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(54) **A DISPLAY APPARATUS**

(57) A display apparatus, comprising: a support arrangement, for supporting a printed sheet, having at least one receptacle therein; one or more light sources arranged to illuminate the printed sheet supported by the support arrangement; a clip, for receipt and retention by the receptacle, configured to grip a conductive suspension wire; and at least one conductor for electrically connecting the conductive suspension wire and the one or more light sources when the clip grips the conductive suspension wire.

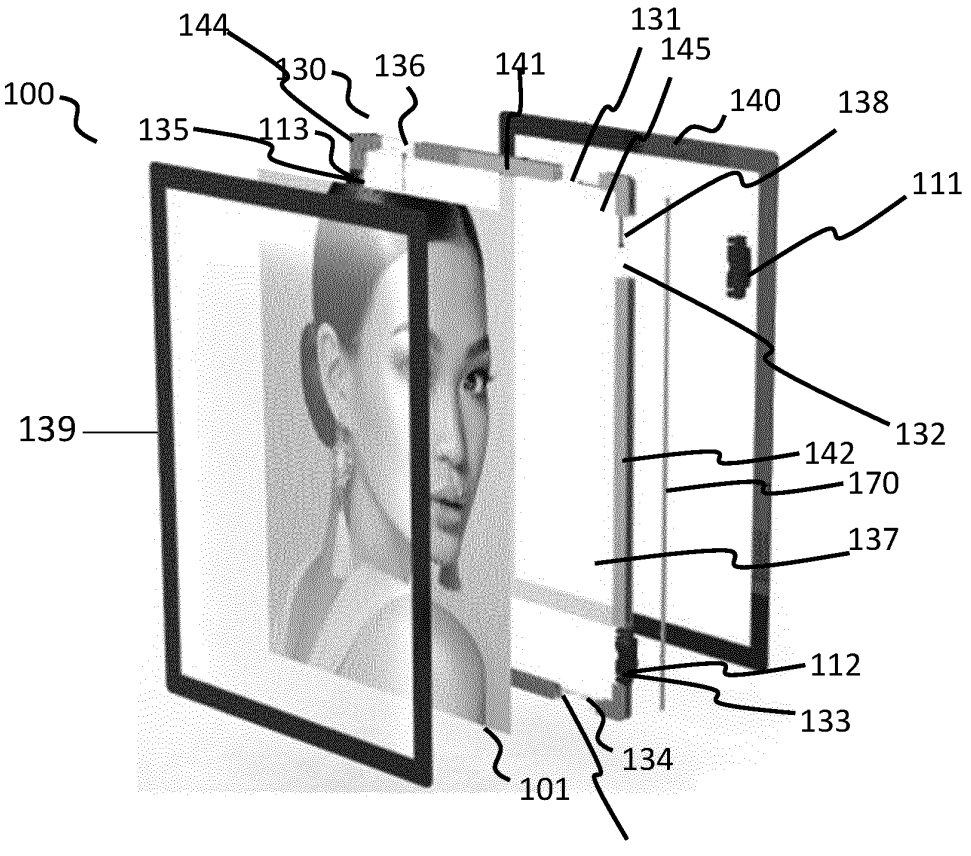

FIG. 1A

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Description

TECHNOLOGICAL FIELD

[0001] Embodiments of the present disclosure relate to a display apparatus. In particular, they relate to a display apparatus for illuminating a printed sheet.

BACKGROUND

[0002] A display apparatus may be provided for displaying a printed sheet, such as outside a shop (e.g., an estate agent). The display apparatus may include one or more light sources for illuminating the printed sheet so that the printed sheet can be seen more easily (e.g., following sunset).

BRIEF SUMMARY

[0003] According to various, but not necessarily all, examples there is provided a display apparatus, comprising: a support arrangement, for supporting a printed sheet, having at least one receptacle therein; one or more light sources arranged to illuminate the printed sheet supported by the support arrangement; a clip, for receipt and retention by the receptacle, configured to grip a conductive suspension wire; and at least one conductor for electrically connecting the conductive suspension wire and the one or more light sources when the clip grips the conductive suspension wire.

[0004] The clip may comprise at least one resiliently biased portion to cause the clip, when received by the receptacle, to be retained by the receptacle. The clip may comprise a channel configured to receive the conductive suspension wire.

[0005] The channel may be defined by channel walls configured to grip the conductive suspension wire. The channel defined by the channel walls may be longitudinally non-linear. The channel defined by the channel walls may be substantially arcuate.

[0006] The channel may comprise an entrance and an exit for the conductive suspension wire. The channel walls may comprise at least one protrusion arranged to retain the conductive suspension wire in the channel. The at least one protrusion may comprise a protrusion located substantially at the entrance of the channel. The at least one protrusion may comprise a protrusion located substantially at the exit of the channel.

[0007] The clip may be configured to receive the at least one conductor at least partially within the clip. The clip may be configured to hold the at least one conductor at least partially within the clip while the conductive suspension cable is retained by the clip.

[0008] The support arrangement may comprise a planar surface, for supporting the printed sheet, and at least one side wall, wherein the at least one side wall comprises the at least one receptacle. The at least a portion of an outer surface of the at least one side wall may be substantially orthogonal to at least a portion of the planar surface.

[0009] The at least one side wall may comprise a first side wall and a second side wall, the at least one receptacle may comprise a first receptacle and a second receptacle, wherein the first receptacle is in the first side wall and the second receptacle is in the second side wall.

[0010] The at least a portion of an outer surface of the first side wall may be substantially orthogonal to at least a portion of the planar surface and at least a portion of the second side wall.

[0011] The support arrangement may comprise at least one electrical conductor that extends from the one or more light sources to the first receptacle and to the second receptacle.

[0012] The clip may be formed from an electrical insulator. The clip may be integrally formed.

[0013] The at least one conductor may comprise a pin.

BRIEF DESCRIPTION

[0014] Some examples will now be described with reference to the accompanying drawings in which:

FIG. 1A shows an exploded view of an example display apparatus;

FIG. 1B shows a perspective view of the example display apparatus;

FIG. 2A shows a perspective view of an example clip;

FIG. 2B shows a front view of the example clip shown in FIG. 2A;

FIG. 2C shows a side view of the example clip shown in FIGs 2A and 2B;

FIGs 3A to 3G show a series of images depicting the connection of a support arrangement of the display apparatus to a conductive suspension wire; and

FIG. 4 shows a schematic of some components of the example display apparatus.

