

Title: Display Means

This invention relates to a display means and in particular a display means which can be utilised in association with a window in order to be able to selectively provide a display across the window. In this regard the display means can be
5 caused to extend vertically, or horizontally, or diagonally, or otherwise across the window.

A particular application of the means relates to use of the windows of a multi-storey building as a display for the purposes of advertising, decoration or the like.

Accordingly the invention resides in a window display means comprising a
10 support adapted to be mounted adjacent an edge of a window, said support accommodating a first screen which is extendable from a first position at which it is accommodated by the support and an extended position at which it extends at least partially across the window adjacent the inner face of the window, a drive means for causing the extension and retraction of said screen, and said first
15 screen being at least partially light transmissive an illumination means located rearward of the first screen and adapted to direct light to the rear face of the first screen when in the extended position.

According to a preferred feature of the invention said support further accommodates a second screen which is extendable from a first position at which
20 it is accommodated by the support and an extended position at which it extends at least partially across the window to the rear of the first screen, said second screen being substantially opaque.

According to a further preferred feature of the invention the screens are jointly moveable between the extended and retracted positions and between the
25 retracted and extended positions.

According to a further preferred feature of the invention the screens are supported between a first set of rollers accommodated by the support and a second set of rollers accommodated on a member which is moveable away from

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and towards the support to effect the extension and retraction of the screens respectively.

According to a preferred feature of the invention the illumination means comprises a lighting means located rearwardly of the first screen. In one
5 embodiment the lighting means is located between the first and second screens. In another embodiment the lighting means is located in the room with which the window is associated.

According to a preferred feature of the invention said second screen is provided with a light transmissive panel which is able to be located to the rear of the first
10 screen when in the extended position. In one embodiment the light transmissive panel is transparent. Alternatively the light transmissive panel may be translucent. As a further alternative the second screen may be provided with a pair of light transmissive panels where one is transparent and the other is translucent. According to a further preferred feature of the invention the
15 illumination means includes a projection means adapted to project an image onto the rear face of the first screen. Said projection means may be located between the first and second screens. Alternatively the projection means may be located rearwardly of the second screen and the image can be projected onto the rear face of the first or the second screen. Where the image is to be projected onto
20 the rear face of the first screen the first screen is provided with a plain translucent panel which can be indexed into position across the screen when required.

According to a further preferred feature of the invention the first screen comprises a plurality of panels which can be selectively located across the window.

According to a further preferred feature of the invention said support is adapted
25 to be located along the upper edge of the window and said drive means comprises motors which drive the first and second set of rollers.



According to a further preferred feature the drive means can activate the rollers in both the support and member to cause the panels of one screen to be indexed across the window independent of the other screen.

5 According to a preferred feature the support is supported from the upper edge of the window by an extensible means provided at each end of the support and wherein a second drive means is provided to cause movement of the support between the first position and the extended position by extension and retraction of the extensible means. According to one embodiment the second screen can be moved between its first position and its extended position independently of the
10 first screen.

According to one application of the invention a plurality of said window displays can be mounted in side by side relationship across the window or adjacent windows of a building to provide a joint display.

15 According to a further preferred feature of the invention said support is adapted to be located along the upper edge of the window and said drive means comprises motors which drive the first and second set of rollers. If desired the drive means can activate the rollers in both the support and member to cause the panels of one screen to be indexed across the window independent of the other screen.

20 According to a further preferred feature of the invention a side screen is provided at each side of the display means and extends between the first and second screens to close the space therebetween, said side screens being extendable and retractable with the first and second screens.

25 The invention also resides in a building having a display means of the form as described above associated with at least one window of the building.

