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A DEVICE FOR SELECTIVELY DISPLAYING POSTERS

The present invention relates to a device for selectively displaying in individual manner the various posters in a set of posters, each poster bearing an
5 advertising or other message, by positioning the posters in succession behind a viewing window.

A particular application for the device lies in the fields of advertising and of providing roadside information.

10 It may be provided as a stationary installation, on display panels with changing messages, or on a traveling advertising vehicle, in particular within an urban traffic stream.

More precisely, the invention provides a display
15 device giving total freedom for displaying the selected poster, both in terms of frequency and duration, and also concerning the order in which the posters are shown.

In this respect, it should be mentioned that an advertising contract between an agency and its customers
20 may specify display cycles for the various posters that are not the same for all of the posters. Under such circumstances, each poster has a well-defined frequency and display time, which can nevertheless be modified over time.

25 It can also be required that certain posters be displayed in a determined order, in particular if there is a relationship of an intellectual kind between two or more posters to be displayed, as is the case for so-called "progressive" advertising campaigns.

30 Finally, in certain applications, it can be advantageous to retract all of the posters simultaneously in order to reveal a scene and/or objects placed behind them (shop window effect).

The invention provides a display device for
35 displaying selectively and in individual manner the various posters in a set of posters by positioning them in succession behind a viewing window, in which device



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each of the posters is fixed in detachable manner via its top edge to a flexible leader strip suitable for being rolled at least in part onto a rotary take-up drum, the device having a series of electrical motor and gear-box units controlled by a programmable central unit, each adapted to drive a corresponding one of said drums selectively in one direction or the other so as to be able to bring said poster either into a retracted position in which it does not appear behind the viewing window or else into a deployed position in which it is in register with said window, the deployed positions of the various posters occupying distinct parallel vertical planes that are spaced apart a little from one another.

The main objects that the invention seeks to achieve by using means that are simple, inexpensive, and easy to use and maintain, are to be capable of:

- ensuring appropriate tension in the posters when they are in their low deployed position, so as to avoid creases forming;
- changing the posters easily; and
- providing accurate but smooth guidance of the posters in their own vertical planes while they are moving up and down, preventing any untimely separation from the guide means, even if the device is being subjected to sudden movements or to impacts, as can occur in particular when the device is fitted to a vehicle.

These objectives are achieved by the fact that the bottom edge of each of the posters consists in a hem acting as a sheath for receiving a horizontal weight bar for tensioning the poster, the two ends of said bar projecting beyond the sheath on either side of the poster, and each end being provided with a releasable slider of annular or semi-annular shape which surrounds a vertical guide rod with a certain amount of clearance.

Naturally, the arrangement of the device and the dimensions of its various components are such that when a poster is in the retracted position, neither the elements

constituting its support, nor the poster itself, impede the viewing of the other posters, when they are on display.

Furthermore, according to certain advantageous,
5 additional but non-limiting characteristics of the invention:

- each of said sliders consists in a shackle which, seen from above, is generally U-shaped, having a web surrounding the guide rod with side limbs disposed on
10 either side of the end of the bar and fixed thereto by releasable fastener members, such as screws;

- on either side of the device, the guide rods are offset laterally relative to one another in alternation through a given distance, thereby giving them a staggered
15 disposition when seen from above;

- the device includes monitor means for monitoring deployment of the posters in the set of posters;

- the monitor means comprise at least one optoelectronic device having a detection line that
20 extends horizontally on one of the sides of the set of posters perpendicularly to the poster deployment planes, and in a position such that said line is interrupted by one of the ends of each weight bar during upward or downward movement of said bar; and

- the detection line extends in the low and/or high
25 portion of the device and is adapted to monitor the arrival of at least one poster in the low position, i.e. the end of its deployment stroke, and/or in the high position, i.e. the end of its retraction stroke.

30 The invention also provides an advertising vehicle fitted with at least one device as described above.

Advantageously, the vehicle has a plurality of devices and a corresponding plurality of viewing windows, the various devices being controlled from a common
35 programmable central unit.

