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E- 28014 Madrid (ES)(54) **PANEL FOR DISPLAYING INFORMATION SUCH AS ADVERTISING MESSAGES.**

(57) The structure of the display panel is comprised of a frame (1) provided with wheels (2) rolling on rails (3) and wherein is mounted, with the possibility of regulating the inclination, a structure comprised of two side plates (4) and wherein are set two guiding rollers (18) for a laminar body (17) carrying different information, and two rollers (21) for rolling/unrolling said laminar body (17), said rollers being actuated by respective electric motors (22-22') which, appropriately controlled by a computer program, allow to change the information provided by the panel after appropriately predetermined display periods of time.

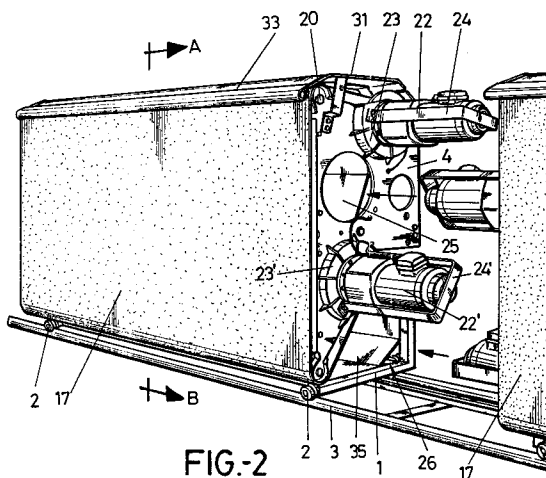


FIG-2

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OBJECT OF THE INVENTION

The present invention relates to a panel designed specifically for displaying information, such as for example advertising messages, with the characteristic that such messages may be changed, by means of a suitable electronic program, such that during a certain length of time, such as a sports match, the advertisements appearing on a certain panel may change one or several times, whereby several advertisers are able to use the same panel.

As is obvious, the panel being described may also be used for displaying any other information requiring similar characteristics.

BACKGROUND OF THE INVENTION

The applicant is currently in a position to register a number of Patents as a result of an application deposited in France in 1984. The said application describes and claims a display system for information such as advertising messages, specially designed to be used in sporting events, such as for example in football fields, basketball pitches and the like, which events are broadcast on at least one television channel and where a number of panels are used as display elements, conveniently located in order to be picked up by the cameras.

More specifically, each camera has an element which is activated by a visual indicator established on each of the display panels, such that using appropriate means the time for which each image remains on the panel can be controlled, thereby allowing advertising costs to be dependant on the time for which the advertisements remain on the screen or allowing such periods to be established previously, such that when a certain advertisement or message has appeared on the screen for the agreed length of time, the message on the said display panel or group of display panels changes.

DESCRIPTION OF THE INVENTION

The display panel for information such as advertising messages proposed by the invention is particularly useful for putting into practice the display system referred to in the previous paragraph, although the said panel may obviously also be used in display systems wherein the length of time for which the messages appear on the panels is contracted on the basis of real time of display on the panels rather than on the basis of the time for which they appear on the television screens connected to the channel or channels broadcasting the event.

In a more general sense, the panels being described may be used in any practical circumstance in which it is desired to display messages which change in time.

Specifically, the display panel proposed by the invention is comprised by a base provided with wheels for sliding the panel as a whole along rails which allow perfect longitudinal interconnection between modules, such that various adjacent modules may together make up a single message or advertisement, on which base is mounted a frame comprised by two parallel end plates, being vertically elongated and joined to each other at the front by means of a plurality of cross bars placed on the same plane, whereas at the rear the said plates are joined by means of a frame wherein is established a platform for holding the components of the electronic circuit of the panel, and to which are joined doors for accessing such components.

Four rollers are established within the mentioned frame, specifically between the two end plates, two of which rollers are free to rotate whilst the other two are driven by engines, the two freely-rotating rollers occupying the imaginary upper and lower front corners of the panel, between which will be established the operative sector of the laminar body which actually carries the message, whereas the engine-driven rollers, which obviously rotate in opposite directions, are designed for winding and unwinding the said laminar body.

The engines for driving the winding rollers are coupled coaxially thereto, and must in consequence be located outside the module, for which purpose it is foreseen, as a further characteristic of the invention, that the said rollers are out of alignment both laterally and transversally, such that, by means of inverse arrangement of the side plates in adjacent modules, the engines of one module will be housed in the empty spaces of the adjacent module, obviously crossing the corresponding side plate, and vice versa.

Nevertheless, and in accordance with a different embodiment of the invention, the possibility that the corresponding driving engines may be housed within each module has been foreseen, in which case the said engines are coupled to the winding rollers through transmission pulleys and belts rather than axially.

In accordance with a further characteristic of the invention, the frame is adjustably mounted on the base and is provided with blocking means in a plurality of positions, such that the front surface of the said frame, on which is established the operative sector of the continuous laminar body which carries the messages, may adopt a vertical or slanting position, with a varying angle of inclination.

As is likewise obvious, the structure described is complemented with an electronic circuit controlled by a microprocessor, which establishes the times at which the information appearing on the panel should change, and which activates the engines in one or the other direction for the amount of time necessary to the change the information to one of the many which may be stored in a single panel, although the said microprocessor may obviously be substituted by a manual or remote control or any other means to act either directly or remotely on the module.

