

DEVICE FOR DISPLAYING OBJECTS

Technical field

The present invention generally relates to a device for displaying objects. In particular,
5 the invention relates to a device suitable for (but not limited to) displaying books and
magazines and will be described in this context. The present invention also relates to
a method of forming a device for displaying objects.

Background

The following discussion of the background to the invention is intended to facilitate an
10 understanding of the present invention only. It should be appreciated that the
discussion is not an acknowledgement or admission that any of the material referred
to was published, known or part of the common general knowledge of the person
skilled in the art in any jurisdiction as at the priority date of the invention.

Global deforestation is being driven by society's insatiable demand for wood products.
15 While a number of strategies are being pursued to conserve forests, the need to
reduce society's consumption of wood products is undeniable. Examples of wood
products include bookshelves and cupboards.

Bookshelves and cupboards are commonly used to store books or magazines in a
space such as a room to accommodate and/or display various objects. As they are
20 mainly made of wood or metal, which are heavy and bulky, it can be inconvenient to
transport and handle the bookshelf or cupboard. Furthermore, they can occupy a lot
of space, which may pose a problem in situations where space is limited.

Reading is fundamental to function in today's society and it is important that children
know how to read as it helps develop the mind. Reading material such as books and
25 magazines are typically placed on bookshelves and cupboards in an upright manner,
such that the spine of the book or magazine faces a user (for example, a child). In
such an arrangement, however, the front or back cover of the book or magazine, which

is usually visually more attractive, is blocked from the child. As a result, the child may not be as enticed to pick up a book or magazine to read.

Further, bookshelves and cupboards are not movable easily.

In light of the above, there exists a need to develop a device that can act as a substitute to bookshelves and cupboards that ameliorates or overcomes the above disadvantages.

The present invention seeks to provide a device that addresses the aforementioned need at least in part. The present invention also seeks to provide a method of forming a device for displaying objects.

Summary

According to a first aspect of the present invention, there is provided a device for displaying objects, comprising: a base sheet made of a first flexible and durable material; and a plurality of pockets made of a second flexible and durable transparent material attached to the base sheet, each of the plurality of pockets for receiving an object, wherein the device is operable between a compact position and an extended position; such that the compact position corresponds to either the base sheet or at least one of the plurality of pockets being folded, and the extended position corresponds to the device in a position for displaying the objects; and wherein in the extended position the device resists deformation when loaded with objects.

Preferably, the first flexible and durable material may be polyvinylchloride.

Preferably, the base sheet may be a canvas sheet.

Preferably, the second flexible and durable transparent material may comprise a plurality of transparent strips sewn onto the base sheet.

Preferably, the at least one transparent strip may be folded on one edge to reinforce the plurality of pockets.

Preferably, the plurality of transparent strips may comprise a plastic material that is durable such that creases are not formed when the device is in the compact position.

Preferably, the plurality of transparent strips may comprise a plastic material that is rigid such that the plurality of pockets do not sag due to the weight of the objects.

Preferably, the canvas sheet may include at least one of the following colours: red, blue, green, yellow, violet, orange, black, gold, silver, white or grey.

- 5 Preferably, the device may further comprise a space between one transparent strip and an adjacent transparent strip.

Preferably, the device may further comprise at least two holes on a top edge of the base sheet.

- 10 Preferably, the device may further comprise a longitudinal compartment on a top portion of the base sheet for the insertion of a rod.

Preferably, the device may further comprise a first strip of flexible and durable material along a first side edge of the base sheet and a second strip of flexible and durable material along a second side edge of the base sheet.

- 15 Preferably, the device may further comprise a frame with wheels attached to the at least two holes on the top edge of the base sheet.

According to a second aspect of the present invention, there is provided a method of forming a device for displaying objects, comprising:

- 20 a. providing a base sheet made of a first flexible and durable material;
 b. attaching a plurality of pockets made of a second flexible and durable transparent material to the base sheet, each of the plurality of pockets for receiving an object,

 wherein the formed device is operable between a compact position and an extended position; such that the compact position corresponds to either the base sheet or at least one of the plurality of pockets being folded, and the extended position
25 corresponds to the device in a position for displaying the objects; and wherein in the extended position the device resists deformation when loaded with objects.

Preferably, the second flexible and durable transparent material used in the method comprises a plurality of transparent strips sewn onto the base sheet.

Preferably, the method further comprises the step of folding each transparent strip on one edge before the step of attaching the transparent sheet to the base sheet.

- 5 Preferably, the method further comprises the step of providing a space between one transparent strip and an adjacent transparent strip.

Preferably, the method may further comprise the step of attaching a first strip of flexible and durable material along a first side edge of the base sheet and a second strip of flexible and durable material along a second side edge of the base sheet.

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Definitions

The following words and terms used herein shall have the meaning indicated:

As used in the context of the present specification, the term “transparent” used throughout the specification refers to a material that is transmissive to incident light radiation at a desired wavelength or range of wavelengths. The transparent material
15 desirably allows a light transmission of about 85%, about 90%, about 95%, about 96%, about 97% or about 98% of a beam of light.

The term “flexible” used throughout the specification refers to the ability to be folded for storage and/or transportation purposes, but rigid enough to restrict sagging when the device is in operation, i.e. a vertical position subjected to gravitational force.

- 20 The term “lightweight” used throughout the specification refers to the device being lighter than another device that it is being compared to. For instance, the device is lighter than a bookshelf or cupboard made primarily out of wood or metal. Lightweight is also defined in the sense that the device is portable and can be carried by a human being with average strength.

- 25 The term “durable” used throughout the specification refers to the ability to retain its original shape and size under application of an external force, and to resist wear and

tear. In the context of the invention, the term “durable” refers to the ability of the device to resist being torn apart when fully loaded up to a pre-determined weight.

The term “flat” used throughout the specification refers to an object having a substantially level surface. However, this does not mean that a flat object cannot have
5 any protrusions or indentations. An object may still be considered flat if a greater extent of the object has a substantially level surface.

The term “colour” used throughout the specification refers to the property of an object or substance with respect to light being reflected by that object or substance. Throughout the specification, and in the context of the present invention, “black” and
10 “white” are considered colours.

