An electrically blinking jump rope is comprised of; 1) a flexible tube of partially transparent material, 2) two handles, containing batteries for electric power source, connected to the flexible wrinkled tube at each end, 3) a power switch on one of the handles, 5) a blinking lightning circuit comprised of two electric wires, plurality of LEDs connected to the two electric wires, and a blinking connector. The flexible wrinkled tube connecting the handle and tube of the rope enables a steady power supply even at high-speed rotation and severe motion of the jump rope. Two blinking connector is endurable to long and repeated rotational motion of the jump rope.
MOTION RESPONDING ELECTRICALLY BLINKING JUMP ROPE (II)

BACKGROUND OF THE INVENTION

[0001] Many attempts to provide an electrically blinking jump rope for fun has been difficulty in supplying electric power to the light sources in a desired blinking pattern. Especially, there has been difficulty in providing electric power to light sources according to the motions of swinging and impact of the jump rope to the ground. In addition, the prior art devices have not satisfactorily solved the problem of preventing wind-up of the jump rope between the handles while continuously supplying electric power from a handle to light sources in the rope.

[0002] 1. Field of the Invention

[0003] This invention relates to an electrically blinking jump rope, especially responds to the jumping motion of a user by utilizing two electrically blinking connectors and two flexible wrinkled tubes.

[0004] 2. Description of the Prior Arts

[0005] U.S. Pat. No. 5,087,034 to Solis illustrates a jump rope which is made of a hollow translucent, flexible plastic tube and a plurality of light sticks (CYALUME) inserted in the tube which glows when the light sticks are activated as the rope turns. The light sticks may be readily removed and replaced when they are expended. U.S. Pat. No. 5,389,056 to Ricker illustrates a jump rope assembly with illuminated components comprising, a pair of handles, each handle having an inboard end and an outboard end, one of the handles being hollow and having therein electrical components including a battery, electrical contacts and an on/off switch. U.S. Pat. No. 4,776,585 to Maleyko, et al. to illustrate an electrically lighted jump rope with a flexible tube of light transmitting material and handles rotationally mounted thereon at each end. U.S. Pat. No. 4,529,193 to Kuhnsman discloses a lighted jump rope wherein a set of optical fibers of varying length extends into the rope from each of the handles. A lamp in the handle, which is energized from a battery, and switch arrangement in the handle light each set of fibers at the handle. U.S. Pat. No. 1,820,681 to Schmalbach discloses a jump rope, which is provided with a plurality of spaced lamps which are disposed exteriorly of the rope and which are surrounded by balloons. Batteries in the handles energize the lamps. The jump ropes do not blink but turn on and off a light.

[0006] French Pat. No. 2,276,069 discloses an illuminated jump rope comprising a transparent translucent tube with a pair of handles rotationally mounted at opposite ends. A lighting circuit includes a plurality of colored lamps disposed in the tube.

[0007] None of prior arts disclose electrically blinking jump rope, which responds to jumping motion of a user shown as this invention.

SUMMARY OF THE INVENTION

[0008] It is the purpose of this invention to provide a jump rope electrically blinking along with the rotation and jumping motion of a user. The electrically blinking jump rope is comprised of; 1) a flexible tube of partially transparent material, 2) two handles, containing batteries for electric power source, connected to the flexible wrinkled tube at each end, 3) a power switch on one of the handles, 5) a blinking lightning circuit comprised of two electric wires, plurality of LEDs connected to the two electric wires, and a blinking connector. The flexible wrinkled connector enables a steady power supply even at high-speed rotation and severe motion of the jump rope. Power supplies is activated by turn on the switch on one of the handle. The blinking connector is a liquid metal/metal ball connected light bulb having two sets of (+), (-) heads at the end of the bulb. The liquid metal/metal ball in the bulb oscillates along with the motion of the user, such as jumping. The rotational electric connector and bulb blinking connector endures for the long and repeated rotational motion of the jump rope.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 shows a perspective view of the jump rope of the current application.

[0010] FIG. 2 is an exploded view of the handle of the jump rope of the current application.

[0011] FIG. 3 is an electrical circuit for blinking jump rope of the current application.

