tend to curl slightly downward, further allowing the color indicia thereon to be seen. In a preferred embodiment the inner end flaps (not shown) of the box as well as the end flap 60 are also partially or fully colored with the same first color 30. The first and second areas 42, 44 on the box 40 as shown in Figure 3 are only representative locations for the location of the first color 30 on the box 40 and other locations or larger or smaller areas on any of the outer surfaces of the box may be colored with the first color 30. The outer surface of the box can also display a second color 50 which is a color within a second color coding system to designate a further or different feature of the contents of the box. While it is preferred that the second colors 50 from a second coloring system are different from the first color 30 they may be selected from the same set of colors. Confusion is minimized or eliminated because an individual, upon observing the box, recognizes that, because of its specific location on the box, it represents the second feature. In the present example, where the first color 30 identifies the size of the pouch in the box the second color may, for example, represent a characteristic of the packaging material, a physician user within a group of physicians or a department (i.e., radiology, emergency room, pediatrics, etc.) within a medical facility. One skilled in the art will recognize that the outer surface of the box can include many different pieces of information including, but not limited to the manufacturer's name, address, trademarks, product description, instructions for use, usage warnings, etc. which may be printed in the first color 30, a complementing color or a second color 50. In addition, black or white may be used as either a first color 30, a second color 50, or limited to use for printing which may have no meaning in the color coding or could designate a still further two color code.

**[0020]** Figure 4 shows multiple different sized packages stored in a single storage cabinet 52 and illustrates the utility of the color coding system to aid in selecting individual desired products, for example a particular sized pouch 10, from multiple boxes 40 of the different sized pouches 10. Stored and displayed in cabinet 52 are nine different size pouches 10, the location for a tenth size pouch 10 being empty. In the illustrated example the cabinet 52 contains thirty-one boxes 40 of pouches 10 some of which are open (have the end flap removed) while others are unopened. A first stack 54 of boxes 40 contains three closed boxes 40 with a partially filled open box 40 on the top of the stack 54. The first color 30, indicated in this case by the indicia 30a, signifying the dimensions of the pouches 10 in each box 40, is the same as shown on the visible end flap 60 of the three closed boxes 40. The color code 30a on the left and right rectangles 36, 38 on the pouches 10 in the open box 30 is also visible. Each of the stacks of boxes 40 contains different sized pouches 10 and therefore, to indicate the first color 30 in each instance is different, the indicia for the 9 different stacks of boxes is indicated as 30a through 30j. As an added feature, a label 56 is placed on the front of the shelf 58 below each stack, that label 56 being colored to match the stack of boxes designated for that location (i.e., the label on the shelf 58 below

the first stack 54 bears the first color 30a which matches the first color 30 on the boxes and pouches stacked above. This allows a user to quickly identify, because of the open space on the lower shelf 58, that all of the pouches 10 of a size designated by the first color 30h have been used up and it is time to replenish the inventory of that size.

[0021] Further, if the packaging includes a second series of color coding (i.e., the second color 50) that color can also appear on the end flap 60. Figures 5 and 6 show different examples of the end flap 60 which can have one or more colors for the one or more color coding systems. In Figure 5 the top of the end flap 60 displays the first color 30 and the lower half can be blank (white) or display a second color 50. The printed lettering 62 can be a third color, or black or white to designate a third feature or to merely provide information to the user.

[0022] Figure 7 shows a second embodiment of the pouch 10 also displaying a second color 50 on the visible end of the pouch 10.

