July 2, 1929. L. RODECK 1,718,982

TOY LIGHTHOUSE AND ORNAMENT

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Fig. 1.

Fig. 2.

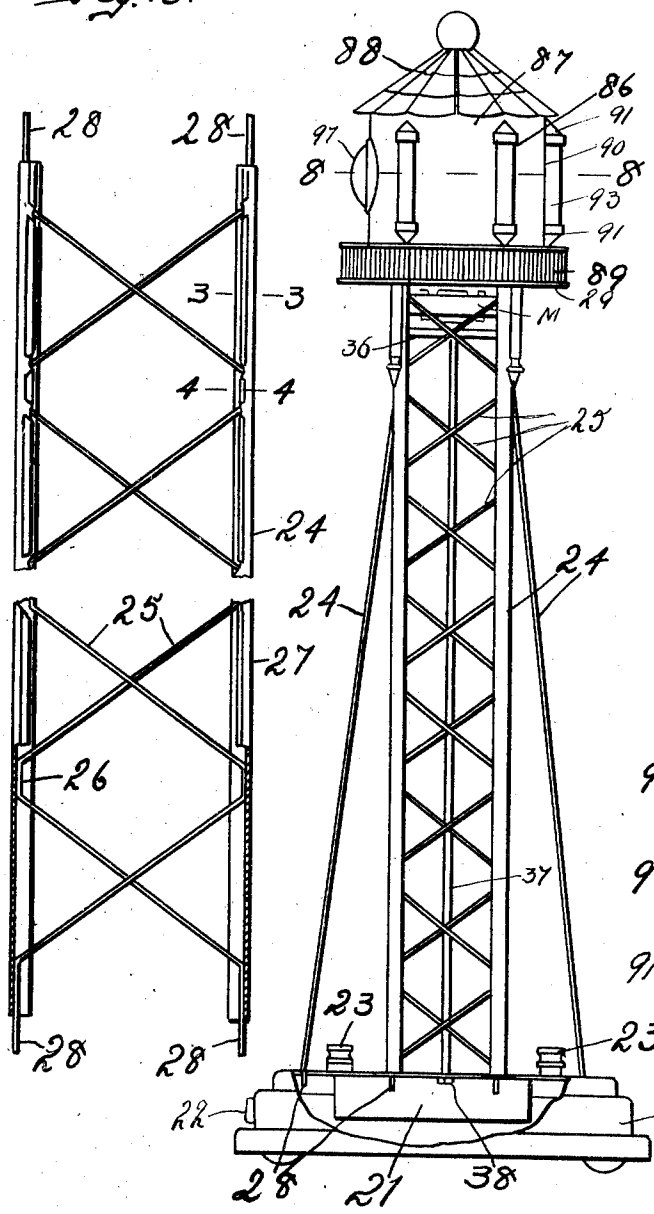


Fig. 3.

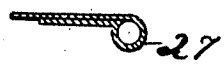


Fig. 4.

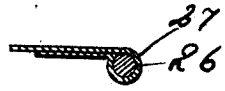


Fig. 5.



Fig. 6.

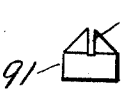
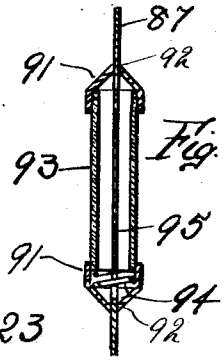


Fig. 7.



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Fig. 8.

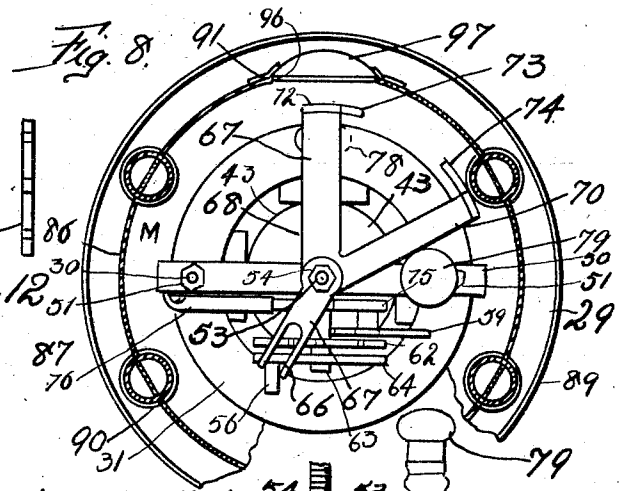
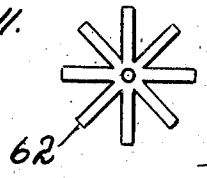


Fig. 11.