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The invention will be more fully understood in the light of the following description of several specific embodiments of the invention; the description is made with reference to the accompanying drawings of which;

Figure 1 is a schematic sectional view of the display means according to the first
5 embodiment with the screens in the extended position;

Figure 1A is a sectional view along line 1a of Figure 1 according to a variation of the first embodiment;

Figure 2 is a schematic sectional view of the first embodiment with the screens in the retracted position;

10 Figure 3 is a schematic sectional view of a second embodiment with the screens in the extended position;

Figure 4 is a schematic sectional view of the fourth embodiment with the screens in the retracted position;

Figure 5 is a schematic sectional view of the fourth embodiment with the screens
15 in the extended position;

Figure 6 is a schematic sectional view of the fifth embodiment with the screens in the extended position; and

Figure 7 is a schematic sectional view of the sixth embodiment with the first screen in the extended position

20 The first embodiment as shown at Figures 1 and 2 comprises a display device which is to be utilised in association with a window 11 and in particular the window of multi-storey building whereby display means of the embodiment can be associated with a number of adjacent windows to one or both sides and/or above

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and/or below the window whereby the displays provided on each of the windows can jointly provide a display which is visible from a distance.

The display means which is associated with each window 11 comprises an upper support 12 which is located adjacent the upper edge of the window 11 and can be accommodated within the ceiling space above the ceiling 13 of the room of the building associated with the window 11. The support 12 is associated with a base member 14 which is supported from the support 12 to be substantially parallel to the support 12 and which is capable of being moved between an extended position as shown at Figure 1 at which it is located adjacent the sill 15 of the window and a retracted position is shown at Figure 2 at which it is located closely adjacent the support to form an extension of the lower surface of the ceiling 13. The base member 14 is supported from the support by means of a first screen 16 and a second screen 17. The first screen 16 is at least partially transparent or translucent and is provided with a suitable display while the second screen 17 is opaque.

The screens 16 and 17 are supported at one end from the support by means of a set of first rollers 18 and 19 while the other end of the screens 16 and 17 are engaged with a second set of rollers 20 and 21 which are provided on the base member 14. Each of the rollers 18, 19, 20 and 21 are associated with a drive motor whereby rotation of one of the rollers will cause the respective screen 16 or 17 to be rolled onto that roller.

The drive motors are associated with a control means (not shown) which is able to selectively cause activation of any one of the rollers or alternatively any two or more of the rollers jointly.

In order to effect the movement of the base member 14 between the retracted position as shown at Figure 2 and the extended position shown at Figure 1 and between the extended position Figure 1 to the retracted position shown at Figure 2 the control means is able to selectively activate the first set rollers 18 and 19 or alternatively the second set of rollers 20 and 21 to cause the screens to be jointly

rolled from the respective set of rollers to effect the transposition of the base member 14 from the retracted position shown at Figure 2 to the extended position shown at Figure 1. Similarly by joint activation of the first or second set of rollers will cause the screen to be rolled onto the respective set of rollers whereby the
5 base member 14 is able to be transposed from the extended position shown at Figure 1 to the retracted position shown at Figure 2.

In addition the first screen 16 is provided with a number of panels having the configuration and dimensions corresponding to the window provided along its length where each panel incorporates a differing display. The control means is
10 able to effect the operation of one roller 18 and 20 of the first and second set of rollers to which the first screen is mounted such that the panels of the first screen can be sequentially moved across the window and when a panel is located at the window it can be retained in that position for a desired period of time. As a result a number of differing displays can be sequentially indexed into position across
15 the window to provide a variable display. In addition the screen can be caused to move in both directions across the window

The second screen 17 can also be provided with at least two panels which have the general dimensions and configuration of the window and the other set of rollers 19 and 21 of the first and second set of rollers accommodating the second
20 screen are operated by the control means such that one or other of the panels can be indexed into a position across the window. One of the panels is opaque such that when the base member 14 is in its extended position the second screen will prevent light from the entering the room associated with the window 11 and will prevent any light within the room from passing to the window 11. The support
25 and/or base member is associated with a suitable lighting means 22 which is able to effect the back lighting of the first screen 16 in order that the display carried by the first screen 16 can be viewed through the window 11 during the night.