The advertising vehicle may consist in particular in a van whose body is generally in the form of a

rectangular parallelepiped, the body having three viewing windows, two of which are situated on its side faces, and the other of which is situated on its rear face, said common central unit being suitable for being programmed
5 in such a manner that the same advertising message is displayed simultaneously on at least two of said faces.

An additional display window (fourth window) may also advantageously be provided on top of the cab, in front of the top front portion of the body, in the
10 vicinity of the wind deflector.

The invention also provides a passenger transport vehicle, such as a bus, the vehicle being fitted with at least one device of the above type, with the viewing window of the device being disposed on the rear face of
15 the vehicle.

The invention also provides a stationary advertising panel fitted with at least one device as described above.

Other characteristics and advantages of the invention appear from the description and the
20 accompanying drawings which show a preferred embodiment.

In the drawings:

• Figure 1 is a diagrammatic perspective view of the flexible support receiving a poster (shown partially cut away), together with the guide and drive means, the
25 poster being in its deployed position in register with the viewing window (not shown);

• Figure 2 is a plan view of a take-up drum and of the guide roller associated therewith;

• Figure 3 is a diagram showing the device as a whole, in section on a transverse vertical plane
30 perpendicular to the posters and their viewing window;

• Figure 4 is a diagrammatic plan view of the weight bars with which the device is fitted;

• Figure 5 is a detail perspective view showing how
35 a slider is fixed to one end of a weight bar;

• Figure 6 is a highly diagrammatic view showing the systems for detecting bars in their low positions

(continuous lines) and their high positions (dashed lines);

• Figure 7 shows the principles whereby the device is programmed and controlled;

5 • Figure 8 is a view similar to Figure 1, showing two adjacent poster supports, with both posters being lowered, the front poster including a window;

• Figure 9 is a view analogous to Figure 8, in which the back poster is partially raised;

10 • Figure 10 is a highly diagrammatic perspective view of an advertising vehicle (van) fitted with a plurality of devices of the invention;

• Figure 11 is a highly diagrammatic perspective view of a stationary advertising panel provided with a device of the invention; and

15 • Figure 12 is a highly diagrammatic perspective view of the rear end of a bus fitted with a device of the invention.

In the embodiment described below, with reference to
20 the drawings, the viewing window has a vertical disposition, and the device includes a set of five posters that can be positioned in turn and selectively behind the window.

Naturally, the number five is merely one possible
25 example, and this number can be arbitrary.

It is advantageously equal to seven.

Figure 1 shows the flexible support receiving one of the posters.

This support is formed by a flexible leader strip 1
30 such as a thin oil cloth which is wound on a rotary cylindrical drum 5 having a horizontal axis 50. The axis is parallel to the general vertical plane containing the viewing window (not shown).

Drive means which are described below enable the
35 drum 5 to be turned in one direction or the other, as represented by double-headed arrow F in Figure 1.

The strip 1 passes over a cylindrical deflector roller 6 of horizontal axis parallel to the axis of the drum 5. Deflection takes place approximately through a right angle, and the portion of the strip connecting the roller 6 to the drum 5 is therefore approximately horizontal.

At each end of the roller 6, there are provided cheek plates 60 forming abutments for the side margins of the strip. These cheek plates 60 have respective conical walls converging towards the inside so as to encourage proper centering of the strip, both while it is being rolled out and while it is being rolled in.

The free end of the strip 1 possesses a zone of edging 10 for receiving and retaining the top edge 40 of a poster 4, in a manner that is easily releasable.

The poster is made out of ordinary material that is thin and flexible, but that is mechanically strong and difficult to crease, such as stout paper, a film of plastics material, or cloth, for example. It carries a message M, e.g. a printed message, appropriately centered and dimensioned so as to be entirely visible through the viewing window (not shown in Figure 1), and of dimensions which are slightly smaller than the dimensions of the poster.

In the embodiment shown, connection is provided by a loop-and-hook cloth fastener system of the kind widely known under the trade name "VELCRO" (registered trademark).