The term “opaque” used throughout the specification refers to the property of an object or substance which prevents the passage of light through it, where said object or substance is considered neither transparent nor translucent.

The term “width” used throughout the specification refers to a measurement of an
15 object from one side of the object to its other side. For example, when the device is in an extended position as shown in Fig. 1, the width of the canvas sheet refers to the measurement between A and A’.

The term “height” used throughout the specification refers to a measurement of an object from its top to its bottom. For example, when the device is in an extended
20 position as shown in Fig. 1, the height of the canvas sheet refers to the measurement between B and B’.

Unless specified otherwise, the terms “comprising” and “comprise”, and grammatical variants thereof, are intended to represent “open” or “inclusive” language such that they include recited elements but also permit inclusion of additional, unrecited
25 elements.

As used herein, the term “about” typically means +/- 5% of the stated value, more typically +/- 4% of the stated value, more typically +/- 3% of the stated value, more typically +/- 2% of the stated value, even more typically +/- 1% of the stated value, and even more typically +/- 0.5% of the stated value.

Throughout this disclosure, certain embodiments may be disclosed in a range format. It should be understood that the description in range format is merely for convenience and brevity and should not be construed as a limitation on the scope of the disclosed ranges. Accordingly, the description of a range should be considered to have specifically disclosed all the possible sub-ranges as well as individual numerical values within that range. For example, description of a range such as from 1 to 6 should be considered to have specifically disclosed sub-ranges such as from 1 to 3, from 1 to 4, from 1 to 5, from 2 to 4, from 2 to 6, from 3 to 6 etc., as well as individual numbers within that range, for example, 1, 2, 3, 4, 5, and 6. This applies regardless of the breadth of the range.

Brief Description of Drawings

The present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 illustrates a device in accordance with an embodiment of the invention, having holes on the top edge of the canvas sheet;

Fig. 2 illustrates a device in accordance with an embodiment of the invention, having a longitudinal compartment on a top portion of the canvas sheet for the insertion of a rod;

Fig. 3 illustrates a device in accordance with an embodiment of the invention, having holes on the top edge of the canvas sheet and a longitudinal compartment on a top portion of the canvas sheet for the insertion of a rod;

Fig. 4 is a photograph of the front view of the device of Fig. 1;

Fig. 5 is a photograph of the back view of the device of Fig. 1;

Fig. 6 is a photograph of the front view of a device in accordance with another embodiment of the invention, having holes on the top edge of the canvas sheet;

Fig. 7 is a photograph of an enlarged view of a portion of the device of Fig. 1, showing a transparent strip folded on one edge and sealed with a seam;

Fig. 8 is a photograph of the front view of a pocket of the device of Fig. 1, having a space between one transparent strip and an adjacent transparent strip;

Fig. 9 is a photograph of an enlarged view of a portion of the device of Fig. 1, showing the front view of a bottom edge of the canvas sheet;

- 5 Fig. 10 is a photograph of an enlarged view of a portion of the device of Fig. 1, showing the front view of a top edge of the canvas sheet having an eyelet through which a hook may be inserted, or cord or string may be threaded;

Fig. 11 is a photograph of the front view of a portion of the device of Fig. 1, showing the seam that provides a partitioning between each pocket;

- 10 Fig.12 is a photograph of an enlarged view of Fig. 11 showing the seam that provides a partitioning between each pocket, having a reinforcement at the bottom of the pocket;

Fig.13 is a photograph of an enlarged view of Fig. 11 showing the seam that provides a partitioning between each pocket, having a reinforcement at the top of the pocket;

- 15 Fig. 14 is a photograph of the enlarged front view of two adjacent rows of pockets of the device of Fig. 1, having a reinforcement at the top of one seam and a reinforcement at the bottom of an adjacent seam;

- Fig. 15 is a photograph of the back view of two adjacent rows of pockets of the device of Fig. 1, having a reinforcement at the top of one seam and a reinforcement at the
20 bottom of an adjacent seam;

Fig. 16 is a photograph of the back view of a portion of the device of Fig. 1, showing a first top edge of the canvas sheet and the configuration of seams used to reinforce the canvas sheet;

- Fig. 17 is a photograph of the back view of a portion of the device of Fig. 1, showing a
25 second top edge of the canvas sheet and the configuration of seams used to reinforce the canvas sheet;

Fig. 18 is a photograph of the back view of a portion of the device of Fig. 1, showing a bottom edge of the canvas sheet and the configuration of seams used to reinforce the canvas sheet;

Fig. 19 is a photograph of the front view of the device of Fig. 1 attached to a mobile hanger, wherein the plurality of pockets are empty;

Fig. 20 is a photograph of the front view of the device of Fig. 1 attached to a mobile hanger, wherein the plurality of pockets are filled with books;

Fig. 21 is a photograph of the front view of the device of Fig. 1 attached to another mobile hanger, wherein the plurality of pockets are empty;

Fig. 22 is a photograph of the front view of the device of Fig. 1 attached to another mobile hanger, wherein the plurality of pockets are filled with books;

Fig. 23(a) is a photograph of a wheel of the mobile hanger of Figs. 21 and 22;

Fig. 23(b) is a photograph of an enlarged view of the base of the mobile hanger of Figs. 21 and 22;

Fig. 24 is a photograph of a perspective view of the base of the mobile hanger of Figs. 21 and 22;

Fig. 25 is a photograph of a perspective view of two devices of Fig. 1 attached to a mobile hanger;

Fig. 26 is a photograph of an enlarged side view of two devices of Fig. 1 attached to a mobile hanger;

Fig. 27 is a photograph of a side view of multiple devices of Fig. 1 attached to a mobile hanger;

Fig. 28 is a photograph of an enlarged side view of multiple devices of Fig. 1 attached to a mobile hanger;

Fig. 29 is a photograph of a device of Fig. 1 in a compact position;

Fig. 30 is a photograph of multiple devices of Fig. 1 in a compact position; and

Fig. 31(a) and Fig. 31(b) are photographs of a material fraying due to the lack of seams.

