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(54) **MOVING PANEL DISPLAY DEVICE FOR CERAMIC PAVING AND COATING PARTS AND METHOD OF CONTROLLING THE MOVEMENT OF SAID PANELS**

(57) Display stand with mobile panels for wall and floor tiles and method for controlling the movement of these panels.

This consists in an arrangement of an assembly formed of a coupling means between the belt or equivalent means of traction and the panel, able to temporarily

house a ball under the pressure of a spring, which is located between two sets of resilient stops, so that stopping the motor allows the panel to be moved by a manual effort taking the ball out of the housing for said ball in the part connected to the panel.

For application in manufacturing display stands, especially those for tile panels.

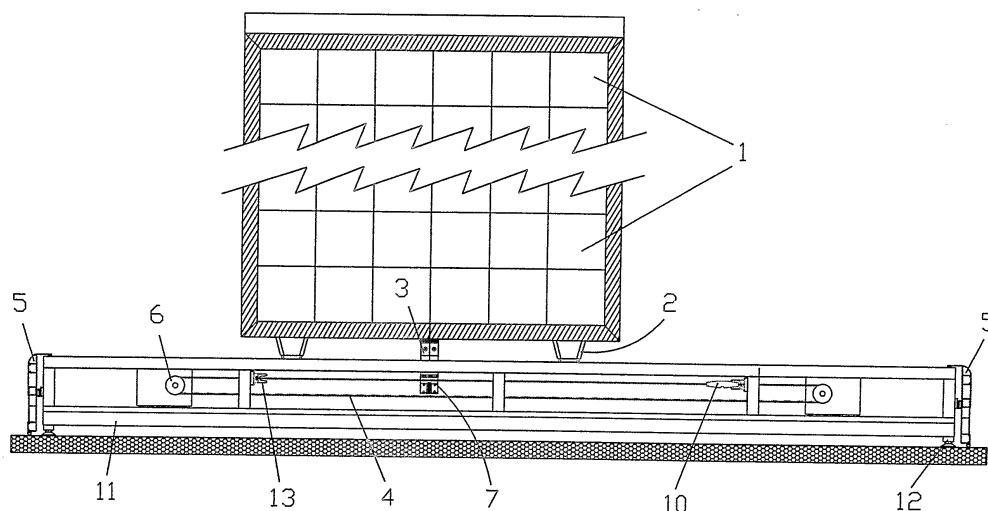


Fig. 1

Description

[0001] Display stand with mobile panels for wall and floor tiles and method for controlling the movement of these panels.

[0002] The technical field involved in this invention is that of display stands and in particular that of apparatus fitted with automatic devices for accomplishing this action.

Statement of the prior state of the art

[0003] Patent n° ES P2000200519 for a display stand with mobile panels for wall and floor tiles and method for controlling such panels by the same applicant and inventor.

[0004] The aforementioned patent constitutes the basis whose essence is considerably developed and bettered by this invention.

[0005] In practice, use of the display stand covered by the invention now being improved on shows that it is not enough for the panels to be sliding and to perform this movement by the synchronised action of diverse motors allowing a wide range of possible programming variations. The market demands alternative and selective manual and automatic operation. It also requires personal safety criteria when establishing the movement of the panels. It similarly requires simplified means for going from manual to motor-driven operation and vice versa.

[0006] For this reason, the object of this invention contains each of said characteristics in such a way that with an essence basically derived from the previous one and with highly innovative characteristics, it attains the ends required in a simple fashion.

[0007] The object of this invention involves improvements in this display stand, as stated in previous paragraphs.

[0008] In order to make the explanation to follow clearer, seven sheets of drawings are enclosed representing the essence of this invention in nine figures.

Figure 1 displays a view of the display stand in manual operation.

Figure 2 shows a detail of the display stand in motor-driven operation.

Figure 3 shows a detail of the interlocking and releasing system allowing it to go from motor-driven to manual mode.

Figure 4 shows a detail of the system in manual operation, in the process of going into motor-driven mode.

Figure 5 shows a schematic view of the application in fan layout.

Figure 6 shows a schematic view of the application in the arrangement for comparison of panels.

Figure 7 shows a schematic view of an example of personalised panel positioning.

Figure 8 shows a view of an example of the arrangement in cyclic display mode, that is, with one panel coming fully out and then going fully back in. This is the function for use in shop windows.

Figure 9 shows a schematic side view of the assembly in a shop window.

[0009] In these figures 1 indicates the sliding display panel; 2 the rolling supports of the panel on their rails; 3 the coupling between display panel and drive belt; 4 the drive belt, chain, cable or some equivalent means of traction/transmission; 5, the external frame; 6 the pulleys for movement of the drive belt; 7 the coupling of the drive part to the panel; 8 the rubber stop; 9 the rubber stop; 10, the device joined to the belt; 11 the frame of the display stand; 12 the support for the display stand; 13 the support for the stop; 14 the support for the stop; 15 the securing assembly between the belt and the panel; 16 the ball; 17 the pressure regulation of the ball; 18 the ball pressure spring; 19 the recess made in the body 10 which houses the ball and prevents it from getting out unless this is by a force greater or different to the one envisaged; 20 the shop window in which this is exhibited; 21 the display stand set in the shop window; 22 the sensor of the drive control; 23 the information close to the button panel, even with voice and light notification system.