DETAILED DESCRIPTION

[0015] Embodiments of the invention relate to a display apparatus 100 for displaying and illuminating a printed sheet 101. The display apparatus 100 may be used in a shop, such as an estate agent.

[0016] The display apparatus 100 may be supplied part-assembled to an end user. Advantageously, completion of the assembly by the end user is straightforward and might not require the use of tools. Furthermore, in at least some implementations, multiple instances of the display apparatus 100 may be suspended from a single conductive suspension wire 151, 152 that conveys electrical power to the display apparatuses 100. Embodiments of the invention may also enable the display apparatus 100, and therefore a printed sheet 101 supported by the display apparatus, to be displayed in portrait or landscape orientation.

[0017] FIG. 1A shows an exploded view of an example

display apparatus 100 and FIG. 1B shows a perspective view of the example display apparatus 100.

[0018] The display apparatus 100 comprises at least one clip 111-114. In the illustrated example, first, second, third and fourth clips 111-114 are provided, but only the first to third clips 111-113 are shown in FIG. 1A.

[0019] The display apparatus 100 further comprises a support arrangement 130, at least one conductor 160 (not shown in FIG. 1A or FIG. 1B) and one or more light sources 170.

[0020] The support arrangement 130 is configured to support a printed sheet 101. The printed sheet 101 may be made of any suitable material. The printed sheet 101 may be an acrylic sheet. The printed sheet 101 may made from 100% recycled material. The printed sheet 101 may be made from 100% recyclable material. The printed sheet 101 may be configured to display any suitable information. The printed sheet 101 may be configured to display text and/or images. The printed sheet 101 may have a length, a width and a depth, where the depth is (much) smaller than the length and the width. Each of the length and the width might be at least fifty times larger than the depth.

[0021] The support arrangement 130 comprises at least one receptacle 131-136 therein. The support arrangement 130 shown in FIG. 1A comprises first, second, third, fourth, fifth, sixth, seventh and eighth receptacles 131-136 (two receptacles 131-136 are not shown in FIG. 1A). The support arrangement 130 may comprise any suitable number of receptacles 131-136. For example, the support arrangement 130 may have one, two, three, four, five, ten, twenty receptacles 131-136.

[0022] As shown in FIG. 1A, the support arrangement 130 comprises a planar support 145. The planar support 145 comprises a planar surface 137 configured to support the printed sheet 101. The shape and size of the planar surface 137 may be larger than or substantially similar to the shape and size of the printed sheet 101 in order to support the printed sheet. For example, if the size and shape of the printed sheet 101 is A4 (i.e., 210mm by 297mm), the size and shape of the planar surface may be substantially similar to or larger than A4.

[0023] The support arrangement 130 may comprise at least one sidewall 141-144 and, in the illustrated example, first to fourth sidewalls are present 141-144. For example, the planar support 145 may comprise the at least one sidewall 141-144. Each sidewall 141-144 may comprise at least one receptacle 131-136. In the illustrated example, each sidewall 141-144 comprises two receptacles 131-136. Each sidewall 141-144 comprises an outer surface that is substantially orthogonal to the planar surface 137.

[0024] Furthermore, some sidewalls 141-144 have an outer surface that is substantially orthogonal to other sidewalls 141-144. In the example illustrated in FIG. 1A, the outer surface of the first sidewall 141 is substantially orthogonal to both the outer surface of the second sidewall 142 and the outer surface of the fourth sidewall 144. The outer surface of the first sidewall 141 is substantially parallel to the outer surface of the third sidewall 143. The outer surface of the second sidewall 142 is substantially parallel to the outer surface of the fourth sidewall 144. The outer surface of the third sidewall 143 is substantially orthogonal to both the outer surface of the second sidewall 142 and the outer surface of the fourth sidewall 144.

[0025] In the example illustrated in FIG. 1A, the outer surfaces of the first sidewall 141 and the second sidewall 142 are configured to form a corner. The outer surfaces of the first sidewall 141 and the fourth sidewall 144 are configured to form a corner. The outer surface of the third sidewall 143 may be configured to form a corner with the outer surface(s) of at least one of the second sidewall 142 and the fourth side wall 144. Each corner may have an internal angle of substantially 90 degrees.

[0026] In the example illustrated in FIG. 1A, the first sidewall 141 has the first and sixth receptacles 131, 136 therein. The second sidewall 142 has the second and third receptacles 132, 133 therein. The third sidewall 143 has the fourth and seventh receptacles 134 therein (the seventh receptacle is not shown in the figures). The fourth sidewall 144 has the fifth and eighth receptacles 135 therein (the eighth receptacle is not shown in the figures). Each receptacle is a cavity that extends inwardly from the plane defined by the outer surface of the sidewall 141-144. The cavity might, for example, be shaped as a cuboid or a rectangular prism.

[0027] As shown in FIG. 1A, an electrical conductor 138 is provided which extends from the first receptacle 131 to the second receptacle 132. The electrical conductor 138 also extends to at least one of the light sources 170. The one or more light sources 170 are shown as a strip of light sources in FIG. 1A. Each of the one or more light sources 170 may be any suitable light source (e.g., a light emitting diode (LED)). The display apparatus may comprise an optical arrangement for reflecting, refracting and/or absorbing and re-emitting light generated by the one or more light sources 170 to provide a substantially even distribution of light when illuminating the printed sheet 101. The optical arrangement might be supported by the planar surface 137. In some examples, the optical arrangement is or comprises a diffuser, such as a diffusion grid. The diffusion grid might be made from cloth.

[0028] As shown in FIGs 1A and 1B, the support arrangement 130 may comprise a first cover 139 and a second cover 140. The planar support 145 (and therefore the planar surface 137) is located between the first cover 139 and the second cover 140. As shown in FIG. 1B, when the display apparatus 100 is assembled, the first cover 139 is configured to at least partly locate the printed sheet 101 against the planar surface 137. The printed sheet 101 may, for example, be in contact with the first cover 139 and the planar surface 137 in this regard. As shown in FIG. 1A, the covers 139, 140 are configured to ensure that the printed sheet 101 is substantially visible. The covers 139, 140 may be substantially transparent. The covers 139, 140 may also be configured to protect

components of the support arrangement 130. The shape and size of the covers 139, 140 may be substantially similar to the shape and size of the planar surface 137.

