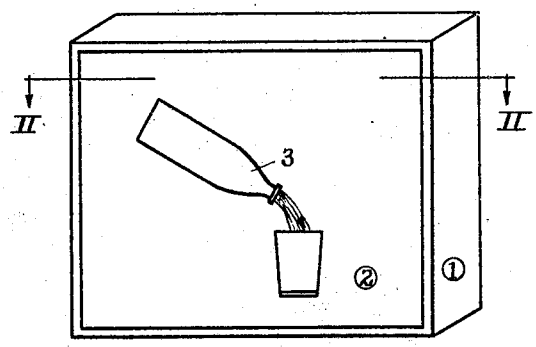
May 12, 1931. M. E. CURTISS 1,804,595

ELECTRIC DISPLAY DEVICE

Filed Nov. 11, 1929

Fig. I.



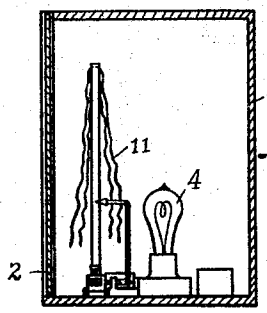


Fig. III.

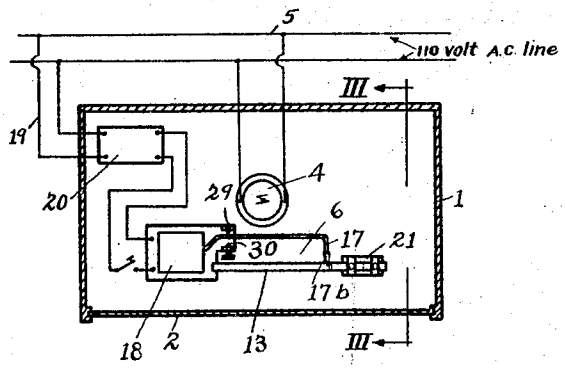


Fig. II.

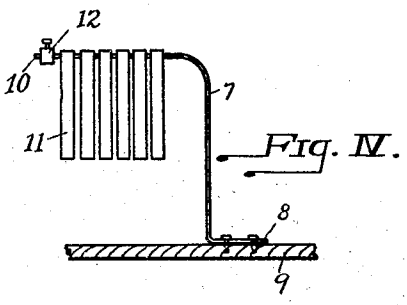


Fig. IV.

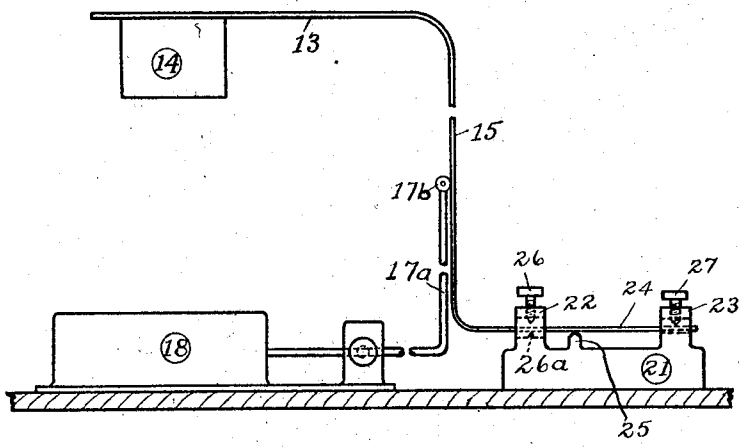


Fig. V.

INVENTOR

Merritt E. Curtiss

by Christy Christy & Wharton

his attorneys

Patented May 12, 1931 1,804,595

UNITED STATES PATENT OFFICE

MERRITT E. CURTISS, OF PITTSBURGH, PENNSYLVANIA

ELECTRIC DISPLAY DEVICE

Application filed November 11, 1929. Serial No. 406,230.

This invention relates to an electric display device.

The object of the invention is to provide simple and inexpensive means to give the effect of movement in an electric display box, and particularly means adapted to simulate the movement of fluids such as liquids or vapors.

In the accompanying drawings Figure I is an isometric view illustrating the face of a display box which may be provided with the movement-simulating apparatus of the present invention; Figure II is a horizontal sectional view of the display box taken on the line II—II of Figure I; Figure III is a cross-sectional view through the display box, taken on the line III—III of Figure II; Figure IV is a side elevation of a simple form of trembler for giving the effect of movement; and Figure V is a side elevation of a positively vibrated form of trembler.

The display box comprising the device of the present invention is indicated generally by the reference numeral 1, and has a front face 2 comprising a suitable figure, which may be a cut-out in the face 2 covered by glass, mica, or other suitable translucent material. The translucent window, or figure, 3 illustrated is that of a bottle and glass, showing a stream of liquid being poured from the bottle into the glass. It should be understood that any other translucent figure may be utilized which involves the effect of motion, and particularly such motions as the pouring of liquid, or wave, steam, or cloud effects.

