United States Patent

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[54] **POWER-DRIVEN KITE STRING REEL**
10 Claims, 2 Drawing Figs.

[52] **U.S. Cl.** **242/96,** 244/155, 273/198
[51] **Int. Cl.** **B65h 75/40**
[50] **Field of Search** ..... 242/54, 96; 244/155; 273/97, 98, 40, 196—200

[56] **References Cited**
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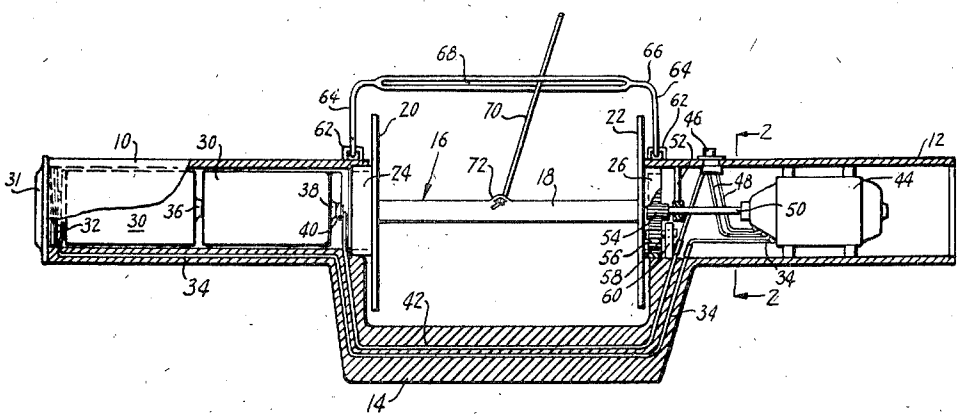
ABSTRACT: A reel on which a kite string is adapted to be wound and from which it may be unwound is journaled at its ends in axially aligned hollow handles one of which houses dry cell batteries and the other of which houses a motor having gear connection with the adjacent end of the reel, the latter handle having a reversing switch for rotating the motor to wind or unwind the string.