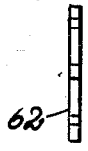
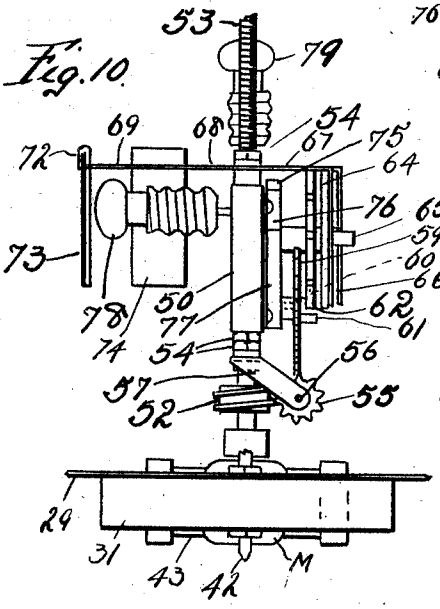


Fig 12

Fig. 10.



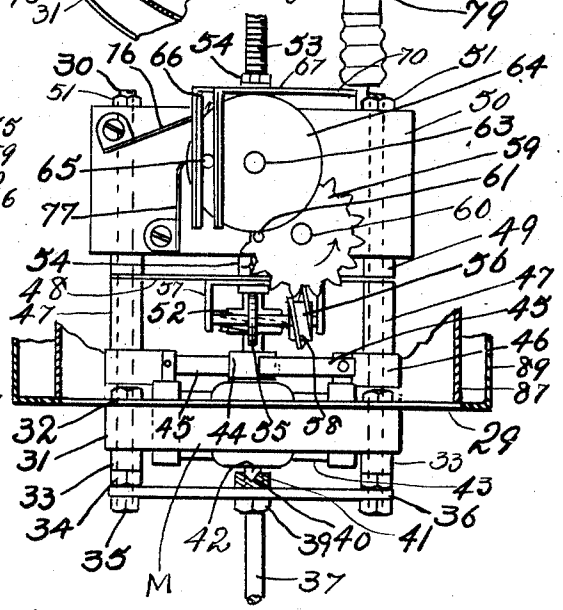


Fig. 13.

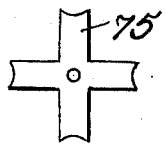


Fig. 14

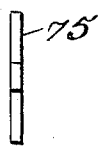


Fig. 9

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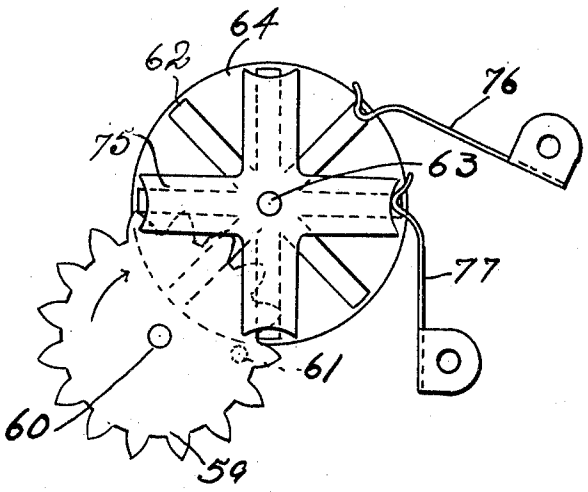


Fig. 15

Fig. 16

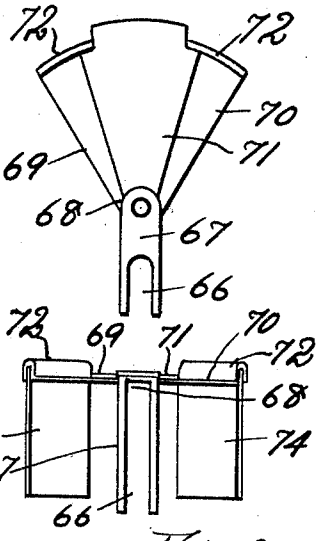


Fig. 18.

