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C. VITOLO

DISPLAY DEVICE

Filed April 9, 1925

Fig. 1.

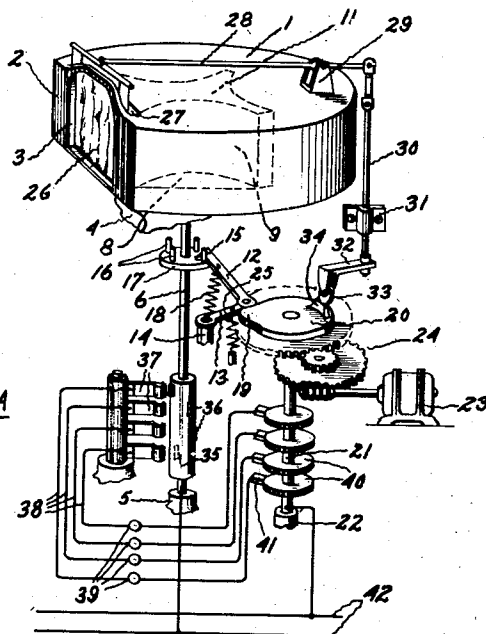


Fig. 3.

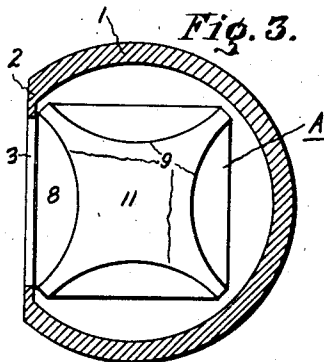
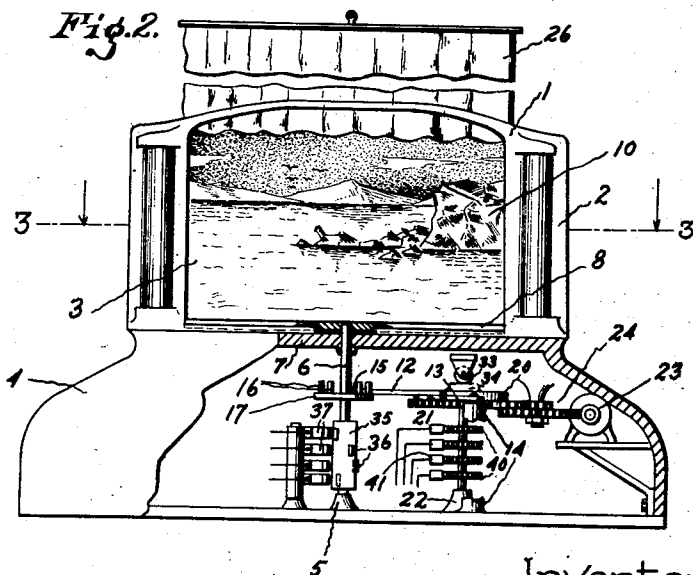


Fig. 2.



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UNITED STATES PATENT OFFICE.

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DISPLAY DEVICE.

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The present invention relates to display devices, and has for its primary object to provide a display device simulating a stage and wherein the scene is changed continuously at suitable intervals of time.

A further object of the invention is to provide an improved mechanism for effecting the operation of the device which mechanism is simple in structure, and is capable of operating over a long period of time without likelihood of becoming deranged.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing, Fig. 1 is a perspective view of a display device embodying my invention, the operating mechanism being shown to some extent diagrammatically to better illustrate the construction; Fig. 2 is a front view of the device, certain portions being shown in section and other portions being shown broken away, and Fig. 3 is a sectional view taken on line 3—3, Fig. 2.

Referring to the drawing, 1 indicates a circular casing having a flat front 2 provided with an opening 3 which forms the sight opening of the device through which the respective scenes are viewed. Casing 1 is supported on a suitable base 4 which serves also as a housing for the operating mechanism. The casing 1 and base 4 may have any suitable contour, it being desirable that the contour be such as to present a pleasing appearance.

On the bottom wall of base 4 is a bearing 5 in which is supported a vertical post 6. The upper end of post 6 projects through and is journaled in an opening in a wall 7 which forms the top wall of base 4 and the bottom wall of casing 1. Post 6 is thus journaled so that it may be turned on its vertical axis. Mounted on the upper end of post 6 is a stage 8 of suitable shape, the same being located in casing 1 just above wall 7 and in line with the lower edge of sight opening 3.

Erected on stage 8 are walls which provide a series of circumferentially spaced surfaces 9 upon which suitable scenes may be painted or otherwise put thereon, as is indicated at 10 in Fig. 2. Surfaces 9 may be of any suitable shape. In the present instance they are shown as being curved and as being formed in the sides of a block 11 supported on stage 8, four surfaces equally spaced around the block being illustrated. It will be understood, of course, that any suitable number of surfaces 9 may be provided, four being illustrated only by way of example. In front of each surface 9 is a small section of stage as is indicated at A in Fig. 3. With the above described arrangement, it will be clear that by turning post 6, the successive surfaces 9 and the stage portion in front of them may be brought into line with sight opening 3.