[0023] While the coded packaging system has been illustrated by the use of different colors to designate different sized products packaged in similar types of boxes 40 the system can also utilize other designation systems such as shades of grey or different types of colored or black and white cross hatching. Also, while a specific color, for example green, may be used to designate a specific size product, different shades of that color (light green, forest green, etc.) can be used to designate other features or characteristics of the product. For example, in the coding system set forth above brown designates a 5.25 x 12.0 pouch. A dark, chocolate brown could designate a flat pouch and a light brown or tan could designate the same size pouch with pleats or gussets and thus expandable to hold a greater volume. Also while the preferred embodiment designates a pouch of a particular length and width, a first color can be used to designate a length and a second color can designate a width. As a still further alternative a set of colors could designate a series of dimensions (a different color for each of 1 inch, 2 inch, 3 inch, etc.) and then the same color code could be used to designate the dimensions for both the length and width. For example if red designates a 3 inch dimension and green designates a 6 inch dimension a red/green combination would designate a 3x6 pouch, a green/red combination would designate a 6x3 pouch and a green/green combination would designate a 6x6 pouch.

## Claims

1. A color coded packaging system comprising multiple duplicate products (10) stored in single box (40), the multiple duplicate products (10) being supplied in various different sizes, **characterized in that** each product (10) of the same size includes on a visible surface (12) thereof a specific color (30) representative of a feature of that product (10), the specific color (30) also being prominently displayed on the box (40) so that the contents of the box (40) can be determined by observing the color (30) on the box (40) said color (30) being one of the colors (30) in a color coding system, each color (30) in the color coding system designating a specific variable feature of the contents of the box (40).
2. The color coded packaging system of claim 1 wherein a feature of the contents of the box (40), following removal of a portion of the box (40) to expose a portion of the contents thereof, can be determined by observing a color (30) within the color coding system visible on one or more of the contents.
3. A method for recognition of the size of a disposable pouch (10) without reading a printed size description or measuring the pouch (10) **characterized in that** pouches (10) are available in multiple sizes and each of the multiple sized pouches (10) comprises at least one surface (12) formed from a sheet of a printable material comprising:
  - establishing a color coding system comprising multiple different colors (30) whereby a particular color (30) or shade of color is designated to represent a specific sized pouch (10), and
  - using ink of the particular color (30) or shade designated to represent a specific sized pouch (10), information or indicia is printed on the printable material surface (12) of said pouch (10).
4. The method of claim 3 wherein said printing includes as a minimum an indicia printed on an end (34) of the printable material (12), said indicia observable when an edge of the end (34) of the pouch (10) is viewed.
5. The method of claim 4 wherein multiple pouches (10) of the same size are packaged in a box (40) and said box (40) has information or indicia printed thereon regarding the contents of said box (40), at least some of said information or indicia is printed using a colored ink selected from the color coding system that matches the color (30) ink used to print the information or indicia on the pouch (10) packaged therein.
6. The method of claim 5 wherein multiple boxes (40) of different sized pouches (10) are placed in a storage area, each box (40) containing only one size of pouches (10), the printed information or indicia on each box (40) having

a color (30) selected from the color coding system designating the content of that specific box (40), the different print colors (30) on the boxes (40) being visible by an observer.

7. The method of claim 6 wherein boxes (40) of the same sized pouch (10) are stacked together on a shelf such that each of the boxes (40) having the same colored (30) printing are located together, the inventory of different sized pouches (10) being determinable by observing the different printing colors (30) on the boxes (40) and the color (30) of the indicia on the end (34) of the pouch (10) when a box (40) is open to display the contents thereof.

8. The method of claim 5 wherein, upon opening an end flap (60) on a box (40) or removing end flaps (60) on a box (40) reveals the contents of the box (40) and the color (30) of the indicia on the end (34) of the pouch (10) is observable.

9. A color coded packaging system for labeling various differently dimensioned pouches (10) so that an observer can distinguish between the various different sized pouches (10) by observing a color (30) printed thereon, **characterized in that** said color (30) being one of multiple colors in a color coding system, each color (30) in the color coding system designating one or more specific dimensions of the pouch (10), comprising:

a packaging system comprising multiple different sized pouches (10) and multiple different sized boxes (40), each of the different sized boxes (40) containing multiple same-sized pouches (10)

wherein each pouch (10) of the same size includes on a visible surface (12) thereof a specific color (30) representative of one or more dimensions of that pouch (10), said specific color (30) selected from the color coding system, that specific color (30) also being displayed in a visible location on the box (40) containing multiple same sized pouches (10) so that the contents of each box (40) can be determined by observing the color (30) displayed on the box (40).