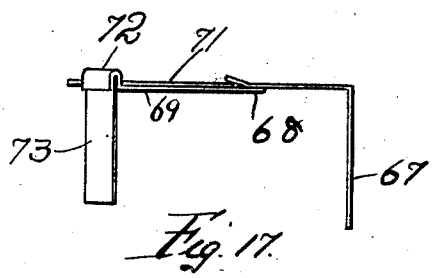


Fig. 17.

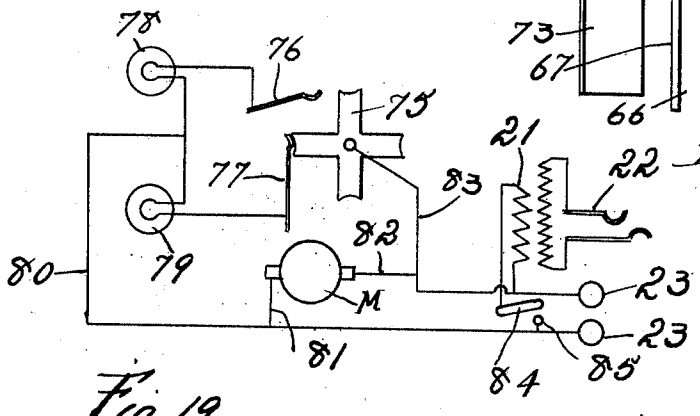


Fig. 19.

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Patented July 2, 1929. 1,718,982

UNITED STATES PATENT OFFICE.

LOUIS RODECK, OF PHILADELPHIA, PENNSYLVANIA.

TOY LIGHTHOUSE AND ORNAMENT.

Application filed September 29, 1927. Serial No. 222,724.

My invention relates to new and useful improvements in a display device to be employed as an ornament or as a toy and preferably has the outline of a lighthouse.

Another object of the invention is to provide a display device of low cost and rugged construction which can be expeditiously manufactured to provide an inexpensive but ornamental device.

A further object of my invention is to provide a unique mechanism for producing light flashing effects, thus giving strikingly attractive effects to the device when in use.

A still further object of my invention is to provide replaceable light coloring elements which in their containers will produce the effect of heavy columns of colored glass.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:

Fig. 1 is a side elevation of a display device constructed in accordance with my invention with a portion of the base broken away to illustrate the location of a transformer.

Fig. 2 is an enlarged fragmentary side elevation of one of the frame members with portions broken away and shown in section.

Fig. 3 is an enlarged sectional view on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged inner end view of one of the caps used at the end of the glass tubes.

Fig. 6 is a side elevation thereof.

Fig. 7 is an enlarged vertical sectional view through one of the glass tubes and its component parts illustrated with relation to a portion of the housing wall.

Fig. 8 is an enlarged horizontal sectional view on the line 8—8 of Fig. 1, with the operating mechanism in elevation.

Fig. 9 is a side elevation of the operating mechanism and the elements for mounting said mechanism in place.

Fig. 10 is a side elevation at right angles to Fig. 9 with the hangers removed to more clearly illustrate the location of the parts.

Fig. 11 is a face view of the star wheel.

Fig. 12 is an edge view thereof.

Fig. 13 is a face view of the contact wheel.

Fig. 14 is an edge view thereof.

Fig. 15 is an enlarged face view of the wheel train illustrating the manner of operating the parts and making and breaking the electrical circuits.

Fig. 16 is a plan view of the screen on an enlarged scale.

Fig. 17 is an edge view of the same.

Fig. 18 is an end elevation.

Fig. 19 is a diagrammatic view of the electrical circuits.

