C. TREGONING.

ELECTRIC DISPLAY DEVICE.

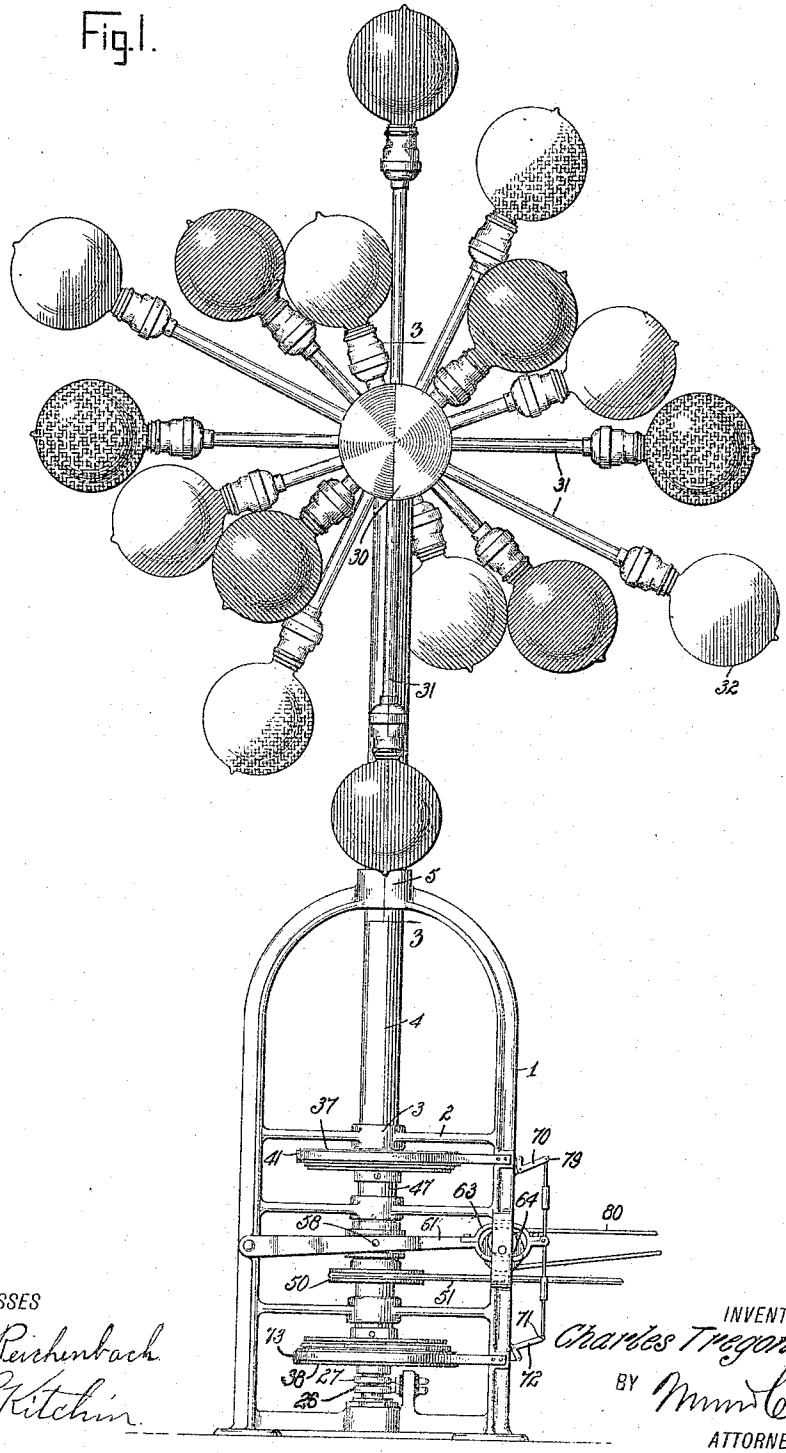
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3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