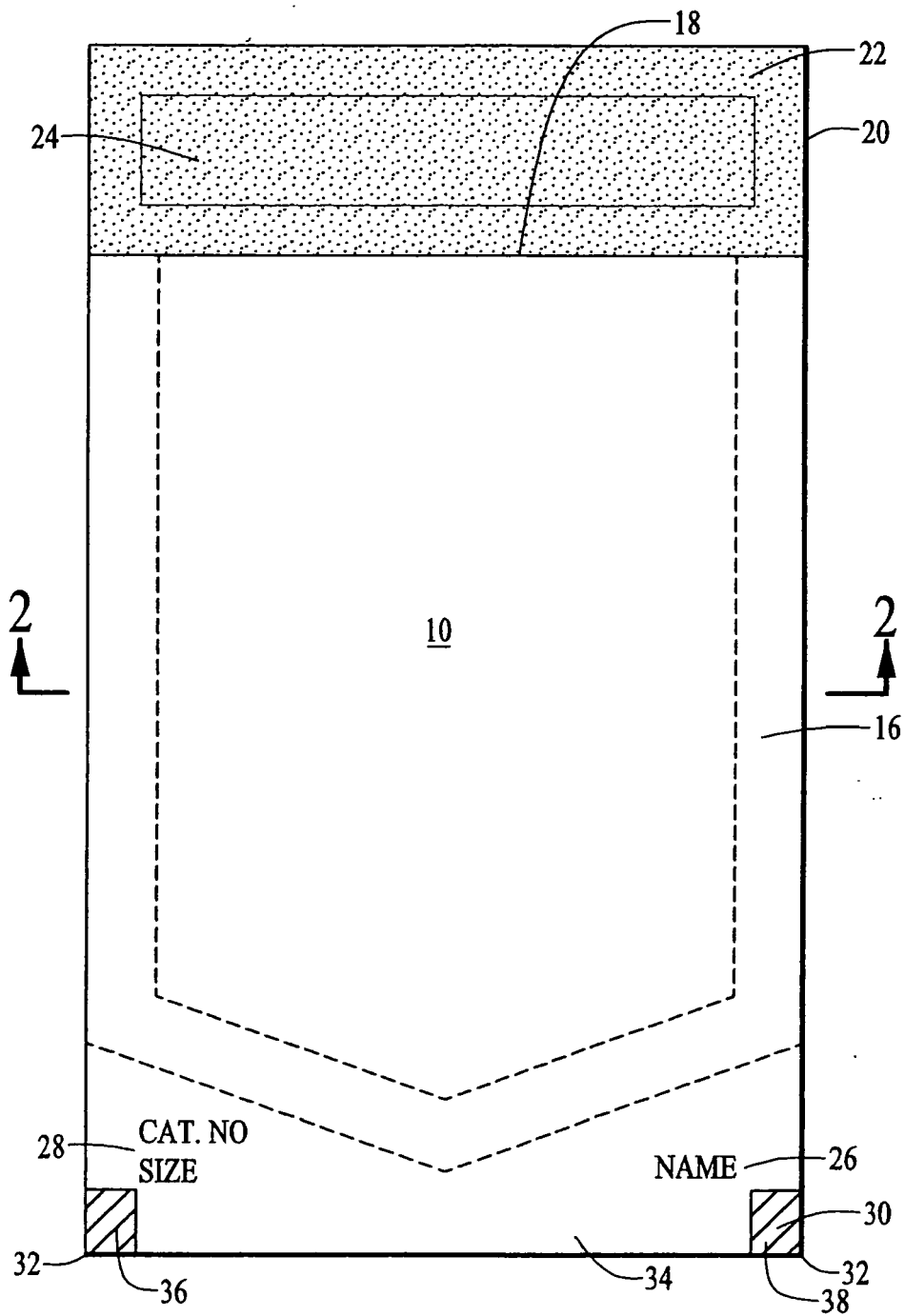
10. The color coded packaging system of claim 9 wherein the specific color (30) is printed on an end flap (60) of the box (40).

