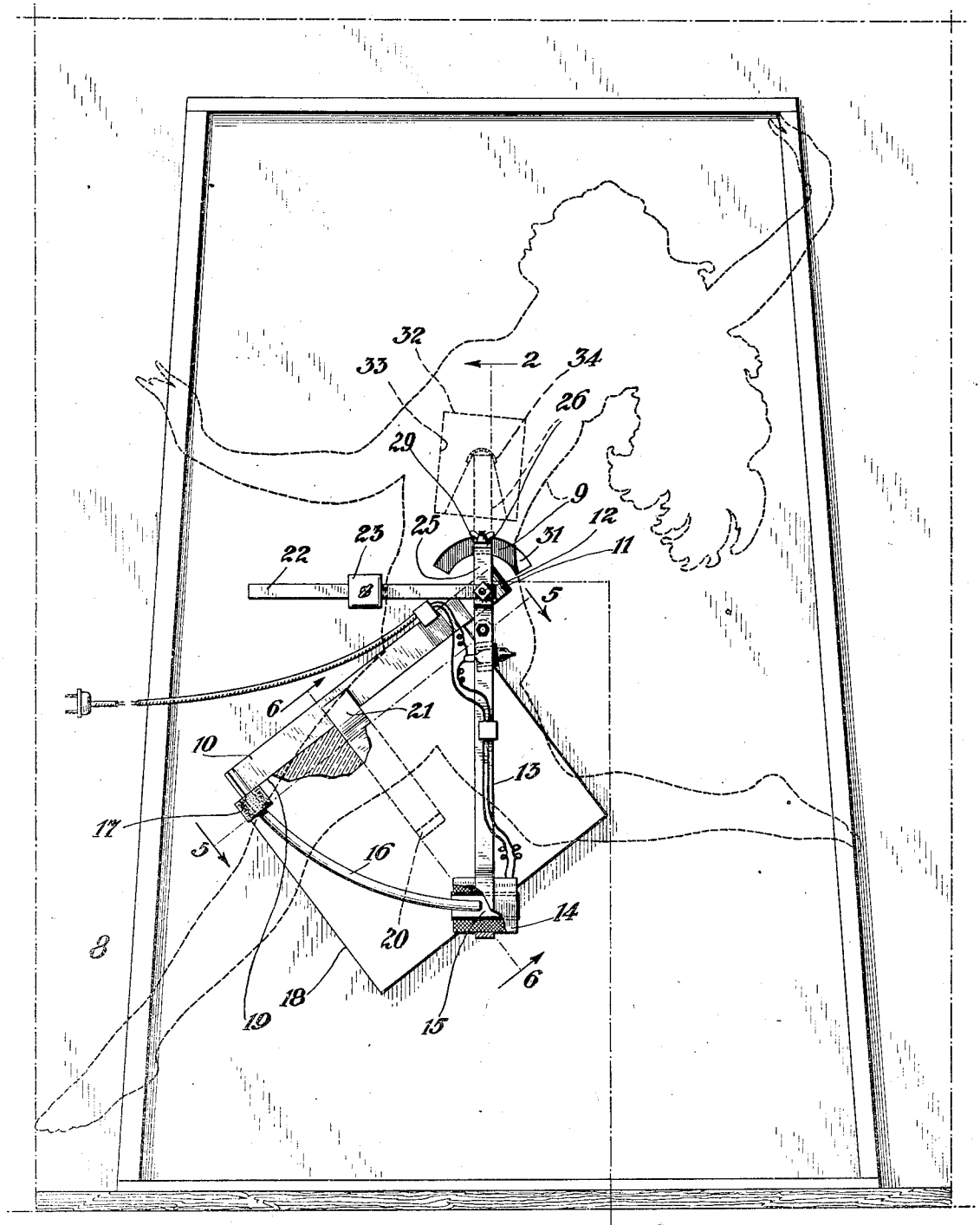
Oct. 22, 1935. J. G. RUCKELSHAUS 2,018,577