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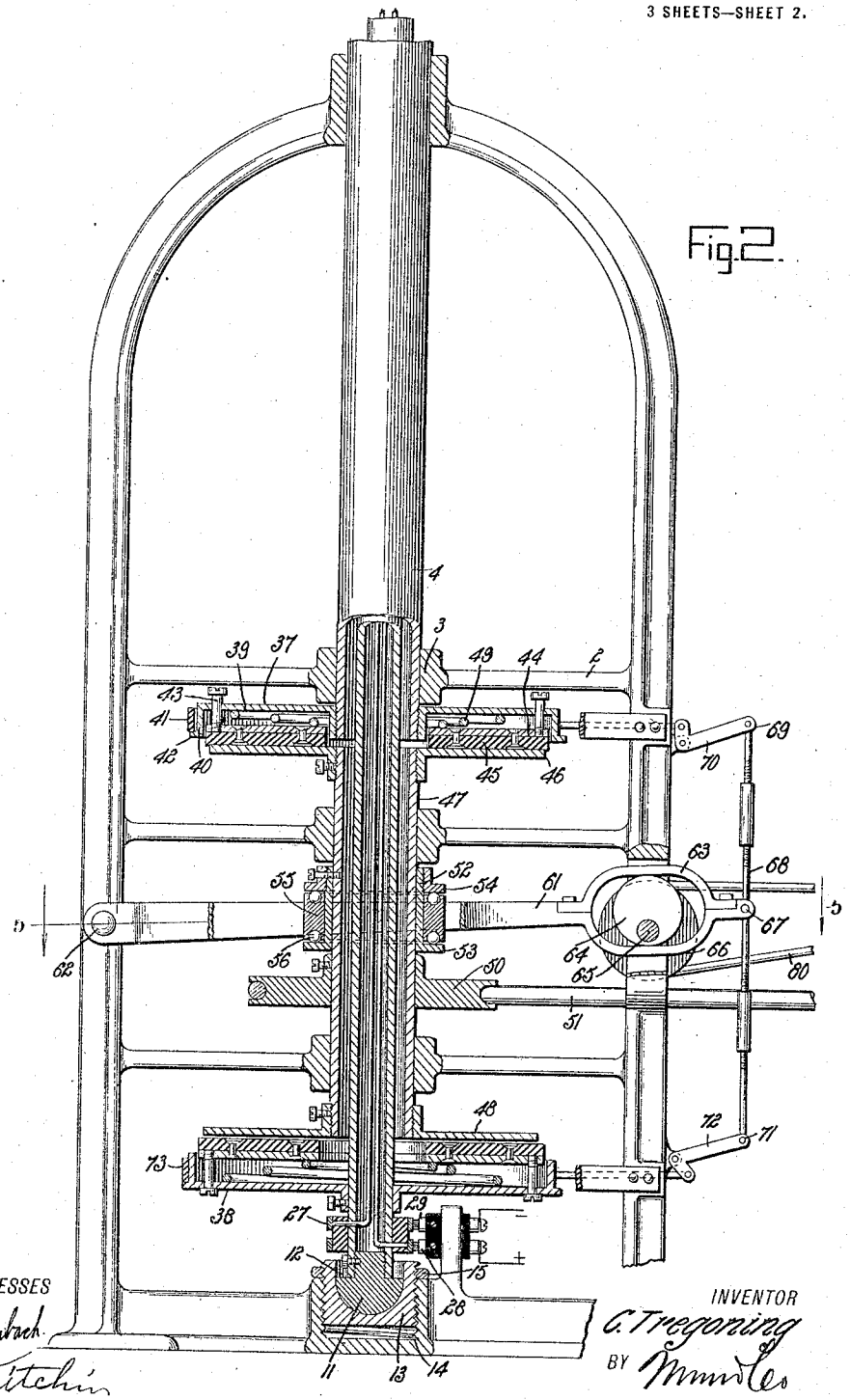
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