For this purpose, the transverse end margin 10 of the leader strip 1 carries on its face that faces away from the viewing window one of the two cloth fastener elements 10A, e.g. the element having hooks.

The front face of each poster 4 is provided in its top marginal zone 40 with the other cloth fastener element 40A, in this case the loops.

Thus, the top of the poster is fixed to the leader strip in a manner that is very easy, merely by pressing

the top front margin of the poster so that it adheres to the back of the edging 10. Thus, the pressure applied between these two elements while the poster is being rolled in encourages them to stick together.

5 The bottom edge 41 of the poster comprises a hem or sheath made by folding over and then sewing or sticking down its bottom end portion.

10 It is open on either side of the poster forming a bore of sufficient section to enable a weight bar 2 to be engaged therein so as to form a counterweight. The bar may be a metal bar of rectangular or square section; its length is slightly greater than the width of the poster so that its end portions 20 and 20' stick out of the opposite ends of the sheath.

15 The weight of the bar 2 must be sufficient to cause the poster to be properly tensioned in the vertical direction while it is secured to the leader strip; where necessary, additional weights of tubular shape may be engaged on the bar, in particular at its ends.

20 Nevertheless, the bar must not be too heavy in order to avoid impeding the action of the motor while rolling up the poster, i.e. while raising it; otherwise it would be necessary to use motors of excessive power.

25 Merely by observing Figure 1, it will be understood that turning the drum 5 in the strip unrolling direction will cause the poster to be deployed and take up position in a vertical plane; this deployment is performed under tension because of the weight of the bar 2.

30 If the drum 5 is turned in the opposite direction, when the strip 1 is wound almost completely onto the drum and the bar 2 occupies a high position above the top of the viewing window. The poster is thus in a retracted position, being folded over the detector roller 6.

35 Figure 3 shows how a set of five poster supports of the kind described above are installed in the device.

 In this figure, reference 9 designates the viewing window, which window comprises a frame 91 and a

transparent panel 90 disposed vertically, e.g. a pane of glass.

The device comprises a structure 8 essentially constituted by a front wall 82 in which the window 9 is mounted, a top box 80, and a bottom box 81.

The set of drums 5 and guide rollers 6 is mounted in the top box 80. The bottom box 81 is upwardly open and it serves to receive and hide from view the bottom portion of a deployed poster.

These various elements are positioned in such a manner that the various posters in the deployed position occupy vertical planes a, b, c, d, and e which are parallel to the pane 90. These various planes are regularly spaced apart, being separated by a small amount of clearance j. Similarly, the plane a of the first poster (the poster closest to the window) is situated at a short distance k from the pane 90.

The locations of the various deflector rollers 6a, 6b, 6c, 6d, and 6e, and of the various drums 5a, 5b, 5c, 5d, and 5e, inside the box 80 are determined so as to be as compact as possible without running any risk of contact between poster supports or posters.

Each poster is guided in translation and is properly maintained in its vertical travel plane by guide members as described below.

These members comprise a pair of sliders 7, 7' carried at the respective ends 20 and 20' of a weight bar 2. Said sliders are movable in translation along respective vertical rods 3 and 3' disposed on either side outside the frame of the viewing window.

In the embodiment shown (Figure 5), the slider 7 is a U-shaped shackle (e.g. a flat piece of metal folded into a U-shape) having a semicylindrical web going around the rod 3. The rod is also made of metal, for example. It is circular in section with a diameter that is slightly smaller than the width of the U-shaped shackle 7 so as to guide it properly and without friction.

The piece 7 is fixed to the portion of bar 20 in a manner that is easily undone. In the example shown, the spacing between the two side plates 72 constituting the limbs of the U-shape correspond to the thickness of the bar 2. A pair of transverse holes 21 pass through the portion 20. Openings 70 are pierced in the side plates 72 so as to come into register with the holes when the shackle 7 is in position on the end of the bar. In one of the side plates, the openings 70 are tapped holes so as to receive screw means 710.

An identical arrangement is provided for the opposite slider 7' which co-operates with a vertical guide rod 3'.

