

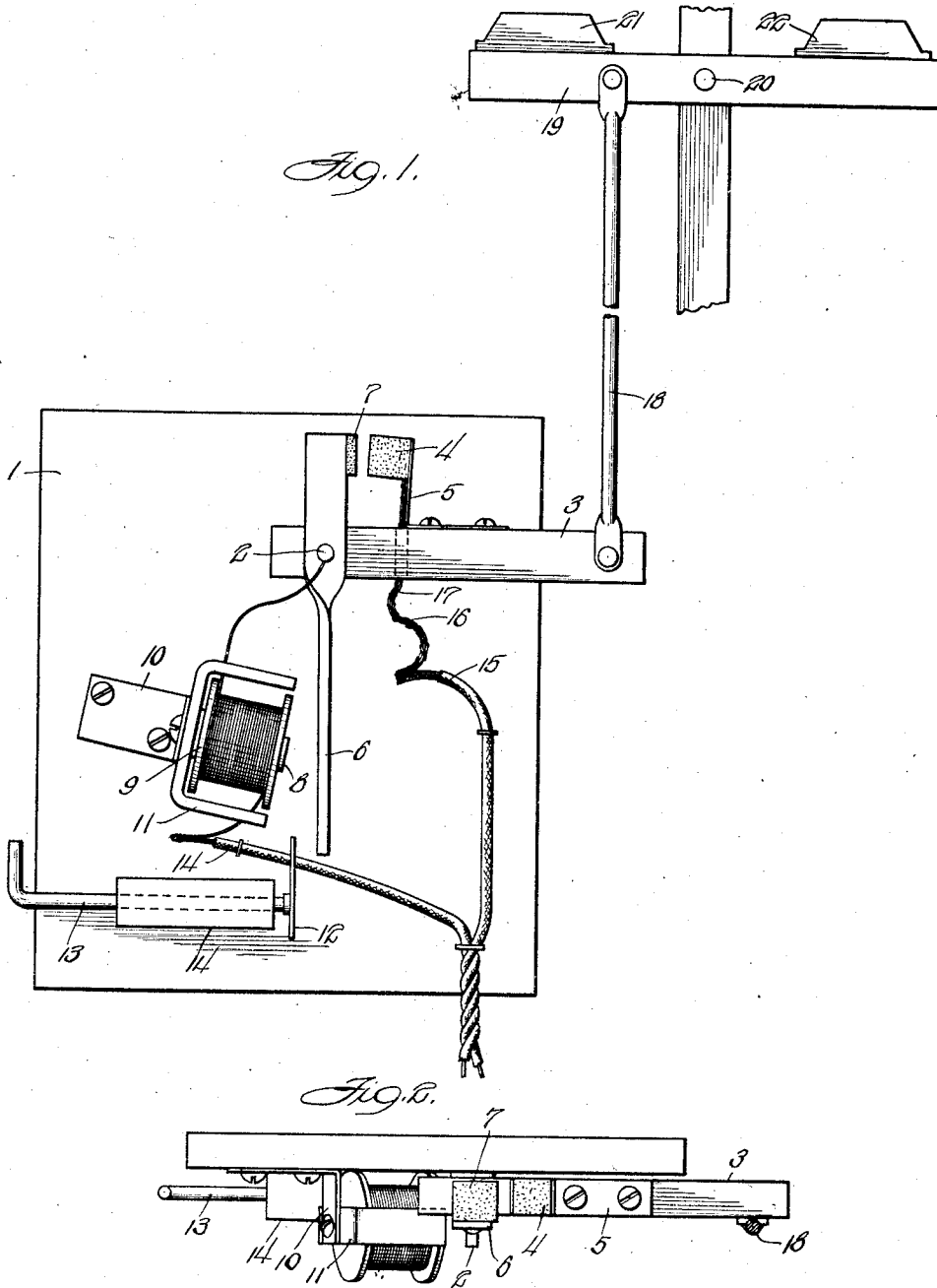
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ANIMATED SHOW CARD MECHANISM

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ANIMATED SHOW-CARD MECHANISM.

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The main object of this invention is to provide an electrical motive device to operate animated show cards; to provide a simple electrical device adapted for direct connection on commercial electrical circuits and capable of application to oscillating show cards; to provide a device in which the electrical circuit is in an open position when the show card is at rest; to provide an electrical driving device which will deliver an impulse to the oscillating mechanism at the position where the impulse gives the maximum swing; to provide an electromotive device which is, by a single adjustment, usable on both direct and alternating current circuits; and to provide a simple, inexpensive and reliable construction in which the fire hazard is reduced to a minimum.

An illustrative embodiment of this invention is shown in the following drawings, in which—

Fig. 1 is a face view of the driving mechanism with a link for attachment to the driven device.

Fig. 2 is a top view of the electromotive device.