ANIMATED DISPLAY DEVICE

Filed June 30, 1933 2 Sheets-Sheet 1

Fig. 1



2

INVENTOR
John G. Ruckelshaus

BY Frank G. Graham

ATTORNEY

Oct. 22, 1935. J. G. RUCKELSHAUS 2,018,577

ANIMATED DISPLAY DEVICE

Filed June 30, 1933 2 Sheets-Sheet 2

Fig. 2

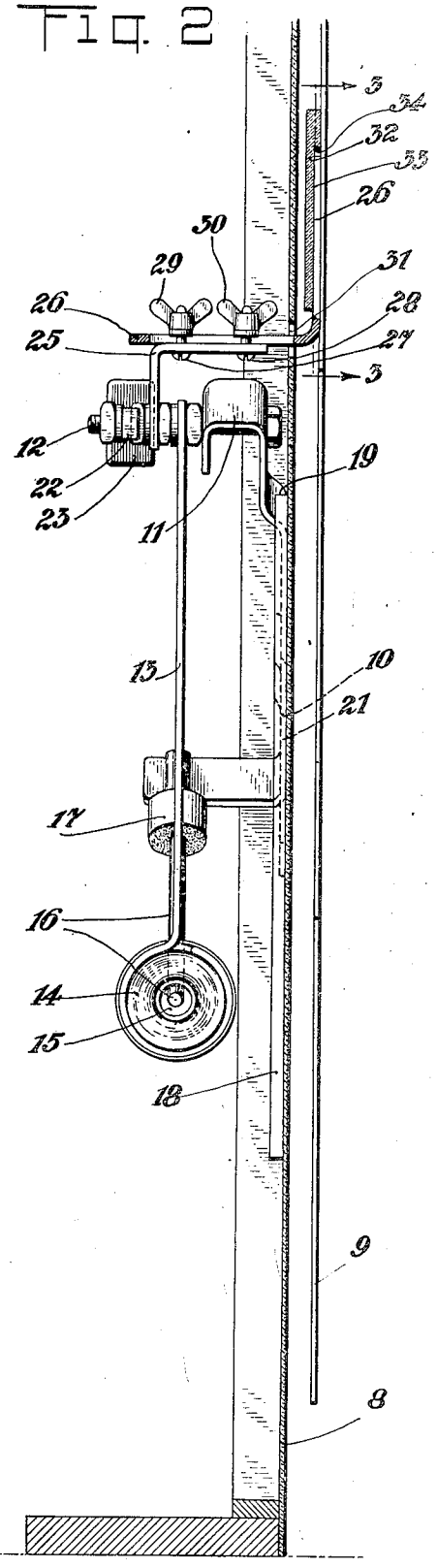


Fig. 3

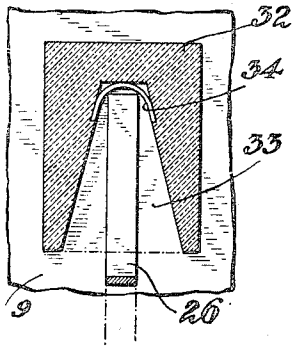


Fig. 4

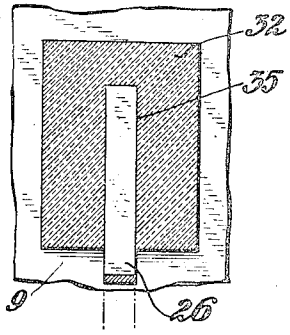


Fig. 5

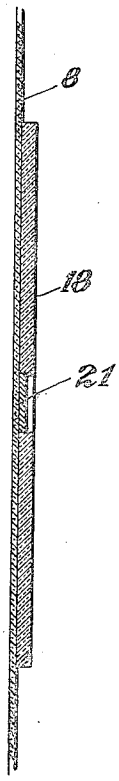
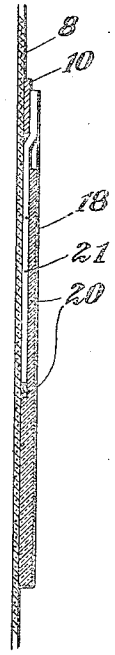


Fig. 6



INVENTOR
John G. Ruckelshaus

BY Frank G. Braham

ATTORNEY

Patented Oct. 22, 1935 2,018,577

UNITED STATES PATENT OFFICE

2,018,577

ANIMATED DISPLAY DEVICE

John G. Ruckelshaus, Newark, N. J., assignor to Motion Displays, Inc., a corporation of New York

Application June 30, 1933, Serial No. 678,389

7 Claims. (Cl. 40—52)

This invention relates to animated display devices wherein relative movement is imparted between a plurality of display posters by a prime mover and especially to means for assembling such devices.