Other arrangements of the invention are possible and, consequently, the
5 accompanying drawings are not to be understood as superseding the generality of the
preceding description of the invention.

Disclosure of Optional Embodiments

Provided herein is a device for displaying objects, in particular, flat objects. Exemplary,
non-limiting embodiments of the device will now be disclosed.

10 In accordance with an embodiment of the invention and as shown in the drawings,
there comprises a device 10 for displaying a plurality of objects. Unless otherwise
indicated, exemplary, non-limiting embodiments of the device will be described using
device 10 as an illustration. The device 10 comprises a base sheet 12 on which a
plurality of pockets may be formed on, each of the plurality of pockets shaped and
15 sized to receive an object such as (but not limited to) a book or magazine with certain
thickness.

The plurality of pockets may be sewn onto the base sheet 12. Alternatively the plurality
of pockets may be attached to the base sheet 12 in other ways.

The base sheet 12 may be a canvas sheet 12 and the plurality of pockets may be
20 formed by a plurality of transparent strips 14 sewn on one side of the canvas sheet 12.
As shown in Figs. 1 to 3, each transparent strip 14 may be further divided into a
plurality of pockets, each pocket for receiving at least one object. A plurality of seams
16 may be sewn on transparent strip 14 so as to define the plurality of pockets. In this
way, each pocket may be separated from another pocket by seams 16. Alternatively,
25 the plurality of pockets may be formed by a plurality of transparent strips 14, such that
each transparent strip 14 forms a single pocket for receiving at least one object (Fig.
6). Seam 18 may be sewn on transparent strip 14 so as to define the base of each
pocket, while edge 22 of transparent strip 14 defines the top of each pocket.

A strip of flexible and durable material 28, which may be a strip of canvas 28, may be used. As shown in Figs. 1 to 6, a strip of canvas 28 may be sewn along the bottom edge A-A' of canvas sheet 12, such that the strip of canvas 28 extends from the front side to the back side of canvas sheet 12. In addition, a strip of flexible and durable material 26, which may be a strip of canvas 26, may be sewn along a first side edge of canvas sheet 12, such that the strip of canvas 26 extends from the front side to the back side of canvas sheet 12. Similarly, another strip of flexible and durable material 26', which may be a strip of canvas 26', may be sewn along a second side edge of canvas sheet 12, such that the strip of canvas 26' extends from the front side to the back side of canvas sheet 12. The strips of canvas (26, 26' and 28) may reinforce the canvas sheet 12 so that it is rigid enough to support the plurality of pockets, and/or prevent fraying of canvas sheet 12. Consequently, a durable and re-usable device 10 may be obtained. In a preferred embodiment, strip of canvas 26 and strip of canvas 26' are sewn over strip of canvas 28. The width of the strips of canvas (26, 26' and 28) before sewing on canvas sheet 12 may range from about 2 cm to about 8 cm, about 2 cm to about 4 cm, about 3 cm to about 5 cm, about 4 cm to about 8 cm, about 4 cm to about 6 cm, about 5 cm to about 7 cm or about 5 cm to about 8 cm. In a preferred embodiment, the width of the strips of canvas (26, 26' and 28) before sewing on canvas sheet 12 is about 2.5 to about 3.5 cm.

20 The base sheet 12 may comprise a polyvinyl chloride (PVC) on one side and nylon on the other side. Suitable nylon polymers include all known synthetic polyamide polymers, including those selected from the group of nylon 6, nylon 6/6, nylon 6/9, nylon 6/10, nylon 6T, nylon 6/12, nylon 11, nylon 12 and copolymers and mixtures thereof.

25 Advantageously, the base sheet 12, which may be a canvas sheet 12, is made of a flexible and durable material. Such a flexible and durable material may allow the device 10 to be folded without the formation of creases (colloquially referred to as 'fold lines'), i.e. the device 10 may be in a compact position without the formation of creases. Consequently, the device 10 may be folded for storage or transportation purposes, when not in use, and then unfolded without the formation of undesired creases (see Figs. 19 to 22 and 25 to 30). In other words, the device 10 may be operable between a compact position and an extended position, without the formation

of undesired creases. As such, the device 10 may be re-used. This is particularly advantageous in situations where space is limited because the user is able to fold the device 10 when it is not needed. Notably, multiple devices may be folded and stacked, thereby leading to a savings in space (see Figs. 29 and 30). It is particularly
5 advantageous that the device 10 is so compact that multiple devices may be stacked. Conventional devices such as bookshelves or cupboards occupy more space and are rarely foldable. Consequently, stacking of bookshelves or cupboards is not as feasible or as desirable as stacking of device 10. This is because, in general, the stacking of bookshelves or cupboards does not lead to a savings in space. In addition, due to the
10 re-usability of the device 10, it can be a cost efficient alternative to other devices. The canvas may be made of a polymer selected from a group comprising (but not limited to) of polyvinylchloride (PVC), polypropylene, polyethylene and polyester. Advantageously, the canvas sheet 12 is not made of wood or metal. As a result, the device 10 does not contribute to global deforestation and may be more affordable. The
15 cost of the canvas may be less than SGD 20 per metre, less than SGD 18 per metre, less than SGD 16 per metre, less than SGD 14 per metre or less than SGD 12 per metre. In preferred embodiments, the cost of the canvas may be SGD 12 per metre. Due to the affordability of the canvas, the cost of manufacturing the device 10 may be significantly lower than the cost of manufacturing conventional devices. Consequently,
20 device 10 may be more affordable and lead to wide spread use of the device over other conventional devices. At the same time, the quality of the device 10 is not compromised due to the use of a flexible and durable material as the base sheet 12.