The spacing between a pair of rods 3, 3' is such that when the two sliders 7, 7' are fixed to the two ends of a weight bar 2, the bar runs along the full length of the hem 41 and each rod is substantially centered inside the portion 71, 71' of the shackle through which it passes. Guidance thus takes place without friction or practically without friction.

The top and bottom ends of the rods 3, 3' are fixed to the boxes 82 and 81 respectively by appropriate means (not shown).

They are naturally of sufficient length to guide the bottom portion of the poster over its entire travel stroke.

Each poster is thus associated with a pair of guide rods 3, 3' on either side.

This guidance takes place smoothly and without jerking by means of each shackle 7, 7' sliding along the deflective rod 3, 3' that it surrounds. There is no risk of jamming taking place at this point, unlike a conventional guide system using a runner or a rail which can be subjected to unwanted stoppages due to the bar tilting and becoming jammed.

In this case, the weight bar always remains properly horizontal.

In addition, since the rod is held captive within the shackle, there is no risk of untimely escape from the shackle, even if the device is subjected to sudden movements, as can happen when it is fitted to a vehicle.

5 Poster changing is performed very simply, as explained below.

The poster to be replaced is in the deployed position (its bar 2 is in its low position).

10 The shackles 7, 7' are removed, thereby enabling the weight bar 2 to be extracted from the hem 41. Finally, the top zone 40 is detached from the fastener edging 10 of the leader strip.

15 The new poster is put into place by performing the same operations in the opposite order: its top margin is fastened to the edging 10; the bar 2 is engaged in the hem 41; and the shackles 7, 7' are fixed to the ends of the bar after being put in place around the rods 3, 3').

20 In order to give the operator easier access for performing these various operations, the rods 3, 3' are advantageously placed in a staggered configuration on either side of the device, as can be seen in Figure 4. Each rod is offset transversely by a certain distance m relative to the adjacent rod(s). This prevents the shackles 7 or 7' of two adjacent bars coming too close to
25 each other.

30 Figure 6 shows an optoelectronic detector system, e.g. based on photoelectrical cells, mounted in the base of the device on one side. The system comprises an emitter 200 and a receiver 201 of conventional type, with a line of radiation referenced 2000 that extends
35 horizontally transversely to the plane of the posters. It is in register with one of the end portions 20 of the set of weight bars 2. When a poster reaches the end of its deployment stroke (its low position), the line 2000 is thus interrupted, thereby activating the detection system which sends a signal corresponding to this information to the central control unit.

This system serves to detect anomalies, in particular in the event of a poster becoming blocked against an obstacle, a breakdown, or a drum becoming accidentally jammed. The central unit can then issue an appropriate command, e.g. triggering an alarm or lighting a warning lamp.

A similar detection system is advantageously provided at the top of the device or in an intermediate zone at half-height.

10 In Figure 6, a detector system is shown in dashed lines in a high position, comprising elements 200'-201' with an aiming line 2000' similar to those used for detecting the low position.

Each drum 5 is driven by an electric motor and gear-box unit 51 fixed to the structure 8, having an outlet shaft driving the shaft 50 of the drum coaxially.

In a variant, it is possible to use small motors received inside the drums in an arrangement similar to that used for driving the winding drums of roll-up
20 blinds.

The set of five motors driving the drums 5a to 5d is controlled by a microcomputer or by a programmable controller.

This may comprise a central unit 100 into which an operator P inputs the various pieces of data associated with a desired display cycle, in particular the order in which the posters move and are put on display, and the frequency and display time of each poster (cf. Figure 7). The operator uses a keyboard to input data.

30 The central unit controls the motors via a relay card or interface 1000.

It receives information from the detector systems 200-201 and 200'-201' mentioned above, which monitor proper performance of operations.

35 Certain posters may naturally be displayed for longer periods of time and/or more frequently than others, depending on the program.

One poster can be made to take the place of another in an extremely short period of time since the first poster can be retracted and the new poster can be deployed simultaneously, in overlapping time.

