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H. F. ROTHGERY

2,980,097

ARROW SUPPORT

Filed Jan. 28, 1959

Fig. 1

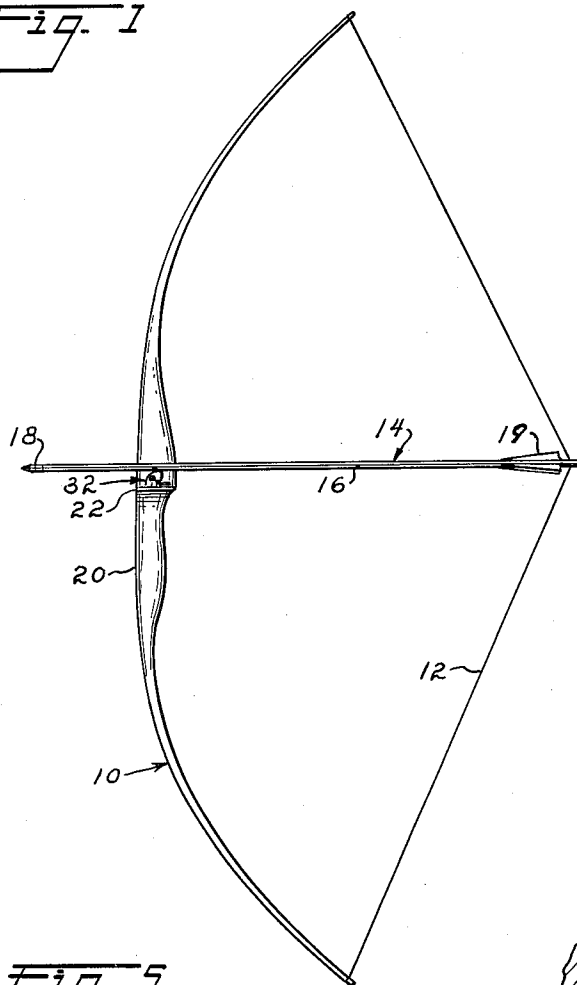


Fig. 2

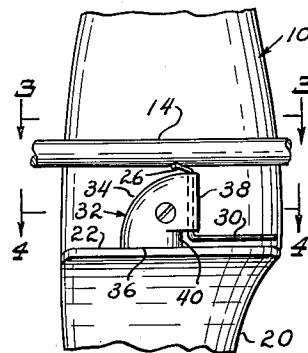


Fig. 3

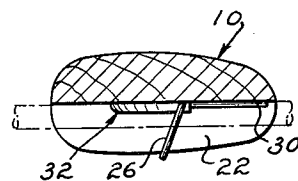


Fig. 4

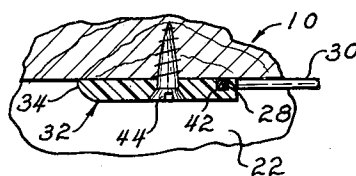


Fig. 5

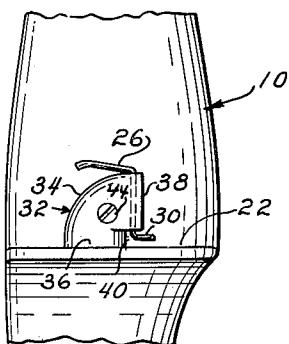
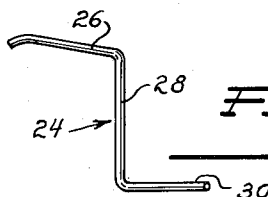


Fig. 6



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ARROW SUPPORT

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1 Claim. (Cl. 124—41)

This invention relates to archery equipment and more particularly to an arrow support to be used in conjunction with a bow provided with a shelf.

Modern bows are frequently provided with a shelf for supporting and guiding an arrow as it is shot from the bow. The shelf has been found to function extremely well for its purposes though occasionally the lower-most fletch of the arrow contacts the shelf so that the fletch is damaged or the arrow is deflected, usually downwardly, from its intended course. This problem is particularly true when the fletches are of plastic material rather than of feathers, the plastic material having considerably less yield than the feathers so that either the fletch is cracked or the arrow flight is affected by engagement of the plastic fletch with the shelf.

An object of the present invention is to eliminate arrow damage or inaccuracy, occasioned by engagement of an arrow fletch with the bow shelf.

More particularly it is an object of the invention to provide means for supporting an arrow out of contact with the shelf while the bow is being drawn and the arrow aimed, with the supporting means automatically moving clear of the arrow immediately upon release of the bow string so that the arrow moves past the bow in its flight path without at any time engaging the shelf.

Other objects and their attendant advantages will become apparent as the following detailed description is read in conjunction with the accompanying drawings wherein:

Fig. 1 is a side elevational view of a drawn bow showing the arrow supported on the support means of the present invention;

Fig. 2 is a broken enlarged side elevational view showing the support means of Fig. 1;

Fig. 3 is a cross-sectional view taken on a line substantially corresponding to the line 3—3 of Fig. 2;

Fig. 4 is an enlarged cross-sectional view taken substantially on the line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 2 but showing the support moved to its non-supporting position; and

Fig. 6 is an enlarged view of the supporting member.