As shown in Figs. 19 to 22, even though the canvas sheet 12 may be foldable, it is rigid enough to support the plurality of pockets and restrict sagging when the device
25 10 is in operation, i.e. an extended position. When the device 10 is in a vertical position, the canvas sheet 12 may be rigid enough to support the plurality of pockets and restrict sagging (Figs. 19 to 22). This can be especially important when objects are placed in the plurality of pockets (Figs. 20 and 22). Advantageously, when the device 10 is in the extended position, the device maintains a substantially vertical
30 position when fully loaded with objects. In contrast, the combined weight of the objects (placed in the pockets) may cause sagging when inferior materials are used as the base sheet 12. Such inferior material includes relatively thin or flimsy plastic material. Sagging may also occur when the canvas sheet 12 is unable to take the weight of the

objects in the plurality of pockets. This may be a consequence of the canvas sheet 12 being unable to retain its shape and size due to the influence of gravity and/or weight of the objects in the plurality of pockets. When inferior materials are used, the combined weight of the objects may cause the canvas sheet 12 to rip due to the inability to support the combined weight of all the objects.

Advantageously, the canvas sheet 12 allows the display of multiple objects, each objects not exceeding a certain weight. The weight of each of the multiple objects may range from about 50 g to about 800 g, about 100 g to about 700 g, about 200 g to about 800 g, about 300 g to about 600 g, about 100 g to about 600 g or about 400 g to about 600 g. In an embodiment, when the average weight of a book is 550 g, the average maximum loading may be about 10 kg for a device having twenty pockets. Depending on the dimensions of the base sheet and transparent strips forming the plurality of pockets, the device 10 may hold different number of objects including, but not limited to, two objects, four objects, six objects, eight objects, ten objects, twelve objects, fourteen objects, sixteen objects, eighteen objects or twenty objects.

Advantageously, the canvas sheet 12 may be lightweight. As a result, the device 10 may be more portable than other devices like bookshelves and cupboards, which are more bulky. In addition, the present invention may be less heavy than a device made primarily out of wood, metal or heavier plastics. The weight of the device 10 may range from about 130 g to about 1000 g, about 600 g to about 1000 g, about 700 g to about 1000 g, about 800 g to about 1000 g, about 500 g to about 900 g, about 500 g to about 800 g or about 800 g to about 950 g. For a device 10 having two pockets, such as that shown in Fig. 6, an example of unladen weight (i.e. without books) may be 130 g. For a device 10 having twenty pockets, such as that shown in Fig. 4, an example of unladen weight (i.e. without books) may range from 880 g to 930 g.

The thickness of the canvas sheet 12 may range from about 0.2 millimeters (mm) to about 10 mm, about 0.2 mm to about 0.5 mm, about 0.5 mm to about 10 mm, about 0.5 mm to about 8 mm, about 0.5 mm to about 6 mm, about 0.5 mm to about 4 mm, about 1 mm to about 10 mm, about 1 mm to about 8 mm, about 2 mm to about 8 mm or about 2.5 mm to about 6 mm. In a preferred embodiment, the thickness of the canvas sheet 12 may be about 0.2 mm to about 0.3 mm.

The height and width of the canvas sheet 12 may affect the capacity of the device 10, accessibility and visibility of the objects contained in the plurality of pockets. A canvas sheet 12 with bigger dimensions (height and width) may be able to accommodate more objects, and hence have a greater capacity than a canvas sheet 12 with smaller dimensions. In addition, by adjusting the height and width of the canvas sheet 12, the device 10 may be tailored according to the height of the user. For instance, if the user is a child, the height of the canvas sheet 12 may be adjusted in such a manner that the child would be able to retrieve the object in any of the plurality of pockets, and all the objects are within the field of view of the child. As a result, the accessibility and visibility of the objects contained in the plurality of pockets may be improved due to the adjustability of the canvas sheet 12. It is particularly noteworthy that tailoring of device 10 by adjusting the size of the canvas sheet 12 to increase the accessibility and visibility of the objects contained in the plurality of pockets is operationally easier compared to the tailoring of conventional devices such as bookshelves or cupboards that are made primarily out of wood or metal, because simple tools such as scissors are suffice.

The height of the canvas sheet 12 may range from about 55 centimeters (cm) to about 200 cm, about 55 cm to about 100 cm, about 55 cm to about 70 cm, about 120 cm to about 200 cm, about 150 cm to about 200 cm, about 100 cm to about 150 cm or about 110 cm to about 160 cm. In a preferred embodiment, the height of the canvas sheet 12 may be about 115 cm to about 165 cm.

In an embodiment, the height of a device 10 having twenty pockets is about 160 cm, while the height of a device 10 having sixteen pockets is about 117 cm, and the height of a device 10 having two pockets is about 55 cm.

The width of the canvas sheet 12 may range from about 30 cm to about 120 cm, about 39 cm to about 50 cm, about 30 cm to about 100 cm, about 70 cm to about 120 cm, about 70 cm to about 110 cm, about 80 cm to about 120 cm, about 90 cm to about 120 cm or about 90 cm to about 110 cm. In an embodiment, the width of a device 10 having twenty pockets is about 91-98 cm, while the width of a device 10 having sixteen pockets is about 91 cm, and the width of a device 10 having two pockets is about 32.5 cm.

In addition to functioning as a base sheet 12, the canvas sheet 12 may also serve as a background for the plurality of pockets. This is especially advantageous if there is a need to provide an attractive background to attract the attention of a user. The canvas sheet 12 may include at least one colour selected from red, blue, green, yellow, violet, orange, black, gold, silver, grey or white. The canvas sheet 12 preferably does not include the colour brown. The use of such a coloured canvas sheet 12 may further enhance the visual appearance and attractiveness of the device 10, as compared to a canvas sheet 12 that is brown in colour. This may be especially useful when the target audience is children, who may be attracted to such an attractive coloured device 10. If the object is a book, having a coloured canvas sheet 12 from the list of colours mentioned above may motivate a child to pick up a book from the device 10. In comparison, if the book were on a bookshelf or cupboard made of wood or metal, the child may not be as motivated to pick up a book because the bookshelf or cupboard is visually less appealing. Alternatively, a black, white or grey canvas sheet 12 may be desirable for office use because it may impart a more professional look.