[0029] In use, the conductive suspension wire 151, 152 is received and gripped by each clip 111-114. Each clip 111-114 is received and retained by a receptacle 131-136. Once the receptacle 131-136 has received and retained the clip 111-114 and the clip 111-114 has received and gripped the conductive suspension wire 151, 152, the support arrangement 130 is suspended by the conductive suspension wire 151, 152. Each clip 111-114 may house a conductor 160 that enables electrical power to be transferred from the conductive suspension wire 151, 152 to the light sources 170 via the clip 111-114.

[0030] FIG. 1B shows a first conductive suspension wire 152 and a second conductive suspension wire 152. As shown in FIG. 1B, the first clip 111 is both received and retained by the second receptacle 132. The first clip 111 is also gripping the first conductive suspension wire 151. The second clip 112 is both received and retained by the third receptacle 133. The second clip 112 is also gripping the first conductive suspension wire 151. The third and fourth clips 113, 114 are received and retained in respective receptacles and are gripping the second conductive suspension wire 152. The orientation of the support arrangement 130 shown in FIG. 1B is a portrait orientation. The orientation of the support arrangement can be altered to a landscape orientation by removing the clips 111-114 from the receptacles 131-136 of the second and fourth side walls 142, 144 and causing the clips 111-114 to be received and retained in the receptacles 131-136 of first and third sidewalls 141, 143.

[0031] FIG 2 shows a perspective, front and side view of an example clip 111-114. The clip 111-114 comprises at least one resiliently biased portion 115, 116 configured to cause the clip 111-114, when received by a receptacle 131-136, to be retained by the receptacle 131-136. While the figures illustrate at least one resiliently biased portion 115, 116 for enabling the clip 111-114 to be retained in the receptacle 131-136, it should be understood that any suitable means for causing the clip 111-114 to be retained in the receptacle 131-136 could be used. As illustrated in FIGs 2A, 2B and 2C, the resiliently biased portion 115, 116 comprises first and second arms, each of which is at least partially separated from a portion of the clip 111-114, that is intermediate the first and second arms, by an aperture. Each arm is configured such that when the clip 111 is received in the receptacle 131-136, a surface of the receptacle 131-136 urges the arm at least partially into the aperture. Each arm is configured to be resiliently biased in a direction away from the aperture (i.e., in a substantially opposite direction to which the arm has been urged by the surface of the receptacle 131-136, and away from the intermediate portion of the clip 111-114). The portion of the arm that is placed into contact with the surface of the receptacle may comprise at least one protrusion configured to grip the surface of the receptacle 131-136. FIGs 2A and 2C illustrate a protrusion on the arm configured to grip the surface of the receptacle 131-136.

[0032] As illustrated best in FIG. 2B, the clip may comprise a channel 117 configured to receive the conductive suspension wire 151, 152. The channel 117 is defined by a first channel wall 118 and a second channel wall 119. The channel walls 118, 119 may be configured to grip the conductive suspension wire 151, 152.

[0033] The channel 117 defined by the channel walls 118, 119 may be longitudinally non-linear, such as substantially arcuate as shown in FIGs 2A and 2B. The illustrated channel 117 also comprises an entrance 120 and an exit 121 for the conductive suspension wire 152. In the clip 111-114 shown in FIG. 2B, the first channel wall 118 does not extend from the entrance 120 to the exit 121 along a single straight line (i.e., the first channel wall does not extend from the entrance 120 to the exit 121 exactly vertically down the figure). The first channel wall 118 extends from the entrance 120 to the exit 121 in a non-linear manner. FIG 2B shows that the second channel wall 119 extends from the entrance 120 to the exit 121 in a similar manner as the first channel wall 118, maintaining substantially the same spacing from the first channel 118 along a majority of its length.

[0034] The channel walls 118, 119 may comprise at least one protrusion 122, 123 arranged to retain the conductive suspension wire 151, 152 in the channel 117. The channel 117 may receive the conductive suspension wire 151, 152 and once received, the at least one protrusion 122, 123 causes tension in the conductive suspension wire 151, 152 that causes clip 111-114 to grip the conductive suspension wire 151, 152. The at least one protrusion may be located substantially at the entrance 120 of the channel 117 and/or the exit 121 of the channel 117. FIGs 2A and 2B show a protrusion 122 located substantially at the entrance 120 of the channel 117. The protrusion 122 is configured to extend outwardly from the first channel wall 118. When the conductive suspension wire 151, 152 is received in the channel 117, the protrusion 122 causes the conductive suspension wire 151, 152 to bend and thereby create additional tension within the conductive suspension wire 151, 152. FIGs 2A and 2B show a protrusion 123 that is substantially similar to protrusion 122 and is located substantially at the exit 121. When the suspension wire 151, 152 is received by the channel 117, the channel walls 118, 119 grip the suspension wire 151, 152. The channel walls 118, 119 may grip the suspension wire 151, 152 to enable the support arrangement 130 to be supported on the suspension wire 151, 152 without the clip 111-114 slipping along the suspension wire 151, 152.

[0035] The clip 111-114 may be configured to receive the at least one conductor 160 at least partially within the clip 111-114. The clip 111-114 may comprise a conductor receptacle 124 configured to receive and retain the at least one conductor 160. The shape and size of the conductor receptacle 124 may be substantially similar to the shape and size of the at least one conductor 160. FIGs

2A, 2B and 2C show a conductor receptacle 124 that is substantially cylindrical. The conductor receptacle 124 is configured to receive a pin-shaped conductor 160 (see conductor 160 of FIG. 3). The conductor receptacle 124 is configured to receive the pin-shaped conductor at an entrance of the conductor receptacle 124 (e.g., an aperture on the right-hand side of the conductor receptacle illustrated in FIG. 2C). The conductor receptacle 124 may be configured to retain the conductor 160 via a friction fit/interference fit. As shown in FIGs 2B and 2C, the entrance of the conductor receptacle 124 is defined by an aperture in the base of the channel 117. Once the pin-shaped conductor 160 has been received by the conductor receptacle 124, the base of the channel 117 is configured to support a head of the pin-shaped conductor 160. The receptable conductor 124 may be configured such that when the conductor 160 is received by the receptacle conductor 124 and when the conductive suspension wire 151, 152 is received by the channel 117, the conductor 160 is held in the receptacle conductor 124, at least in part, by the conductive suspension wire 151, 152.

[0036] The clip 111-114 may formed from an electrical insulator (e.g., a suitable plastic). The clip 111-114 may be integrally formed. The clip 111-114 may be formed at least in part via injection moulding.