DESCRIPTION OF THE DRAWINGS

In order to complete the description being made and to assist the better understanding of the characteristics of the invention, a set of drawings is attached to the present specification as an integral part thereof, where the following has been shown in an illustrative and non limiting manner:

Figure 1.- Shows a general perspective and exploded view of an information display panel made in accordance with the object of the present invention, wherefrom certain details have been shown at a larger scale for a clearer understanding thereof.

Figure 2.- Shows a perspective front view of the panel of the preceding figure, duly arranged and established on the corresponding rails, a second panel being partially represented to show longitudinal coupling thereto.

Figure 3.- Shows a perspective rear view of the panel, with the cover in its open position to show essentially the mechanisms of the electric circuit.

Figure 4.- Shows a cross section of the panel.

Figure 5.- Shows a perspective front and side view of a varying embodiment of the panel wherein the roller driving engines are housed within the panel itself.

Figure 6.- Shows a further perspective view of the panel, being a counterpart to the preceding figure.

PREFERRED EMBODIMENT OF THE INVENTION

In the light of these figures it can be observed how the information display panel being described is formed by a base (1), provided with perimetally grooved wheels (2) for displacement on rails (3), on which are established a plurality of panels in longitudinal alignment and duly coupled to one another, the said base (1) comprising the supporting structure for a frame consisting of a pair of side plates (4), stiffened by means of a plurality of mountings (5) which are coupled at the ends, in a coplanar arrangement with respect to the front

edge of plates (4), specifically by means of screws which pass through holes (6) operatively provided on the said plates, the said frame being complemented by a rear upper frame (7) likewise established between the plates (4) and including a platform (8) wherein are located the electrical and electronic components of the panel which will be referred to hereinafter.

The said frame is adjustably mounted on base (1), for which purpose it includes, a toothed (10) sector (9) coupled to one of its ends and wherein selectively plays a lock (11) mounted in box (12) which is in turn coupled to one of the ends of the frame (7), which, together with the rest of the body, is adjustably mounted on base (1), specifically by means of bearings (13).

A rectangular plate (14) is fastened to mountings (5), immediately in front of which there is established a padded body (15), of the same rectangular shape, and in front again a plastic sheet (16), likewise having the same rectangular shape and constituting what will be the operative surface of the panel, over which slides a laminar body (17) which carries the information and is suitably guided by a pair of rollers (18-18'), coupled free to turn on the ends of the front edge of plates (4), specifically in apertures (19) and with the aid of shaft screws (20), the ends of which laminar body (17) are wound on respective rollers (21-21') fastened to one of the end plates (4) of the frame, projecting outside the panel, as shown specifically in figure 2, the two engines (22-22') being duly synchronized such that when the laminar body (17) is unwound at one of the rollers (21) it will be wound in the same amount at the other, and vice versa.

Each end plate (4) of the frame includes a pair of pressings (23-23') for engaging the engines (22-22') with the aid of respective supports (24-24'), in addition to which the said pressings (23-23') are out of alignment both vertically and transversally, the plates further including a large aperture (25) and a channelling (26) which are likewise out of alignment with respect to the previously mentioned pressings (23), such that by arranging the plates (4) of one module inverted with respect to the adjacent one, and as is likewise observed in figure 2, the engines (24) of one module or panel are out of alignment with respect to those of the other and penetrate and are housed in the empty spaces left by the rollers (21) in the other, through the said apertures (25) and channelling (26).

The mentioned engines (22) with their corresponding wiring (27) are jointly controlled for each and every one of the modules from a main control box not shown in the drawing, through various auxiliary boxes, by means of a computer program established in the corresponding micro-

processor, which sends the corresponding signals to an electronic box or panel (28) provided on platform (8), with which works a feeding trans-
former (29), stabilisers or any other suitable ele-
ment to ensure optimum feeding conditions, and the corresponding terminals (30) for connection of the engines.

The structure described is completed with a cover wherein is defined a fixed sector (31) and two adjustable sectors, a rear sector (32) allowing access to platform (8) where the electric and elec-
tronic components are located, and a front sector (33) which partially overlaps the marginal upper area of the operative sector of the laminar body (17) carrying the information and below which may be extracted a waterproof sheet for protection of the said laminar body when same is not in use. Obviously the module is likewise closed at the rear below the adjustable cover (32), specifically through frame parts (34) and (35) which can be clearly seen in figure 1.

In accordance with the foregoing structure, as already described and each time it is necessary to change the message or information displayed on the panel, appropriate control signals will reach the electronic control box (28) to act on engines (22-22'), thereby partially unwinding the laminar body (17) of one of the rollers (21) and simultaneously winding it up again at the other roller, in an amount sufficient for a new section of the laminar body, corresponding to the new information, to appear on the front surface of the panel. It only remains to be pointed out that, in order to suitably control displacement of laminar body (17), between respective operative sectors corresponding to different information or messages, there are provided signals, apertures, pressings or any other means susceptible of being detected by sensors, such as for example a photoelectric cell, whereby total control over the magnitude of displacement is achieved, as well as perfect synchronism between panels.

Although the present description has been made on the basis of the embodiment shown in figures 2 and 3, where the engines (22-22') project outside one of the end plates (4) of the module or panel, it has likewise been foreseen that the said engines (22-22') can be housed within the panel which they are to move, as in the embodiment shown in figures 5 and 6, in which case the rollers (21-21') are provided at one of their ends with respective pulleys (36-36') through which they receive movement from the said engines (22-22') by means of respective transmission belts (37-37'), which transmission may also be effected by means of pinions and chains.