For turning post 6 and stage 8, I provide a pawl 12 pivoted on the end of an arm 13 which in turn is pivoted on the top of a stud 14. Pawl 12 has a hook 15 on its end adapted to engage spaced pins 16 which project from a plate 17 attached to post 6, there being as many pins 16 as there are scenes 10. Pawl 12 is held in engagement with pins 16 by a spring 18. Pawl 12 is actuated by a cam 19 on the edge of a cam disk 20 fixed on the upper end of a post 21 which is journaled in a bearing 22. Post 21 is adapted to be turned by a suitable motor 23 which is connected to it through the intermediary of a reduction gearing 24. Any suitable type of motor and gearing may be used, an electric motor being indicated in the present instance which drives the shaft by means of a worm gearing. Arm 13 and pawl 12 are biased to a position in engagement with the edge of cam disk 20 by a spring 25. The arrangement is such that upon each revolution of cam disk 20, cam 19 will force pawl 12 forward into engagement with the next pin 16 and then release it again, permitting spring 25 to pull the pawl back again and thus turn post 6, the post being turned through an angle such as to move the next scene 10 in front of sight opening 3.

In connection with the arrangement, I preferably provide also a curtain 26 which is lowered just before the scene is changed and is raised again after the change of scene has taken place. Curtain 26 projects through a slot 27 adjacent to the top of sight opening 3 and is attached at its upper end to one end of a rod 28 pivoted on a bracket 29. The other end of rod 28 is connected to a link 30 which slides in a guide 31 and is

provided at its lower end with an arm 32 on the end of which is a roller 33. On the face of cam disk 20 is a cam 34 adapted to engage with roller 33 to lower and raise the curtain. Cam 34 is so positioned relative to cam 19 that when the cam disk 20 is turning, it first engages roller 33 to lower the curtain 26 after which cam 19 actuates pawl 12 to effect the turning of post 6 and stage 8 whereby the scene in front of sight opening 3 is changed. After this turning movement of the stage is completed, cam 34 moves from under roller 33, permitting the curtain to rise, the curtain being in the present instance biased toward raised position by the weight of the parts. As will be noted the top of cam 34 is flat, and this flat surface is of a length sufficient to maintain the curtain lowered while the scene is being changed.

If desired, a suitable lighting effect may be provided for each scene, and in the present instance I have shown a circuit controller 35 on post 6 on which are four circumferentially spaced contacts 36 adapted to engage with corresponding contact fingers 37. Connected to each set of contacts 36 and contact fingers 37 is a suitable lighting circuit 38 which is indicated diagrammatically in Fig. 1, the lights for each circuit being indicated at 39. It will be understood that each set of lights 39 is suitably arranged appurtenant to the particular scene 10 which it illuminates, and that contacts 36 are arranged around post 6 so that the correct lighting circuit for the scene on display through opening 3 is closed. It will be clear from Fig. 1, that as post 6 is turned step by step, the successive lighting circuits will be closed by contacts 36. Also with advantage, I may provide dimming means for one or all the lighting circuits, and to this end I provide on post 21 suitable resistances 40, one in each lighting circuit, which are gradually cut into and out of circuit as post 21 turns. In the lighting circuits are brush contacts 41 which slide on resistances 40. The resistances may be arranged to give the desired lighting effect and may be of any suitable type. They are shown only diagrammatically in the drawing. 42 indicates the source of electrical energy to which the lighting circuits are connected.

The operation of the mechanism will be clear from the description already given. In use the surfaces 9 will be provided each with a suitable scene and the stage sections A may be dressed in any suitable manner. Motor 23 will be connected to a suitable source of electrical energy and when running will continuously rotate post 21. This will effect the continuous rotation of cam disk 20 and as it rotates the curtain 26 will be lowered and the scene shifted at definite intervals of time as already explained. For

example, the scene may be changed every fifteen seconds or every half minute. The actual time consumed in changing the scene need be only two or three seconds.

The arrangement is more particularly intended for use in show windows for advertising purposes and may be made of a size suitable to meet the needs in any particular instance. The mechanism is all self contained so that it is easily installed and the arrangement is such that the block or other structure carrying the scenes may be removed and a new one substituted so that a complete change may be easily provided. The operation of the curtain in unison with the shifting of the scenes is an attractive feature and one of value from an advertising standpoint as it serves to attract attention to the device.

In connection with the actuating mechanism for the stage, it will be noted that the post 6 is given a step by step movement while the post 21 has a continuous movement. In providing the lighting mechanism, I take advantage of this, associating the circuit closing means with post 6 and the dimming means with post 21. By this arrangement I am enabled to provide readily a desirable lighting means with the addition of but little additional mechanism.

In accordance with the provisions of the Patent Statutes, I have described the principle of operation of my invention together with apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention may be carried out by such other means as come within the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a display device, the combination of a base, a casing supported by the base, said casing having a sight opening in its front wall, a post journaled in the base and projecting up into the casing, a stage on the post, means on the stage providing a plurality of spaced display surfaces, a plate on said post, a series of spaced projections on said plate, a lever arm having a hook adapted to engage successively said projections to effect turning movements of the post, a disk having a cam for moving the lever arm, a curtain for said sight opening, a second cam on said disk, means operated by said second cam for actuating the curtain, and a motor for driving said disk.

2. In a display device, the combination of a base, a casing supported on the base, said casing having a sight opening in its front wall, a post journaled in the base and projecting up onto the casing, a stage on the post, said stage having a series of display surfaces, a plate on said post, a series of spaced projections on said plate, a lever arm

having a hook adapted to engage successively said projections, a disk having a cam for moving said arm, a curtain for said sight opening, a second cam on said disk, means 10 operated by said cam for actuating the curtain, a lighting circuit for each display surface, a circuit closer structure actuated directly by said shaft for successively closing said lighting circuits, and a motor for driving said disk.

In witness whereof, I have hereto set my hand this 4th day of April, 1925.

CARMINE VITOLO.