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(54) Title: CONTAINER WITH TACTILE SURFACE

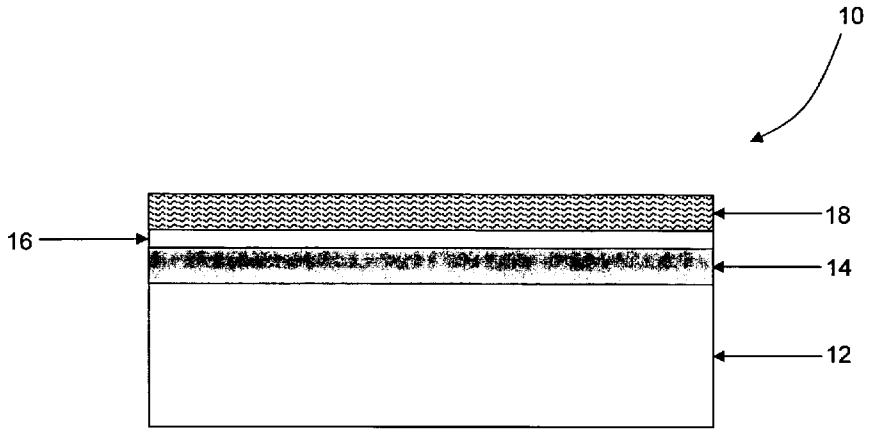

Figure 1

(57) Abstract: A container having a surface comprising at least one high friction surface region having a coefficient of friction of between about 0.63 and about 2. The at least one high friction surface region comprises a coating layer, which includes fibres. The surface of the container may further include at least one low friction surface region having a coefficient of friction of less than 0.5, or preferably less than 0.3.

CONTAINER WITH TACTILE SURFACE

The present invention relates to a container having a novel surface texture. The container is particularly suitable to house elongate smoking articles, such as for example, cigarettes.

It is known to package elongate smoking articles and other consumer goods in containers formed from folded laminar blanks. The laminar blanks may be made from any suitable sheet material, such as for example cardboard, metal or plastic. Graphics and text are typically applied to the surfaces of the containers, in order to communicate information to the consumer, such as brand, advertising, promotional or product information.

Typically, it is desired to form containers from sheet materials having surfaces which are as smooth as possible. This is so that the friction between the sheet material and the surfaces of the manufacturing machinery in direct contact with the sheet material can be minimised in order to maximise machine speed and efficiency.

It would be desirable to provide a novel container which has a surface including at least one surface region having a novel texture and appearance. It would further be desirable if such a container could be formed using known and available machinery and methods, without the need for significant modifications.

According to the present invention there is provided a container, wherein the surface of the container comprises at least one high friction surface region having a coefficient of friction of between about 0.63 and about 2. The at least one high friction surface region comprises a coating layer which includes fibres. The at least one surface region having a coefficient of friction of between about 0.63 and about 2 will be referred to throughout the specification as the at least one "high friction surface region". Alternatively or in addition, the high friction surface region has a coefficient of friction of greater than 0.70, greater than 0.75, greater than 0.80, greater than 0.85, greater than 0.90 or greater than 0.95. The higher the coefficient of friction of the high friction surface region, the more pronounced is the tactile sensation associated with the container.

The term "container" is used throughout the specification to refer to the packaging of consumer goods, such as for example smoking articles. It is intended to encompass the outer packaging, or housing, as well as any inner packaging which may only become visible when the container is open, such as for example the inner frame of a hinge lid box.

The term "coefficient of friction" is used throughout the specification to refer to the static coefficient of friction (μ) between the surface of the high friction surface region of containers according to the invention and another, substantially identical surface. In other words, the coefficient of friction referred to is that of the surface of the high friction surface region with itself.

The static friction coefficient (μ) between two solid surfaces is defined as the ratio of the tangential force (F) required to produce sliding divided by the normal force between the surfaces (N):

$$\mu = F / N$$

The coefficient of friction between two surfaces is measured experimentally, for example by the horizontal plane method according to ISO standard ISO 15359:1999.