Furthermore, in this practical embodiment shown in figures 5 and 6 it has likewise been

foreseen that the idler rollers (18-18') for the laminar body (17) carrying the information, are considerably out of alignment in order that the operative sector of the said laminar body (17) should be significantly and permanently tilted upwards and back, without it being necessary for the display module or panel as a whole to be capable of being tilted backwards, as is the case in figures 1 to 4, but obviously such details are not significant nor do they in any way affect the essentiality of the invention.

It has likewise been foreseen, in this embodiment, that the upper (31) and rear (32) covers are made as a significantly inclined single cover (38), the module adopting a trapezoidal, almost triangular, profile as observed especially in figure 6, for which, and as likewise observed in the said figure, it is necessary that the winding roller (21), located on an upper level, should adopt a considerably lower position than in the previous case, and be furthermore displaced towards the front wall of the module.

It should likewise be pointed out that in the structure shown in figures 5 and 6 there exists a set of electric batteries, installed within each module, capable of autonomously producing electric energy. In other words, the provision of such batteries avoids the need for connection to an outside power source.

It is not considered necessary to extend the present description any further for an expert in the art to understand the scope of the invention and the advantages derived therefrom.

The materials, shape, size and arrangement of the elements may vary, provided such variation does not imply a modification in the essentiality of the invention.

The terms used in the specification should be taken to have a wide and non limiting meaning.

Claims

1. Panel for the display of information such as advertising messages, essentially characterised in that it is comprised by a base (1) provided with wheels (2) for displacement on rails (3), on which are to be longitudinally coupled a plurality of modules or panels to make up either a single message or several laterally adjacent messages, a frame being established on the said base, which frame consists of a pair of side plates (4) stiffened by means of a plurality of front mountings (5) and by a rear upper frame (7), in which frame there are established two idler rollers (18) coupled free to turn on the upper and lower ends (19) of the front edge of side plates (4), and the driving rollers (21-21'), likewise coupled to the said

end plates (4) and acted on by respective electric engines (22-22'), on which rollers are wound or unwound the ends of a laminar body (17) which carries the different messages, each of which can be seen individually through the portion thereof established between the idler rollers (18-18').

2. Panel for the display of information such as advertising messages, in accordance with claim 1, characterised in that a plate (14) is fastened before front mountings (5) of the frame, a padded body (15) being fastened to the said plate, and in front of the padded body a plastic sheet (16) over which slides the operative sector of the laminar body (17) which carries the information.

3. Panel for the display of information such as advertising messages, characterised in that the engines (22-22') for driving rollers (21-21') are projectingly coupled to one of the plates (4) of the frame, with the aid of supports (24-24') towards the outside thereof, it being foreseen that the rollers (21) and therefore the engines (22) should be out of alignment both vertically and horizontally, and that the plates (4) are provided with an aperture (25) and a large channelling (26), such that the said plates (4) adopt inverted positions between adjacent modules or panels, whereby the engines (22) of one panel are out of alignment with respect to those of the other and thus the engines of each panel or module are housed within the adjacent panel, occupying the free spaces left therein by its driving rollers (21-21').

4. Panel for the display of information such as advertising messages, in accordance with claims 1 and 2, characterised in that the engines (22-22') for driving rollers (21-21') are coupled to one of the plates (4) of the frame, specifically to the inner surface thereof, and are housed within the module, it having been foreseen that the said engines transmit the motion to the respective rollers with the aid of pulleys (36-36') and transmission belts (37-37').

5. Panel for the display of information such as advertising messages, in accordance with claims 1 and 3, characterised in that the said frame is tiltingly mounted on the base, specifically by means of bearings (13) coupled to the upper edges of the said base (1), which base is further provided with a toothed (10) sector (9) for engaging the base with the aid of a bolt (11) suitably related thereto and spe-