A person skilled in the art would understand that varieties of the colour red may include variations such as hue, chroma or lightness, or in two or three of these qualities. For instance, variations of red may include (but not limited to) scarlet, imperial red, Indian red, Spanish red, chili red, pink, coral pink, ruby, fuchsia, rose, magenta, crimson or turkey Red. A person skilled in the art would understand that varieties of the colour blue may include variations such as hue, chroma or lightness, or in two or three of these qualities. For instance, variations of blue may include (but not limited to) cyan, periwinkle, powder blue, light blue, baby blue, Spanish blue, azure, Blue de France, Bondi blue, Brandeis blue, turquoise, Zaffre, dark blue or navy blue. A person skilled in the art would understand that varieties of the colour green may include variations such as hue, chroma or lightness, or in two or three of these qualities. For instance, variations of green may include (but not limited to) apple green, cyan, dark spring green, India green, office green, shamrock green, bright green, forest green, lawn green, Kelly green, Chartreuse, lime green, teal, dark green, or pine green. A person skilled in the art would understand that varieties of the colour yellow may include variations such as hue, chroma or lightness, or in two or three of these qualities. For instance, variations of yellow may include (but not limited to) amber, maize, aureolin, gold, lemon chiffon, school bus yellow, mustard or jonquil. A person skilled in the art

would understand that variations of violet may include (but not limited to) amethyst, cerise, fuchsia, indigo, lavender, lilac, magenta, Tyrian purple, red-violet, orchid or rose.

The plurality of pockets may be made of a flexible and durable transparent material attached to the base sheet 12. The flexible and durable transparent material may comprise a plurality of transparent strips 14 sewn onto the base sheet 12. Advantageously, a surface, for example the front of the object is clearly visible because the pocket is transparent by virtue of the transparent strip 14. Exemplary objects may be selected from a group comprising (but not limited to) of books, magazines, essays, artwork and hand phones. For instance, if the object is a book, the front cover of the book may be clearly visible to a child. As such, the front cover of the book, which usually contains details such as the title, author and colourful pictures, may attract the attention of the child. Consequently, the chances of the child picking up a book that is suitable for him is higher than if the book were to be placed on a book shelf, in which only the spine of the book is visible. Similarly, an adult such as a teacher or parent may be better able to pick out a suitable book for a child if more details of the book is available at first glance.

Preferably, the transparent strip 14 may comprise a durable and rigid plastic material. When a durable plastic material is used for the transparent strip 14, the pocket may be able to protect the object from damage, while at the same time allowing the object to be viewed on display. More advantageously, the pocket may protect the object from bending or folding when the device 10 is folded. When a rigid plastic material is used for the transparent strip 14, the transparent strip 14 may further help reinforce the rigidity of the canvas sheet 12. The transparent strip 14 may lead to the stiffening of the canvas sheet 12 in the direction of the transparent strip, which may in turn enhance the support of the plurality of pockets and minimize sagging when the device 10 is in a vertical position. The plastic material may be selected from a group comprising (but not limited to) of polyvinyl chloride, polyester and polypropylene. Optionally, the transparent strip 14 may have prints such as words or images on it, such that the prints do not cover the entire transparent strip 14. The prints may advantageously enhance the visual appearance and attractiveness of the device 10 because the prints may be visually appealing words or images. The prints may be opaque or translucent, and

situated on the transparent strip 14 such that the visibility of the object in the pocket is not substantially affected. The presence of prints may be especially useful when the target audience is children, who may be attracted to a device that may have, for instance, images of animals in the form of stickers. As the plastic material may be durable and rigid, the device 10 can be folded without the formation of creases (colloquially referred to as 'fold lines') i.e. the device 10 may be in a compact position without the formation of creases. Consequently, the device 10 may be folded for storage purposes, when not in use, and then unfolded without the formation of undesired creases (see Figs. 19 to 22, and 25 to 30). In other words, the device 10 may be operable between a compact position and an extended position, without the formation of undesired creases. As such, the device 10 may be re-used. This is particularly advantageous in situations where space is limited because the user is able to fold the device 10 when it is not needed. Accordingly, the use of a flexible and durable material for the back sheet 12, such as (but not limited to) canvas, and a flexible and durable material for the transparent strip 14 may give rise to a synergistic effect such that the device 10 may be re-used multiple times, and have a longer shelf life compared to other devices. In particular, the device 10 may be re-used more often than a device made of inferior material, such as flimsy or relatively thin plastic. Consequently, device 10 may be more cost effective than other devices, such as devices made primarily out of wood or metal or flimsy or relatively thin plastic. A preferred thickness of the transparent strip 14 used in fabricating the plurality of pockets is about 2 mm.

As shown in Figs. 7 to 18, a plurality of pockets may be formed by folding each transparent strip 14 on one edge and sealing with seam 18, while seam 16 provides a partitioning between each pocket, thereby defining a plurality of pockets formed by the canvas sheet 12 and each transparent strip 14. Advantageously, by folding each transparent strip 14 inwards on one edge, such that the edge 20 of transparent strip 14 is contained within the cavity of the pocket, the base of the pocket has a double layer of transparent strip 14, which may lead to the formation of a stronger and reinforced pocket, thereby allowing a heavier object to be inserted into the pocket (Fig. 7). In addition, seam 16 may provide extra reinforcement for the pocket such that sagging is minimized when an object is inserted into the pocket. More advantageously, seam 16 may further comprise a reinforcement formed by sewing over the portion of

seam 16 that lies at the base of the plurality of pockets (Fig. 12). In addition, seam 16 may further comprise a reinforcement formed by sewing over the portion of seam 16 that lies at the opening of the plurality of pockets (Fig. 13). Sagging may occur when the transparent strip 14 of the pocket is unable to take the weight of the object held in the pocket. As a consequence, the transparent strip 14 may be unable to retain its shape and size due to the influence of gravity and/or weight of the object in the pocket.

Alternatively, a plurality of pockets may be formed by having more than one transparent strip 14, such that each transparent strip 14 forms one pocket (Fig. 6). Advantageously, by folding each transparent strip 14 inwards on one edge, such that the edge 20 of transparent strip 14 is contained within the cavity of the pocket, the base of the pocket has a double layer of transparent strip 14, which may lead to the formation of a stronger and reinforced pocket, thereby allowing a heavier object to be inserted into the pocket (Fig. 6).