The other panel of the second screen 17 is transparent to enable light from within the room to pass through the second screen and illuminate the first screen 16. In

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addition the transparent panel enables the embodiment to be capable of being utilised with a projection means 24 which is located within the room and is directed onto the rear face of the first screen 16 through the transparent panel of the second screen 17 where the projection device can provide an image which is to be observed through the window. The image being projected onto the rear face of the first screen 16 may be a static image or an active image and may merely comprise part of a total image whereby each of the adjacent windows are also associated with a projection means which provide the remainder of the image to be carried by the overall display provided by the adjacent display units.

5 If desired the second screen may be provided with a translucent panel where the image is projected onto the second screen to be observed through the first screen.

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If desired the support 12 and and/or the base member 14 maybe provided with a projection means 24a in association with a lighting means whereby a suitable image can be projected onto the rear face of the first screen 16 from within the space between the screens. In such an instance the opaque panel of the second screen 17 would be located in position across the window.

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In addition the sides of the display device are accommodated within recesses provided at each side of the window 11 in order to provide a light seal to prevent the passage light from the space within the display between the support 12, base member 14 and the screens 16 and 17 into the room and alternatively any light from the room into the space between the support 12 base 14 and screens 16 and 17. Alternatively and as shown at Figure 1A each side of the display unit maybe associated with a collapsible side screen 26 which serves to enclose the sides of the space between the support 12 base 14 and the first and second screens 16 and 17. The side screen 26 is formed of a pleated fabric and is mounted between the support 12 and the base member 14 to be able to be extended or collapsed with the relative movement of the base member to the support.

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The operation of the control means maybe automatic such that at predetermined times during the day the base member 14 will be lowered from the retracted position to the extended position and first screen 16 will be moved sequentially to sequentially index each of the display panels across the window 11. The first
5 screen is capable of indexing both upwardly and downwardly across the window.

The second embodiment shown at Figure 3 is of a similar form to that of the first embodiment and same numerals have been used in Figure 3 as those which have been used in relation to Figures 1 and 2 which relate to the first embodiment. The main exception in the second embodiment relates to the nature
10 of the first screen 16 and the roller support provided for the first screen 16. In the case of the second embodiment the screen is supported between one roller 18 which is provided within the ceiling space in association with the support 12 while the other roller 20 is also located in the ceiling space associated with the support 12 and whereby the screen is supported from the base member 14 between a
15 pair of idler rollers 23 such that in its passage from the one roller 18 to the other roller 20 and alternatively from the other roller 20 to the one roller 18, it is caused to pass across the face of the window and return in parallel relationship to the first portion and to the rear thereof. As shown the illumination means 22 is provided between each of the portions of the first screen 16 passing across the
20 window 11.

According to a third embodiment the base member of each of the above embodiments is supported from the support by a support means which is longitudinally extendible whereby the base member is caused to be moved positively by the support means rather than relying upon gravity, as is the case in
25 the first and second embodiments. Such longitudinally extendible members may comprise pneumatically or hydraulically extendible struts or cylinders or the like. As a result the third embodiment can be used in positions where gravity cannot be relied upon, such as locating the support at the base of the window and having the base member move upwardly across the window in order to effect an
30 extension of the screen across the window.

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The fourth embodiment as shown at Figures 4 and 5 is of a generally similar form to that of the second embodiment in that the first screen 16 is supported between a pair of driven rollers 18 and 20 provided in the main support 11 and a pair of spaced idler rollers 23 provided in the base member 14 so that in its travel
5 between the driven rollers 18 and 20 the first screen will move across the front face of the display unit between the first driven roller 18 and the forward-most idler roller 23 and return to the second driven roller 20 at the rear of the display unit.