Typically, the coefficient of friction of a standard card material for making containers for smoking articles, such as cigarette packs, is between 0.20 and 0.30. The coefficient of friction of the high friction surface region of the surface of containers according to the invention is therefore at least about two to three times greater than for standard cigarettes packs. The high coefficient of friction gives the high friction surface region of the surface a texture which is very different to that of conventional paper or cardboard packs and provides the consumer with a unique tactile experience.

Preferably, the coefficient of friction of the at least one high friction region is between about 1 and 2, more preferably, between about 1 and about 1.5.

Typically, the at least one high friction surface region will be provided on the external surface of containers according to the present invention. However, in addition or alternatively, at least one high friction surface region may be provided on the internal surfaces of containers according to the invention, which only become accessible when the container is opened.

The coating layer is formed of fibres, such as flock or rayon viscose fibres, which give a soft, "peach skin" texture. The fibres may be deposited onto a layer of a suitable adhesive. Preferably, the layer of fibres account for between about 10 percent and about 30 percent of the total weight of the sheet material in the high friction surface region.

The at least one high friction surface region may cover substantially the entire external surface of the container. Alternatively, the at least one high friction surface region may cover only a part of the external surface. Preferably, where the high friction surface region covers only a part of the external surface, the remainder of the surface has a coefficient of friction of less than about 0.5. This provides an interesting textural contrast to the at least one high friction surface region.

Preferably, the high friction surface region integrates with additional print or other embellishment on the pack. Alternatively or in addition, the high friction surface region has the shape of a logo, image, brand name or the like. Alternatively or in addition, the container according to the invention comprises a repetitive or non-repetitive pattern of high friction surface regions. Examples of repetitive patterns are geometrical shapes like triangles, stripes, squares, rectangles, chevrons, circles, semicircles, ovals, stars, diamonds, type font, checkerboard patterns, brick wall patterns and the like. Examples of non-repetitive patterns are tyre patterns, animal skin patterns

like zebra, tiger, leopard, cheetah, snake or crocodile skin patterns, wave patterns, fingerprint patterns, cloud patterns, smoke patterns or cut wood patterns. A non-repetitive pattern may be such that it creates the impression of a gradient in friction, for example by patches of high friction surface regions becoming larger and denser in a particular direction.

In addition to the high friction surface regions provided by a coating comprising fibres, one or more additional high friction surface regions may be provided which comprise a coating which gives the surface region a rubberised texture, such that it feels sticky to the touch. Preferably, the surface coating material used to produce a rubberised texture is polyurethane. Preferably, the rubberised coating accounts for between about 0.5 percent and about 3.0 percent of the total weight of the sheet material in the cross section of the high friction surface region.

One or more additional high friction surface regions may alternatively be provided in which small particles are adhered to the surface that bestow the high friction surface region with a rough, jagged, sand paper like surface. Preferably, the small particles are covered by a layer of varnish to adhere them to the surface. Alternatively, the one or more additional high friction surface regions may be provided by processing the surface of the blank in these regions to increase the coefficient of friction, for example by roughening the surface by brushing or by embossing the high friction surface region with a number of small grooves, pyramids or other micro surface structures.

The coefficient of friction in the high friction surface regions may be further increased by the inclusion of particularly long and stiff fibres inside the material, where cardboard is used as a material. Additionally, plastic or metal material may be for example electrically activated, chemically activated, sandblasted or a combination thereof.

The sheet material used to form the containers of the present invention is preferably a paper or cardboard material. Preferably, a pre-coating, or primer layer is applied to the paper or cardboard base layer before applying the coating layer in the high friction surface region. Such a primer layer may be required, for example, to improve the visibility of the printing applied on top of the surface of the high friction surface region. Preferably, the primer layer is used where the surface of the container includes additional high friction surface regions which are a dark coloured, rubberized high friction surface region. The primer layer advantageously improves the bonding between the different layers of rubberized coatings and inks.