To secure the desired effect from such devices it is essential that a definite relationship exist between the various posters and for this reason it is now common practice for the manufacturer either to assemble such devices before delivery to the user or to forward the various elements unassembled with a detailed description as to how they are to be assembled to obtain the desired effect. The former procedure is unsatisfactory since it necessitates the return of the power unit to the manufacturer each time it is desired to change the display and the latter procedure is objectionable since it requires considerable time and effort on the part of the user to assemble the various elements in proper order.

In accordance with the present invention, the above, as well as other difficulties, are avoided by providing the various displays with means whereby they may be quickly and accurately secured to the power unit in a desired manner.

For a clearer understanding of this invention reference may be made to the accompanying drawings in which:

Fig. 1 is a rear view with portions broken away of an assembled structure embodying the principles of the present invention;

Fig. 2 is a side view, in section, taken along line 2—2 of Fig. 1.

Fig. 3 is a detail view, in section, of a retaining pocket associated with a movable display, the view being taken along line 3—3 of Fig. 2;

Fig. 4 is a detail view, in section, of a modified type of pocket;

Fig. 5 is a detail view, in section, of a retaining pocket associated with a stationary display, the view being taken along line 5—5 of Fig. 1; and

Fig. 6 is another detail view, in section, of the retaining pocket shown in Fig. 5, the view being taken along the line 6—6 of Fig. 1.

As shown, the display comprises a stationary poster 8 and a movable poster 9. The prime mover for actuating the movable poster 9 is of the type disclosed in my co-pending application Serial Number 658,913, filed February 28, 1933, Patent No. 1,932,146, October 24, 1933 and comprises a base plate 10, the upper end of which curves outwardly and downwardly to form a bracket 11 as clearly shown in Fig. 2. The bracket 11 is provided with horizontally aligned apertures forming bearings for a rotatable shaft 12. The upper end of a pendulum 13 is fixedly secured to the rotatable shaft 12 and acts as a driving means therefor. The lower end of the pendulum 13 carries an electro-magnetic coil 14 of the solenoid type having a central longitudinal opening 15 therethrough for the reception of an armature or core member 16. The upper end of the armature 16 is secured to the lower end of the base plate 10 which curves outwardly and is provided with a resilient stop member 17 against which the coil 14 strikes when in its extreme position. The armature 16 has a curved portion, the arc of curvature of which is described from the axis of rotation of the shaft 12 as a center and with the curved portion centrally aligned with the opening 15 whereby the active portion of the armature conforms to the path of movement of the coil, thus allowing the coil to swing upwardly thereon.

The back of the stationary display poster 8 is provided with means for supporting the prime mover. The prime mover supporting means preferably employed comprises a supporting tab 18 having a straight edge 19 against which the lower end of the base 10 rests and a retaining opening or pocket 20 into which a bracket 21 which is secured to the base 10 extends. The tab 18 with the retaining pocket 20 may be made as an integral part of the stationary display member 8 or it may be made as a separate unit and affixed thereto by any suitable means. The tab is so positioned on the back of the stationary display member 8 that when the lower edge of the base 10 rests on the straight edge 19 and the bracket 21 is inserted into the pocket 20 the pendulum 16 automatically assumes a predetermined position.

Means are provided for making small adjustments in the position of the pendulum 16 so that in the event the pendulum is not in the desired predetermined position when assembled it may be so adjusted. The pendulum adjusting means desirably employed comprises a rod 22 which is rigidly fastened at one end to the shaft 12 and which is provided with a movable counter weight 23. By this arrangement the position of the pendulum may be altered by changing the position of the counter weight.

Adjustable means are provided for imparting the motion of the pendulum 16 to the movable display poster 9. The motion imparting means desirably employed comprises two brackets or offset links 25 and 26. The link 25 is fixedly secured to the shaft 12 so as to oscillate therewith.

The link 26 is secured to link 25 by means of screws 27 and 28 which pass through aligned openings in the links. The screws 27 and 28 are desirably provided with wing nuts 29 and 30 to permit rapid reassembly. The link 26 extends outwardly through a curved opening 31 in the stationary display poster 8 and then upwardly and engages the movable display poster 9. The use of a plurality of links as the connecting medium between the movable display and the pendulum permits various assemblies and thus various relative movements between the display posters which is highly desirable.