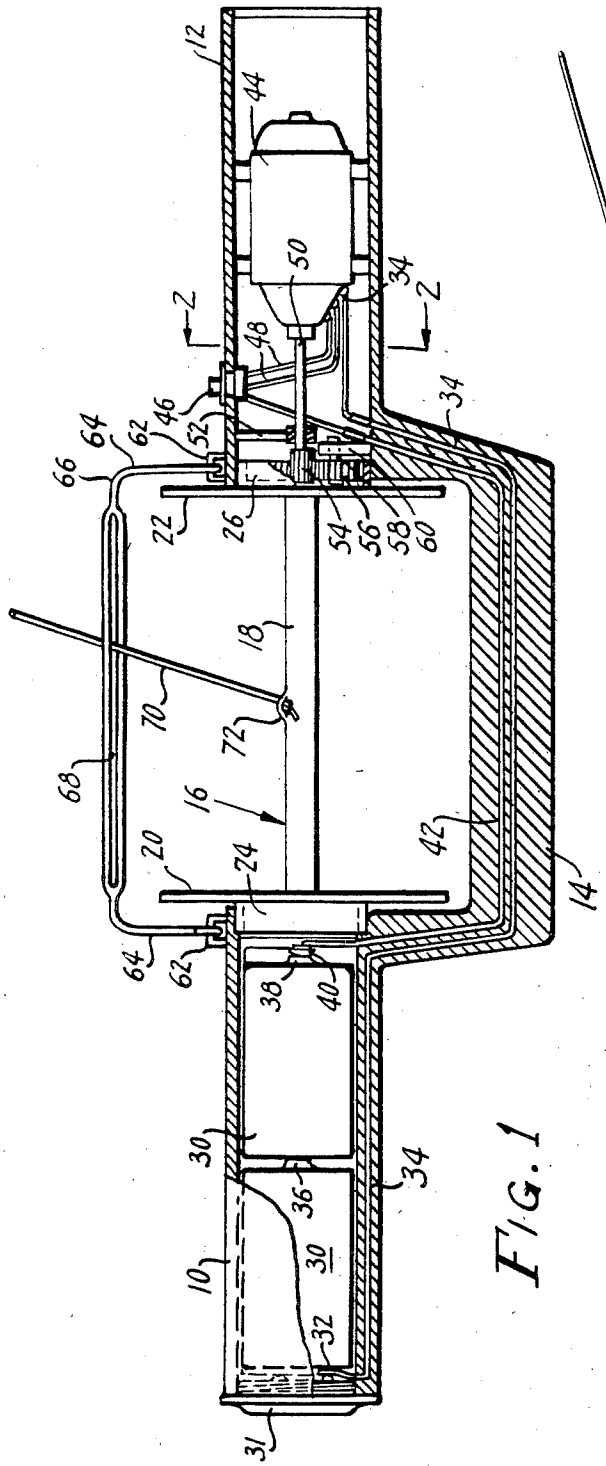


FIG. 1

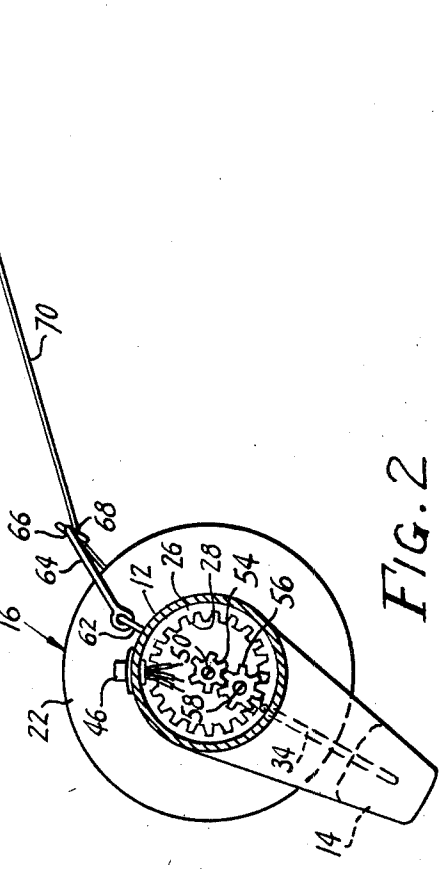


FIG. 2

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POWER-DRIVEN KITE STRING REEL

BACKGROUND OF THE INVENTION

The invention relates to the field of flying kites wherein the kite string is usually handled by hand, it being the common practice to repeatedly pull and release the string to cause the kite to ascend higher and higher. As the kite continues to gain height, the string is payed out from whatever type of device it may be wound on, and such device is used for completely winding the string thereon when the kite is to be retrieved.

SUMMARY OF THE INVENTION

A kite string reel is provided with a central shaft and annular ends, outwardly of the latter of which are extended hollow annular flanges. These flanges are journaled in the adjacent ends of hollow axially aligned handles so that the reel is supported for rotation in either direction by the handles. These handles are connected by a preferably integral yoke and a handle is grasped in each hand in manipulating the device.

One of the handles houses dry battery means connected through a suitable switch mechanism with a driving motor mounted in the other handle. The wires between the batteries and the motor-containing housing extend through the rigid yoke connecting the housings, such housings and the yoke preferably being formed of plastic. The motor shaft extends toward the reel and is provided with a pinion meshing with an idler gear supported in the associated handle, and which idler gear in turn meshes with an internal ring gear on the adjacent end of the reel which is journaled in the associated handle.

A string guiding yoke is pivoted at opposite ends to the handles preferably diametrically opposite the rigid yoke, and the pivoted yoke is provided with a longitudinal opening throughout the length of the reel through which the kite string passes between the reel shaft and the kite. By controlling the reversing switch, the string may be pulled and released repeatedly to cause the kite to soar higher and higher, each reversal of the reel by the motor paying out additional line as the kite rises. When the kite is to be retrieved, the motor is operated continuously in one direction to wind the string on the reel, whereupon the kite will be pulled down to the operator to be retrieved.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a longitudinal sectional view through the device, parts being shown in section: and

FIG. 2 is a transverse section on line 2–2 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the numerals 10 and 12 designate a pair of tubular handles, preferably of molded plastic, and these handles are connected by an offset rigid yoke 14 preferably integral with the handles and, of course, also preferably formed of plastic.

The adjacent ends of the handles are spaced from each other, and arranged therebetween is a reel indicated as a whole by the numeral 16 and comprising an axial shaft 18 and end flanges 20 and 22, the former of which is provided with a cylindrical extension 24 journaled in the adjacent end of the handle 10. The flange 22 is provided with a projecting annular flange 26 which is hollow and is provided with an integral ring gear 28 (FIG. 2) for a purpose to be described.

