A combination of an archery bow, arrow rest, an arrow and a light which is illuminated in response to a predetermined position of an arrow on the arrow rest. There are electrical contacts on the arrow rest which engage an exposed and adjustable electrical conductor on an arrow. When this contact is made an electrical circuit is completed and a signal light is caused to operate.
3,867,920

1

BOW DRAWING INDICATOR

This is a divisional of application Ser. No. 201,046, filed Nov. 22, 1971 now U.S. Pat. No. 3,766,656.

BACKGROUND OF INVENTION

Various types of bow sighting devices are available which have one or more sight pointers which are typically preset for various ranges prior to drawing the bow. These devices are convenient when target shooting at known ranges but impractical for hunting, because the sight pointer is not readily adjustable as the range changes and when the bow is drawn.

SUMMARY OF INVENTION

The invention includes an archery bow which has an arrow rest extending outwardly from the bow. The arrow rest has two electrical contacts that are connected to a battery and signal light so that when an exposed adjustable electrical conductor on an arrow is brought into contact with the contacts on the arrow rest, an electrical circuit is completed and the signal light is illuminated. The signal light will enable the archer to consistently draw the arrow to the same drawn point for consistent shooting.

DESCRIPTION OF DRAWINGS

FIG. 1 is a side rear perspective view of the bow sighting device and drawing indicator of the invention and a fragmentary view of a bow and arrow.

FIG. 2 is an enlarged rear view of the sighting device of the invention.

FIG. 3 is a sectional view along lines 3–3 of FIG. 2.

FIG. 4 is a sectional view along lines 4–4 of FIG. 2.

FIG. 5 is a plan view of the bow sight shown in FIG. 2.

FIG. 6 is a front view of the bowsight shown in FIGS. 1 and 3 along line 6–6 of FIG. 5.

FIG. 7 is a schematic diagram of the electrical circuit for the bow sight.

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may be embodied in other specific structure. The scope of the invention is defined in the claims appended hereto.

In the drawings, FIG. 1 discloses a sighting device in accordance with the invention which is generally designated 10 and which includes a frame or bracket 12 having a bracket mounting portion 14 which is spaced from the bracket wall 16 and connectable to the forward face 18 of the bow 20 by screws or bands (not shown). The bracket 12 can also include a front wall 13 connected to the wall 16 by top and bottom walls 17 and 19 and spaced side walls 21, 23. The bracket walls thus enclose the motor and battery hereinafter described. The side wall 21 can be provided with a longitudinal slot 25.

The bow 20 conventionally includes a window 22 which extends downwardly to merge with an arrow rest 24. The bow also conventionally includes a hand grip 26.

The bow sight 10 includes a sight pointer or forward sight pointer 28 which projects through the slot 25 and is movable reciprocally in registry with the bow sight window 22 and forwardly of the sight window. In accordance with the invention, means are provided for connecting the sight pointer 28 to an electric motor 30 (FIGS. 6, 7) for moving said sight pointer reciprocably to afford a range of sight pointer positions within said window 22. In the disclosed construction, the means includes a screw 32 which is supported by bearings or tabs 34, 36 which have apertures 37 which rotatably receive the ends of the screw 32 which can be interconnected by a strut or wall portion 38 which is connected to the bracket wall 16.

The sight pointer 28 is carried by a threaded member or nut 40 with one or more flat surfaces which is confined in the channel 41 between a vertically extending flange or wall 42, the inner surface of the bracket wall 16 and wall portion 38. The nut 40 is thus confined against rotation and affords rectilinear movement of the nut 40 on the screw 32. The means for connecting the motor to the pointer 28 also includes a gear 45 on the motor output shaft 46 which meshes with an idler gear 48 carried by the bearings 49 on the bracket. The idler gear 48 meshes with a gear 50 on the screw 32.

The use of the gear train as heretofore described enables placement of the motor 30 laterally offset from the screw 32 to minimize the size of the sighting device 10.

The motor 30 is a reversible DC motor powered by a battery 52 which is also mounted on the bracket wall 16 by a clip 51. The motor is energized by an electrical switch 54 (FIGS. 1 and 2) which can be located on the sighting device 10 or be conveniently located on the handle grip 26 of the bow so that it is easily operated by the hand gripping the bow. The switch 54 desirably has a rockable or slideable switch actuator which is movable between an off position and a forward and reverse position. A double pole double throw switch wired to reverse polarity to the motor can be employed. The switch 54 is connected to the battery by leads 55, 57 and to the motor by leads 50, 61.

The sighting device 10 also includes a range indicator 63 which is connected to the nut 40 and extends through the slot 25. A bend 65 provides clearance of the range indicator 63 with the bracket wall 16 and positions the indicator 63 between the front face 18 of the bow and the wall 16. A section 66 of the indicia is located on the wall 16 for cooperation with the indicator. The scale can contain suitable range indicia 69 which is used when calibrating the bow. When calibrated, the indicia will typically include range in yards or units.

The invention also includes a rear sight pointer 60 which is supported by a bracket portion 62 which extends rearwardly and inwardly from bracket 12 to position the pointer 60 behind the sight pointer 28 for alignment with the pointer 28 and the target. The pointer 60 desirably has a threaded shank portion 64 which is threaded into a nut 66 which is anchored on the tab 68. A knurled head 70 facilitates lateral adjustment of the pointer to compensate for the effect of cross winds, etc.

The invention also includes a full draw indicator in which a signal light or other alerting device such as a buzzer 76 is supported on the bracket portion 62 of bracket 12 and connected to the battery 52. An arrow 78 is provided with an electrical conductor 80 which is adjustable longitudinally of the arrow and typically located adjacent the tip 82 of the arrow. The conductor 80 can be a metallic band, paint or a film. When the conductor 80 is in the desired position and the arrow
is drawn, the conductor 80 will complete the electrical circuit to the signal light 76 when the conductor engages spaced electrical contacts 84 and 86. The electrical contact 84 is located on the rest 24 and the electrical contact 86 is affixed to the sight window face 88. The circuit to the signal light includes a lead 90 connecting one terminal of the light 76 to the battery 52, a lead 94 connecting the other terminal of the light 76 to the contact 86. A lead 96 connects the contact 84 to the other battery terminal.

In use the conductor 80 is positioned on the arrow at a position which is comfortable for the archer when the arrow is at the desired full draw. Thus the archer can consistently make the same draw which is necessary for uniform power and uniform shooting.

What is claimed is:

1. In combination with an archery bow having an arrow rest, an arrow with an exposed electrical conductor, spaced electrical contact means on said arrow rest for forming an electrical circuit with said conductor on said arrow, said conductor being adjustably movable longitudinally of the arrow, a signal light, a battery, and an electrical circuit means connecting said signal light to said battery and to said spaced electrical contact means on said arrow rest, whereby said contact means engages said electrical conductor on said arrow to complete the circuit to said signal light and illuminate said signal light when said arrow is at a predetermined position on said arrow rest.

2. The combination of claim 1 wherein said bow has a window face and an arrow rest in the form of a ledge extending laterally of the longitudinal axis of the bow and transversely of said window face said contact means comprises two contacts one of said electrical contacts being located on said ledge and the other of said contacts being located on said face to dispose said contacts at the same draw point with respect to said arrow.

* * * * *