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Paquette

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[54] **NON-REPETITIVE FLASHING DISPLAY MECHANISM**

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[52] **U.S. Cl.** .....**40/126 B**

[51] **Int. Cl.**.....**G09f 19/00**

[58] **Field of Search** .....40/126 B, 218, 139

[56] **References Cited**

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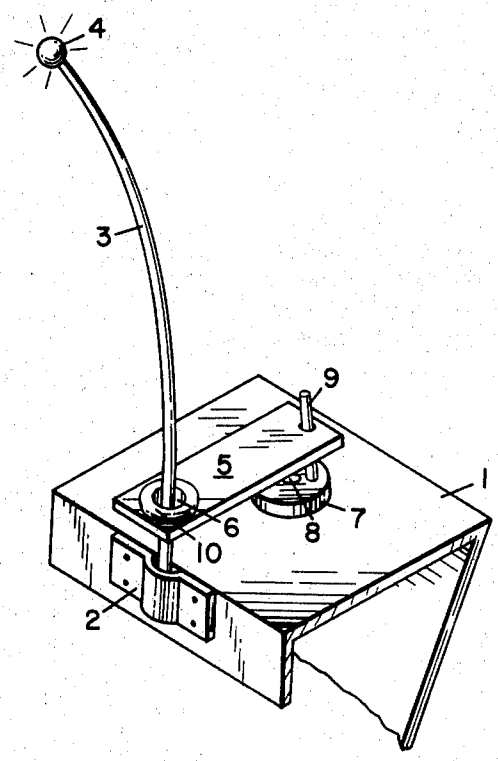
Primary Examiner—Robert W. Michell

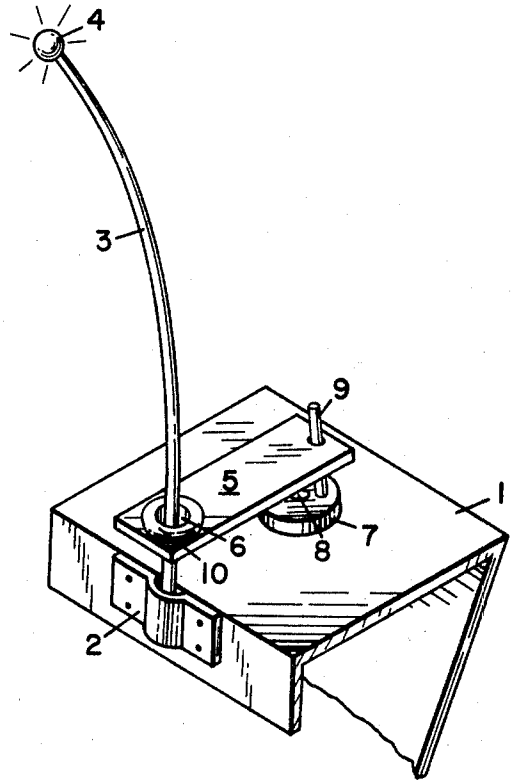
Attorney—Johan Bjorksten

[57] **ABSTRACT**

An advertising display which simulates a firefly, comprising an unrepetitive or random motion device based on reciprocating means actuating a flexible rod carrying a flashing device, where the motion is distorted by means of an off vertical crank shaft.

7 Claims, 1 Drawing Figure




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NON-REPETITIVE FLASHING DISPLAY MECHANISM

The background and object of the invention comprises an advertising display device and more particularly a simulated firefly. It is related to my previous U.S. Pat. No. 3,477,157 and 3,494,058 but employs different means for attaining the desired effects.

An object of this invention is an advertising display which comprises a light source which moves in a truly random path.

Another object is a simulation of a firefly.

Another object is a novel mechanism for achieving the above objectives. Further objects will become apparent as the following detailed description proceeds.

BRIEF STATEMENT OF THE INVENTION

In accordance with my invention I simulate a movement of a firefly by a flashing light attached to a flexible wand. This is caused to move randomly by reciprocating means actuating a connecting link or arm by means of an off vertical crank pin, said connecting link having a distal opening through which an elastically flexible wand protrudes.

