

Dec. 13, 1927.

1,652,335

G. M. WILEY

DISPLAY DEVICE

Filed Nov. 23, 1926

2 Sheets-Sheet 1

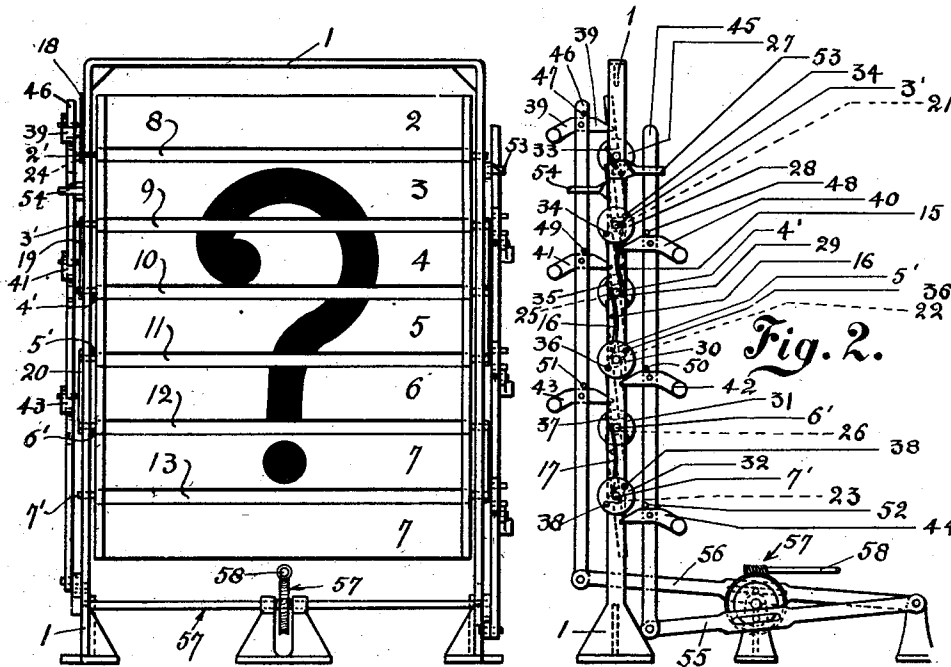
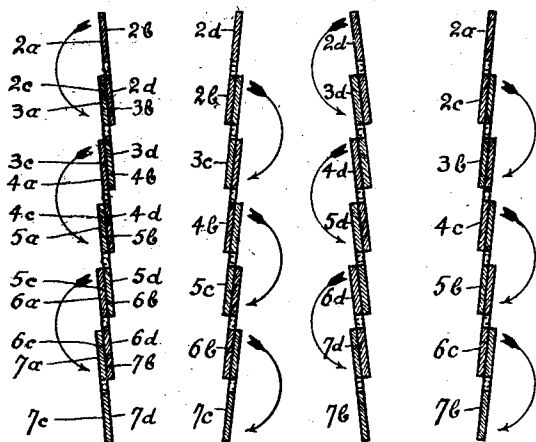


Fig. 1.



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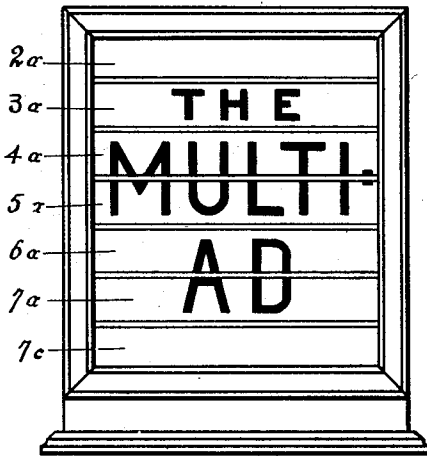
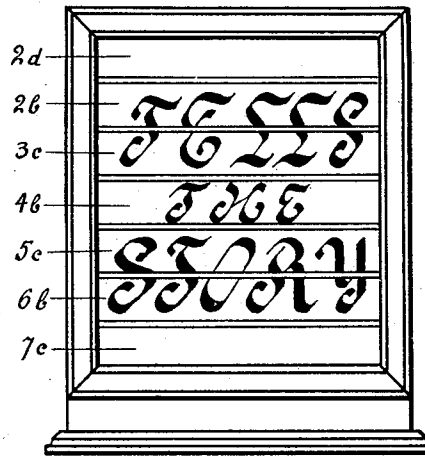
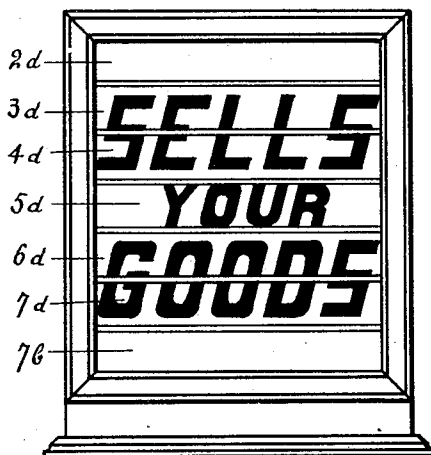
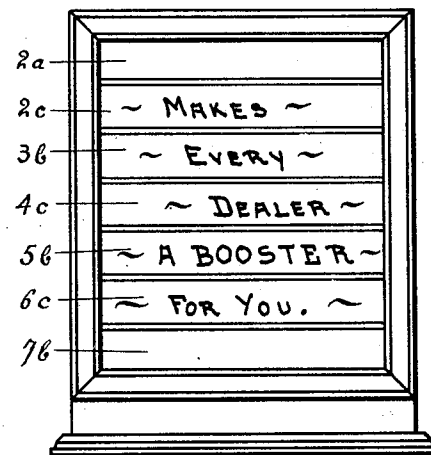
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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DISPLAY DEVICE.