Explanation of one form of embodiment

[0010] The arrangement of the set of panels and its movement stems from the previous patent. This document describes the system for releasing the panel from the drive belt, as well as the application of the display system and how this is applied for use in shop windows, displays, trade fairs and its manual and automatic use etc.. The machine movement takes place by means of the motor which moves one of the pulley wheels 6, which in turn moves the belt 4 which has a device 10 at one point along its length. This device 10 has mutual means for connection with a coupling 7 to the panel. These means are formed by a housing in the device 10 which has a spindle shape, so that in one part of its centre, preferably at the bottom, it has a recess in the form of a circular cap, coinciding with a moving ball 19 pressed by a spring 18 so that the pressure exerted by said spring ensures a temporary connection of the coupling 7 connected to the panel with the device 10. An effort slightly greater than the amount necessary to overcome the starting or stopping inertias thus releases the panel from the belt movement. This release can either be accidental, in the event of a small child inserting a hand into the guide, for example, and voluntary, when there is a power cut. In this last case the panel can be moved by means of a small effort which frees the coupling of the ball with the device 10.

[0011] Inverse operation, that is the establishment of the coupling by device 10, takes place preferably at the

end of the travel, not in any way meaning that this cannot take place at a different point by means of sufficient manually exerted resistance, for example.

[0012] It similarly has supports and stops 8, 13 and 9, 14 on both sides of the device 10, which facilitate dampening any possible impact that the panel might make at the end of its travel. Said stops also come off the body 10, being left at the ends, so that after the body 10 has been picked up by the coupling 7, these go back beside this performing their role as stops coupled to the body 10 in its electrical operation, and as stops coupled to the ends of the travel when this is manually operated.

[0013] This display stand, as has been explained, has a set of rails, each of these being a guide for a tile display panel. Each of these panels includes the possibility of being set out in any position. The different positions thus taken are compatible with different selections.

[0014] One example of the foregoing could be that the first panel stands still. The second and successive ones assume a fan position. This is shown in Figure 5. The display stand in this case allows all the models on show to be seen. Selection allows the layout chosen to be made in about ten seconds.

[0015] One option available is that of the shop window function which, in accordance with pre-settable criteria, displays all, some or particular panels in temporary series which can be altered in accordance with a pre-settable selection. This is represented in Figure 8. This system prevents the shop window from needing to be closed for a change of models, as only the panels that are going to be changed need be stopped, and it can also display fan layouts of a selected number of patterns according to Figure 6 through criteria chosen by the interested party. The automatic cycles can include the full extension of each panel and the return to the home position, showing a set of panels that is active and appealing to the interested consumer's eye. This is represented in Figure 8.

[0016] It is similarly possible with the previous example for the display stand to show some of the models according to selection criteria that are pre-settable or settable by direct selection. This means that if one is looking for an ochre colour range, only the ochre colours come out, as well as allowing any other selection criteria. The items that are not selected are concealed behind the panel which takes first place. An example of this is represented in Figure 6, in which only one of the panels is displayed, whilst the other are left concealed. Figure 7 also has a similar presentation system, in which a pre-selection system allows an irregular layout, group layout or uniform distribution of the panels chosen to be made.

[0017] In the previous case one can distribute half of the panels in the whole amount of the space available. Alternatively the other half can be placed on show. This can similarly be done by selectively choosable groups according to a pre-set menu, or by arbitrary or random selection.

[0018] The function for use in shop windows can be accessed so as to be used by the public outside the establishment, as shown in Figure 9, generating great appeal for the public, and allowing visits to the establishment at any day and any time. The display case can thus be set out in a shop window 20 as shown in 21, so that by means of a voice or light or flashing light system, with no limit whatsoever as regards the form of calling the attention, the user can be told that different layouts can be obtained by acting on a sensor, preferably located on the inside of the pane separating them. This sensor 22 enables selecting pre-set or random positions.

[0019] Sensor 22 can, for example, be an external button panel in the event of being located in a shopping centre. It is nevertheless preferable for this to be an internal sensor which acts when a finger is placed over the corresponding function, by electronic sensitivity. There can be an arrangement of an information display on the sensor itself, with a menu for giving prices, characteristics or other information. The public can thus take part and become interested in the form of display, in selecting panels, removing the ones rejected through not suiting their tastes or the place where the object is to be located, and this also thus makes the commercial aspect more simple, as the interested persons choose the product they desire by themselves.

[0020] The action of sensor 22 or of the relevant button panel can be transmitted to the panel by means of a codified radio-frequency signal, by a cable or by any other type of communication.

[0021] As is clear, this system is not only limited, through this is preferential - to tile panels, and can be extended to any product which can be displayed sequentially or selectively.

[0022] Display can be done by quarters, meaning that only one quarter of the panels are set out in the space, selectively or successively. One example is in Figure 6. Also in any of the cases mentioned, each of the panels can be fully extracted for a time as shown in Figure 8; after this time has gone by it is removed and the following one is deployed, and so on with all the rest. This function means that panels can be brought out one by one, two by two, three by three, and so on, according to this rule. In any event each of the arrangements takes no longer than ten seconds.

[0023] It is also possible to deliberately conceal one or more of the panels. In this case, after cancelling usage of these, the display stand works with the remaining panels. In the event of requesting the fan layout it will divide the total space by the number of panels available. The function for reactivating viewing the other makes this go back into the set of panels that are being exhibited.