[0037] FIGs 3A to 3G show a series of images depicting the connection of a support arrangement 130 of the display apparatus 100 to a conductive suspension wire 151, 152.

[0038] FIG. 3A shows a clip 113 and a conductor 160. The clip 113 illustrated in FIG. 3A is the same as the other clips 111, 112, 114 illustrated in FIG. 2. While FIGs 3A to 3G illustrate the connection of a support arrangement 130 to a conductive suspension wire 151 using clip 113, it should be understood that the process for connecting the clips 111, 112, 114 to the support arrangement 130 is the same for each of the clips 111, 112, 114.

[0039] The conductor 160 is an electrical conductor. The conductor 160 is pin-shaped comprising a head on the right-hand side of the conductor 160 as viewed in FIGS 3A and 3B. The conductor 160 may comprise any suitable material (e.g., copper). The conductor 160 may be received by the conductor receptacle 124 of the clip 113.

[0040] FIG. 3B shows the clip 113 and the conductor 160 after the conductor 160 has been received at least in part by the conductor receptacle 124. A conductive suspension wire 151 is then received by the channel 117. The conductive suspension wire 151 may be received by the channel 117 by a user urging the clip 113 against the conductive suspension wire 151 as shown in FIG. 3C.

[0041] FIG. 3D shows the clip 113 having received and gripping the conductive suspension wire 151, 152 via the channel 117. The support arrangement 130 may then be located such that a receptacle 131-136 is located in a location where the clip 113 can be received by the receptacle (see FIG. 3E). The clip 113 is then received and retained by the receptacle 131-136 by urging the clip 113 at least partly into the receptacle 131-136.

[0042] FIG. 3F illustrates a support arrangement 130 mounted to a conductive suspension wire 151, 152 via the clip 113 being received and retained by the receptacle 131-136. FIG. 3F illustrates a cap 146. Such a cap 146 is configured to cover any of the unoccupied receptacles 131-136 of the support arrangement 130 (i.e., where no clip 111-114 is present in the receptacle 131-136). FIG. 3F illustrates the cap 146 in one of the unoccupied receptacles 136. The cap 146 may be configured to prevent damage to the receptable 136 and/or other components of the support arrangement 130.

[0043] The conductive suspension wire 151, 152 may comprise an electrically conductive wire configured to be suspended from at least one anchor point. For example, the anchor point may be a ceiling of a building. The conductive suspension wire 151, 152 may be made from aluminium. The conductive suspension wire 151, 152 may be configured to be connected to an electrical power source. Actuation of the electrical power source may cause electrical power to be passed along the conductive suspension wire 151, 152. The conductive suspension wire 151, 152 may be electrically connected to the light source 170 via at the least conductor 160 and the electrical conductor 138. The electrical connection between the light source 170 and the conductive suspension wire 151, 152 may cause the light source 170 to provide illumination.

[0044] FIG. 3G shows the support arrangement in which the suspension wire 151, 152 is electrically connected to the light source 170. The light source 170 is providing illumination and thereby illuminating the printed sheet 101.

[0045] FIG. 4 shows a schematic of some components of the example display apparatus 100. FIG. 4 shows an electrical conductor 138 that extends from the light source 170 to the first receptacle (not shown) and to the second receptacle (not shown), as described above. The electrical conductor 138 extends around a corner formed by adjoining outer surfaces of first and second side walls 141, 142 (the sidewalls 141, 142 are not shown in FIG. 4). The electrical conductor 138 may be made from any suitable electrically conductive material (e.g., copper).

[0046] The electrical conductor 138 extends from the light source 170 to the first receptacle 131 (not shown) and to the second receptacle 132 (not shown) such that when a clip 111 is received by either the first receptacle 131 or the second receptacle 132, the light source 170 is electrically connected to the conductive suspension wire 151, 152. This enables the orientation of the support arrangement 130 to be changed (e.g., from portrait to landscape) without the need for additional conductive suspension wires 151, 152. While FIG. 4 illustrates the clip 111, it should be understood that each of the clips 111, 112, 114 could be received in the same manner.

[0047] It should be understood that the electrical conductor 138 could be configured to extend from the light

source 170 to at least two receptacles in any suitable manner. For example, the electrical conductor 138 may be configured to extend across the planar surface 137 rather than around a corner as shown in FIG. 4.

[0048] In an example, there may be a system comprising a plurality of support arrangements 130 (e.g., for displaying advertising information in a shop window). The system may be configured such that the plurality of support arrangements 130 are suspended via a first conductive suspension wire 151 and a second conductive suspension wire 152 in a substantially vertical arrangement (e.g., the support arrangements 130 are located one above the other from the floor of the shop to the ceiling of the shop). The system may be configured such that only two conductive suspension wires 151, 152 are required for arranging two or more support arrangements 130. The system may be configured such that only two conductive suspension wires 151, 152 are required for arranging three or more support arrangements 130. The system may be configured such that only two conductive suspension wires 151, 152 are required for arranging any suitable number of support arrangements 130.

[0049] Where a structural feature has been described, it may be replaced by means for performing one or more of the functions of the structural feature whether that function or those functions are explicitly or implicitly described.

[0050] The term 'comprise' is used in this document with an inclusive not an exclusive meaning. That is any reference to X comprising Y indicates that X may comprise only one Y or may comprise more than one Y. If it is intended to use 'comprise' with an exclusive meaning then it will be made clear in the context by referring to "comprising only one..." or by using "consisting".

[0051] In this description, the wording 'connect', 'couple' and 'communication' and their derivatives mean operationally connected/coupled/in communication. It should be appreciated that any number or combination of intervening components can exist (including no intervening components), i.e., so as to provide direct or indirect connection/coupling/communication.

[0052] In this description, reference has been made to various examples. The description of features or functions in relation to an example indicates that those features or functions are present in that example. The use of the term 'example' or 'for example' or 'can' or 'may' in the text denotes, whether explicitly stated or not, that such features or functions are present in at least the described example, whether described as an example or not, and that they can be, but are not necessarily, present in some of or all other examples. Thus 'example', 'for example', 'can' or 'may' refers to a particular instance in a class of examples. A property of the instance can be a property of only that instance or a property of the class or a property of a sub-class of the class that includes some but not all of the instances in the class. It is therefore implicitly disclosed that a feature described with reference to one example but not with reference to another example, can where possible be used in that other example as part of a working combination but does not necessarily have to be used in that other example.