Application filed November 23, 1926. Serial No. 150,229.

My invention relates to a means for exhibiting displays and it has especial reference to a contrivance for successively displaying a sequence of related or unrelated signs, words, phrases, or pictorial representations; the prime object of the invention being to provide a simple device of this character which is attractive, educational and instructive, and which may serve as a toy, as an exhibition means and also as a means for commercial advertising.

The invention consists of a plurality of slats or panels each provided with a plurality of portions of a complete exhibition and each co-operating with other slats or panels to produce a composite exhibit. Each panel or slat is axially rotatable and disposed in overlapping relation with respect to one another, so that the rotation of certain of said panels or slats with respect to other panels will uncover related portions of a composite exhibit, while at the same time covering related portions of a previous composite exhibit.

The objects set out and others are accomplished by the device shown in the accompanying drawings, which are illustrative of a preferred form of embodiment of the invention, and in which

Fig. 1 is a front view.

Fig. 2 is a side view, showing the operating mechanism.

Figs. 3, 4, 5, and 6, are diagrammatic cross sections through the panels, showing the four stationary positions of the panels or slats and the sense of rotation of these panels producing these positions.

Fig. 7 is an enlarged fragmentary detail showing a means for maintaining the panels in substantially vertical position.

Fig. 8 is a front view of same.

Figs. 9, 10, 11, and 12, are front views, respectively illustrating the four exhibits consecutively displayed.

Referring with particularity to the form of the invention illustrated, 1 designates a supporting frame, in which is journaled a plurality of slats or panels, which for purposes of this description and a description of the relative operation I prefer to designate as 2, 3, 4, 5, 6, and 7. Each panel is shown as constituting an independent unit, which may comprise a single, flat member provided with a central longitudinal opening 8, 9, 10, 11, 12, and 13, or a plate divided to provide a central longitudinal space

or opening. On the respective ends of each panel are provided pins 2', 3', 4', 5', 6', and 7' for mounting said panels to rotate about their central longitudinal axes in said frame.

As shown in the drawing, the collective panels when at rest, are substantially in a vertical plane. The substantially vertical position of the panels may be insured by spring means 15, 16, 17, 18, 19, and 20, which respectively bear against cams 21, 22, 23, 24, 25, and 26, respectively fastened to said pins 2', 3', 4', 5', 6', and 7'.

Means for periodically or intermittently operating certain of said panels substantially simultaneously with respect to certain others of said panels which are substantially at rest and substantially in a vertical plane, may be provided. A convenient form of such means may include disks 27, 28, 29, 30, 31, and 32, respectively provided with a pair of diametrically opposite projections 33, 34, 35, 36, 37, 38, which are in the path of travel of a plurality of weighted pawls 39, 40, 41, 42, 43, and 44. Pawls 40, 42, and 44 are pivotally mounted on operating rod 45, and pawls 39, 41, and 43 are mounted on operating rod 46, stop means 47, 49, and 51 and 48, 50, and 52 respectively, being provided on the operating bars 46 and 45 to prevent rotation in one direction of said pawls.

Guide means 53 and 54 are respectively provided on the frame 1, for the bars 45 and 46. These bars are arranged to be reciprocated substantially in a vertical direction by levers 55 and 56, pivotally connected at one end to said bars, and at the other end connected to a fixed pivot, as shown. The reciprocation of said levers 55 and 56, is effected by intermediate means 57, of any desirable design, and operated preferably by a worm shaft 58, connected to a suitable source of power, not shown.

Figs. 3, 4, 5, and 6, respectively, show the panels at rest in the four consecutive positions, each position exhibiting on the plane surfaces exposed on the left side a different composite display, such as shown, for example, in Figs. 9, 10, 11, and 12.