Within the display box 1 are one or more electric lamps 4, deriving current from a suitable circuit 5. If desired the lamp or lamps 4 may be provided with interrupter sockets, to produce an intermittent illumination within the box. Between the lamp 4 and the translucent figure 3 is the trembler, designated generally by the reference numeral 6. As shown in Figure IV of the drawings, this trembler may be actuated by incidental vibrations, as by striking the display box 1, or by vibrations produced by passing vehicles or the like. This simpler form of trembler comprises a resilient strip or bar 7, desirably of metal, of Z-form, and having its lower leg 8 attached to the floor 9 of the box 1. From the upper leg 10 of the trembler depend one or more shading members 11, which may be made either wholly opaque or less translucent than the mica, glass, or other suitable material utilized in the cut-out figure 3. As the trembler vibrates these shading members move between the lamp 4 and the figure 3, giving the effect of movement. With the translucency shown, the effect is that of movement of liquid in the bottle, of a stream of liquid from the bottle to the glass, and of movement of liquid in the glass.

In order that the trembler strip or bar 7 may be rendered more or less sensitive, and the amplitude and period of its vibrations regulated, an adjustable weight 12 is desirably provided on the upper leg 10 of the trembler. It will be understood that adjustment of the weight 11 outwardly of the upper trembler leg 10 will progressively increase the amplitude of oscillation of the trembler, and of shading members 11 thereon. Conversely, adjustment of the weight 12 inwardly of the upper leg 10 will progressively decrease the amplitude of oscillation of the trembler and shading members.

A positively actuated form of trembler is illustrated in Figures II, III and V of the drawings. This form comprises a Z-shaped resilient strip or bar, the upper leg 13 of which carries one or more shading members 14. The intermediate leg 15 of the strip or bar is contacted by an agitator, arranged to strike a succession of light blows thereon. As shown particularly in Figures II and III of the drawings, the agitator comprises a relatively short striking leg 17, and a longer mounting leg 17*a* extending substantially at right angles to the leg 17. The other extremi-

ty of leg 17*a* is connected with suitable electrically actuated oscillating means, such as an electro-magnetic vibrator 18. The vibrator may receive current from the main circuit 5 by way of a circuit 19, which desirably passes through current reducing means 20. The striker leg 17 is desirably provided with a contact cushion 17*b*, of felt or other suitable yielding material.

The sensitiveness of the trembler strip may be regulated by adjustment in the mounting means therefor. Such mounting means comprise a block 21 having thereon posts 22 and 23 slotted to receive the lower leg 24 of the trembler strip or bar. The under face of the lower leg 24 lies upon a fulcrum edge 25, and set screws 26 and 27, in the posts 22 and 23 respectively, are arranged to be brought to bear upon the upper surface thereof. The set screw 26, disposed to the left in Figure V, may be adjusted to vary the interval between stop 26*a* and the end of the set screw, thus varying the amplitude and frequency of the vibrations of the trembler strip or bar. With any adjustment, the vibration of the trembler is less rapid than the vibrations of the electromagnetic vibrator 18.

Further regulation is provided, as shown in Figure II, by means of a fixed point 29 and an adjustable point 30 arranged on opposite sides of the leg 17*a* of the agitator. Movement of the adjustable point 30, which may be in the form of a set screw, toward and from the fixed point 29, decreases or increases the permitted movement of the agitator.

The device of the present invention is particularly advantageous because of its simplicity, and because of the wide range within which the amplitude of the trembler vibrations may be regulated. By proper regulation and by judicious selection of shading members, movement appropriate to the pouring of water, breaking of waves, or the drifting movement of clouds, steam or smoke may be realistically simulated.

What I claim is:

1. In a display device the combination of a translucent figure, a source of light, a resilient shade carrying arm arranged to vibrate between the translucent figure and the source of light, positively actuated means arranged to act upon said resilient arm to vibrate the same and mounting means for the resilient arm arranged to vary the effective length thereof and thereby vary the amplitude and frequency of its vibrations.

2. In a display device the combination of a translucent figure, a source of light, a resilient shade carrying member arranged to vibrate bewteen the translucent figure and the source of light, and positively actuated striker means arranged to impart a succession of blows to said resilient member to vibrate the same.

3. In a display device the combination of a translucent figure, a source of light, a resilient shade carrying member arranged to vibrate between the translucent figure and the source of light, positively actuated striker means arranged to impart a succession of blows to said resilient member to vibrate the same, and means arranged to act on said striker means for varying the stroke thereof.

In testimony whereof I have hereunto set my hand.

MERRITT E. CURTISS.