[0053] Although examples have been described in the preceding paragraphs with reference to various examples, it should be appreciated that modifications to the examples given can be made without departing from the scope of the claims. For example, the clip 111-114, the conductor 160 and the support arrangement 130 may have a different form from those described and illustrated.

[0054] Features described in the preceding description may be used in combinations other than the combinations explicitly described above.

[0055] Although functions have been described with reference to certain features, those functions may be performable by other features whether described or not.

[0056] Although features have been described with reference to certain examples, those features may also be present in other examples whether described or not.

[0057] The term 'a', 'an' or 'the' is used in this document with an inclusive not an exclusive meaning. That is any reference to X comprising a/an/the Y indicates that X may comprise only one Y or may comprise more than one Y unless the context clearly indicates the contrary. If it is intended to use 'a', 'an' or 'the' with an exclusive meaning then it will be made clear in the context. In some circumstances the use of 'at least one' or 'one or more' may be used to emphasis an inclusive meaning but the absence of these terms should not be taken to infer any exclusive meaning.

[0058] The presence of a feature (or combination of features) in a claim is a reference to that feature or (combination of features) itself and also to features that achieve substantially the same technical effect (equivalent features). The equivalent features include, for example, features that are variants and achieve substantially the same result in substantially the same way. The equivalent features include, for example, features that perform substantially the same function, in substantially the same way to achieve substantially the same result.

[0059] In this description, reference has been made to various examples using adjectives or adjectival phrases to describe characteristics of the examples. Such a description of a characteristic in relation to an example indicates that the characteristic is present in some examples exactly as described and is present in other examples substantially as described.

[0060] Whilst endeavouring in the foregoing specification to draw attention to those features believed to be of importance it should be understood that the applicant may seek protection via the claims in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not emphasis has been placed thereon.

Claims

1. A display apparatus, comprising:

   a support arrangement, for supporting a printed sheet, having at least one receptacle therein;
   one or more light sources arranged to illuminate the printed sheet supported by the support arrangement;
   a clip, for receipt and retention by the receptacle, configured to grip a conductive suspension wire; and
   at least one conductor for electrically connecting the conductive suspension wire and the one or more light sources when the clip grips the conductive suspension wire.

2. The display apparatus of claim 1, wherein the clip comprises at least one resiliently biased portion to cause the clip, when received by the receptacle, to be retained by the receptacle.

3. The display apparatus of claim 1 or 2, wherein the clip further comprises a channel configured to receive the conductive suspension wire.

4. The display apparatus of claim 3, wherein the channel is defined by channel walls configured to grip the conductive suspension wire.

5. The display apparatus of claim 4, wherein the channel defined by the channel walls is longitudinally non-linear.

6. The display apparatus of claim 5, wherein the channel defined by the channel walls is substantially arcuate.

7. The display apparatus of any of claims 3 to 6, wherein the channel comprises an entrance and an exit for the conductive suspension wire.

8. The display apparatus of any of claims 4 to 7, wherein the channel walls comprise at least one protrusion arranged to retain the conductive suspension wire in the channel.

9. The display apparatus of claim 8, when dependent upon claim 7, wherein the at least one protrusion comprises a protrusion located substantially at the entrance of the channel.

10. The display apparatus of claim 9, or claim 8 when dependent upon claim 7, wherein the at least one protrusion comprises a protrusion located substantially at the exit of the channel.

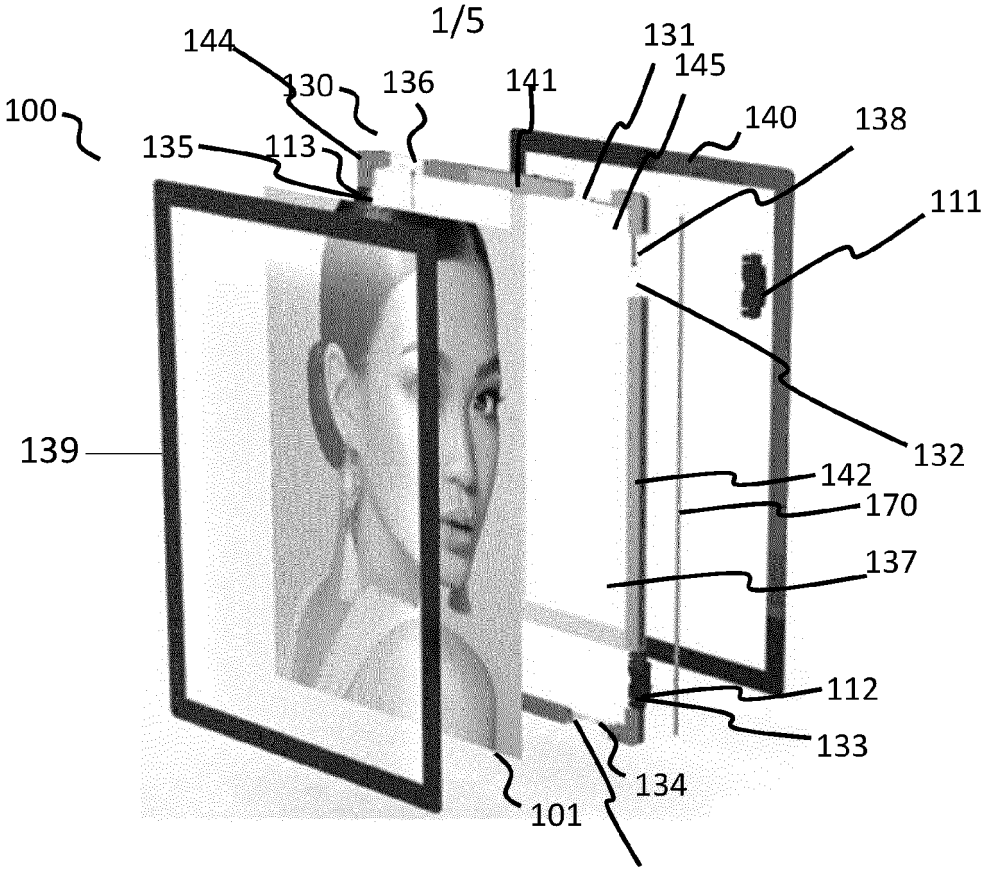
11. The display apparatus of any of the preceding claims, wherein the clip is configured to receive the at least one conductor at least partially within the clip, wherein, optionally, the clip is configured to hold the at least one conductor at least partially within the clip while the conductive suspension cable is retained by the clip.