[0024] It is common practice in a selection for the models matching the interested party's taste least to be rejected. Hence, each of the ones of no interest can be eliminated during the selection process. This can be done both in the showroom strictly speaking inside the

shop and in the outside display that can be activated by means of sensor 22. The set has a function by means of which the space is distributed among all the panels. After removing some of the panels the space is evenly distributed among the remaining panels according to the fan layout shown in Figure 5.

[0025] This display stand set also allows selective display or cadential display, for example by means of arrangement of colour ranges, application to floors, to facings to the shape, whether these are rustic-style, plain, glossy, rectified, etc. automatically.

[0026] Both automatic and manual display allows assignation of diverse times to each of the panels. Therefore, when one of the panels is brought out, the display time can previously be set, after which it is concealed. In this case the following one may appear and where applicable the successive ones, or the display stand can be at rest. The display stand has functions for single display, such as for a shared display with groups of models according to the selection made by the interested parties themselves.

[0027] It is similarly possible to arrange a fixed panel behind the space along which the panels slide out, which can contain institutional company identification signs, or general information, characteristics, or details of the product, way to fit this or tips, photos etc..

[0028] Activating this by means of a remote control allows immediate selection of any of the selections previously designed or any other that is applied straight away. This function has great relevance since in business, losing contact with the customer, if the salesperson is having to extend and conceal panels manually, makes continuity of the commercial operation more difficult.

[0029] This way it is possible to get personalised functions, meaning that by selecting specific panels the display process is performed, either automatically, that is with timed extraction and introduction of each panel or group of panels, or by means of single extraction waiting for a further instruction for each panel to return to its place.

[0030] One of the advantages of this display stand is the "assembly room" or display room function. In these locations there tends to be an employee of the firm who, according to the salesperson or manager's instructions, moves the panels which the latter tells them to. The disadvantage is that said person is present in a conversation which might be confidential, but their not being there would entail that to display a different panel, the manager or salespersons has to move to this point and move it manually, which has two effects: the first means interrupting a favourable business atmosphere, and the second that the customer, through deference to the salesperson, does not ask certain products to be shown to them as it might mean some inconvenience for the salesperson who has to go again to the panel in order to move this manually, with the effect of limiting the purchases due to the purchaser's insecurity though not be-

ing able to find out all the characteristics exactly.

[0031] The great advantage of this panel thus lies in the immediacy of execution and the versatility of the pre-selection of the models that have to be displayed. An example of this is that in a panel of 1.66 metres movable about two metres, the distribution of the panels, which is exact and proportional to the space available, takes place in between six and eleven seconds, during which time the interested party's curiosity is aroused, which determines greater interest in the product on show.

[0032] The display stand set can be placed in a shop window for activation by public selection. The location of the display stand in a room, trade fair, establishment, shop or any other premises used for offering a selection of products is also preferential.

[0033] This is for industrial application in making display stands, especially that of ceramic panels.

Claims

1. Display stand with mobile panels for wall and floor tiles and method for controlling the movement of these panels, **characterised in that** the motor-driven device conveys its movement through a belt which is coupled to a device (10) so that the belt movement is passed on to this device (10), with this device having means for releasing the coupling (7) from the panel to which it is temporarily connected, with means for recovering the connection to said panel when it has been separated from this.
2. Display stand, according to claim 1, **characterised in that** the means for releasing and connecting the device (10) to the coupling (7) consists of a set of a ball arranged under the pressure of a spring, so that this ball is fixed in a corresponding recess made in the corresponding part of the device (10).
3. Display stand, according to claims 1 and 2, **characterised in that** the spring (18) is calibrated according to the weight of the panel.
4. Display stand, according to claims 1 and 2, **characterised in that** the spring (18) has a tightening device (17) determining a variable pressure depending on the pressure that said device exerts on the spring.
5. Display stand, according to the previous claims, **characterised in that** there are different stop supports (13, 14) on both sides of the device (10).
6. Display stand, according to any of claims 1 to 5, **characterised in that** there are different rubber stops (8, 9) on both sides of the stop supports (13, 14).

7. Display stand, according to any of the previous claims, **characterised in that** after separating the coupling (7) of the device (10), this support (7), drags the stop support (13 or 14) and the corresponding rubber stop (8 or 9). 5
8. Display stand, according to any of claims 1 to 7, **characterised in that** the rubber stop and the stop support (8, 13) or (9, 14) retain the device fixed to the belt (10) at the end of the travel. 10
9. Display stand, according to any of claims 5 to 8, **characterised in that** the stops (13, 14) and (8, 9) can be made mutually independent, and have a complementary configuration, stop (8) with stop (13), and stop (9) with stop (14), so that the stops (13 and 14) are complementary and insertable and separable from the device (10). 15
10. Use of the display stand, according to any of claims 1 to 9, **characterised in that** the set of rails corresponding to these panels, along with a remote control, determines the selective or non-selective programmed display of different presentation models, proportionally occupying (Figure 5) the space available, both by means of a timed display of all the panels, or timed display of a selection of panels, and alternating with period of time in which the panels are withdrawn, showing in this case a fixed information panel set out behind the display stand. 20 25 30
11. Use of the display stand, according to claim 10, in such a way that this is displayed on the inside of a shop window, **characterised in that** it has an electronically sensitive sensor 22, able to command any of the devices for movement or display of the display case from the outside of a shop and through its glass window. 35