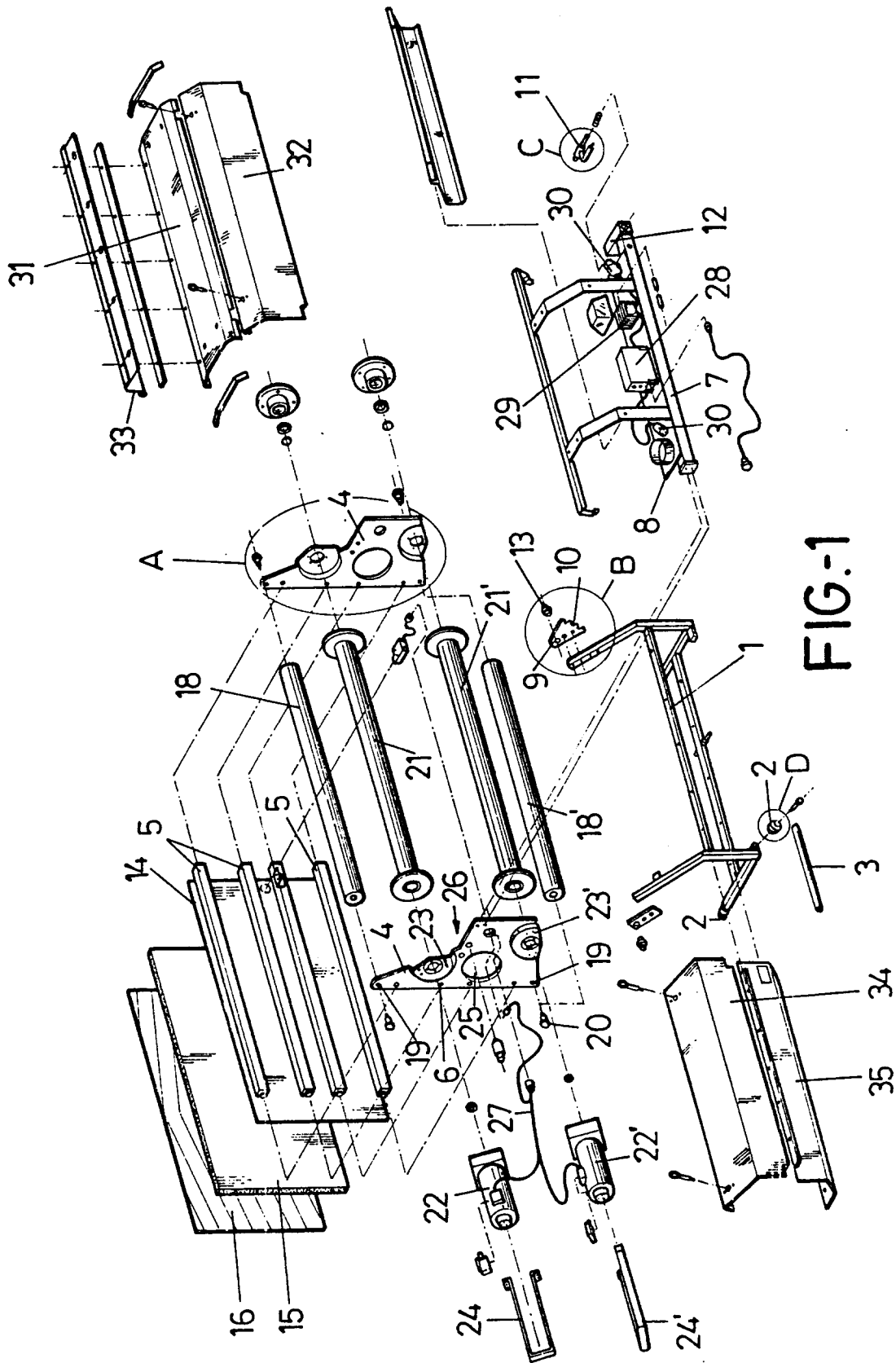
cifically to box (12) of frame (7), such that in accordance with the position of sector (9) in which bolt (11) is located, the base will take up a certain operative position, from a vertical situation for the operative sector of the laminar body (17) to an upwards and rear inclined position, the angle whereof may be adjusted.

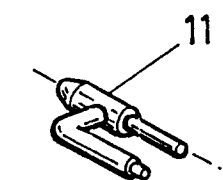
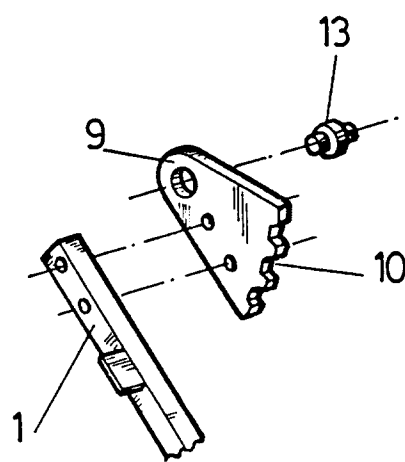
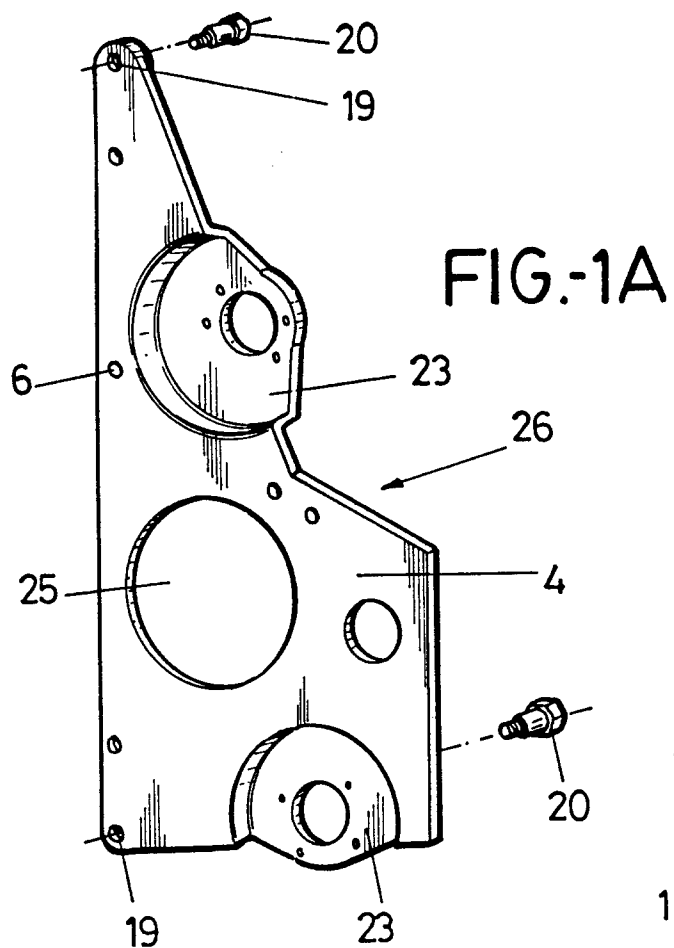
6. Panel for the display of information such as advertising messages, in accordance with claims 1, 2 and 4, characterised in that the idler rollers (18) for the laminar body (17) which carries the information are considerably separated in a front-to-rear direction, such that the operative sector of the said laminar body (17) which carries the information is included within an imaginary plane significantly inclined upwards and back.