In carrying out my invention as herein embodied, 20 represents the base of the device and may be constructed of wood or other suitable material, hollow in the interior, to provide a chamber for the reception of a transformer 21 and a suitable jack or socket 22 electrically connected with the transformer and providing the means for connection of the device with the ordinary house current. On the base 20 are also mounted binding posts 23 whereby a battery may be connected with the electric circuit of the device which circuit will be later described.

On the base are mounted the frame members 24 each of which comprises zig-zag wire units 25 arranged so that their diagonals cross each other while their parallel sections 26 lie between the folded over sheets of the metal strips 27 and the latter crimped as plainly shown in Fig. 2. The wires have ends 28 protruding from the metal side pieces 27 and said protruding ends set in holes in the base 20 and in the floor 29 of the house. The floor 29 is mounted on bolts 30, adjacent to and preferably above the field 31 of a suitable motor M and between said field 31 and nuts 32 on the bolts. Below the field are spacer washers 33 and below these are the nuts 34 and 35 between which is held a cross bar 36.

The superstructure, frame members and the base are held together by a rod 37 having threaded ends with the lower one projecting into the base and having a nut 38 threaded thereon, while the upper end passes through the cross bar and has nuts 39 and 40 threaded thereon and engaging opposite sides of the cross bar.

The upper end of the rod 37 is provided with a bearing 41 to receive the tapered lower end of the armature shaft 42 carrying the armature 43 and the commutator 44 cooperat-

ing with the brushes 45 secured to the blocks 46 of insulating material which are mounted upon the bolts 30 above the nuts 32. Above the blocks 46 are spacer washers 47 to position a cross piece 48 and above this are spacer washers 49 which space the cross piece 48 from the lower edge of the supporting block 50, through which the bolts 30 pass with nuts 51 threaded on their upper ends. The supporting block 50 may be quite thin relative to its length and breadth as plainly shown in Figs. 8 and 9 and should be of suitable insulating material.

The shaft 42 of the motor armature is connected with a worm 52 mounted on a stationary axle 53 also passing through and fastened to the supporting block 50 by means of suitable nuts 54.

The worm 52 meshes with a worm wheel 55 mounted on the shaft 56 which is journalled in bracket arms 57 supported by the cross piece 48 and on said shaft 56 is also mounted a worm 58 meshing with a worm gear 59 journalled on an axle 60 and secured to the supporting block 50. The gear 59 carries a pin 61 for intermittently rotating the star wheel 62 journalled on a shaft 63 carried by the supporting block 50.

Arranged to revolve with the star wheel on the shaft 63 is a disc wheel 64 carrying a pin 65 projecting into a slot 66 in the arm 67 so as to oscillate the screen frame 68 journalled on the stationary axle 53 and in addition to the arm 67 includes legs 69 and 70 and the space between said arms is covered by a panel 71 of suitable material such as opaque fibre. One end of the panel 71 lies between the forward edge of the arm 67 and the rear ends of the legs 69 and 70 while the forward end of said panel butts against the clamps 72 formed by bending the ends of the legs upward and then downward. In these clamps are mounted colored screens 73 and 74.

On the shaft 63, to also operate with the star wheel 62, is a contact wheel 75 of suitable electric conductivity, it being understood that the wheels 62 and 64 are insulated from the shaft 63 and from the contact wheel 75. Said wheels 62 and 64 may be of insulating material. The contact wheel 75 includes a number of contact arms for cooperation with the spring contacts 76 and 77 the former being electrically connected with an electric lamp 78 mounted on one face of the supporting block 50 while the other spring contact 77 is connected with an electric lamp 79 mounted on top of the supporting block 50. These lamps are connected by a suitable conductor 80 with one of the binding posts 23 and through the medium of a branch conductor 81 with one side of the motor M, the other side of the motor being connected by a branch conductor 82 with a conductor 83 leading from the contact wheel 75 to the other binding post 23. With the conductor 83 is also connected one side of the secondary of the transformer, the other side of said secondary being connected to a part of a switch 84, as to the movable part thereof, which coacts with a contact 85 electrically connected with the conductor 80. It is to be understood that the conductors herein referred to may be any of the metal parts of the device when convenient.