The essential difference between the third and second embodiment relates to the means for supporting the base member 14 from the upper support 12. This is
10 effected by means of a scissor linkage 30 which extends between the upper support 12 and the base member 14. One of the arms of the scissor linkage which is mounted to the upper support 12 and to the base member 14 is slidably mounted to the upper support 12 and the base member 14 by being supported
15 upon a transverse track element 31 and 32 respectively. The scissor linkage 30 is associated with a drive comprising a chain or like flexible member 33 mounted to a lower portion of the scissor linkage 30 and a chain drive 33 provided on the upper support 12 and which is driven from a drive motor 35. By activation of the chain drive 34 through the drive motor 35 the scissor linkage may be allowed to
20 extend under the influence of gravity or alternatively be retracted such that the base member 14 becomes aligned with the ceiling 13. The presence of the scissor linkage in the case of the third embodiment serves to stabilise the base member 14 in its support from the upper support 12.

According to an alternative embodiment of the fourth embodiment the chain drive
25 may be replaced by any suitable form of drive mechanism for effecting the raising and lowering of the base member 14 in association with the scissor linkage.

The fifth embodiment as shown at Figure 6 is of a similar form to that of the fourth embodiment with the exception that it is associated with a projection means 36 which serves to project an image onto the first screen 16 through a transparent

panel provided on the second screen 17. According to a variation of the fifth embodiment the second screen may be retractable into the support independently of the position of the base member 14.

5 The sixth embodiment as shown at Figure 7 is of a similar form to that of the fifth embodiment with the exception that it does not include the second screen.

According to a further embodiment of the invention each of the second, third fourth fifth and sixth embodiments described above may be modified by providing a side screen to each side of the display means of the form as shown at Figure 1A, where the side screen extends between the first screen and the second
10 screen and is extendable and retractable with the first and the second screen. The side screen is formed of a pleated fabric and is mounted between the support 12 and the base member 14 to be able to be extended or collapsed with the relative movement of the base member to the support. The side screens serve to close the space between the first and the second screens to prevent the
15 entry of stray light into that space and also to prevent the escape of light from the space into the room associated with the display means. This feature can be of particular importance where the display means is being used in a situation where the room may be occupied while the room is being used and/or in instances where the display means is not associated with other similar units

20 While the embodiments have been described as being capable of being used with windows of a multi-level building they can also be used with a shop front window whereby at the cessation of business the screens can be extended across the window to prevent visual access into the interior of the building. In such a case it is maybe appropriate that a plurality of display means be provided
25 in an end to end relationship across the shop front. As a result the display means not only provides a means for displaying advertising material which maybe relevant to the activities of the business with which the shop front is related but it can also act as a security means in preventing visual access into the interior of the shop.

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It should be appreciated that the scope of the present invention need not be limited to a particular scope of the embodiments described above.



The Claims defining the invention are as follows:-

1. A window display means comprising a support adapted to be mounted adjacent an edge of a window, said support accommodating a first screen which is extendable from a first position at which it is accommodated by the support and an extended position at which it extends at least partially across the window adjacent the inner face of the window, a drive means for causing the extension and retraction of said screen, and said first screen being at least partially light transmissive an illumination means located rearward of the first screen and adapted to direct light to the rear face of the first screen when in the extended position.
2. A window display as claimed at claim 1 wherein said support further accommodates a second screen which is extendable from a first position at which it is accommodated by the support and an extended position at which it extends at least partially across the window to the rear of the first screen, said second screen being substantially opaque.
3. A window display as claimed at claim 1 or 2 wherein the screens are jointly moveable between the extended and retracted positions and between the retracted and extended positions.
4. A window display as claimed at any one of the preceding claims wherein the first screen comprises a plurality of panels wherein said first screen can be moved past the window such that the panels can be selectively located across the window.
5. A window display as claimed at claim 4 wherein the screens are supported between a first set of rollers accommodated by the support and a second set of rollers accommodated on a member which is moveable away from and towards the support to effect the extension and retraction of the screens respectively.