Preferably, the coating layer of the at least one high friction surface region is printed onto the surface of the container. This allows for a high resolution of the high friction surface region, particularly, if a pattern of high friction surface regions is applied to the container.

The coating layer of the high friction surface region may be overprinted, embossed, debossed or otherwise processed in order to alter the final appearance and texture of the high friction surface region. Debossing and embossing may further increase the coefficient of friction of

the container. Where the coating layer of the high friction surface region is printed, the printing preferably has a high abrasion resistance. This prevents the print being rubbed off by the higher friction between the high friction surface region and the surfaces of the machine parts with which the high friction surface region comes into direct contact during manufacture of the container.

A high friction surface region may be partially covered by a layer of smooth lacquer or other material with a very low coefficient of friction, for example between about 0.05 and 0.15. This smooth lacquer may be applied in a repetitive or non-repetitive pattern as described above. The combination of a high friction surface region and a very low friction surface creates a particularly interesting tactile sensation.

Containers according to the invention may be rigid or "hard" packs. For example, containers according to the invention may be hinge-lid containers, of the type commonly used to package cigarettes and cigars. Such hinge-lid containers comprise a box portion and a lid portion connected to the box portion along a hinge line extending across the rear wall of the container. One or both of the box portion and the lid portion may comprise at least one high friction surface region. Alternatively, containers according to the invention may be "slide and shell" containers having an inner slider slideably mounted within an outer shell. One or both of the inner slider and the outer shell may comprise at least one high friction surface region.

A high friction surface region located at an area of the container that comes into contact with another area of the container during the opening and closing movement of the container increases the required force to open or close the container. Such particular high friction surface regions that increase the friction upon opening or closing of the container are for example, in a slide and shell container, the outer surfaces of the inner slider or the inner surface of the outer shell. Other examples of such particular high friction surface regions that increase the friction upon opening or closing of the container are, in a hinge lid pack, the outer side of the inner frame and the inner side of the lid. This increase of friction between the movable parts of the pack advantageously avoids the inadvertent opening of the pack. Additionally, the increased resistance to an opening or closing movement improves the quality feeling of the container, for example due to the soft deceleration of the closing movement caused by the friction.

Alternatively, containers according to the invention may be "soft" packs or rigid soft packs for smoking articles such as cigarettes. In this context, the term "soft" pack refers to a pack comprising a cup shaped box containing a wrapped bundle of smoking articles. Where the cup is formed from a rigid material, the "soft" pack is referred to as rigid soft pack. Alternatively, the container according to the invention is a pouch, such as those commonly used for loose tobacco.

The exterior surfaces of containers according to the invention may be printed, embossed, debossed or otherwise embellished with manufacturer or brand logos, trade marks, slogans and

other consumer information and indicia. Alternatively, or in addition, the exterior surfaces of containers according to the invention may be at least partially covered with lacquer, metallisation, holograms, luminescent material, or any other materials that alter the feel, odour or appearance of the container.

Containers according to the invention may be used to house any kind of consumer goods. The containers according to the invention find particular application as packs for elongate smoking articles such as, for example, cigarettes, cigars or cigarillos. It will be appreciated that through appropriate choices of the dimensions thereof, containers according to the invention may be designed for different numbers of conventional size, king size, super-king size, slim or super-slim cigarettes.

Through an appropriate choice of the dimensions thereof, containers according to the invention may also be designed to hold different total numbers of smoking articles, or different arrangements of smoking articles. For example, through an appropriate choice of the dimensions thereof, containers according to the invention may be designed to hold a total of ten, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty-one or twenty five smoking articles. These may be arranged in different collations, depending on the total number of smoking articles. For example, the smoking articles may be arranged in one row of six, seven, eight, nine or ten; two rows of five, six, seven, eight, nine or ten; two rows of 5-6, 6-7, 7-8; three rows of 5-5-5, 5-6-5, 6-5-6, 5-6-7, 6-7-6, 7-5-7, 7-6-7, 7-7-7, 8-9-8; four rows of four, five or six.