Referring now to FIG. **1**, **1** is a bracket which holds the device and may be attached to a stand, a wall, or as may be desired in each case. To this bracket is attached by means of a clamp **2** a flexible wand **3** at the end of which is a lamp **4** suitably, but not necessarily, made to flash by current interrupter not shown. **5** is a connecting link which has a distal opening **6** through which said flexible wand **3** protrudes. The opening **6** is at least by half the diameter and preferably between one and 10 diameters wider than the wand **3**, the diameters being diameters of said wand, so that there is ample play in the motion of said wand. The wand is propelled by means of a crank **7**, attached to a motor shaft **8** (motor not shown) by means of a tilted crank pin **9**.

As a motor I prefer to employ a 24 rpm (maximum limits 12 to 36 rpm), clock type synchronous motor. The crank shaft pin has a ¼ inch throw (offset on the motor shaft center — limits 3/16 to 1 inch) and is bent off the vertical between **1°** and **10°**, preferably between **2°** and **5°**. By "off vertical " I mean the angle the crank shaft pin forms with a line perpendicular to the plane of the motion of the crank **7**. Rubber grommet **10** is preferably used in the hole in the one end of the connecting link to reduce noise and wear on the wand. The clearance between the flexible wand and the moving hole through which it moves is at least one-eighth inch.

The tilt of the crank pin serves two functions: (1) it applies displacement at varying heights on the wand, and (2) it tends to make the connecting link non-tracking to a regular circular motion. The angle of the crank pin is determined by the length, flexibility and weight and balance of the wand, and the degree of gyration desired. The optimal height of the connecting link from the wand's anchor point depends upon the wand characteristics and I have found this distance to be suitably one-half inch to 1 and ½ inch, though in some special cases it may be as low as one-fourth inch and as high as 3 inches. In the specific case illustrated in this application, it was 1 inch ± ⅛ inch.

Even though a non-directional motor will work, a more random motion is generated when the motor rotation (cw, ccw) is matched to the spiral or winding direction of the spring forming the flexible part of the wand. Ideal flashing time for display purposes is 30 cycles per minute, one second on and one second off. The maximum limits are 3 and 500 flashes a minute. This flashing can be controlled by electronic flip-flop or transistor circuits, or by mechanical switching.

The wand may be constructed of a coiled steel spring, resilient plastic such as a polyoxymethylene, glass or other suitable material with a property of bending at each change in direction so that its main arc will be at least twice as great as it would be with the wand inflexible. Wand flexibility and balance are defined, in general, by the ability of the wand to be barely self-erecting in absence of displacement forces.

The flashing light can, for example, be an incandescent or neon bulb, or any other light source which is electrically activated and of sufficient illuminosity.

While a bracket has been shown, the device can also be housed in an enclosure of any structure or plastic, glass or any other suitable material.

Having thus disclosed my invention, I claim:

1. A non-repetitive random motion display device for simulating a firefly comprising: an elongated flexible elastic wand, a lamp disposed on one end of said wand, a rotating crank means, said crank means having an off vertical crank pin mounted thereon, an elongated connecting link, an opening disposed at one end of said link and having said crank pin mounted therein, the opposite end of said link having an opening through which the opposite end of said wand protrudes, the clearance between the sides of said opposite end opening and said wand being at least one-eighth inch so as to permit random motion of said wand within said opposite end opening and thereby simulate a firefly.

2. The random motion device of claim **1**, in which the said crank pin has at least a ¼ inch throw.

3. The random motion device of claim **2**, in which the throw of the said crank pin is between 3/16 inch and 1 inch.

4. The random motion device of claim **1**, in which the said crank pin has an angle with the plane of motion of the crank means at least 2° to 5° off the perpendicular.

5. The device of claim **4**, in which the said angle is between **1°** and **10°**.

6. The random motion device of claim **1**, in which the crank means has a rotational speed between 12 and 36 rpm.

7. The random motion device of claim **1**, in which the throw of said crank pin is between 3/16 inch and 1 inch, the rotational speed of said crank means between 12 and 36 rpm, a line perpendicular to the plane of the crank forms an angle between 1° and 10° with the crank pin, and the clearance between the sides of said opposite end opening and said wand is between ⅛ inch and 3 inches.

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