The illustrative embodiment as shown in Fig. 1 comprises a board 1 upon which is mounted a pivot 2 which carries a horizontal member 3 on which is mounted an electrical contact of carbon 4, which is supported by a bracket 5. On the pivot 2 is suspended a compound pendulum 6. This compound pendulum is made of high grade iron of high permeability. The compound pendulum carries at its upper end a carbon contact 7 soldered to the compound pendulum. The compound pendulum is provided with a sleeve, not shown, at the center of suspension, for the purpose of maintaining alignment and to insure good electrical contact between the pivot and the pendulum. The compound pendulum is so nearly balanced that its period of oscillation is very short. The pendulum is an iron bar uniform in cross section throughout its length, approximately five inches long, with the center of suspension about three-tenths of its total length from one end, giving a period of oscillation between one-quarter and one-third of one second. At a slight angle from the vertical position of the compound pendulum there is secured a core 8 of an electromagnet 9. The electromagnet is

supported on a bracket 10 which forms a support on the board 1. A horse shoe frame 11 surrounds the coil forming an iron clad magnet when current is passed through the coil. Between the vertical plane of the compound pendulum and the plane of the face of the iron clad magnet there is placed a removable metal plate 12 which is soldered or brazed on the end of the handle 13 which is held by friction in a wooden block 14 secured to the board 1. The handle 13 consists of a rod passing through a bore or opening in the wooden block 14 and having its outer end bent at right angles as shown to provide a grip. The plate 12 which is secured to the inner end of the handle 13 is of a length to extend into the path of the swinging armature as illustrated in Fig. 1 of the drawing and when it is arranged in such position it will limit the swing of the armature 6. When, however, the plate 12 is swung downwardly from the position shown in Fig. 1 by a partial rotation of the handle 13 the said plate 12 will be carried out of the path of the armature 6 and the latter will be permitted a free swinging movement and will enable the electro-magnet to exert a longer pull on the armature and impart a greater movement to the pivoted member 3 than when the plate 12 is turned to a vertical position as shown in Fig. 1 of the drawing. This device for limiting the swing of the pivoted armature and for permitting a free swing of the same will enable the electro-motive device by a single adjustment to be usable on either a direct or an alternating current circuit. By manipulation of the handle 13, the metal plate 12 can be turned to such a position that it will allow a free swing of the pendulum to the face of the electromagnet. The main circuit comprises leads 14 and 15, the lead 14 being connected to the solenoid coil 9 and the pivot 2. The electrical carbon contact 4 is soldered to the bracket 5 and there is connected to the bracket a metallic chain 16, this chain carrying with it a fine whisker wire 17. This wire is connected to the lead wire 15. To the wooden arm 3 is connected a link 18. This link 18 operates the main oscillating member 19 which is supported on a pivot 20. Adjustable counterpoises 21 and 22 provide for a perfect balance of the animated show card mechanism which is attached to the oscillating member

19. The balancing of the weights 21 and 22 also provides for the adjustment of the working position of the wooden arm 3.

In the device as described in its standing position, no current will pass through the coil, since with the compound pendulum in its normal position, there is no contact between the two carbon contacts. In operation, the device is manually started by swinging the arm 19, with a comparatively slow period oscillating show card mechanism attached. When the wooden arm 3 is raised through the action of the link 18 to the position where the carbon contacts touch, then current will pass through the coil 9 and there will be produced a magnetic flux through the core and the shield, the field of which will extend to the compound pendulum 6. The tractive effort of the electromagnet will draw the compound pendulum toward it, resulting in a mechanical thrust communicated to the lever arm 3 through the carbon contact 4. The period of the compound pendulum is so short that its thrust action will take place in not less than one-sixth of a second after the electrical circuit is closed and the thrust action continues until the electrical circuit is automatically opened by the slow swing of the show card. When the compound pendulum reaches a predetermined position, the tractive effort is delivered to the animated show card, which will open the electrical circuit at the contact between the two carbons, thereby cutting off the magnetic action of the solenoid 9 and the compound pendulum quickly returns to its original position and stands in that position until the animated show card, on its return swing, arrives at the position where the carbon contacts coact. One of the causes of failure of devices where there is relative motion between two parts is that a flexible conduction must be maintained. In this invention we have found that a woven chain carrying a whisker wire provides a lasting conduction between the moving show card element and the leading in wire.

In case of mechanical or electrical failure, any stoppage of the device results in an open circuit between the carbon contacts which will cut off the electrical current from the electromagnet.

One of the main features of my invention comprises the comparatively quick action and positive mechanical thrust given by the compound pendulum to the oscillating members of the animated show card device.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood the numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In an animated advertising display card a driving mechanism comprising a solenoid, a core for said solenoid, a compound pendulum comprising an armature hanging on a pivot, magnetic flux from said solenoid deflecting said armature from its vertical position, an electrical contact member on said armature, an animated show card, a vibratory electrical contact member operating said animated show card, the electrical contact member on the said armature being arranged in the path of movement of the vibratory electrical contact member and adapted to contact therewith for closing an electrical circuit to energize the solenoid, whereby said compound pendulum armature is deflected through the tractive effort of said electromagnet, the mechanical thrust of said compound pendulum being communicated to the animated show card by force exerted through said electrical contacts.

2. In an animated show card an oscillating member of long period, an electrical driving unit comprising a compound pendulum of short period, an armature forming a part of said compound pendulum, circuit closing contact means attached to said oscillating means and said compound pendulum, an electromagnet in series with said circuit closing means, said armature positioned in the field of said electromagnet and timed to give a quick thrust near the center of swing of said slow oscillating member, lead wires, and a flexible chain conductor connecting said oscillating member to one of said lead wires.

3. In an animated show card an oscillating member having a period of one second or more and an electrical driving unit comprising a compound pendulum having a period of one-third second or less, an armature forming an integral part of said compound pendulum, carbon contacts on both said oscillating member and said compound pendulum, main circuit leads, a flexible chain conductor connecting the carbon contact of said oscillating member and one of said leads, an iron clad electromagnet in series with said carbon contacts, said carbon contacts at open circuit position when said oscillating member is at position of rest, said armature positioned near said electromagnet and timed to give a mechanical thrust near the center of swing to said oscillating member, manually operated means for changing from A. C. to D. C. service, and linkage between said oscillating member and said driving unit.

Signed at Chicago this 10th day of December 1924.

JOHN H. GERAGHTY.