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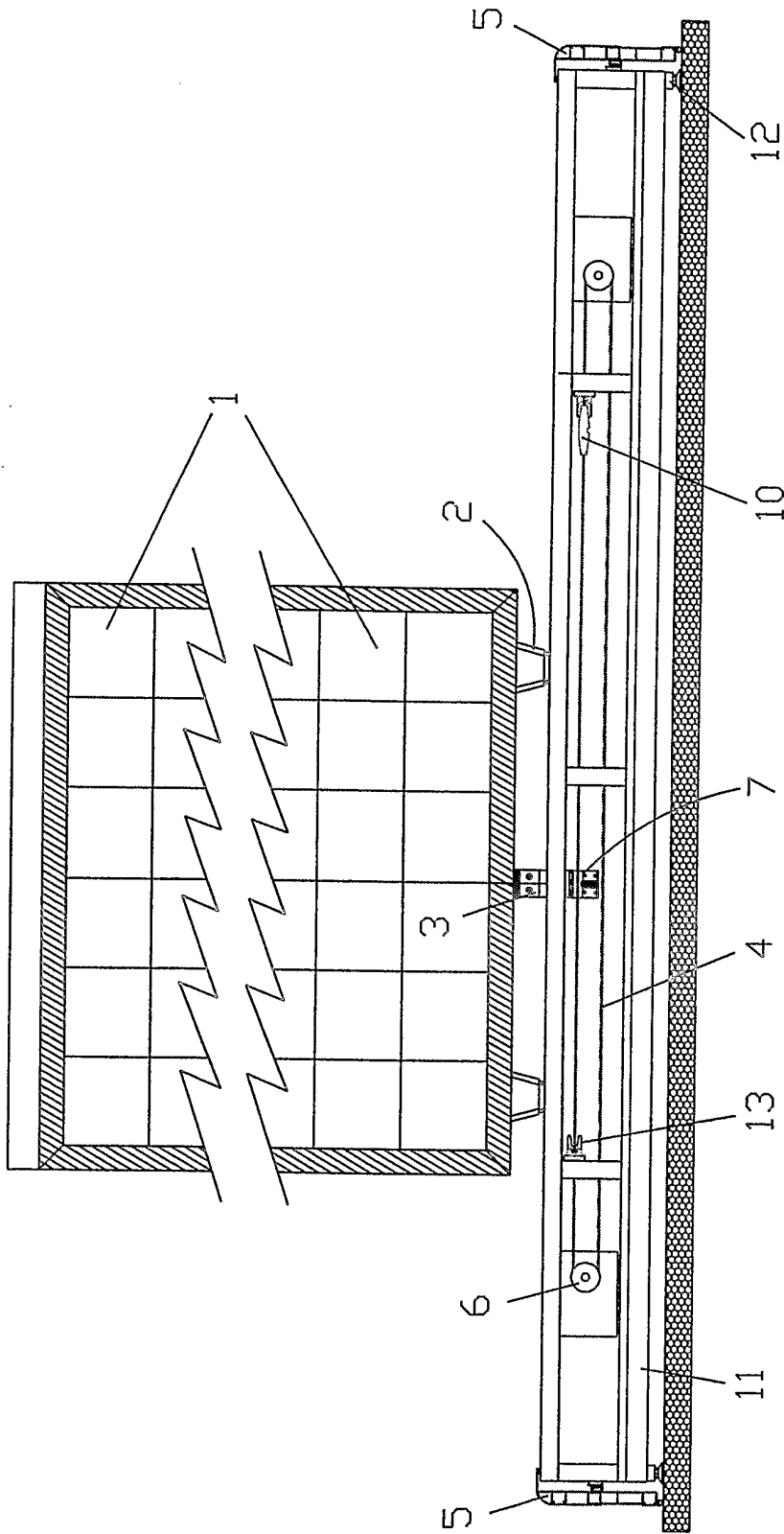