12. The display apparatus of any of the preceding claims, wherein the support arrangement comprises a planar surface, for supporting the printed sheet, and at least one side wall, wherein the at least one side wall comprises the at least one receptacle, wherein, optionally, at least a portion of an outer surface of the at least one side wall is substantially orthogonal to at least a portion of the planar surface.

13. The display apparatus of claim 12, wherein the at least one side wall comprises a first side wall and a second side wall, the at least one receptacle comprises a first receptacle and a second receptacle, wherein the first receptacle is in the first side wall and the second receptacle is in the second side wall, wherein, optionally, at least a portion of an outer surface of the first side wall is substantially orthogonal to at least a portion of the planar surface and at least a portion of the second side wall, wherein, optionally, the support arrangement comprises at least one electrical conductor that extends from the one or more light sources to the first receptacle and to the second receptacle.

14. The display apparatus of any of the preceding claims, wherein the clip is formed from an electrical insulator.

15. The display apparatus of any of the preceding claims, wherein the clip is integrally formed.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130
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141
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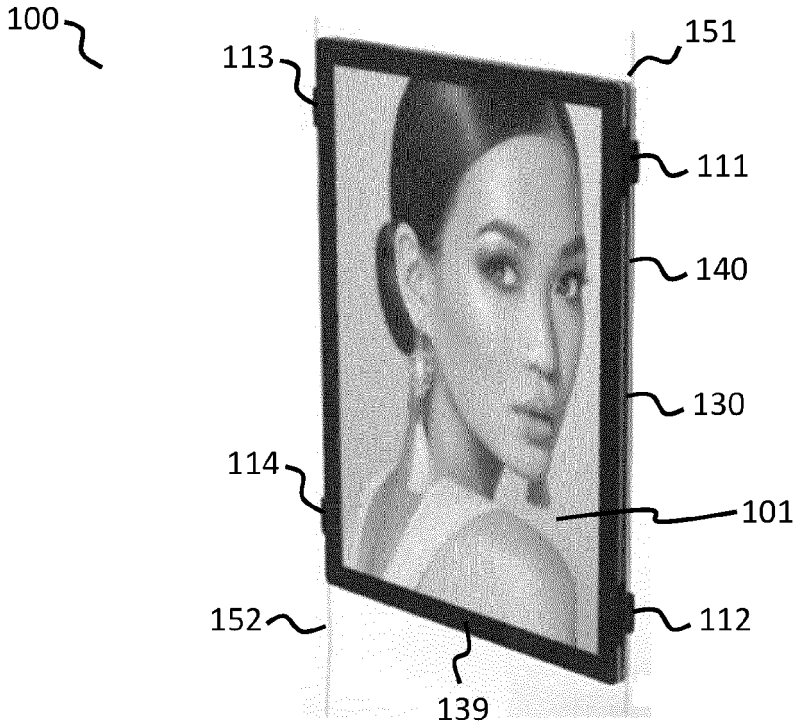
101
143

FIG. 1A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113
151
111
140
130
114
101
152
112
139