Once filled, containers according to the invention may be shrink wrapped or otherwise over wrapped with a transparent polymeric film of, for example, polyethylene or polypropylene, in a conventional manner. Where containers according to the invention are over wrapped, the over wrapper may include a tear tape. The over wrapper may be provided with one or more opening cuts to ease removal of the wrapper from the container, in particular from the high friction surface regions of the surface of the container.

Containers according to the present invention may have one or more right-angled longitudinal edges, one or more right-angled transverse edges, one or more rounded longitudinal edges, one or more rounded transverse edges, one or more bevelled longitudinal edges, one or more bevelled transverse edges, or any suitable combination thereof.

Containers according to the present invention including at least one high friction surface region on the surface may be formed from laminar blanks using standard machinery for forming cigarette packs which has preferably been modified to take into account the effect of the high coefficient of friction of the high frictions surface regions of the containers according to the invention.

The high coefficient of friction results in higher levels of friction between the high friction surface regions and the machinery surfaces compared to the levels of friction during manufacture of conventional packs. In order to compensate for the high friction coefficient of at least surface regions of the surface of the laminar blanks, the surfaces of the machine parts coming directly into contact with the high friction surface regions of the laminar blanks are preferably as smooth as possible. Preferably, these machinery parts are coated with friction reducing materials such as for example polytetrafluorethylene (PTFE).

Additionally, or alternatively, the conveyor belts used in machinery for forming containers of the present invention are preferably formed of a softer material than conventional conveyor belts to prevent ink smearing from the pack during transport.

Additionally, or alternatively, the dimensions or design of the blank folding unit of standard machinery may be altered in order to improve forming of the containers according to the invention. The contact surface between the blank and the folding units may be advantageously reduced by changing flat surfaces of the folding unit to profiled smooth surfaces. This advantageously reduces the area of contact between the blank and the machinery, reducing wear of both the blank and the machinery. Also, this will prevent ink printed on the blank from smearing. Alternatively or in addition, by increasing the distance between a folding unit and the blank, for example by between about 0.10 mm and about 0.30 mm compared to conventional machinery, the tension and pressure between the blank and the folding unit is reduced. This further prevents ink from smearing and improves the correct positioning of the fold lines. Alternatively or in addition, the dimensions of the pocket may be increased into which a pack is inserted during the over wrapping process. For example, the cross section of the pocket may be increased by between about 0.2 mm and about 0.6 mm. Alternatively or in addition, the overall machine speed may be reduced to reduce the friction forces between blank and machinery.

The invention is further described, by way of example only, with reference to the accompanying Figure 1, which shows a cross section of a sheet material comprising a high friction surface region suitable for forming a container according to the present invention.

The sheet material 10 shown in Figure 1 comprises a lower base layer 12 of cardboard material, a coating layer 14 on the upper surface of the base layer 12, an adhesive layer 16 on the coating layer 14 and an upper layer 18 of viscose rayon fibres. Additionally, one or several layers of print may be applied onto the fibre layer 18 (not shown). The upper layer 18 of viscose rayon fibres is adhered to the sheet material by means of the adhesive layer 16 and accounts for about 12 percent by weight of the sheet material 10. The adhesive layer 16 accounts for about 25 percent of the total weight, while the coating layer 14 accounts for about 3 percent thereof.

Containers according to the invention may be formed entirely from the sheet material 10 shown in Figure 1. Alternatively, containers according to the invention may be formed from a sheet material comprising the lower base cardboard layer 12 and the coating layer 14 and having one or more high friction surface regions in which the adhesive layer 16 and the fibre layer 18 have been applied over the coating layer, as shown in the cross section of Figure 1.

CLAIMS

1. A container wherein the surface of the container comprises at least one high friction surface region having a coefficient of friction of between about 0.63 and wherein the at least one friction surface region comprises a coating layer including fibres.

2. A container according to claim 1 wherein the at least one high friction surface region has a coefficient of friction of between about 1 and about 2.

3. A container according to claim 1 or 2 wherein the surface of the container further comprises at least one low friction surface region having a coefficient of friction of less than 0.5, preferably less than 0.3.