Fig. 1

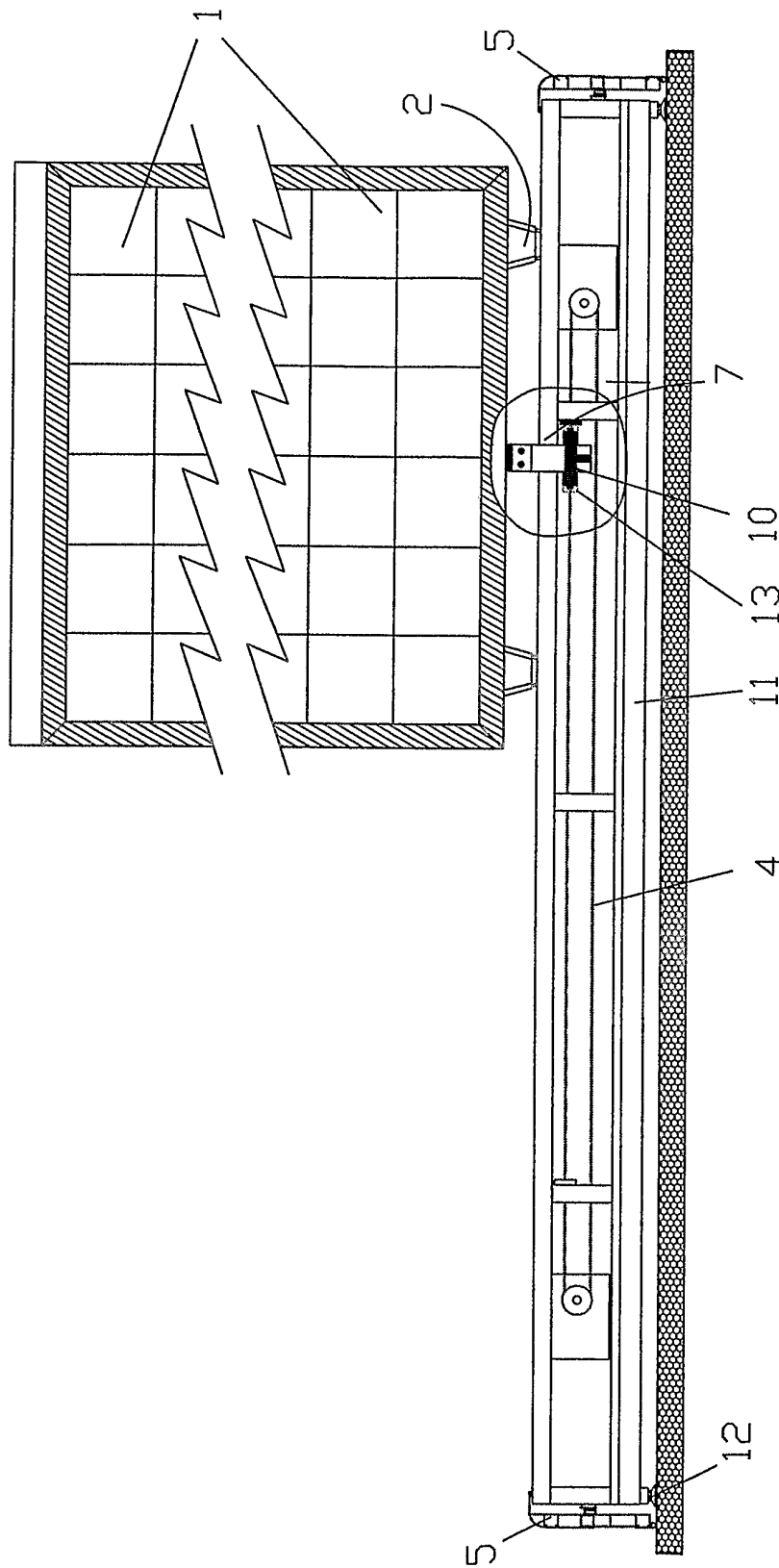


Fig. 2

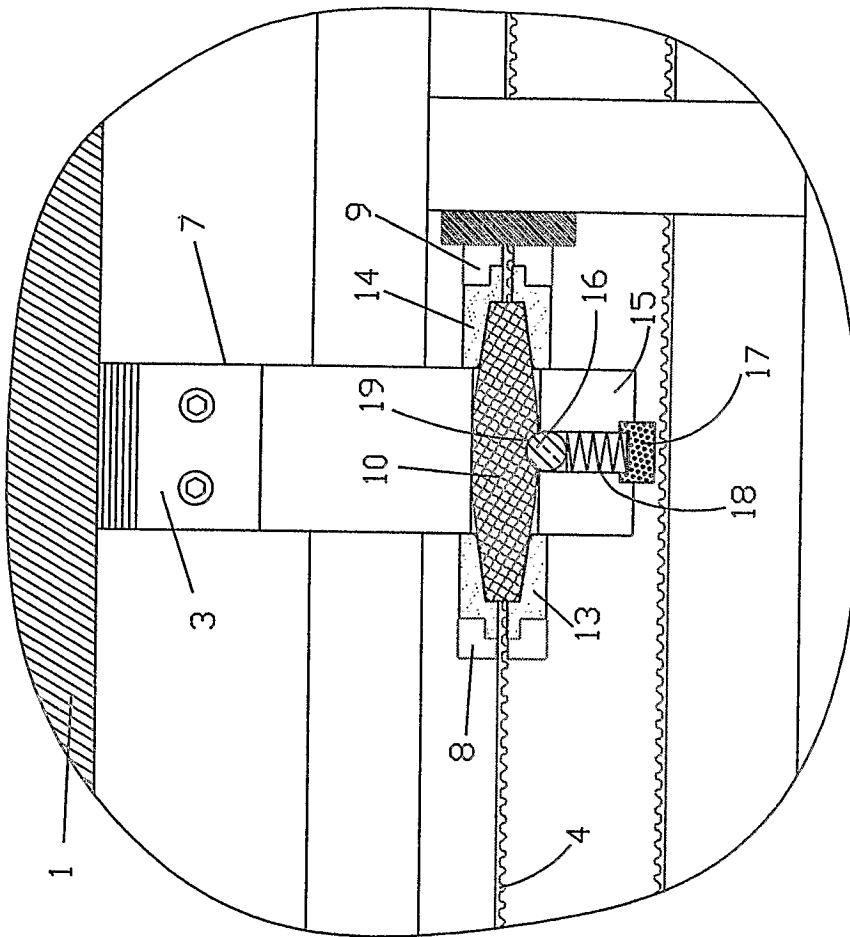


Fig. 3

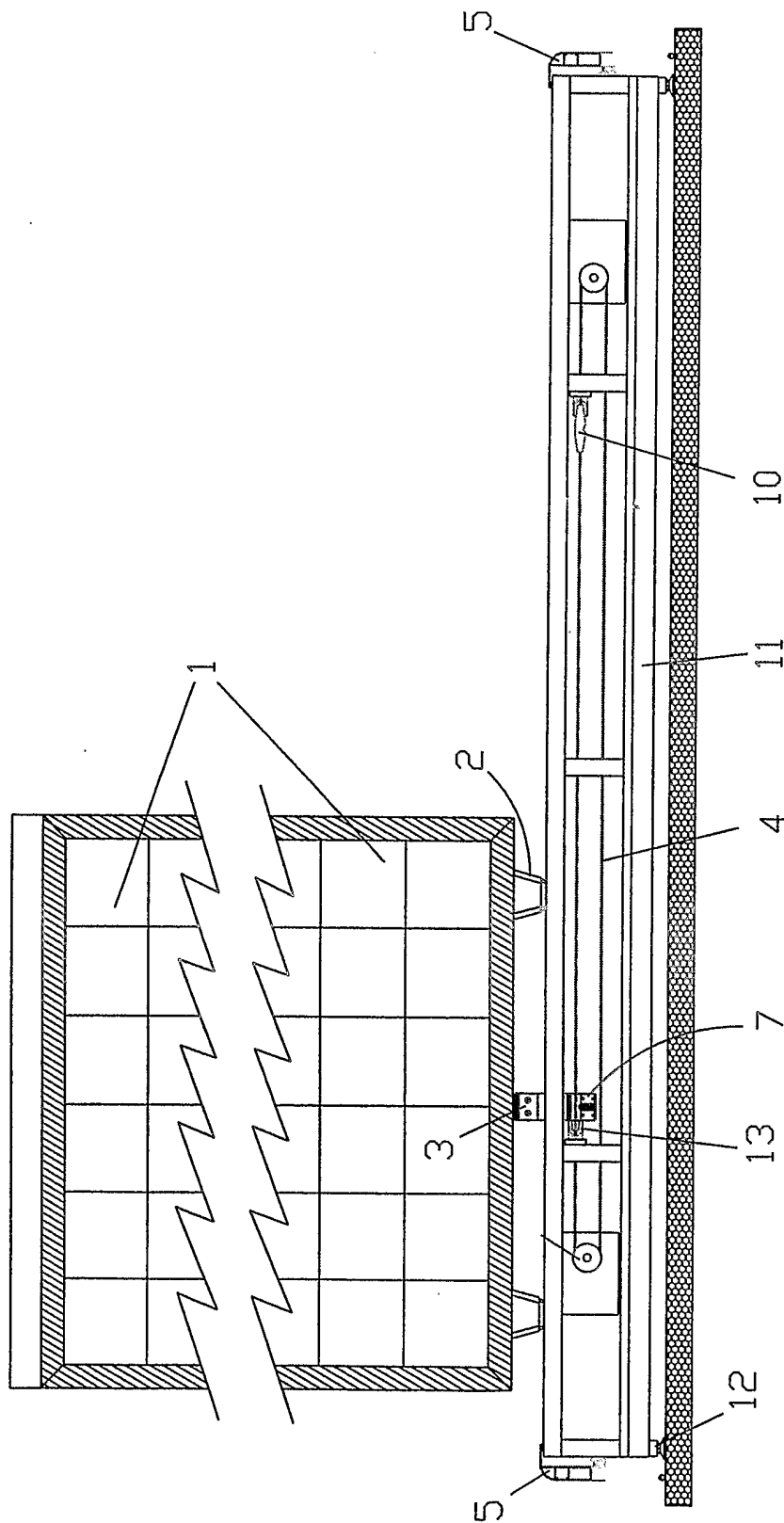


Fig. 4

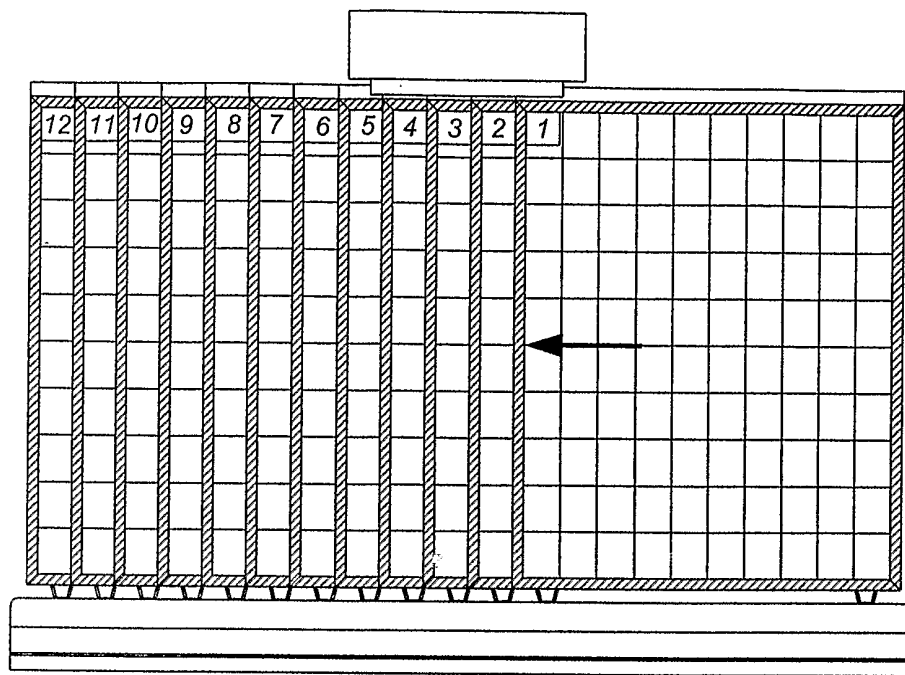


Fig. 5

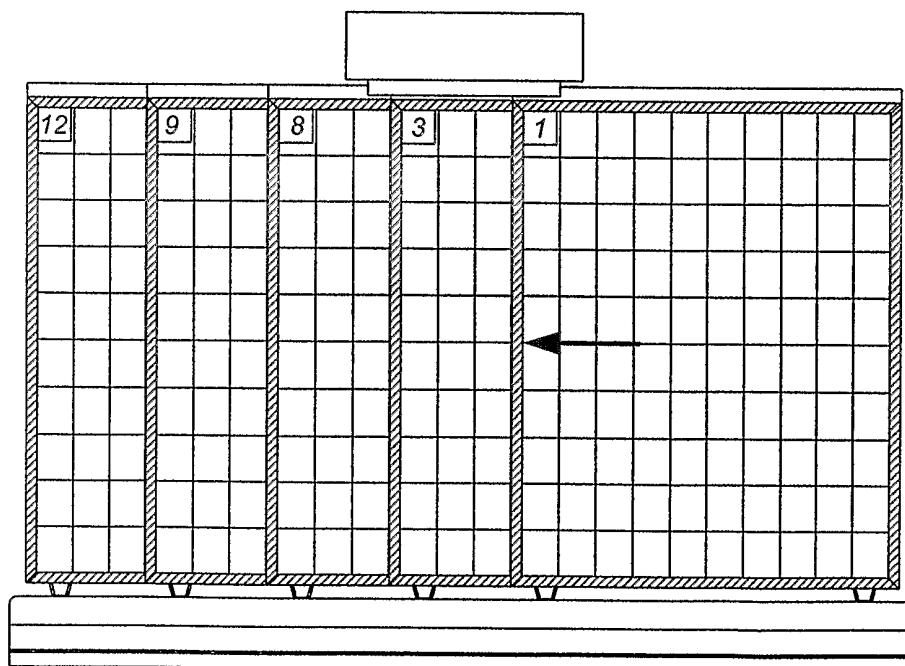


Fig. 6

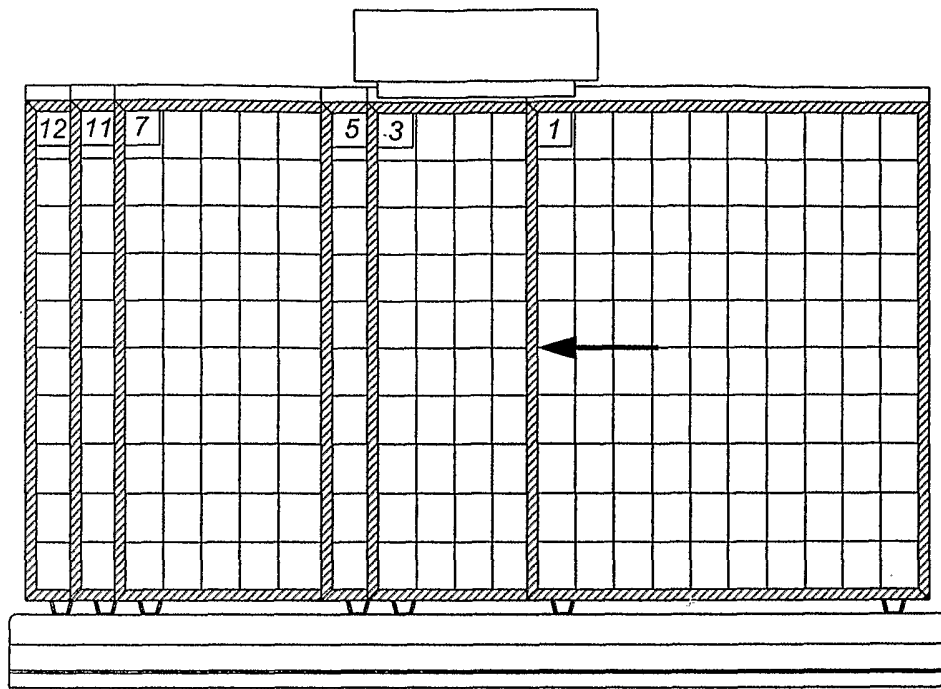


Fig. 7

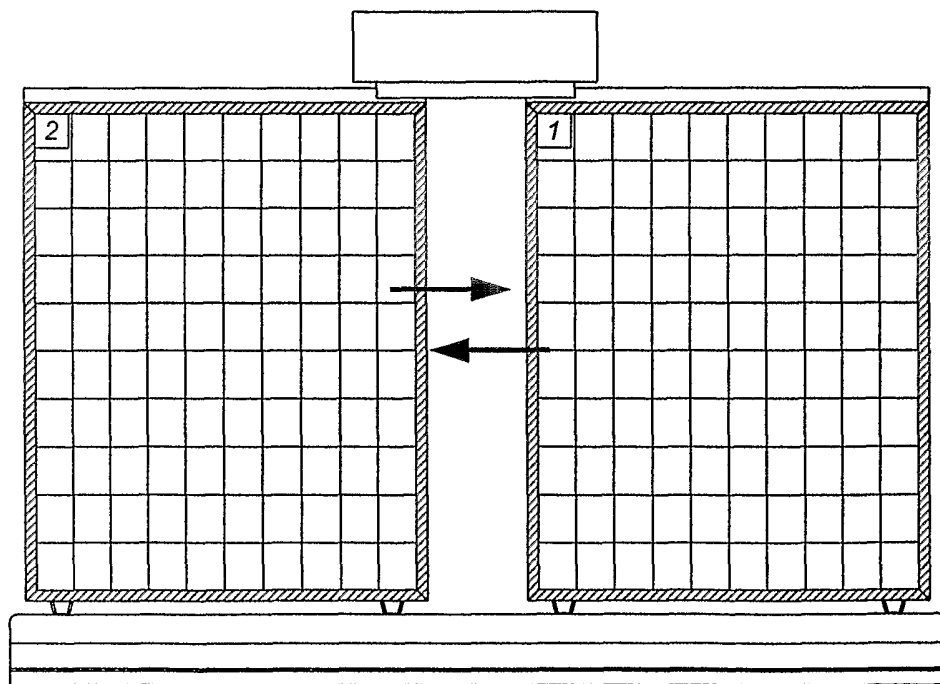


Fig. 8