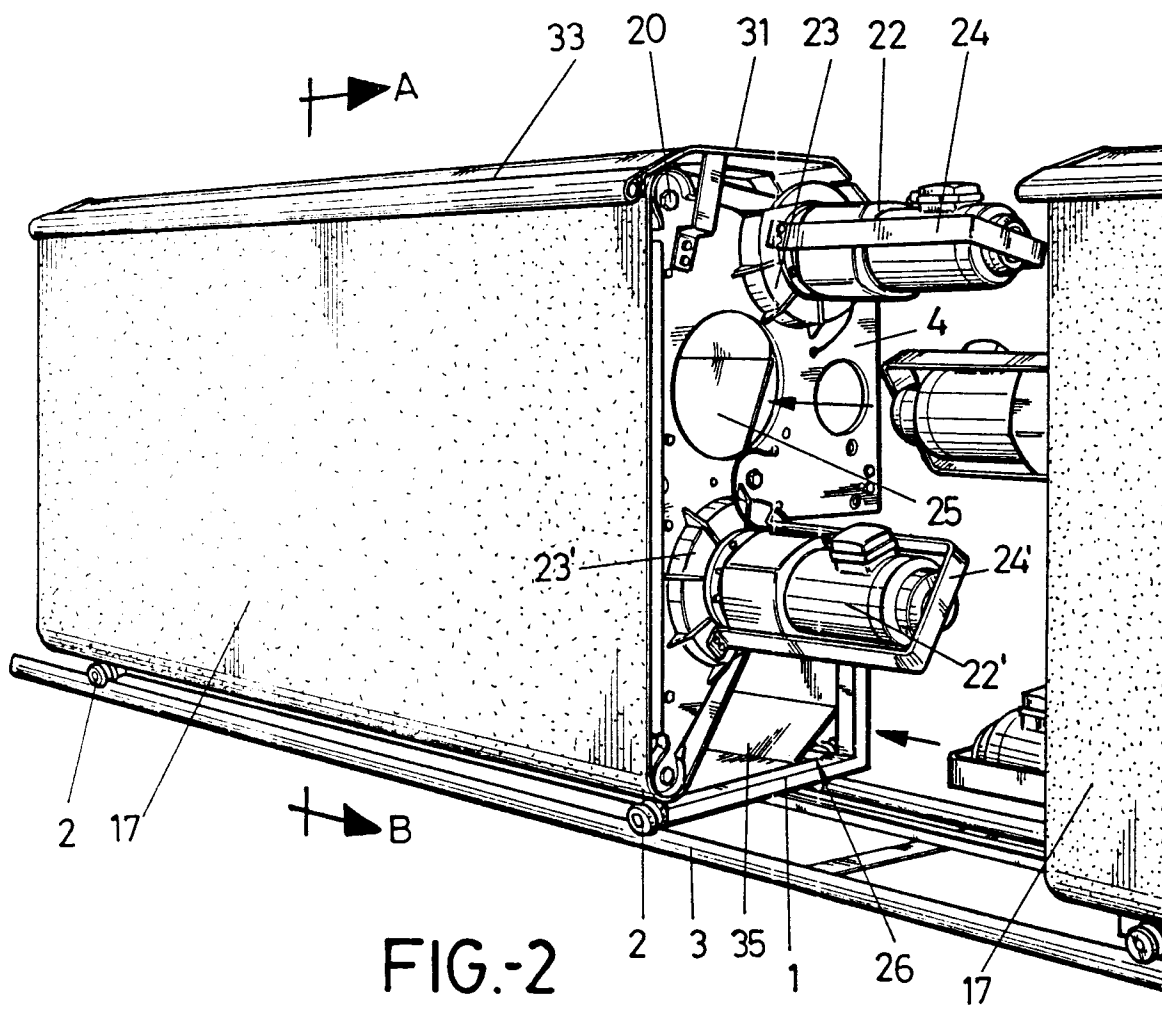
7. Panel for the display of information such as advertising messages, in accordance with claims 1 to 3 and 5, characterised in that a platform (8) is established on the rear front frame (7) for the electric and electronic components of the panel, specifically for the feeding transformer (29) of engines (22) and the electronic box (28) for controlling the said engines.

8. Panel for the display of information such as advertising messages, in accordance with claims 1 to 3, 5 and 7, characterised in that the lower base (1) is closed at the sides by the plates (4) and at the rear by a cover (34-35), whilst the base is provided with a cover wherein is defined a fixed upper sector (31), a rear displaceable sector (32) for accessing the platform (8) which carries the electric and electronic mechanisms, and a front sector (33) which houses a waterproof removable sheet for protecting the operative sector of the laminar body which carries the information when the panel is not in use.