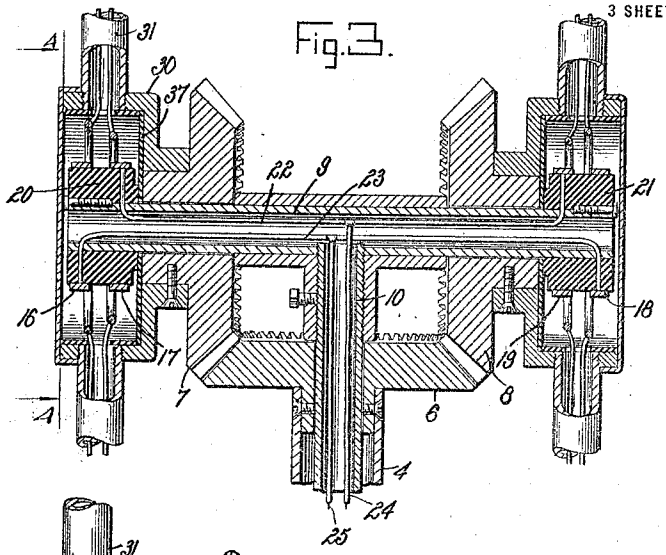


Fig. 4.

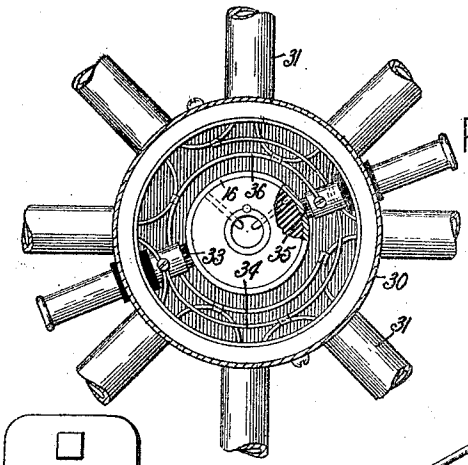
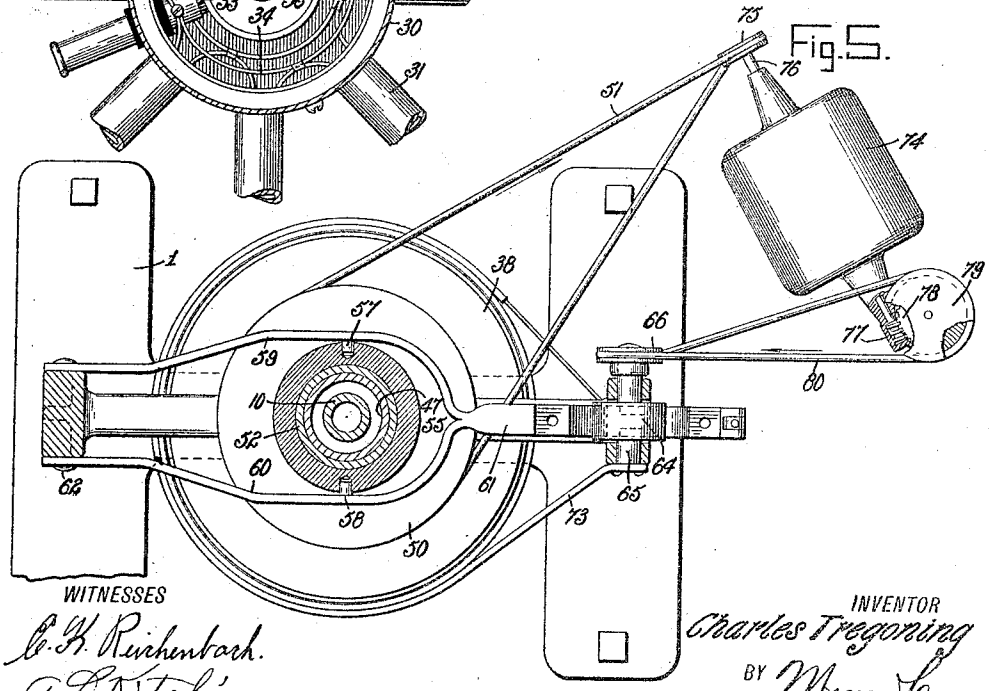


Fig. 5.



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ELECTRIC DISPLAY DEVICE.

1,192,585. Specification of Letters Patent. Patented July 25, 1916.

Application filed March 8, 1916. Serial No. 82,868.

To all whom it may concern:

Be it known that I, CHARLES TREGONING, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Electric Display Device, of which the following is a full, clear, and exact description.

This invention relates to display devices and particularly to an electric display device wherein an illusion is produced by rotating in different ways lighted lamps so as to give the appearance of greatly agitating and shaking the lamps.

Another object in view is to provide a display device which is supplied with electric lights on rotatable members and means for rotating the members in two planes simultaneously so that the lamps are given the appearance of being agitated and shaken at a high rate of speed.

A further object in view is to provide an improved arrangement of parts for rotating a display arrangement of lamps which will cause the different sets of lamps to rotate in opposite directions in a vertical plane and rotate simultaneously in the same direction in a horizontal plane so that an effect is produced which appears to be a rapid shaking of the lamps as they are moved from place to place.

A still further object in view is to provide a pair of rotating wheels or members having electric lamps of different colors on the outer part thereof and mechanism for rotating these wheels together with the lamps so as to produce a pleasing effect wherein the lamps appear to produce arcs of light in different planes.