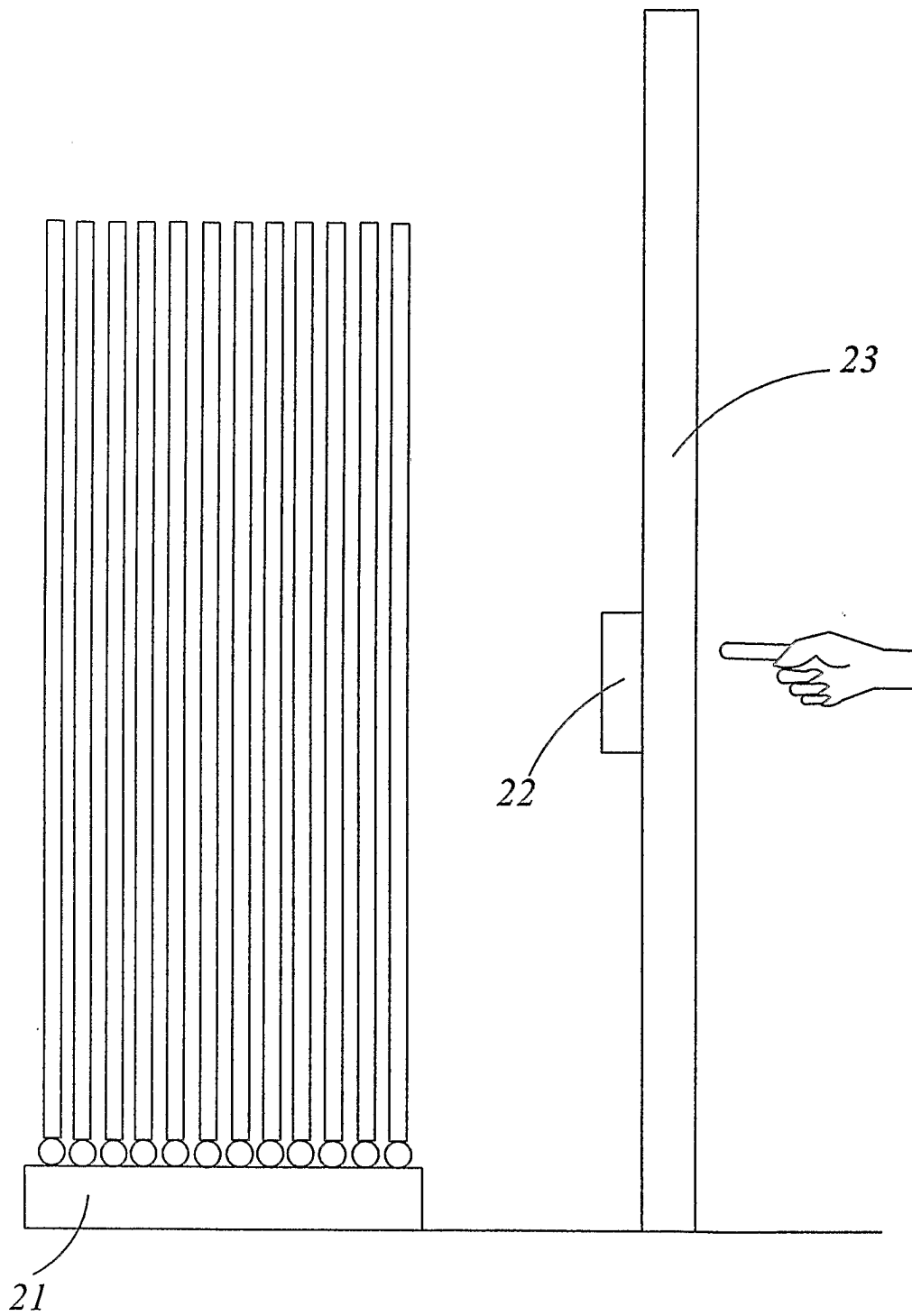


Fig. 9

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2004/000066

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 A47F3/08, A47F5/00, G09F11/12 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 7 a47f, 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)		
CIBEPAT, EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US6216890B(RATHMER) 17-04-2001 column 4, line 60- column 7, line 23, figures.	1,10
A	ES1018272U(MOIDECAR, S.L) 16-01-1992 The whole document	1,10
A	GB133279A(HARVEY, S. T) 6-06-1919 pagina2, line 3- 48, figures.	1
A	US3732633A(MARGOLIS ET AL) 15-05-1973.	1
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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Date of the actual completion of the international search		Date of mailing of the international search report
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Name and mailing address of the ISA/ S.P.T.O.		Authorized officer
Facsimile No.		Telephone No.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ ES 2004/000066

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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