4. A container according to any preceding claim wherein the container comprises a repetitive or non-repetitive pattern of high friction surface regions having a coefficient of friction of greater than 0.63.

5. A container according to any preceding claim wherein the fibres in the coating layer account for between about 10 percent and about 30 percent of the total weight of the sheet material in the high friction surface region.

6. A container according to any preceding claim wherein the coating layer of the at least one high friction surface region is printed onto the surface of the container.

7. A container according to any preceding claim wherein the surface of the container comprises one or more additional high friction surface regions comprising a coating layer formed of a rubberised material.

8. A container according to any preceding claim wherein the coating layer is at least partially covered by a further coating, wherein the further coating has a coefficient of friction of less than 0.3, preferably less than 0.15.

9. A container according to any preceding claim for smoking articles.

10. A laminar blank for forming the container of any preceding claim, wherein the laminar blank comprises at least one high friction surface region on the surface thereof having a coefficient of friction of between about 0.63 and about 2 and wherein the high friction surface comprises a coating layer including fibres.

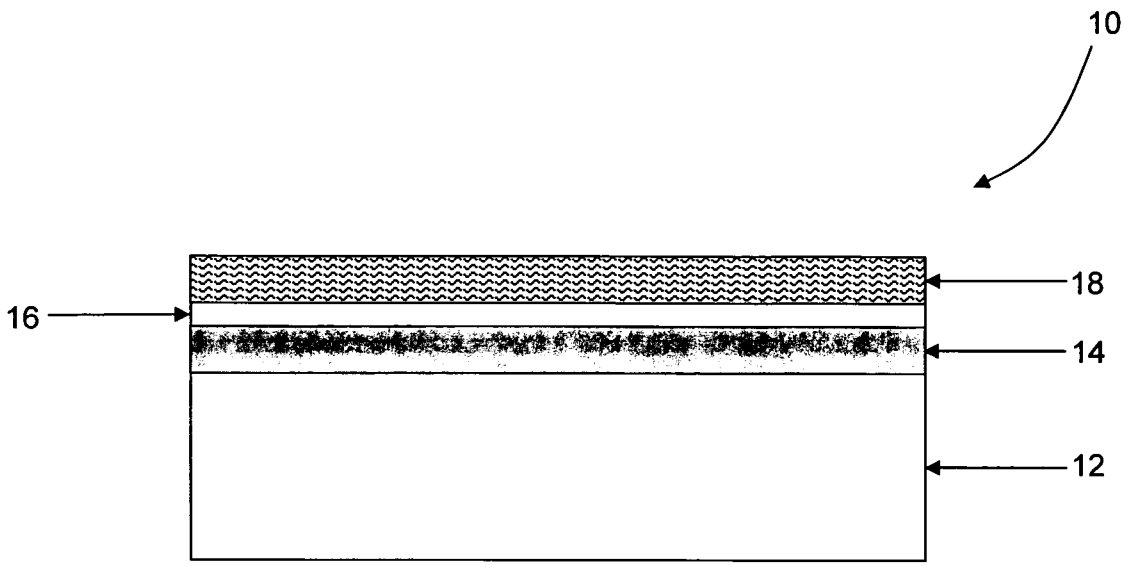

Figure 1

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/005502

A. CLASSIFICATION OF SUBJECT MATTER
INV. D21H19/00 D21H19/16 B65D85/10 B65D65/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
D21H B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/152724 A1 (SWOBODA DEAN P [US] ET AL) 14 August 2003 (2003-08-14) sentences 12,116,133,135; claims 1,6,7; figures	1-7,9,10
X	US 3 524 583 A (GREGORY ARTHUR C) 18 August 1970 (1970-08-18) the whole document	1-7,9,10
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A	WO 01/23263 A (AWAX PROGETTAZIONE [IT]; RIMONDI RENATO [IT]; CAPPI ANGELO [IT]) 5 April 2001 (2001-04-05) the whole document	1

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
21 October 2009	27/10/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Fax: (+31–70) 340–3016	Fournier, Jacques

INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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