In the accompanying drawings: Figure 1 is a side view of a display device embodying the invention. Fig. 2 is a side view of the lower part of the device shown in Fig. 1, part of the structure being shown in section for the purpose of illustrating the operating parts. Fig. 3 is a longitudinal vertical section through the upper part of the structure shown in Fig. 1, the same being approximately on line 3—3, the view being on an enlarged scale. Fig. 4 is a sectional view through Fig. 3 on line 4—4. Fig. 5 is a section through Fig. 2 on line 5—5, the same being on a reduced scale and showing a driving motor and associated parts in connection therewith.

Referring to the accompanying drawings by numerals, 1 indicates a frame at the lower part of the device which is provided with a plurality of bracing arms 2 carrying journal members 3, said arms and journal members supporting certain moving parts of the invention hereinafter fully described. Rotatably mounted in the upper arm 2 is a tubular shaft 4 which extends through the bearing member 5 in frame 1 and above said bearing member for any desired distance. As shown in Fig. 3, the upper end of the tubular shaft 4 is rigidly secured to a beveled gear 6, which beveled gear meshes with beveled gears 7 and 8. The beveled gears 7 and 8 are loosely mounted upon a tubular shaft 9, which tubular shaft is connected to a second tubular shaft 10, the connection being preferably such that the parts will be rigidly secured together. The tubular shaft 10 extends downwardly for the full length of the tubular shaft 4 and, in fact, extends downwardly and has a thrust bearing 11, as shown in Fig. 2, at the extreme bottom of the frame 1. The bearing member 11 is arranged in a socket 12 formed in the adjusting block 13, which adjusting block is threaded into socket 14 formed in the lower part of frame 1, a lock nut 15 being used to lock the block 13 into any suitable adjustment. By this construction and arrangement the shaft 10 uses the beveled gear 6 at the upper end as a bearing member and the block 13 at the lower end as a bearing member, whereby the shaft may properly rotate or may remain stationary as may be preferred.

On the tubular shaft 9, as shown in Fig. 3, there are mounted rings 16, 17, 18 and 19, which rings are spaced from the member 9 by suitable insulating members 20 and 21. The rings and bearing members 20 and 21 are adapted to remain stationary ordinarily but rotate in a horizontal plane under some circumstances, as when the shaft 9 is rotated in a horizontal plane. These rings 16 to 19, inclusive, are intended to act as supply rings for electrical current to certain lamps hereinafter fully described, said supply rings receiving current from the supply wires 22 and 23, respectively, which supply wires are connected to vertical supply wires 24 and 25. The vertical supply wires 24 and 25 extend for the full length of the tubular shaft 10 and are connected to the

slip rings 26 and 27 at the bottom shaft 10, as shown in Fig. 2, said slip rings being supplied with current from any suitable source through the brushes 28 and 29.

Rigidly secured to the beveled gear 7 is a hub 30 (Fig. 3) which hub has connected therewith a plurality of hollow spokes 31 on the end of which are arranged various lamps 32 as shown in Fig. 1, said lamps being supplied with electrical current from the rings 16 and 17. As shown in Fig. 4, the brush 33 is connected to a supply bar 34 which is in turn connected to one side of each of the wires passing up the respective spokes 31, while the brush 35 is connected to bar 36 connected to the other wire passing up each of the spokes, thus making a simple but effective electrical connection in hub 30. It will be observed that hub 30 is provided with an insulating lining 37 so that in case any of the bars or wires should move out of place the same will not become short circuited.

Connected with the beveled gear 8 is a hub and spokes and associated parts similar to that connected with beveled gear 7 so that no additional description will be given. From this construction and arrangement it will be seen that there are provided in reality two wheel structures, the same being provided with hubs and spokes but no felly, the lamps taking the place of the felly, the idea being to provide lamps for display purposes. As shown more clearly in Fig. 1, the spokes are of different lengths so that when the wheels are rotated in a vertical plane but otherwise held stationary, circles of light will be produced. If the wheels are held against rotation in a vertical plane but are rotated in a horizontal plane, horizontal circles of light will be produced. If the wheels are rotated both in a horizontal and a vertical plane simultaneously, the mixing of the horizontal circles of light and vertical circles of light will cause arc-shaped streams of light at various angles, said angles continually changing according to the rotation and the speed of the parts. When the wheels are rotating in a vertical plane the tubular shaft 10 is held stationary or fixed while tubular shaft 4 is rotated. This will cause the wheels to rotate in opposite directions to increase the bewildering effect of the streams of light.