11. The color coded packaging system of claim 10 wherein the specific color (30) is also printed and on one or more sides of said box (40).

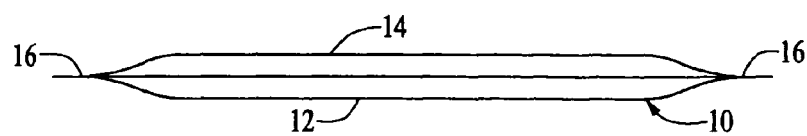
12. The color coded packaging system of claim 11 wherein the specific color (30) printed on at least one location on each of the pouches (10) within a box (40) is visible to an observer when the end flap (60) of the box (40) is open or removed.

13. The color coded packaging system of claim 12 wherein the at least one location on each of the pouches (10) comprises at least a portion of an end (34) of each pouch (10) in the box (40) visible when the end flap (60) of the box (40) is open or removed.

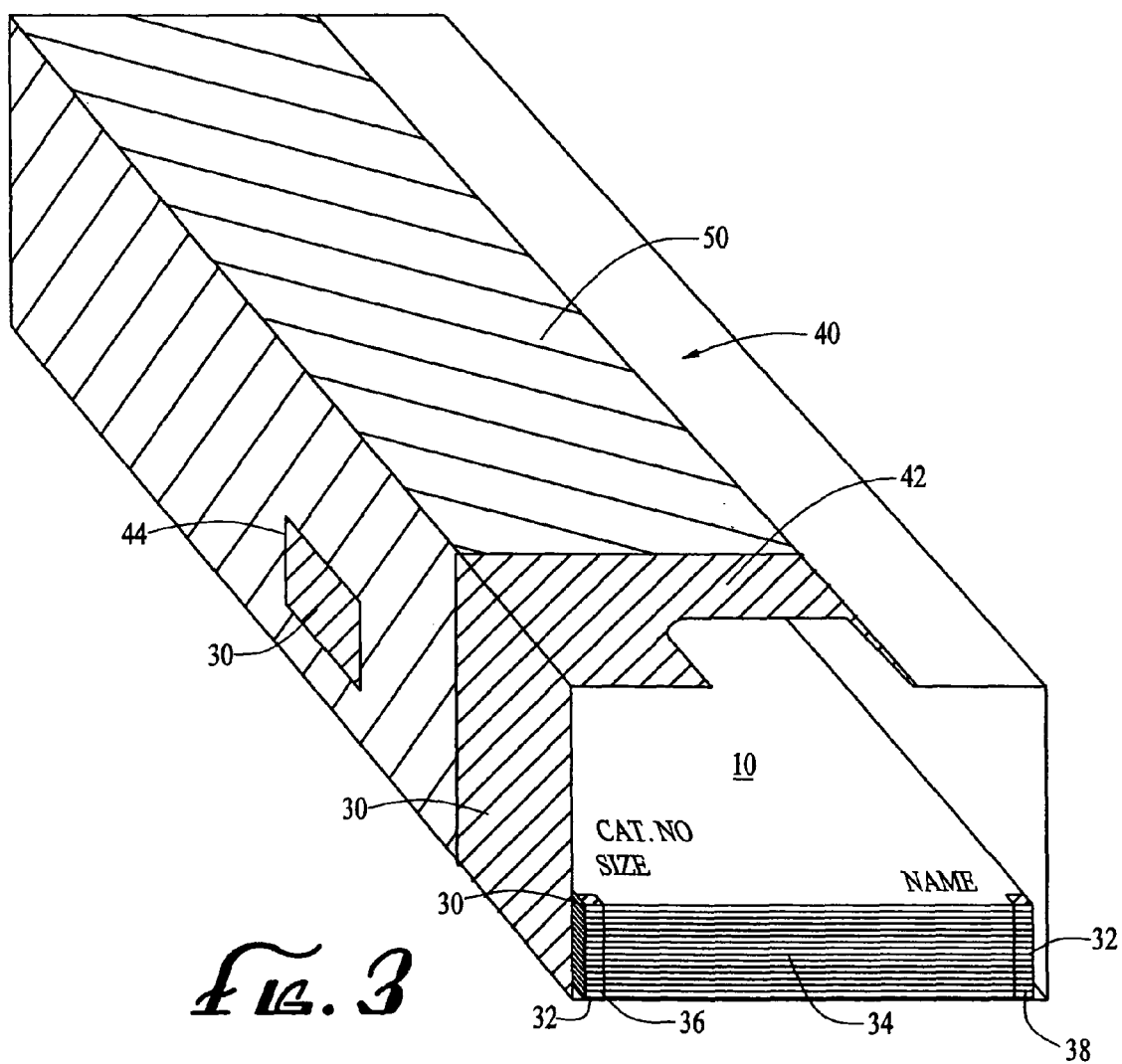
14. The color coded packaging system of claim 9 wherein the pouches (10) are provided in at least about eleven different sizes and the color coding system comprises at least eleven different colors (30) or shades of color.