Each pocket should be of sufficient size to permit relatively easy insertion and removal of an object but must still be able to tightly retain the object by simple surface friction. In a preferred embodiment, each pocket may hold one object. However, each pocket may also hold more than one object. Advantageously, the pocket may be able to receive an object that is flat or long or wide, like a piece of A4-sized paper. This is due to the dimensions of the pocket, which is determined by the size of the transparent strip 14. The height of each pocket may range from about 20 centimeters (cm) to about 60 cm, about 20 cm to about 50 cm, about 20 cm to about 40 cm, about 25 cm to about 60 cm, about 25 cm to about 50 cm, about 25 cm to about 45 cm, about 25 cm to about 35 cm, about 30 cm to about 60 cm, about 30 cm to about 50 cm, about 30 cm to about 40 cm or about 35 cm to about 60 cm. The width of each pocket may range from about 20 cm, about 25 cm, about 30 cm, about 35 cm, about 40 cm, about 45 cm, about 50 cm, about 55 cm, or about 60 cm. In an example, the average height of a pocket is 27 cm and the average width of the pocket is 24.5 cm.

It will, of course, be appreciated that the pocket can be fabricated in virtually any size to accommodate a particular object. Due to the size of the pocket, it can at least partially, if not completely envelop the object. As the pocket can at least partially, if not completely envelope the object, there is minimal risk of the object falling out of the pocket.

As shown in Figs. 1 to 4, 6, 8 and 14, a space 40 may run between one transparent strip 14 and an adjacent transparent strip 14'. The space 40 may allow the canvas sheet 12 to be folded without the need to fold the pockets. As a consequence, the object does not need to be removed from the pocket before folding of the canvas sheet 12. Thus, the device 10 may be easily folded and easily converted between an extended position and a compact position for storage or transport. In other words, the space 40 may facilitate in making the device 10 easy to use and more portable. Advantageously, the device 10 may be moved from one location to another by folding, without having to remove the object from the pocket or the risk of having the object fall out of the pocket because the empty space 40 provides room for the object when the device is in a folded form (i.e. compact position). As the canvas sheet 12 may be a flexible and durable material, folding the device 10 along the space 40 would not lead to the formation of a crease. Thus, the device 10 may be reused without losing the original shape and size of the device.

Advantageously, the device 10 may be hung in a vertical fashion, i.e. an extended position.

As shown in Figs. 4 to 6, 10, 19 to 22 and 25 to 30, the canvas sheet 12 may be strong enough to be able to have holes punched into it and not be easily torn or distorted due to the vertical weight. Deformation of the canvas sheet 12 refers to a significant change in the original shape of the canvas sheet 12, whether permanently or otherwise, and may include sagging. Eyelets 30 may pinch the top edge of the canvas sheet 12 and provide for holes through which a hook 36 (such as a metal hook or plastic hook) may be inserted, or a cord or string may be threaded. Typically, the holes are aligned parallel to a seam 24. The eyelets 30 are aligned in this way so that they can allow the canvas sheet 12 to be vertically suspended by hooks or other hanging device from available vertical surfaces. The eyelets 30 may advantageously reinforce the canvas sheet 12 and prevent the combined weight of the pockets and the stored objects from distorting or ripping the holes. Additional eyelets 30 may be provided when needed, and the number of eyelets 30 is dependent on the number of pockets. The number of eyelets 30 is preferably at least two so that sagging may be prevented when the device 10 is hanged in a vertical fashion. When there are two columns of pockets, three eyelets 30 is adequate to allow the canvas sheet 12 to be vertically suspended without

tearing or deformation of the canvas sheet 12. For a device that has two pockets, such as device 10 shown in Fig. 6, two or three eyelets 30 are adequate to allow the canvas sheet 12 to be vertically suspended without tearing or deformation of the canvas sheet 12. When there are three rows of two pockets, three eyelets 30 is adequate to allow the canvas sheet 12 to be vertically suspended without tearing or deformation of the canvas sheet 12. The number of eyelets 30 may be selected from a group comprising (but not limited to) of two, three, four, five, six, seven and eight. In a preferred embodiment, the number of eyelets 30 is four (Figs. 1, 3 to 5, 19 to 22 and 25 to 28), so that twenty books may be displayed by the device 10 without tearing or deformation of the canvas sheet 12.

In order to enhance the mobility of the device 10, the device 10 may be attached to a frame with wheels 38 (also referred to as "mobile hanger 38") (Figs. 19 to 28). The frame may have a maximum width A-A' of less than about 185 cm, less than about 180 cm or less than about 175 cm. In an embodiment, when the width A-A' of the mobile hanger 38 is about 183 cm, a device 10 having a maximum of six pockets per row may be attached to the mobile hanger 38. In addition, the mobile hanger 38 may allow two or more devices 10 to be placed back to back, so that more objects may be displayed (Figs. 25 to 28). Consequently, a more efficient use of space may be achieved through the use of the device 10. In addition, the device 10 may function as a method of displaying objects in an organized and attractive manner. For instance, when the object is a book or magazine, the front or back cover of the book or magazine, which is usually visually more attractive, is clearly visible to the viewer. The plurality of eyelets 30 may be utilized for a plurality of attachment means to be looped through the eyelets 30 and be tied to a portion of the frame (typically a horizontal bar). Alternatively, the attachment means may be in the form of S-shaped hooks 36 as illustrated in Fig. 19 to 22. Each of the S-shaped hook 36 may be hooked through the eyelet 30 and hanged onto the horizontal bar.