Each panel 2, 3, 4, 5, 6, and 7, has four exhibition areas, 2^a, 2^b, 2^c, and 2^d; 3^a, 3^b, 3^c, and 3^d; 4^a, 4^b, 4^c, and 4^d; 5^a, 5^b, 5^c, and 5^d; 6^a, 6^b, 6^c, and 6^d; and 7^a, 7^b, 7^c, and 7^d, which respectively co-operate in the manner to be described and by the mechanism set out, to present consecutively to view four complete

exhibits, as shown, for example, in Figs. 9, 10, 11, and 12.

Since but one quarter of the exhibition areas of the various panels, (with the exception of panels 2 and 7, which at times present one half of their areas), co-operate to produce a single composite exhibit, it will be apparent that as the panels are rotated about their axes periodically, four different exhibits or displays may be brought to view. This is effected in substantially the following manner:

In Fig. 3, for instance, areas 2^a, 3^a, 4^a, 5^a, 6^a, and 7^c are presented to view. The areas 2^a and 7^c are blank or may contain matter unrelated to the composite exhibit formed by the other areas, for reason to appear later. The position of the panels in Fig. 3 is identical with the position of the panels in Fig. 2.

Assuming that the bar 46 is traveling down and that bar 45 is being moved upwardly concurrently, the pawls 39, 41, and 43 on said bar 46, will engage one of the pins of the respective pairs 33, 35 and 37 on the respective disks 27, 29 and 31, whereby the panels 2, 4 and 6 are rotated in the direction of the arrows shown in Fig. 3. After the pawls 39, 41 and 43 disengage from the said projections, the panels rotated are alined in substantially vertical position by the action of the springs 18, 19 and 20 against cams 24, 25 and 26. The position of the panels then is substantially that shown in Fig. 4, presenting to view a composite exhibit, consisting of areas 2^d, 2^b, 3^c, 4^b, 5^c, 6^b, and 7^c. Since areas 7^c on panel 7 is presented to view in the position shown in Fig. 3, and also in Fig. 4, in conjunction with two different exhibits, it will be apparent that such area must be either blank, or contain matter co-relating it with both exhibits, or it may be matter wholly unrelated to the exhibit. While the bar 46 is traveling downwardly, the bar 45 is moving upwardly, carrying with it the pawls 40, 42 and 44, which being pivoted to move in but one direction, rotate for a short distance when engaging one of the projections of the respective pairs 34, 36 and 38, without producing any movement of the respective panels. When the pawls 40, 42 and 44 have been moved out of contact with the projection, they are automatically returned to a normal position against stops 48, 50 and 52, by the weighted ends of said pawls. On the ensuing downward stroke of rod 45, the pawls 40, 42 and 44 engage one of the projections of the respective pairs 34, 36 and 38, thereby rotat-

ing panels 3, 5 and 7 in the directions of the arrows shown in Fig. 4, and in conjunction with the springs and cams referred to, producing substantially a half revolution. The exhibition resulting from this operation is the composite co-relation of the areas 2^d, 3^d, 4^d, 5^d, 6^d, 7^d and 7^b, as shown in Fig. 5. Inasmuch as area 2^d constitutes one of the areas of the previous exhibit, and again appears as one of the areas in the different exhibit shown in Fig. 5, it will be apparent that this area 2^d of panel 2, is preferably blank or provided with matter related or not related to the exhibits as shown in Figs. 4 and 5, and 10 and 11. As the panels 2, 4 and 6 are rotated in the direction of the arrows shown in Fig. 5, a fourth composite exhibit, comprising areas 2^a, 2^c, 3^b, 4^c, 5^b, 6^c and 7^b, is presented to view as shown in Fig. 6.

The statement hereinbefore made with respect to the areas 7^c of panel 7, and 2^d of panel 2, apply also to areas 2^a of panel 2 and 7^b of panel 7.

When the panels 3, 5 and 7 have been rotated in the direction of the arrow shown in Fig. 6, and in the manner and by the means previously described, they are then in the position shown in Fig. 3 which is the starting position.

Figs. 9, 10, 11 and 12, respectively, show composite exhibits produced by the operations of panels illustrated in Figs. 3, 4, 5 and 6 respectively, and previously described.

What I claim, is:

1. A display device having a composite face comprising a plurality of axially rotatable panels arranged for overlapping relation to present to view a composite display, means to rotate certain alternate panels in one direction, and certain other alternate panels in another direction to present successive changes of displays.

2. A display device comprising a plurality of panels each provided with portions of a composite display and rotatable alternately in opposite directions to expose to view successively composite displays of different character.

3. A display device comprising a plurality of panels, each provided with portions of a composite display, and means to rotate certain alternate panels in one direction, and certain other alternate panels in another direction to present to view successive displays composed of the portions of the display contained on each panel.

In testimony whereof I have set my hand.

GEORGE M. WILEY.