FIG. 1B

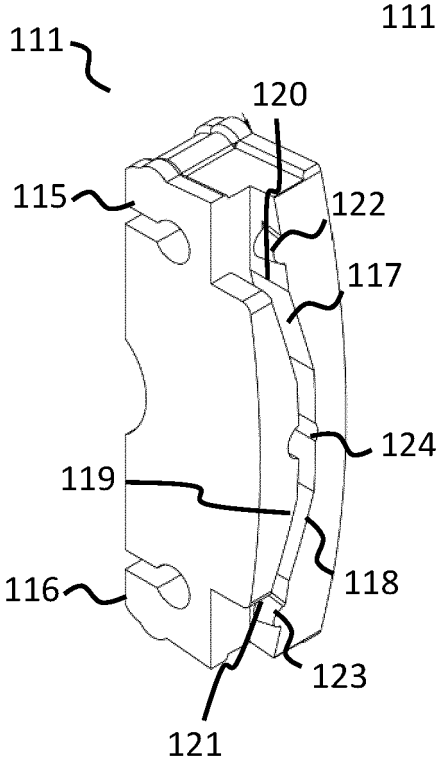

FIG. 2A

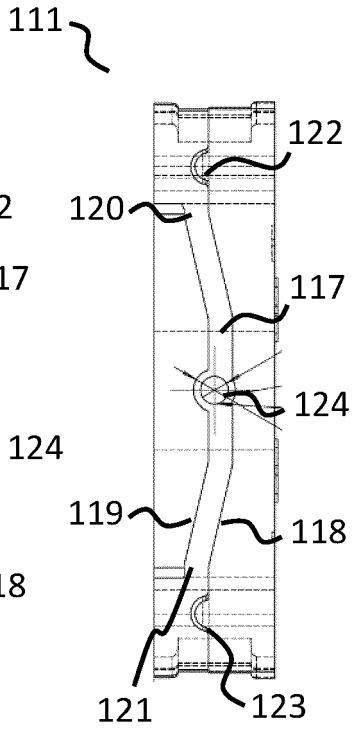

FIG. 2B

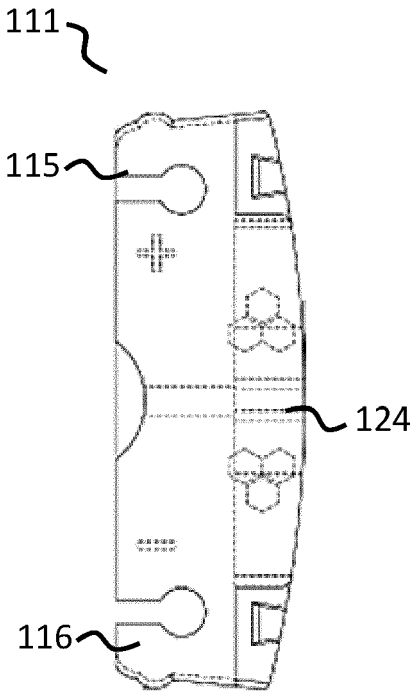

FIG. 2C

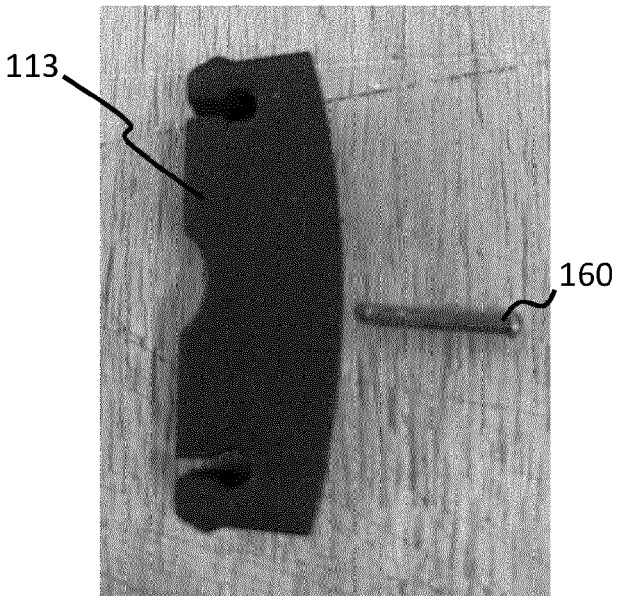

FIG. 3A

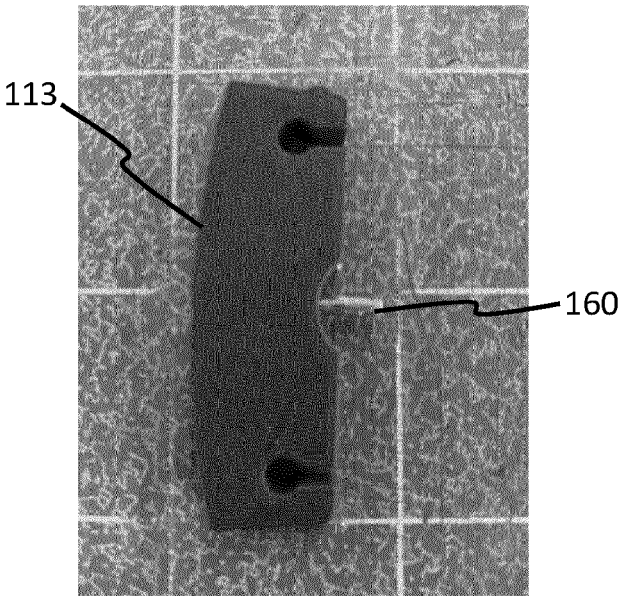

FIG. 3B

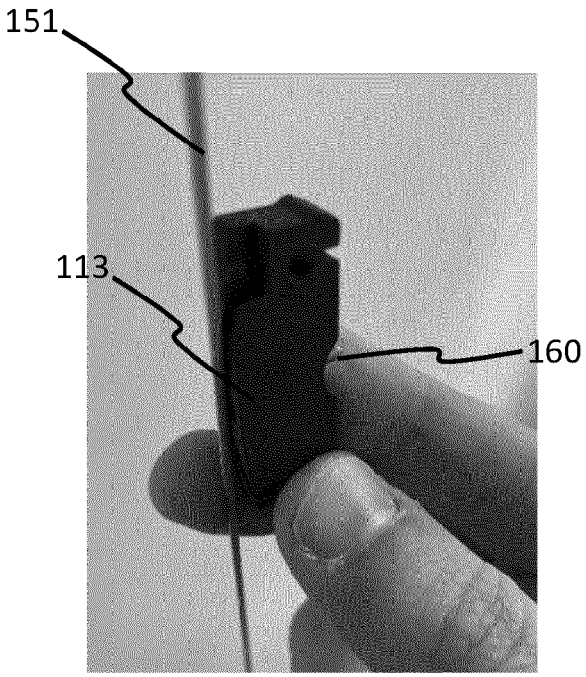

FIG. 3C

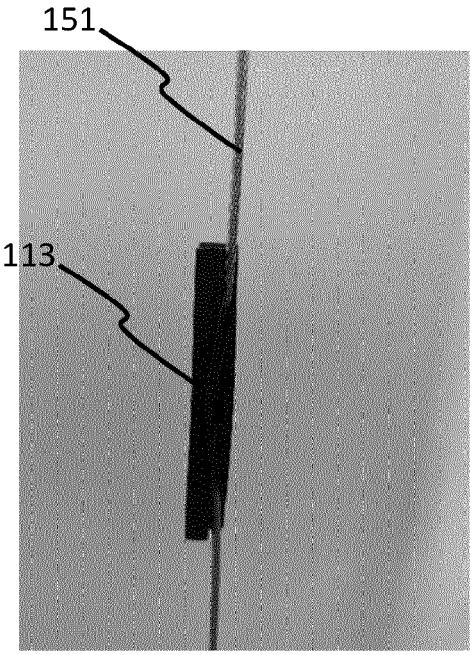

FIG. 3D

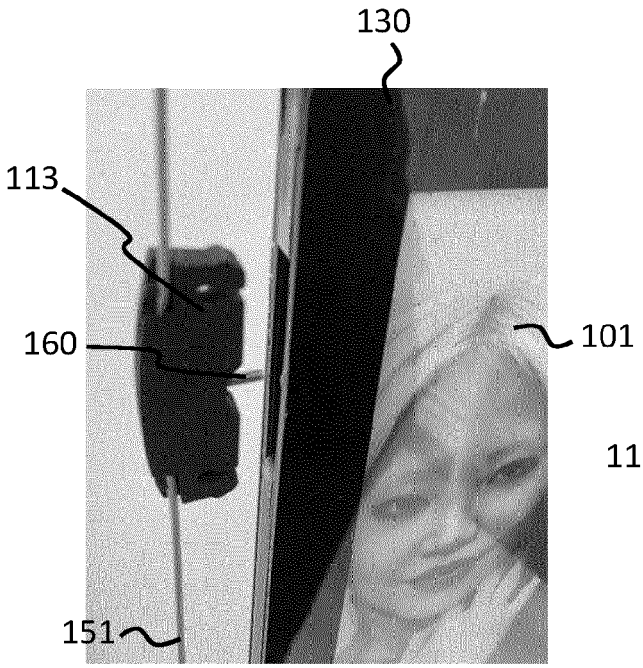