Mobility can be particularly advantageous in a classroom setting, where a teacher may push the device to another classroom with ease. As a result, there may be a savings in time and effort, especially when the teacher does not have to remove the objects from the pockets and then rearrange the objects to be displayed on the device 10. When a mobile hanger 38 is used, having two or more devices 10 on the mobile hanger

- 38 may give teachers the flexibility of choosing which device 10 to show the students. Accordingly, the teacher may push the mobile hanger 38 having multiple devices 10 to another classroom and choose the device(s) 10 out of the multiple devices 10 for the students to view. As such, the mobile hanger 38 having two or more devices 10 may allow teachers to selectively display objects depending on the target audience, in a quick and easy manner. Furthermore, the teacher may easily and quickly identify if an object is missing from any pocket. In addition, any other person, such as a class librarian, may easily keep track of the books in the device 10 because it would be evident when an object is missing from a pocket.
- 10 As shown in Fig. 2, the device 10 may further comprise a longitudinal compartment 32 on a top portion of the canvas sheet 12 for the insertion of a rod. This rod may facilitate the hanging of the device on a vertical surface. In addition, the rod may optionally have a string tied to both ends of the rod. This string may allow the entire rod to be hung from a vertical surface.
- 15 As shown in Fig. 3, the device 10 may comprise a longitudinal compartment 34 on a top portion of the canvas sheet 12 for the insertion of a rod, and further comprise eyelets 30 positioned above the rod. The eyelets 30 may pinch the top edge of the canvas sheet 12 and provide for holes through which a hook (such as a metal hook or plastic hook) may be inserted. Typically, the holes are aligned parallel to longitudinal compartment 34. The eyelets 30 are aligned in this way so that they can allow the canvas sheet 12 to be vertically suspended by hooks or other hanging device from available vertical surfaces. When the device 10 has both eyelets 30 and a rod, the device may be hung on a wall or attached to a frame with wheels. When the device 10 is attached to a frame with wheels, the rod may eliminate sagging of the device 10.
- 20
- 25 As shown in Figs. 1 to 18, the configuration of the seams, including the way the seams are formed or sewn onto the base sheet 12 and transparent strips 14 is important in reinforcing the device 10. For instance, seam 16 may further comprise a reinforcement formed by having at least a double-sewing over the portion of seam 16 that lies at the base of the plurality of pockets (Fig. 12), forming double sewn seam 16a. In addition, seam 16 may further comprise a reinforcement formed by double-sewing over the portion of seam 16 that lies at the opening of the plurality of pockets (Fig. 13) forming double sewn seam 16a. In particular, the configuration of the seams prevent fraying
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of the base sheet 12. Fraying of the base sheet 12 may be prevented by sewing a strip of canvas 28 along the bottom edge of canvas sheet 12, such that the strip of canvas 28 extends from the front side to the back side of canvas sheet 12. In addition, a strip of canvas 26 may be sewn along a first side edge of canvas sheet 12, such that the strip of canvas 26 extends from the front side to the back side of canvas sheet 12. Similarly, another strip of canvas 26' may be sewn along a second side edge of canvas sheet 12, such that the strip of canvas 26' extends from the front side to the back side of canvas sheet 12. In a preferred embodiment, strip of canvas 26 and strip of canvas 26' are sewn over strip of canvas 28. Additional seams may be sewn, by sewing over a seam, at the edges of the base sheet 12 to provide extra reinforcement. Consequently, the base sheet 12 may be made more durable and the device may be able to withhold the weight of multiple objects. In contrast, the absence of seams on the base sheet 12 may lead to undesired fraying of the material used to make the base sheet, as shown in Fig. 31(a) and 31(b). Without the seams and reinforcements, the device would be less durable. Consequently, the device may not be able to withhold the weight of multiple objects without tearing or sagging.

Exemplary, non-limiting embodiments of a method of forming a device for displaying objects will now be disclosed.

In accordance with another embodiment, the method of forming a device 10 for displaying objects comprises the steps of: a) providing a base sheet 12 made of a first flexible and durable material; b) attaching a plurality of pockets made of a second flexible and durable transparent material to the base sheet 12, each of the plurality of pockets for receiving an object, wherein the formed device is operable between a compact position and an extended position; such that the compact position corresponds to either the base sheet or at least one of the plurality of pockets being folded, and the extended position corresponds to the device in a position for displaying the objects; and wherein in the extended position the device resists deformation when loaded with objects.

The second flexible and durable transparent material used in the method may comprise a plurality of transparent strips 14 sewn onto the base sheet 12.

The configuration of the seams prevent fraying of the base sheet 12. Fraying of the base sheet 12 may be prevented by sewing a strip of canvas 28 along the bottom edge of canvas sheet 12, such that the strip of canvas 28 extends from the front side to the back side of canvas sheet 12 (Figs. 1 to 6, 9 and 18). In addition, a strip of canvas 26 may be sewn along a first side edge of canvas sheet 12, such that the strip of canvas 26 extends from the front side to the back side of canvas sheet 12 (Figs. 1 to 6, 9 and 17 and 18). Similarly, another strip of canvas 26' may be sewn along a second side edge of canvas sheet 12, such that the strip of canvas 26' extends from the front side to the back side of canvas sheet 12 (Figs. 1 to 6 and 16). In a preferred embodiment, strip of canvas 26 and strip of canvas 26' are sewn over strip of canvas 28 (Figs. 1 to 4, 6, and 9). Additional seams may be sewn, by sewing over a seam, at the edges of the base sheet 12 to provide extra reinforcement. Consequently, the base sheet 12 may be made more rigid and the device may be able to withhold the weight of multiple objects. In contrast, the absence of seams on the base sheet 12 may lead to undesired fraying of the material used to make the base sheet, as shown in Fig. 31(a) and 31(b). Without the seams and reinforcements, the device would be less rigid. Consequently, the device may not be able to withhold the weight of multiple objects without tearing or sagging.

The method may further comprise the step of folding each transparent strip 14 on one edge to reinforce the pockets and sealing by seams 16. By folding each transparent strip 14 on one edge and sealing with seam 18, such that the edge 20 of transparent strip 14 is contained within the cavity of the pocket, the base of the pocket has a double layer of transparent strip 14, which may lead to the formation of a stronger and reinforced pocket, thereby allowing a heavier object to be inserted into the pocket. Seam 16 may further comprise a reinforcement formed by sewing over the portion of seam 16 that lies at the base of the plurality of pockets (Fig. 12). In addition, seam 16 may further comprise a reinforcement formed by sewing over the portion of seam 16 that lies at the opening of the plurality of pockets (Fig. 13).