Within the handle 10 is arranged one or more dry cell batteries of suitable size, two of such batteries being shown in FIG. 1 and indicated by the numeral 30. The end of the handle 10 is provided with a removable cap 31 for the removal and replacing of the batteries. One of the batteries 30, remote from the reel, has its metallic base engaging a contact 32 connected to one wire 34 extending through the yoke 14 as shown. The positive center contact 36 of the same battery engages the base of the other battery 30, the positive center pole 38 of which engages a contact 40 connected to the end of a second wire 42 extending through the yoke. One of these wires, for example, the wire 34, extends directly to one contact of a motor 44 housed in the handle 12. The other wire 42 leads to a conventional reversing switch 46, and from this switch two wires 48 extend to the motor to determine the direction of rotation of the shaft 50 of the motor according to the position of the switch 46.

The handle 12 is provided therein with a bearing arm 52 in which the shaft 50 is journaled, and the free end of such shaft is provided with a pinion 54 meshing with an idler pinion 56 mounted on a shaft 58 journaled in a bearing 60 fixed to the inside of the handle 12 preferably diametrically opposite the bearing arm 52.

Preferably diametrically the yoke 14, the inner ends of the handles 10 and 12 are provided with U-shaped members 62 pivotally connected to the inner ends of the arms 64 of a thin yoke 66. The portion of this yoke connecting the arms 64 is slotted as at 68 for the extension therethrough of a kite string 70 tied to a loop 72 carried by the shaft 18.

OPERATION

The kite is started in flight by hand or by a second person while the other person holds on to the handles 10 and 12 of the present device. By rotating the reel 16 in one direction and then in the other direction repeatedly, the kite string 70 will be pulled and then released in the same manner to cause the kite to rise into the air. As this rising of the kite progresses, the releasing of the string by reversing the switch 46 takes place to a greater extent than the intermittent winding operation, and accordingly the string will be gradually payed out as the kite rises.

The handles 10 and 12 are very convenient to hold, one in each hand, and a finger of the hand grasping the handle 12 readily may control the switch 46.

When it is desired to retrieve the kite, the operator will move the switch 46 so that the reel 16 rotates in one direction to wind the string thereon. During this operation, the device will be rocked back and forth so that the ends of the handles 10 and 12 alternately move toward and away from the operator. In this way, the string, fed through the slot 68, may be progressively wound in one direction on the shaft 18 and then in the other direction to distribute the string on the shaft 18.

The use of the present device is highly interesting in connection with the flying of a kite and is a source of substantial entertainment to a child flying the kite. As is well known, children are very fond of mechanical toys, and particularly electrically operated toys, and accordingly the present device will be a source of great pleasure to a child.

From the foregoing it will now be seen that there is herein provided an improved power-driven kite string reel which accomplishes all of the objects of this invention and others, including many advantages of great practical utility and commercial importance.

As various embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. A power-driven kite string reel comprising a body having hollow portions one of which is adapted to receive a dry cell battery, a motor mounted in the other hollow portion of said body, said body having spaced axially aligned portions providing bearings, a reel mounted between said spaced portions of said body and having portions journaled in said bearings to be rotatably supported thereby, power transmitting means connected between said motor and the adjacent end of said reel, and circuit means connecting said battery and said motor and including a reversing switch.

2. A device according to claim 1 wherein said hollow portions of said body comprise axially aligned handles in one of which said motor is housed.

3. A device according to claim 2 wherein said body comprises a yoke extending between said handles and offset therefrom to provide space for said reel.

4. A device according to claim 3 wherein said circuit means includes wires embedded in said yoke.

5. A device according to claim 2 wherein the projecting portion of said reel journaled in the handle which houses said motor is provided with an internal ring gear, said means for transmitting power from said motor to said reel comprising a motor shaft and gearing connecting said shaft to said ring gear.

6. A device according to claim 3 wherein said handles and said yoke are formed integral of moldable material.

7. A device according to claim 3 wherein said handles are tubular and said bearing portions thereof are cylindrical, said reel comprising a shaft and annular flanges at the ends thereof, the portions of said reel rotatable in said bearing portions of said body comprising axially aligned cylindrical flanges.

8. A device according to claim 7 wherein said power transmitting means comprises a ring gear formed in one of said annular flanges, a motor for said shaft, and gearing connected between said shaft and said ring gear.

9. A device according to claim 8 provided with guide means pivoted to said handles for guiding a string as it is wound on and unwound from said shaft.

10. A device according to claim 9 wherein said guide means comprises a yoke having an intermediate portion parallel to the shaft of said reel and end portions pivotally connected to the respective handles, said intermediate portion of said guide means having a longitudinal slot substantially coextensive in length with said shaft.