The means preferably employed for securing the movable display poster 9 to the end of bracket 26 is shown in Fig. 3 and comprises a tab 32 having an enclosed retaining pocket 33. As shown the pocket 33 is tapered and is provided at its upper end with a curved bearing strip 34 against which the upper end of the link 26 is in contact. This arrangement is desired since it permits the movable display poster 9 to rock as it oscillates. In the modified form shown in Fig. 4 the retaining pocket 35 is formed so that the end of the link 26 fits snugly therein. The tab 32 is so positioned that when the movable display element is mounted on the end of the link 26, the weight of the display element is evenly distributed, thus permitting the pendulum 16 to remain in the desired predetermined position.

In operation, the coil 14 is energized from a suitable electric circuit to effect movement of the coil in one direction and a circuit interrupter 35 which is mounted on the pendulum 16 is arranged to open the electric circuit to allow gravity return and reverse movement of the coil 14 and the pendulum 16 and to again close the circuit to effect continuous swinging or oscillation of the pendulum. The circuit interrupter is of standard form consisting of a sealed glass container into which the separate wire terminals are led at one end thereof and containing mercury for bridging the terminals to close the circuit when tilted in one direction and withdrawing from the terminals to open the circuit when tilted in the opposite direction, the interior of the container being exhausted or containing an inert gas to prevent arcing. The wire leads, as shown, have flexible loops sufficient to allow of the proper movement of the pendulum.

In operation, upon closing the electric circuit the solenoid coil 14 will be energized and by its field attraction will be moved upwardly with relation to the curved, fixed armature until the angular position of the pendulum causes the terminals within the mercury switch element to disengage the mercury and open the circuit whereupon the pendulum and the coil mounted thereon acting as a pendulum weight will swing in the opposite direction by gravity and momentum and thereafter have a continued swinging or oscillatory movement receiving a power impulse upon the successive and intermittent closing of the circuit by the mercury switch element. The oscillating motion thus imparted to the pendulum is transmitted to shaft 12 and from shaft 12 through the brackets or links to the movable display poster 9.

The present invention has been shown and described merely in preferred form and by way of example. It should therefore be understood that many changes and variations may be made therein and in its mode of application which will be comprised within its spirit and that the invention is not limited to any specific embodiment, except in so far as such limitations are specified in the appended claims.

Having thus described my invention, I claim:

1. In combination, a prime mover, a stationary display poster, a movable display poster, a linkage arrangement, one end of which is associated with said prime mover, a member carried by said stationary display poster for securing said prime mover thereto and a member carried by said movable display poster and adapted to receive the other end of said linkage arrangement.

2. In combination, a prime mover, a stationary display poster, a movable display poster, an adjustable linkage arrangement, one end of which is associated with said prime mover, means for securing said prime mover to said stationary display poster and a member carried by said movable display poster and adapted to receive the other end of said linkage arrangement.

3. In combination, a prime mover comprising a pendulum, a stationary display poster, a movable display poster, a linkage arrangement associated with said pendulum, means for securing said prime mover to said stationary display poster so that said pendulum is in a predetermined position when at rest, means for securing said movable display poster to said linkage arrangement and means for varying the position of said pendulum when at rest.

4. In combination, a prime mover, a stationary display poster, a movable display poster, a linkage arrangement associated with said prime mover, a tab member having a bearing surface associated with said stationary poster and adapted to support said prime mover, and a tab member having a pocket therein associated with said movable display poster and adapted to engage said linkage arrangement.

5. In combination, a prime mover having a retaining bracket thereon, a stationary display poster, a movable display poster, and a tab member having a bearing surface and a retaining pocket associated with said stationary display poster, said bearing surface being adapted to support said prime mover and said pocket being adapted to retain said bracket.

6. In combination, a prime mover having a retaining bracket thereon, a stationary display poster, a movable display poster, a linkage arrangement associated with said prime mover, a tab member having a bearing surface adapted to support said prime mover and a retaining pocket adapted to engage said bracket, and a tab member having a retaining pocket associated with said movable member and adapted to receive said linkage arrangement.

7. In combination, a prime mover comprising a pendulum, a stationary display poster, a movable display poster, a linkage arrangement associated with said pendulum, a tab member associated with said stationary display poster and adapted to retain and support said prime mover so that said pendulum is in a predetermined position when at rest and a tab member associated with said movable display poster for securing said movable display poster to said linkage arrangement, the tab member on said movable display poster being so positioned thereon that said movable display poster is balanced on said linkage arrangement.

JOHN G. RUCKELSHAUS.