The method may further comprise the step of providing a space 40 between one transparent strip 14 and an adjacent transparent strip 14'. Advantageously, the space 40 may allow the canvas sheet 12 to be folded without the need to fold the plurality of

pockets. As a consequence, the object does not need to be removed from the pocket before folding of the canvas sheet 12.

Possible (non-exhaustive) Applications

A device of the present invention for displaying objects disclosed herein can be used in a school environment, especially in a classroom setting. As space in the classroom can be limited, the device advantageously allows multiple objects to be displayed at each time, without having to occupy as much space as a bookshelf or cupboard. In addition, two or more devices may be placed back to back on a frame with wheels so that the user may maximize the frame with wheels, such that more objects may be supported on the frame with wheels. Consequently, a more efficient use of space may be achieved through the use of the device. This would give more space for other furniture such as tables and chairs.

The device may also be used to attract students to pick up a book to read and inculcate the love for reading. This is because the device may function as an attractive background to attract the attention of the student. By solely displaying books in a bookshelf or cupboard, where books are placed side by side, with the spine of the book facing the student, it is less visually appealing to the student. The device allows the cover of the book to be clearly seen by the student, which is visually more appealing than the spine of the book. Furthermore, for students that have learning disabilities, the device may help the student overcome the fear of reading by displaying the attractive pictures on the cover of the book.

The device may also function as a teaching aid. For instance, teachers may save time by displaying the objects, such as artwork or model essays, for the students to view, fold the device without having to remove the objects from the pockets, and carry the device from one location to another. As such, the device may function as a more lightweight and portable alternative to a bookshelf or cupboard. In addition, the device may help teachers select suitable books for their students because the cover of the book would be clearly seen by the teacher. When a mobile hanger is used, having two or more devices on the mobile hanger may give teachers the flexibility of choosing which device to show the students. Accordingly, the teacher may move the mobile hanger having multiple devices at least partially loaded with objects, from one location

to another and choose the device(s) out of the multiple devices for the students to view. As such, the mobile hanger having two or more devices may allow teachers to selectively display objects depending on the target audience, in a quick and easy manner.

- 5 The device may also be used by parents who wish to encourage their children to read by displaying books neatly on the wall in an attractive manner. Children may place the books nicely and neatly for self-reading or bedtime reading by parents. Early access to books is very important as children tend to have more interest in reading if they start reading from young. Consequently, children who are able to read find it easier to cope
10 with learning in school.

It is to be appreciated that the device may also function as a method of displaying objects, having the advantages described above.

- It is to be appreciated that while the device is described in the context of a device for displaying objects such as books or magazines, the durability, lightweight, portability
15 properties associated with the device make it suitable for storing objects during transportation, acting as a protective cover.

- It will be apparent that various other modifications and adaptations of the invention will be apparent to the person skilled in the art after reading the foregoing disclosure without departing from the spirit and scope of the invention. It is intended that all such
20 modifications and adaptations come within the scope of the appended claims.

Further, it is to be appreciated that features from various embodiment(s), may be combined to form one or more additional embodiments.

Claims

1. A device for displaying objects, comprising:

a base sheet made of a first flexible and durable material; and

a plurality of pockets made of a second flexible and durable transparent material attached to the base sheet, each of the plurality of pockets for receiving an object,

wherein the device is operable between a compact position and an extended position; such that the compact position corresponds to either the base sheet or at least one of the plurality of pockets being folded, and the extended position corresponds to the device in a position for displaying the objects; and wherein in the extended position the device resists deformation when loaded with objects.

2. The device according to claim 1, wherein the first flexible and durable material is polyvinylchloride.

3. The device according to claim 2, wherein the base sheet is a canvas sheet.

4. The device according to any one of the preceding claims, wherein the second flexible and durable transparent material comprises a plurality of transparent strips sewn onto the base sheet.

5. The device according to claim 4, wherein the at least one transparent strip is folded on one edge to reinforce the plurality of pockets.

6. The device according to claim 4 or 5, wherein the plurality of transparent strips comprises a plastic material that is durable such that creases are not formed when the device is in the compact position.

7. The device according to any one of claims 4 to 6, wherein the plurality of transparent strips comprises a plastic material that is rigid such that the plurality of pockets do not sag due to the weight of the objects.

8. The device according to any one of claims 3 to 7, wherein the canvas sheet includes at least one of the following colours: red, blue, green, yellow, violet, orange, black, gold, silver, white or grey.

5 9. The device according to any one of claims 4 to 8, further comprising a space between one transparent strip and an adjacent transparent strip.

10. The device according to any one of the preceding claims, further comprising at least two holes on a top edge of the base sheet.

10 11. The device according to any one of the preceding claims, further comprising a longitudinal compartment on a top portion of the base sheet for the insertion of a rod.

12. The device according to any one of the preceding claims, further comprising a first strip of flexible and durable material along a first side edge of the base sheet and a second strip of flexible and durable material along a second side edge of the base sheet.

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13. The device according to claim 10, further comprising a frame with wheels attached to the at least two holes on the top edge of the base sheet.

14. A method of forming a device for displaying objects comprising the steps of:

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- a. providing a base sheet made of a first flexible and durable material;
- b. attaching a plurality of pockets made of a second flexible and durable transparent material to the base sheet, each of the plurality of pocket for receiving an object,

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wherein the formed device is operable between a compact position and an extended position; such that the compact position corresponds to either the base sheet or at least one of the plurality of pockets being folded, and the extended position corresponds to the device in a position for displaying the objects; and wherein in the extended position the device resists deformation when loaded with objects.

15. The method according to claim 14, wherein the second flexible and durable transparent material comprises a plurality of transparent strips sewn onto the base sheet.

5 16. The method according to claim 15, further comprising the step of folding each transparent strip on one edge before the step of attaching the transparent sheet to the base sheet.

17. The method according to claim 15 or 16, further comprising the step of providing a space between one transparent strip and an adjacent transparent strip.

10 18. The method according to any one of claims 14 to 17, further comprising the step of attaching a first strip of flexible and durable material along a first side edge of the base sheet and a second strip of flexible and durable material along a second side edge of the base sheet.

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