5 In the embodiment shown in Figures 8 and 9, poster 4A has a window 400 through which it is possible to see poster 4B behind it. The window may merely be an opening through the poster or it may be a transparent zone. Thus, depending on the rolled-up position of the strip 1B
10 carrying the poster 4B that is placed behind the poster 4A, different zones of poster 4B are visible through said window 400. Consequently, if different drawings, messages, or other inscriptions are put on the back poster, each suitable for being put selectively into
15 register with the window 400, it is possible to vary the scene displayed by the front poster.

In the example of Figures 8 and 9, the window is a "bubble" showing what an advertising character is thinking.

20 Two messages, specifically "OUI" and "NON", are provided on the back poster (the hidden poster) and these messages are at different heights so that one or other of them can be contained in the bubble when the back poster is lowered (Figure 8) or is raised part way (arrow H,
25 Figure 9).

Naturally, it is possible to provide a plurality of windows in the front poster and to associate each of them with more than two messages on the back poster. In addition, messages may also be applied to one (or more)
30 posters that is/are further away and that become(s) visible when the poster(s) interposed between it/them and the front poster is/are fully raised.

The device lends itself remarkably well to progressive advertising campaigns in which a poster
35 carries a message announcing information that is to be found in one or more following posters.

Systems for fastening the top edges of the posters other than using fastener type cloths could naturally be provided, for example fixing could be means of clips, by snap-fastening of the press-stud type, by adhesive tapes, or indeed by means of a system of the kind known under the trade name "ZIP" (registered trademark) comprising a tongue of plastics material that engages in a complementary groove.

To make it easier to change posters, it is advantageous to provide a viewing window that can be opened or that has a pane 90 that is easily removable.

Naturally, the dimensions of the device are adapted to match the dimensions of the posters concerned.

By way of example, the width of the strip 1 may lie in the range 1 meter (m) to a few meters, and the drums 5 and the deflector rollers 6 are of corresponding length.

The drums 5 may be made of aluminum, having a diameter of about 60 millimeters (mm).

The rollers 6 are preferably made of aluminum that has been surface-treated so as to avoid leaving marks on the backs of the posters; their diameter lies in the range about 30 mm to about 40 mm.

The spacing j between posters is about 15 mm to about 30 mm.

This kind of device can be used in a fixed location, for example it can be integrated on the front of a building, or received in a panel mounted on a stand, or on any other support, such as the advertising panel PP shown in Figure 11.

It may also be mounted on an advertising vehicle VP, as shown in Figure 10.

This figure shows a van type vehicle whose body is approximately in the form of a rectangular parallelepiped. The body has two side faces and a rear wall, each provided with a respective poster-viewing window 9-9', 9". Three display devices of the invention

are installed inside the vehicle, each being associated with a respective one of the windows.

They are advantageously controlled by a common central unit 100 as shown in Figure 7 where two
5 additional interfaces 1000' and 1000" are shown, each for controlling a respective series of motors.

By means of this arrangement, the central unit can control not only the sequence in which the various posters associated with a window are viewed, but the
10 sequence in which all three groups of posters are viewed. Each group may comprise posters that are different or identical, in full or in part. Thus, assuming that each group possesses at least one identical poster, or one poster associated with the others (e.g. relating to the
15 same brand), it is advantageous to program the central unit so that the three posters in question are deployed simultaneously and remain lowered for the same period of time so that all three of them are visible simultaneously on three faces of the vehicle.

20 In a variant, a fourth viewing window may be provided. This window is advantageously installed above the driver's cab, e.g. being integrated in the wind deflector referenced CP In Figure 10; this makes it visible from in front.

25 The vehicle may also serve as a display window for goods that are contained inside the vehicle body, and that become visible through one or more of the windows when all of the posters associated with the window are raised. Appropriate lighting may be provided inside the
30 body to show off the articles on display.

Figure 12 is a rear view of a bus AB fitted with a display device in accordance with the invention.

The viewing window 9''' is placed on the rear face of the bus.

35 It is therefore visible, in particular to car drivers following the bus.

In the example shown, said window 9'' is dimensioned and positioned in such a manner as to occupy only the top half of the rear face of the vehicle.