9. Panel for the display of information such as advertising messages, in accordance with claims 1, 2, 4 and 6, characterised in that the lower base (1) is closed at the sides by plates (4) and at the rear by a cover (34), whereas the frame is provided with an upper cover (38) for accessing platform (8) which carries the electric and electronic elements, which cover ends in a front overhang (33) which houses a waterproof removable sheet for protecting the operative sector of the laminar body which carries the information when the panel is not in use.







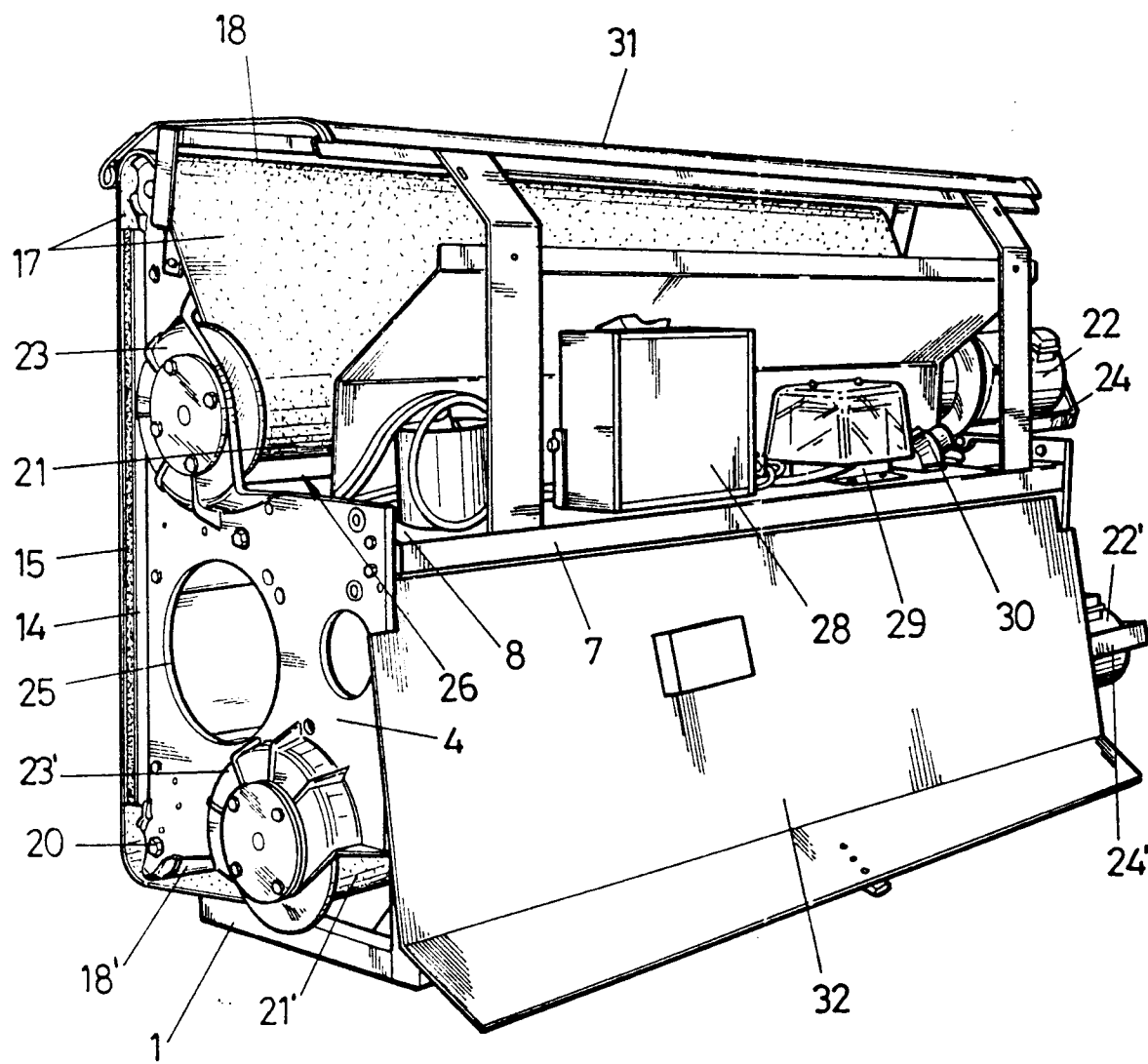
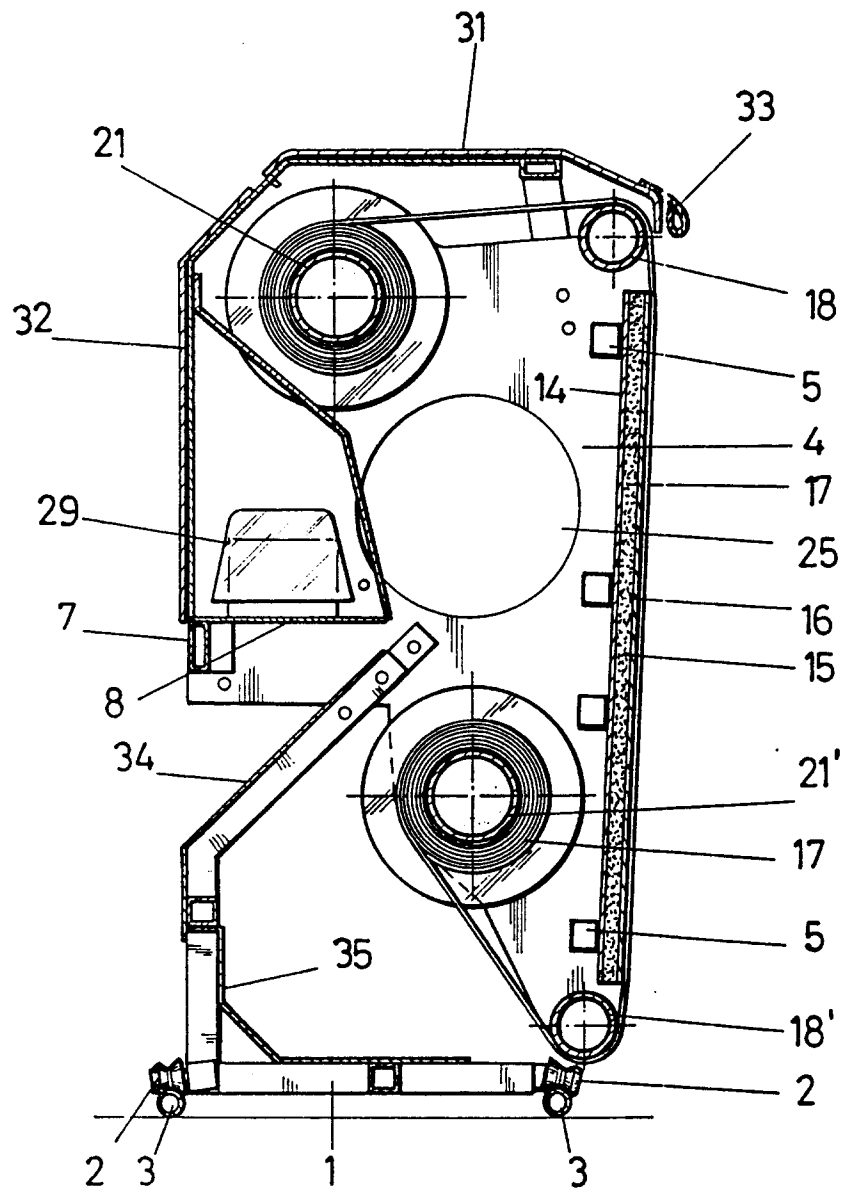
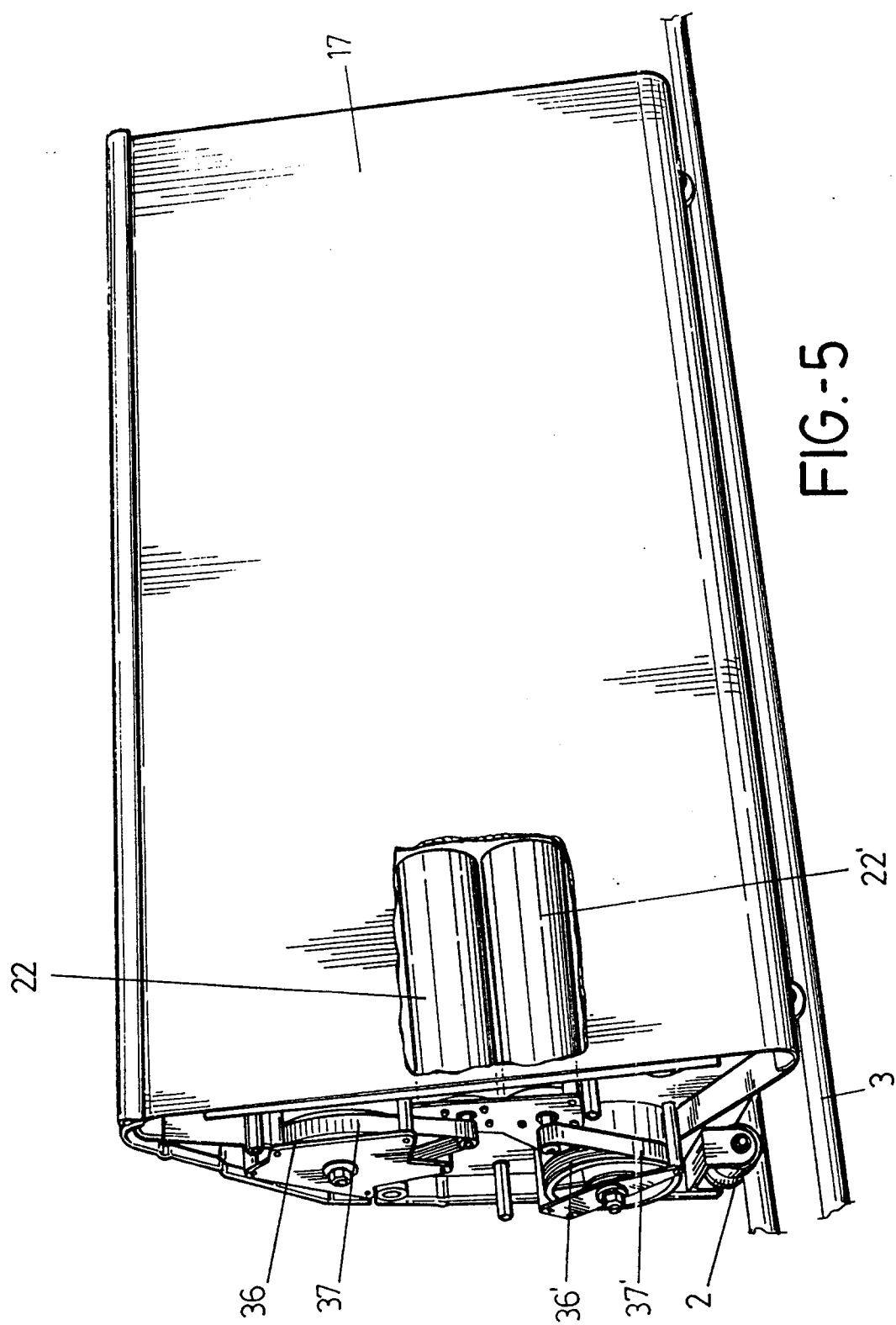