FIG. 3E

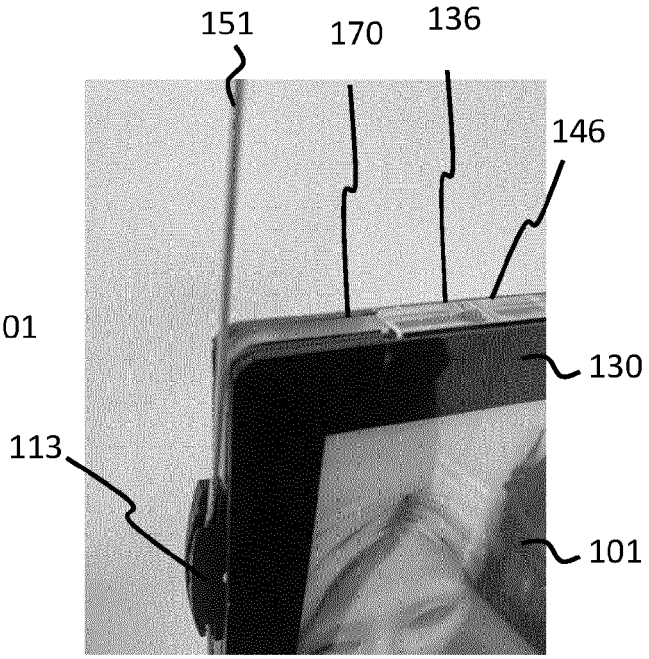

FIG. 3F

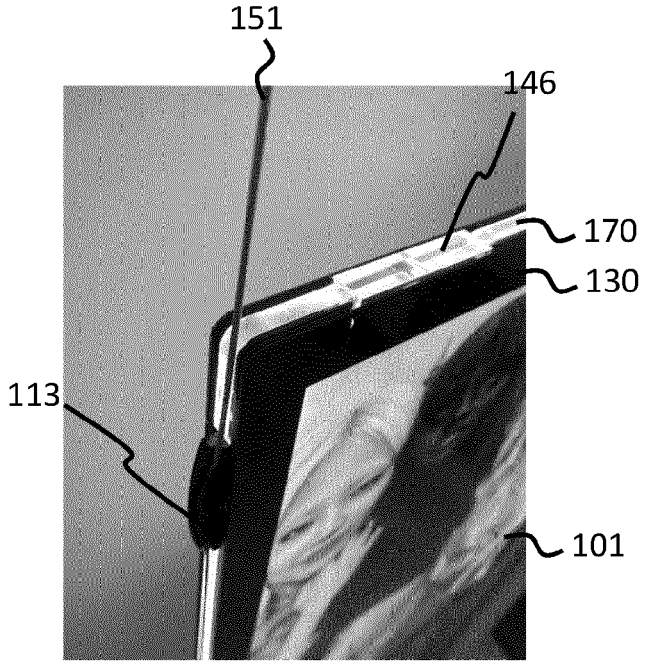

FIG. 3G

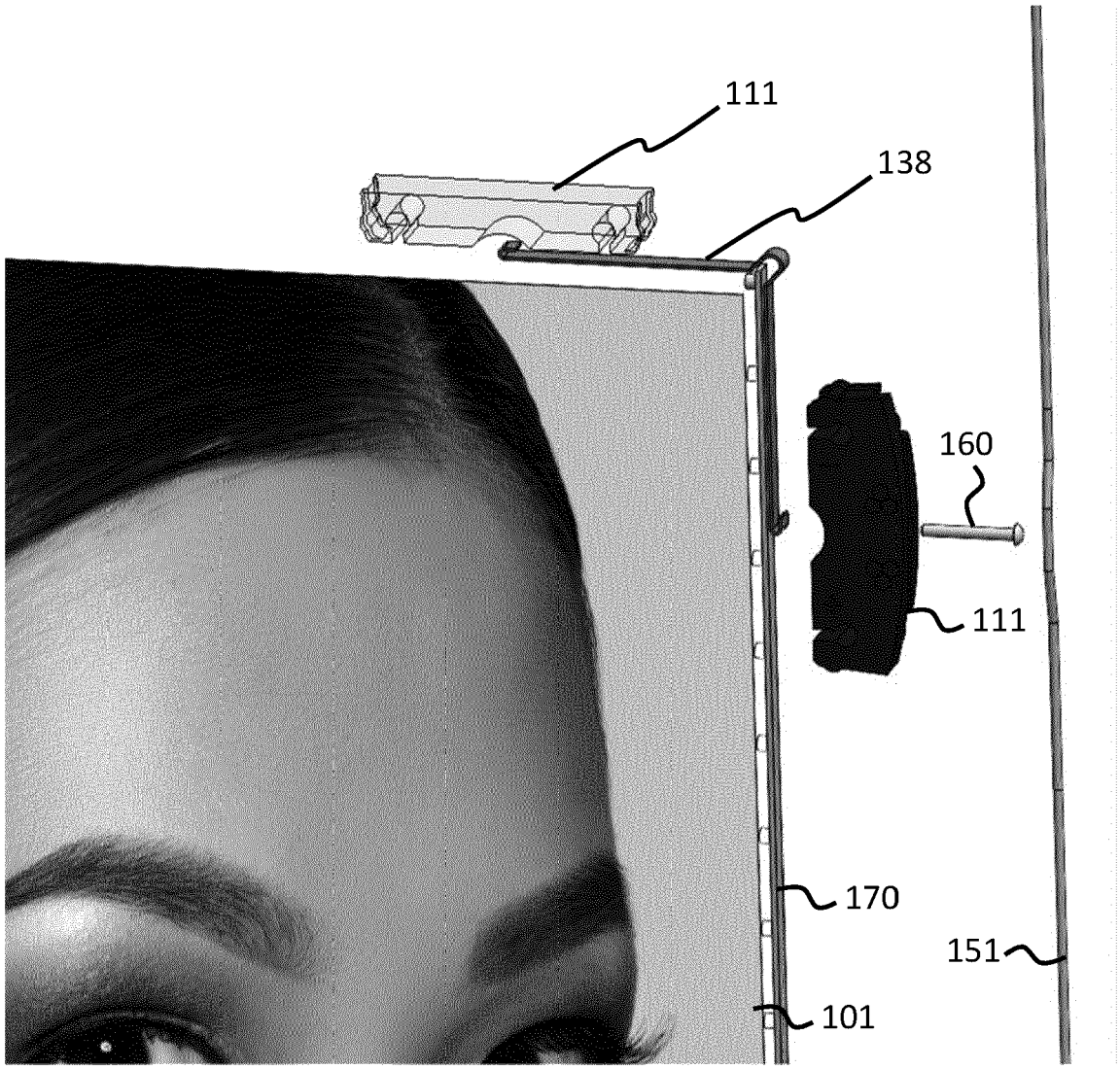

FIG. 4

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EUROPEAN SEARCH REPORT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 August 2023	Pantoja Conde, Ana

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