5 Naturally, it could extend further down, in which case it could occupy practically the entire area of the rear face.

Various applications other than those mentioned above are naturally possible.

10 Thus, by way of example, mention can be made of an installation on the rear face of a delivery truck, or in a shop window.

15 Naturally, it would not go beyond the ambit of the invention to replace the vertical guide rods 3', 3' with cables tensioned vertically between the top and bottom boxes.

Furthermore, the shackles 7, 7' could be replaced by rings surrounding the guide rods (or cables) and releasably securable to the ends of the weight bars.

CLAIMS

- 1/ A device for displaying selectively and in individual manner the various posters in a set of posters by positioning them in succession behind a viewing window (9), in which device each of the posters (4) is fixed in detachable manner via its top edge (40) to a flexible leader strip (1) suitable for being rolled at least in part onto a rotary take-up drum (5), the device having a series of electrical motor and gear-box units (51) controlled by a programmable central unit (100), each adapted to drive a corresponding one of said drums (5) selectively in one direction or the other so as to be able to bring said poster (4) either into a retracted position in which it does not appear behind the viewing window (9) or else into a deployed position in which it is in register with said window (9), the deployed positions of the various posters (4) occupying distinct parallel vertical planes (a, b, c, d, e) that are spaced apart a little from one another, the device being characterized by the fact that the bottom edge of each of the posters consists in a hem (41) acting as a sheath for receiving a horizontal weight bar (2) for tensioning the poster (4), the two ends (20, 20') of said bar (2) projecting beyond the sheath on either side of the poster (4), and each end being provided with a releasable slider (7) of annular or semi-annular shape which surrounds a vertical guide rod (3) with a certain amount of clearance.
- 2/ A device according to claim 1, characterized by the fact that each of said sliders consists in a shackle which, seen from above, is generally U-shaped, having a web (71) surrounding the guide rod (3) with side limbs (72) disposed on either side of the end (20) of the bar and fixed thereto by releasable fastener members, such as screws (71).

3/ A device according to claim 1 or claim 2,
characterized by the fact that, on either side of the
device, the guide rods (3) are offset laterally relative
to one another in alternation through a given distance m,
5 thereby giving them a staggered disposition when seen
from above.

4/ A device according to any one of claims 1 to 3,
characterized by the fact that it includes monitor means
10 for monitoring deployment of the posters (4) in the set
of posters.

5/ A device according to claim 4, characterized by the
fact that said monitor means comprise at least one
15 optoelectronic device (200, 201) having a detection line
(2000) that extends horizontally on one of the sides of
the set of posters (4) perpendicularly to the poster
deployment planes, and in a position such that said line
(2000) is interrupted by one of the ends (20) of each
20 weight bar (2) during upward or downward movement of said
bar.

6/ A device according to claim 5, characterized by the
fact that the detection line (2000, 2000') extends in the
25 low and/or high portion of the device and is adapted to
monitor the arrival of at least one poster in the low
position, i.e. the end of its deployment stroke, and/or
in the high position, i.e. the end of its retraction
stroke.

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7/ An advertising vehicle (VP) fitted with at least one
device in accordance with any one of the preceding
claims.

35 8/ An advertising vehicle (VP) according to claim 7,
characterized by the fact that it has a plurality of
devices and a corresponding plurality of viewing windows

(9, 9'), the various devices being controlled from a common programmable central unit (100).

- 9/ An advertising vehicle (VP) according to claim 8,
5 characterized by the fact that it consists in a van whose body is generally in the form of a rectangular parallelepiped, the body having three viewing windows, two of which (9, 9') are situated on its side faces, and the other of which (9'') is situated on its rear face,
10 said common central unit (100) being suitable for being programmed in such a manner that the same advertising message (M) is displayed simultaneously on at least two of said faces.
- 15 10/ A passenger transport vehicle, in particular a bus (AB), fitted with at least one device in accordance with any one of claims 1 to 6, in which the viewing window (9'') is placed in the rear face of the vehicle.
- 20 11/ A stationary advertising panel (PP) fitted with at least one device in accordance with any one of claims 1 to 6.