The mechanism for rotating the wheels in the different planes mentioned is disclosed in Fig. 2, from which it will be observed there is provided an arrangement of clutches 37 and 38 for throwing into and out of operation the tubular shafts 4 and 10. The clutch 37 is provided with an upper plate 39 rigidly secured to the shaft 4 by any desired means, as for instance, by being threaded thereto, said plate having a turned-down annular portion 40 for receiving belt 41, said belt being prevented from slipping off by any suitable means, as for instance, an annular flange 42. Extending through plate 39 are a plurality of bolts or pins 43 having heads on the upper end and secured by any suitable means, as for instance, threads at the lower end, to a ring or plate 44, which ring or plate is rigidly connected to a wearing disk 45 of fiber or other suitable material. The wearing plate or disk 45 is adapted to contact with the friction plate 46 rigidly secured to the tubular member 47, which tubular member has a friction plate 48 at the lower end and forming part of the clutch 38. The clutch 38 is formed identically with the clutch 37 but operates in opposition thereto, so that a further detailed description is not thought to be necessary.

In connection with the clutch 37 it will be observed that the spring 49 is provided for continually urging the plate 44 and the friction disk 45 downwardly so that the friction disk will engage the plate 46. The tubular member 47 has a drive pulley 50 rigidly secured thereto being operated by a belt or cable 51 hereinafter fully described, whereby the tubular member 47 will be rotated as long as the power is turned on. A tubular member 52 is connected rigidly with the member 47, said tubular member being provided with an annular flange 53 at the lower end and having an annular flanged member 54 connected thereto at the upper end so that there will be provided an annular groove for the block or ring 55, which block or ring carries upper and lower anti-friction members or balls 56. The ring 55 is formed with apertures or notches into which the pins 57 and 58 (Fig. 5) extend, said pins being connected to the arms 59 and 60 of the lever 61, which lever is pivoted at 62 to the frame 1. By this construction and arrangement whenever the lever is moved upwardly or downwardly the clutches 37 and 38 will be opened or closed, as the case may be. For instance, as shown in the drawings, when the lever is moved pivotally downwardly clutch 37 will be opened and clutch 38 closed so that shaft 10 will be rotated. When the lever is moved upwardly the clutch 37 will be closed and clutch 38 opened so that shaft 4 will be rotated and shaft 10 allowed to remain stationary. However, by reason of the pins 43 and the spring 49 there will be a period when both clutches will be operating so that both the tubular shafts 4 and 10 will be rotating.

The lever 61 pivoted at 62 is provided with an enlarged cam guideway 63, as shown in Fig. 2, into which the cam or eccentric 64 fits, said cam or eccentric being connected with shaft 65 which in turn is rigidly connected with the driving pulley 66 so that as the shaft is rotated the lever

61 will be gradually moved upwardly and downwardly. The outer end of the lever 61 is connected at 67 to a rod 68 which rod is connected at 69 to a bell crank lever 70 and at 71 to a bell crank lever 72. The bell crank lever 70 is connected to one end of the friction belt 41 of clutch 37, while the bell crank lever 72 is connected to one end of the friction belt 73 of clutch 38. This arrangement is such that when the lever 61 is raised or lowered to its extreme position the respective belts will be tightened and the clutches stopped, otherwise the momentum of the parts would cause the tubular shafts to continue to rotate even after power had been withdrawn therefrom.

Any desired means may be provided for rotating the power pulley 50 and the power pulley 66, but a simple and effective arrangement is shown in Fig. 5, in which an ordinary motor 74, as for instance, a fan motor, is used, said motor having a driving pulley 75 connected to one end of the shaft 76 of the armature, said driving pulley accommodating the belt or cable 51 which operates the power pulley 50. The opposite end of the shaft 76 is provided with a worm 77 meshing with a worm gear 78, which worm gear in turn is rigidly secured to pulley 79, this arrangement being usually found on what are known as oscillating fans. The pulley 79 accommodates the belt 80, which belt not only passes over pulley 79 but over the power pulley 66, thus giving the pulley 66 a very small movement compared to the pulley 50 which is given a rapid movement. In this way the up and down movement of the lever 61 is very slow and the rotary movement of the shafts 4 and 10 is comparatively fast, or, at least, the number of rotations of these shafts is comparatively numerous compared to the down movement of the lever 61. This double movement and changing from one movement to the other causes the action of the wheels on which the lamps 32 are mounted to present different movements of the lamps. These different movements give the appearance of a terrific shaking of the lamps, whereas the lamps are moving smoothly and easily in either one or two paths.