FIG-3



A-B
FIG.-4



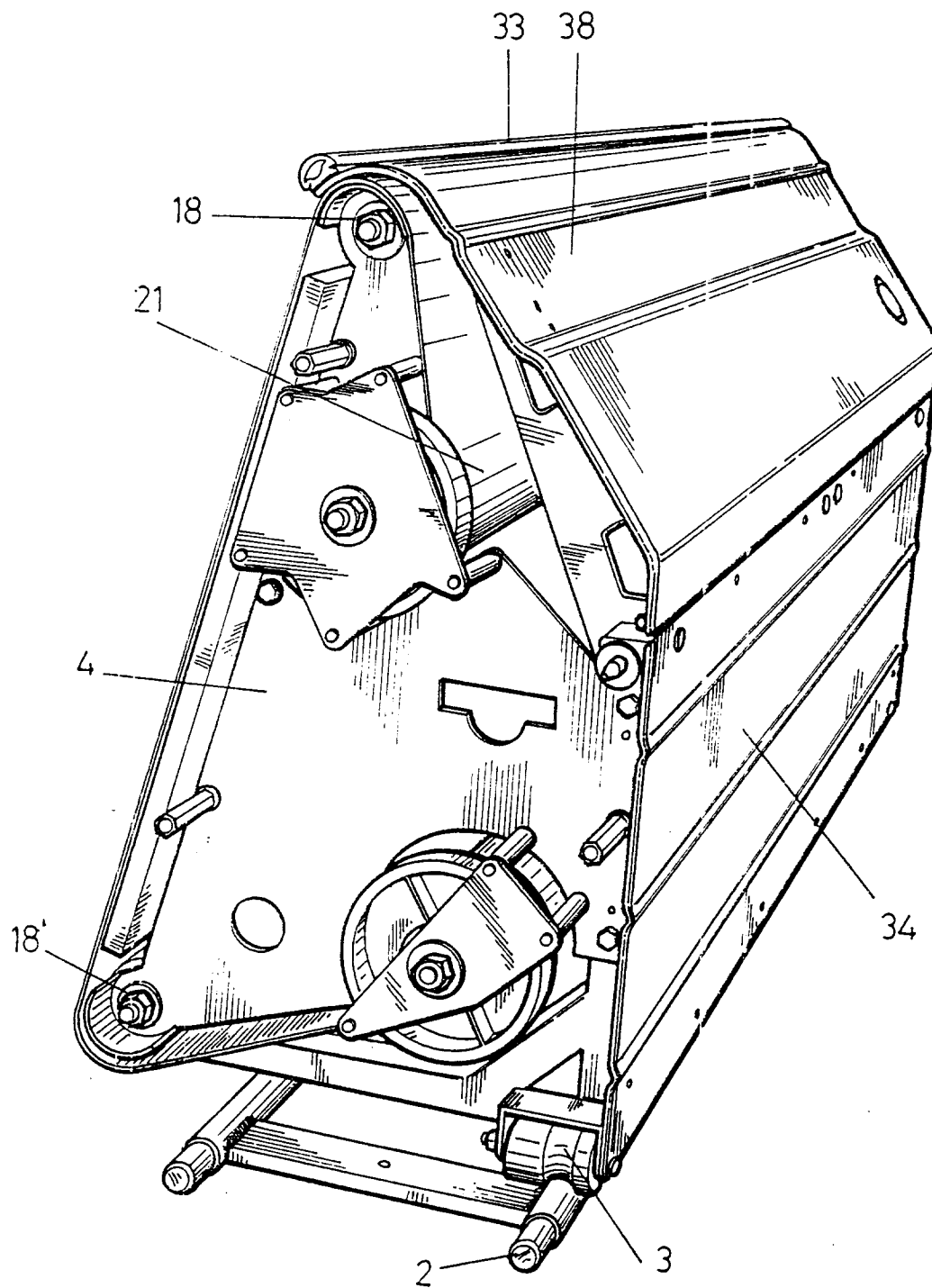


FIG.-6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 91/00073

A. CLASSIFICATION OF SUBJECT MATTER IPC ⁵ G09F 11/18 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC ⁵ G09F Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,5003717 (C. TRAME et al.) 2 April 1991 see column 1, line 62 - column 2, line 44; figure 1 --- -----	1
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 7 February 1992 (07.02.92)		Date of mailing of the international search report 17 February 1992 (17.02.92)
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