[0012] FIG. 4 is a schematic drawing of the blinking connector of the current application.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] FIG. 1 shows a perspective view of the jump rope (1) of this invention. The electrically blinking jump rope (1) is comprised of a flexible tube of transparent material (2), handles (3) containing batteries (4) for electric power source and two flexible wrinkled tube connector (5) with plastic head (6), a power switch (7) in one of the plastic head (6), lightning circuit comprised of two electric wires (8), (9), plurality of LEDs (10) connected to the two electric wires in parallel, a blinking connector (11) on a circuit board (12) for electric connections in the same handle (3).

[0014] FIG. 2 is an exploded view of the handle (3) of the jump rope (1) and the flexible wrinkled connector (13) with a solid plastic head (6). The handle (3) has void (15) for receiving batteries (4). A spring (16) contacting (--) of the battery (4) is connected to a thin copper ribbon (17). The copper ribbon (17) is extended to the upper end of the handle and connected with the electric wire of (8). The (++) electrode of the battery (4) on upper side of the handle (3) is connected to another electric wire (9) after meet the blinking connector (11) on a circuit board (12), which is inserted in the plastic head (6) of the flexible wrinkled connector (13). The ends of the electric wire (9) is extended down to the inner surface of the handle cover (19) after pass through the blinking connector (11) to meet the (++) electrode. The end of the electric wire (8), after pass the metal plate (18) of the on/off switch (7), is connected to a the copper ribbon (17) extended from the (--) electrode of the battery (4). One end of the flexible wrinkled connector (13) is connected to the solid plastic handle cover (19) and the other end is connected to a solid plastic head (6). The flexible transparent tube (2) is inserted to the plastic head (6) and the end (20) of the tube (2) is enlarged by heat treatment to form a knot. The electric wires (8) and (9) are inserted to the plastic head (6) and connected to the LEDs and the blinking connector (11).
Fig. 3 is an electrical circuit for blinking jump rope of the current application. Plurals of LEDs (10) are connected to the electric wires (8) and (9) in parallel. One end of this electric circuit is connected to the (+) and the (−) electrodes of the batteries (4). The on/off switch (7) is provided for main power connection. When a user turn on the on/off switch (7), the electrons from the (−) electrode of the batteries (4) flow through the on/off switch (7) and reach the junction point (21). The electrons flow into both of the two direction (21−a) and (21−b) if the liquid metal/metal ball (22) connects a pair of lead wires (23), (23′) and (24), (24′). Then the LEDs (10) are on. If the liquid metal/metal ball (22) does not connect a pair of the lead wires, the LEDs are off.

Fig. 4 is a schematic drawing of the blinking connector (11) of the current application. It is comprised of two set of two pairs of filament leads (23), (23′) and (24), (24′), which locate at the opposite side of the small-vacuum glass ball, a liquid metal drop/metal ball (22) connects and disconnects the two pairs of filament leads, connect (23) and (23′) or (24) and (24′), along with the motion of a jump rope user. The liquid metal drop/metal ball (22) and the filament leads (23), (23′), (24), and (24′) are embedded in a small-vacuum glass ball (25). When the liquid metal drop/metal ball (22) is apart from both of the filament leads’ set, the electrical circuit established above is disconnected and the LEDs (10) will turn off. When the liquid metal drop (22) is contacted with any pair of the filament leads’ set, the LEDs will turn on. The motion of a user of the jump rope (1) will let the liquid metal drop/metal ball (22) oscillate in the vacuumed glass ball (25) and let the LEDs blink.

What is claimed is:

1. An electrically blinking jump rope comprising:
   1) a flexible tube of partially transparent material, 2) two handles, one of which contains two ‘AA’ batteries for electric power source, connected to the flexible wrinkled tube at each end, 3) a power switch on one of the handles, 4) a blinking lightning circuit comprised of two electric wires, plurality of LEDs connected to the two electric wires, and 5) a blinking connector on a circuit board in the plastic head connected to the flexible wrinkled tube.

2. The electrically lighted jump rope as defined in claim 1, wherein:

   the blinking connector is comprised of a vacuumed glass bulb, a liquid metal ball moving around the two sets of the filament leads, which are locate on the opposite side in the vacuumed glass balls and are connected in parallel between a (+) terminal and a (-) electric wire on a diode providing blinking electric circuit while the electric on/off switch on the other diode is turned on.

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