To increase the illusionary effect the lamps are differently colored so that when the device is operating comparatively fast the streams of different colored light will appear as if intermixing and as if some of the lamps would certainly strike against each other as well as be shaken to pieces.

What I claim is:—

1. In an electric display device of the character described, a pair of wheel structures, electric lamps arranged on the spokes of said wheels, means for rotating said wheels in parallel planes and in opposite directions, means for supplying current to said lamps while rotating, a rotatable member for rotating bodily said wheels in a plane at right angles to the plane of the wheels, and a controlling member for throwing said rotatable member into and out of operation.

2. In an electric display device of the character described, a pair of rotatable wheels, electric lamps arranged on said wheels, a beveled gear connected with each of said wheels, a shaft supporting said gears, a third beveled gear meshing with both of the first mentioned beveled gears, a rotatable tubular member connected with said last mentioned beveled gear, a rotatable tubular member connected with said shaft, means for supplying current to said lamps, and means for rotating said tubular shafts together and independently at will so as to cause said wheels to rotate in vertical planes or vertical and horizontal planes simultaneously.

3. In an electric display device of the character described, a pair of rotatable wheel structures, lamps arranged on each of the wheel structures, a pair of propelling members connected with said wheel structures so as to cause the same to rotate in parallel vertical planes and also in a horizontal plane, a driving member, and a pair of clutches connected with said driving member, one of said clutches acting to connect one of said propelling members with said driving member and the other of said clutches acting to connect the other propelling member with said driving member.

4. In a display device of the character described, a pair of rotatable members, lamps arranged on said members, means for supplying current to said lamps, a pair of propelling members for moving the rotatable members in a vertical plane and also in a horizontal plane, a power member, a clutch for connecting said power member with one of said propelling members, a second clutch for connecting the power member with the other propelling member, and means for automatically shifting in cycles said power member so that the respective clutches will be operated alternately for part of the time and simultaneously for part of the time.

5. In a display device of the character described, a plurality of rotatable wheel structures, lamps on each of said wheel structures, a propelling member for rotating said lamps in a vertical plane, a propelling member for rotating the lamps in a horizontal plane, a power member, a pair of clutches associated with said power member for connecting the power member with either of the propelling members, a lever for shifting the position of said power member, a cam member for operating said lever, a prime mover, and means for connecting the prime mover with the cam

and with said power member, said means causing the cam to operate slowly and said power member to operate rapidly.

6. In an electric display device of the character described, a plurality of rotatable wheel structures, a plurality of lamps arranged on each wheel structure, a propelling member for rotating said wheel structures in parallel vertical planes and in opposite directions, a propelling member for rotating both of said wheel structures in a horizontal plane, a power member, means for rotating said power member, a clutch arranged at each end of said power member for connecting the power member with the respective propelling members, and a pivotally mounted lever for shifting said power member so that the clutches may operate independently part of the time and together part of the time so that for part of the time only one of said propelling members will be rotating while the remaining part both of said propelling members will be rotating.

7. In an electric display device of the character described, a plurality of rotatable wheels, a plurality of lamps arranged on each of said wheels, means for supplying electric current to said lamps, a pair of tubular propelling members for rotating said wheels in vertical planes and also in horizontal planes, a rotatable power member, a clutch for connecting said power member with one of said propelling members, a second clutch connecting said power member with the other of said propelling members, a pivotally mounted lever connected with said power member so that the power member may be shifted to cause either of the clutches to be operated, a cam engaging said lever, and means for rotating said cam whereby the power member will be automatically and intermittently caused to operate the two propelling members.

8. In an electric display device of the character described, a pair of rotatable members carrying electric lamps, means for supplying said lamps with current, a plurality of propelling members for rotating said rotatable members in a plurality of different planes, a rotatable power member, a clutch for connecting said rotatable power member with one of the propelling members, a second clutch for connecting said power member with the other of said propelling members, a lever for shifting said clutches so that they will alternately be closed, and a brake for each of the clutches connected with said lever and operated thereby for stopping the rotation of either of the propelling members when thrown out of clutch.

9. In an electric display device of the character described, a plurality of rotatable members provided with lamps, said members being in parallel planes, a propelling member for rotating said lamps in parallel vertical planes, a second propelling member for rotating said lamps in a different plane while still being rotated in a vertical plane, and means for varying the action of the propelling means so as to shift from one mode of rotation to another at predetermined intervals.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES TREGONING.

Witnesses:
GEORGE W. BRANE,
LEM ASOPINIEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."