6. A window display as claimed at claim 5 wherein said support is adapted to be located along the upper edge of the window.
7. A window display as claimed at claim 5 or 6 wherein and said drive means comprises motors which drive the first and second set of rollers.
- 5 8. A window display as claimed at any one of claims 4 to 7 wherein the drive means can activate the rollers in both the support and member to cause the panels of the first screen to be indexed across the window independent of the second screen.
- 10 9. A window display as claimed at any one of the preceding claims wherein the illumination means comprises a lighting means located rearwardly of the first screen.
- 10.A window display as claimed at claim 9 wherein the lighting means is located between the first and second screens.
- 11.A window display as claimed at claim 9 wherein the lighting means is located
15 in the room with which the window is associated.
- 12.A window display as claimed at claim 2 and any one of claims 3 to 11 as dependant from claim 2 wherein said second screen is provided with a light transmissive panel which is able to be located to the rear of the first screen when in the extended position.
- 20 13.A window display as claimed at claim 12 wherein the light transmissive panel is transparent and the light transmissive panel can be indexed into position across the window when required.
- 14.A window display as claimed at claim 12 wherein the light transmissive panel is translucent and the light transmissive panel can be indexed into position
25 across the window when required.





- 15.A window display as claimed at claim 2 and any one of claims 3 to 11 as dependant on claim 2 wherein the second screen is provided with a pair of light transmissive panels, where one is transparent and the other is translucent and the light transmissive panels can be selectively indexed into position across the window when required.
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- 16.A window display as claimed at any one of claims 12 to 15 as dependant on claim 5 wherein the drive means can activate the rollers in both the support and member to cause the light transmissive panels of the second screen to be indexed across the window independent of the first screen.
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- 17.A window display as claimed at any one of claim 4 and claims 5 to 16 as dependant from claim 4 wherein the first screen is provided with at least one plain panel which is translucent, which one plain panel can be indexed into position across the window when required.
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- 18.A window display as claimed at any one of claim 4 and claims 5 to 16 as dependant from claim 4 wherein the first screen is provided with at least one plain panel which is transparent, which one panel can be indexed into position across the window when required.
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- 19.A window display as claimed at claim 17 wherein the illumination means includes a projection means adapted to project an image onto the rear face of the first screen.
- 20.A window display as claimed at claim 19 wherein said projection means is located between the first and second screens.
21. A window display as claimed at claim 19 as dependant on claim 13, or 15 wherein the projection means is located rearwardly of the second screen.





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- 22.A window display as claimed at claim 18 wherein the illumination means includes a projection means adapted to project an image onto the second screen.
- 5 23.A window display as claimed at claim 22 wherein said projection means is located between the first and second screens.
- 24.A window display as claimed at claim 22 as dependant on claim 14, or 15 wherein the projection means is located rearwardly of the second screen.
- 10 25.A window display as claimed at claim 5 and any one of claims 6 to 24 as dependant from claim 5 wherein the member is supported from the support by an extensible means provided at each end of the support and wherein and said drive means causes the movement of the member between the first position and the extended position by extension and retraction of the extensible means.
- 15 26.A window display as claimed at claim 25 wherein the extensible means comprises a scissor linkage provided at each end of the support between the support and the member.
- 27.A window display as claimed at claim 25 or 26 wherein the second screen can be moved between its first position and its extended position independently of the first screen.
- 20 28.A window display as claimed at any one of the preceding wherein a plurality of said window displays can be mounted in side by side relationship across the window or adjacent windows of a building to provide a joint display.
- 25 29.A window display as claimed at any one of the preceding wherein a side screen is provided at each side of the display means and extends between the first and second screens to close the space therebetween, said side screens being extendable and retractable with the first and second screens.

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30.A window display substantially as herein described.

31.A building having a display means of the form as claimed at any one of the preceding claims associated with at least one window of the building.

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