The operating mechanism and lamps above referred to are enclosed in a suitable housing 86 including the side walls 87 supported by the floor 29, and a top 88, and if found desirable, said housing may be surrounded by a railing or fence 89 supported by the outer edge of the floor. The housing may be of any desirable shape or configuration and decorated in any suitable manner to provide any desired effect for purposes of imitation or ornamentation.

In the side walls of the housing are formed a number of windows 90 and in the ends of each of these is mounted a cap 91 provided with a slot 92 for registration with the side walls of the housing surrounding a window and into these caps project the ends of the glass tube 93 being held in place by a spring 94 in one of the caps. In order to provide for the projection of suitable colored rays of light, strips of celluloid 95 or other suitable material of the desired color or colors are placed in the tubes so as to lie at right angles to the direction of the projection of the rays of light.

The housing may also be provided with an aperture 96 across which is disposed a magnifying lens 97 for intermittently projecting a fairly strong beam of light.

When the display device is connected with the house current, the switch 84 is closed, but when a battery is used, this switch is opened to prevent dissipation of the battery current through the secondary of the transformer.

In either case, the electrical current passes through the motor M causing it to revolve and through the medium of the wheel train the screen frame 68 and the contact wheel 75 will be actuated. These parts being properly timed relative to each other when one of the arms of the contact wheel 75 is in engagement with the spring contact 77 as shown in Fig. 8, the lamp 78 will be lit and the screen 73, for instance of red celluloid, will be disposed in front of said lamp or between the latter and the lens 97 so that a strong beam of colored light will be projected through the lense. As the device continues to operate, the contact arm of the wheel 75 will be disengaged from the spring contact 77 and moved into engagement with the spring contact 76, thus putting out the lamp 78, but lighting the lamp 79 so as to throw rays of light through tubes in the windows 90. Upon further movement of the mechanism

the arm of the contact wheel 75 in engagement with the spring contact 76 will be moved away from the latter and another arm moved into engagement with the spring contact 77 again lighting the lamp 78. In the meantime the disc wheel 64 has moved to such a position that the screens 73 and 74 are at opposite sides of the lamps 78, and therefore, unobstructed white rays will pass through the lens 97.

During the next movement of the mechanism, the lamp 79 will be again lit while the lamp 78 is extinguished, but upon still further movement, the lamp 79 will be put out and the lamp 78 again lit at which time the screen 74 will be disposed between it and the lens 97 so that strong rays of colored light will be again projected through the lens and the color of the screen 74 may be different from that of the screen 73, for instance it might be blue celluloid.

Where the screens are red and blue, at certain times during the operations, the rays of light projected through the lens 97 will be first red, then white and finally blue.

Of course I do not wish to be limited to the exact details of construction as herein shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:

1. A display device for use as a toy or ornament comprising a base, a frame projecting upwardly from said base, a housing at the upper end thereof, said housing having window openings and an aperture in its side walls, an electric lamp within the housing particularly adapted to project rays of light through the window openings, another electric lamp within the housing adjacent the aperture, means to intermittently and alternately make and break the circuits through said lamps, spaced screens adapted to be passed between the second named lamp and the aperture, and means operating in unison with the electric circuit making and breaking means, to periodically move the screens so that one screen will be in front of said second named lamp at one time, one to each side of the lamp at another time and the other screen in front of said lamp at still another time.

2. A display device comprising a base, a frame carried by the base and consisting of a plurality of frame members, each member consisting of two zig-zag wires having portions crossing one another and strips of metal bent over and crimped about other portions of said wires, a housing mounted on top of the frame, lighting means in the housing and means to intermittently light said lighting means.

3. A display device comprising a housing having openings in the walls for the passage of light rays, caps at the ends of said openings, glass tubes having their ends projected into said caps, springs to hold the tubes in place, strips of colored material in the tubes, and a source of light within the housing.

4. The structure set forth in claim 3 in combination with a second source of light, means to intermittently and alternately operate the sources of light, a pair of spaced screens, means to carry said screens in front of the second source of light, and means to move the screen carrying means step by step.

In testimony whereof, I have hereunto affixed my signature.

LOUIS RODECK.