*Fig. 1*

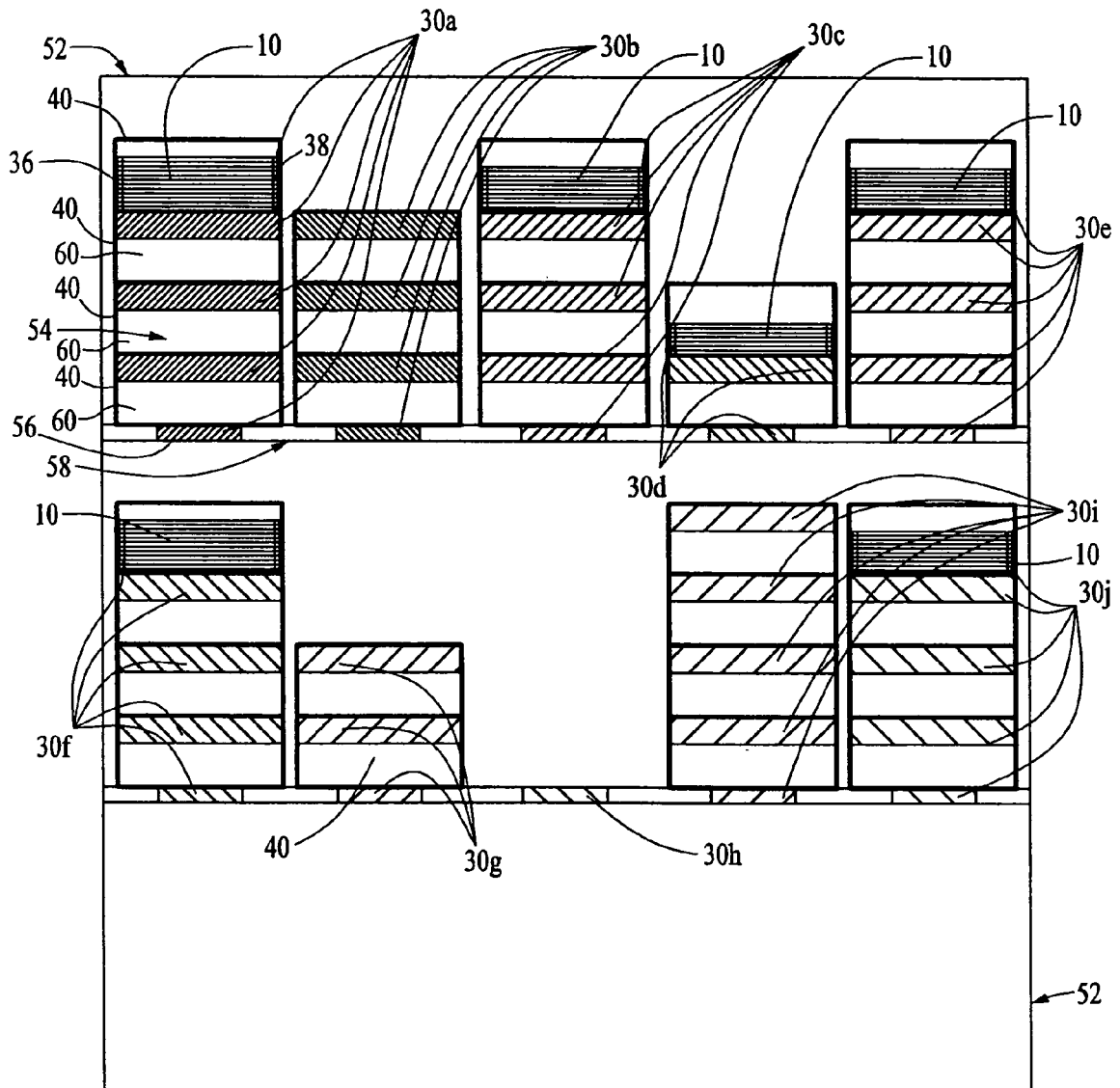


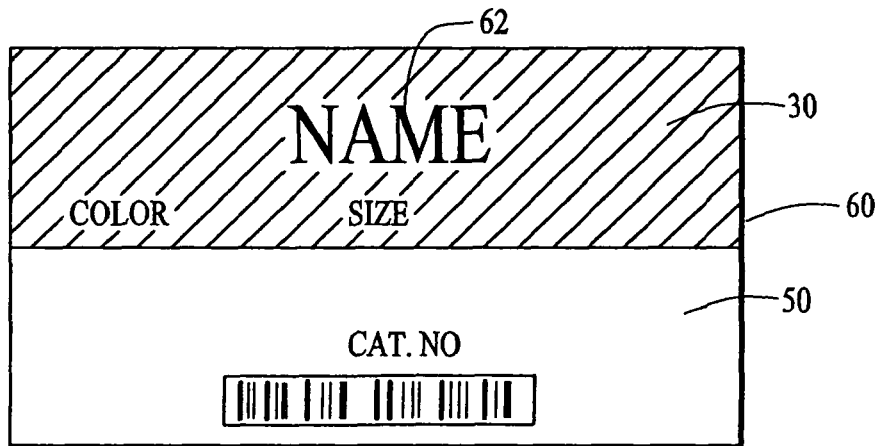
*Fig. 2*



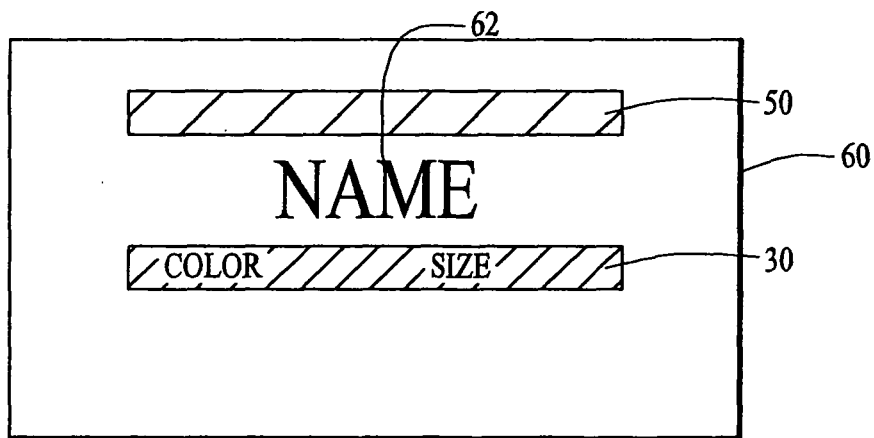
*Fig. 3*



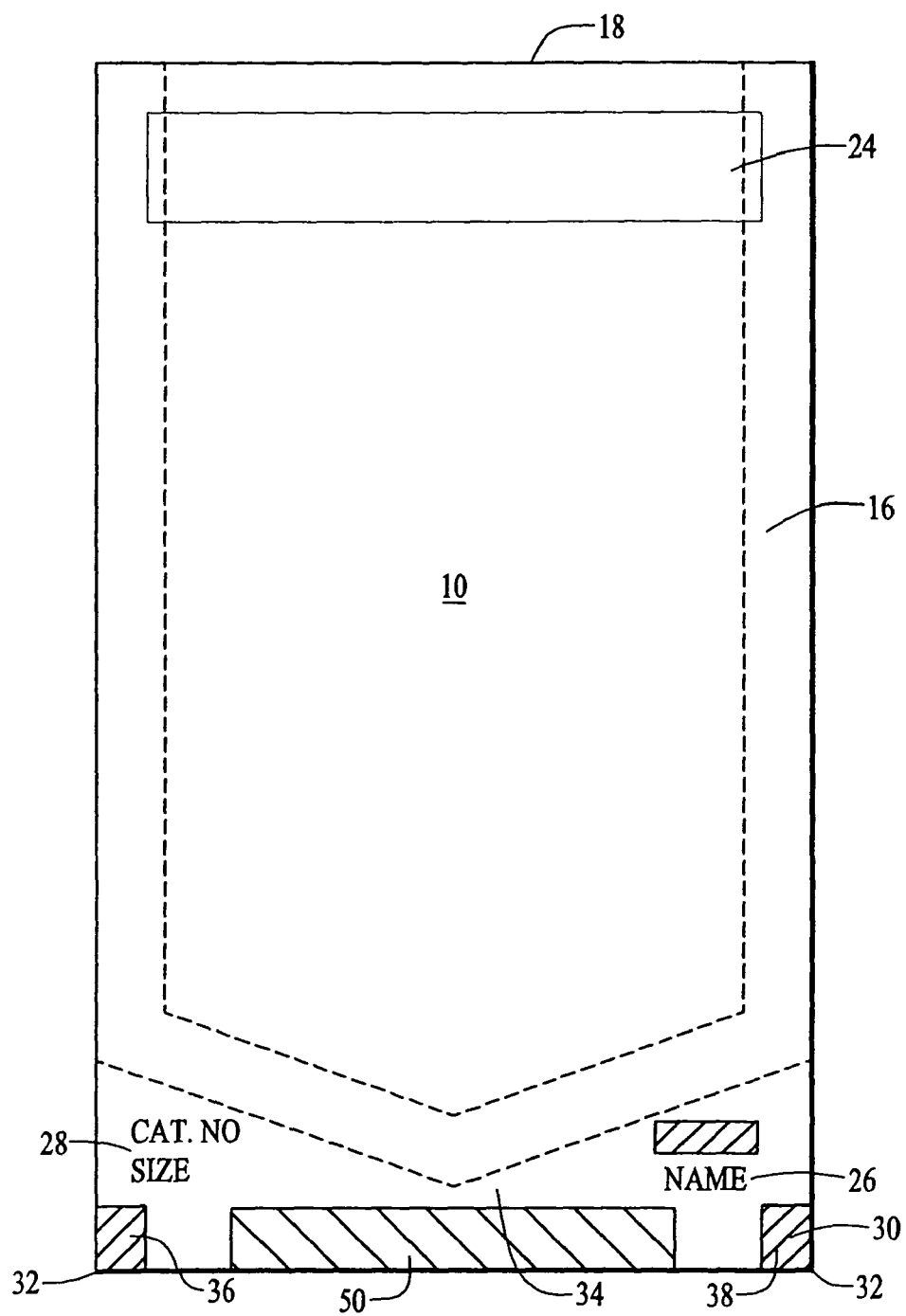

$$f_{16.4}$$



*Fig. 5*



*Fig. 6*



*Fig. 7*



## EUROPEAN SEARCH REPORT

Application Number  
EP 09 25 0231

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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Y	* paragraph [0025] - paragraph [0028]; figure 4 *	4-8,12, 13	B65D77/06
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 April 2009	Examiner Bridault, Alain
CATEGORY OF CITED DOCUMENTS 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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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 25 0231

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