Referring now to the drawings, Fig. 1 illustrates a drawn bow 10 having the usual bow string 12 engaging the slotted end of an arrow 14 preparatory to shooting the arrow. The arrow is of conventional construction having a shaft 16 provided at one end with a point 18 and at the opposite end with fletches 19. The bow is of modern conventional construction provided with a grip portion 20 and a shelf 22 adapted to support and guide an arrow. In accordance with the present invention and as illustrated in the drawings, means are provided for supporting the arrow out-of-contact with the shelf so that upon release, the arrow is in almost instantaneous free flight thus avoiding the possibility of a fletch 19 engaging the shelf and being damaged or deflecting the arrow from its intended path of flight.

The supporting means of the invention comprises in part the member 24 of wire spring-like material illustrated

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in Fig. 6. This member has an upper arrow supporting arm 26, a central hinge portion 28 and a lower counterweight arm 30, which as shown in Fig. 3 is substantially longer than the arrow supporting arm 26. The counterweight arm 30 is preferably at right angles to the hinge portion 28 and the arrow supporting arm 26 extends laterally with respect to the axis of the counterweight arm 30.

The member 24 is swingably secured to the side of the bow immediately above the shelf 22 by means of a clamping member 32 of substantially quarter-round shape having an arcuate forward edge 34 and straight lower and rear edges 36, 38. The lower rear corner of the member 32 is cut away to provide a square sided notch 40 with the rear portion of the member 32 overhanging the notch. This overhanging portion is provided with a straight groove 42, more clearly seen in Fig. 4, which swingably receives the hinge portion 28 of the arrow supporting member 24 which is rotatably clamped between the groove 42 and the side of the bow when the member 32 is attached thereto by glue or by a screw 44 as shown. The length of the hinge portion 28 is slightly greater than the length of the groove 42 so that the counterbalance arm can swing freely in the notch 40 without contacting in any way any part of the shelf 22 or the clamping member 32. Desirably the angle between the supporting arm 26 and the hinge part 28 is slightly greater than 90° so that the arm 26 is not obstructed by the upper part of the forward edge 34 of the clamping member when the arm 26 is swung to a position abutting the side of the bow as illustrated in Fig. 5. Desirably also the angle between the axes of the arms 26 and 30 is slightly greater than 90° so that the axis of the counterbalance arm is inclined rearwardly towards the side of the bow, the arrangement being such that when the support member 24 is in the arrow release position of Fig. 5 the slightest rearward or sideways tilting of the bow will, because of the inclination and the greater weight of the counterbalance arm, cause the support member 24 to swing freely to the arrow supporting position of Fig. 3.

In use, assuming the member 24 to be in the arrow supporting position of Fig. 3, when an arrow is nocked on the bow string and the string and arrow are drawn rearwardly to the shooting position of Fig. 1, the shaft merely slides across the upper edge of the support arm 26 which is retained in its outwardly supporting position by engagement of the counterweight arm with the side of the bow. When the bow string and arrow are released the forward motion of the arrow causes the support arm 26 to move rapidly forward out of supporting engagement with the arrow and into engagement with the side of the bow. The arrow, being then completely unsupported from below, travels the remaining distance until it has cleared the bow in free flight at a distance above the shelf slightly in excess of the downwardly extending fletch so that the arrow proceeds on its course without being deterred in any way by engagement of the fletch with the shelf. After the arrow has been shot, the slightest rearward or sideways tilting of the bow is sufficient to bring the support member 24 automatically to its arrow supporting position as previously explained.

In order that the arrow will not be deflected in any way by the swinging movement of the arm 26, it is highly desirable that the axis of its arc of movement be at all times parallel to the vertical axis of the bow. In the present invention this is assured by provision of the flat lower edge 36 of the clamping member 32 which engages the flat surface of the shelf 22 and positively locates the hinge groove 42 perpendicular to the shelf surface, thus assuring that the arm 26 swings through a uniform arc whose axis is perpendicular to the flat surface of the shelf. It will be apparent to those skilled in the art that if the member 32 were tilted bodily rearwardly so

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that the groove 42 were inclined upwardly to the rear, when the arm 26 is swung forwardly by the arrow it will swing upwardly as it is moved forwardly by the arrow thus causing a possible upward deflection of the arrow from its intended course. The present invention eliminates this possibility as above explained.

It will be apparent to those skilled in the art that the invention is susceptible of various modifications and changes without, however, departing from the scope and spirit of the appended claim.

What is claimed is:

An arrow support for a bow having an arrow supporting shelf comprising a support member of spring wire-like material, said member having an arrow supporting arm, a counterweight arm and a hinge portion substantially normal to the axes of said arms and interconnecting corresponding ends of said arms, the axis of one of said arms being laterally related to the axis of the other of said arms, a clamping member for rotatably supporting said hinge portion comprising a substantially quarter-circular, flat, plate-like, clamping member having a straight lower edge and a straight rear edge normal to the lower edge, the lower rear corner formed by said lower and rear edges being cut away to provide a square-sided notch so that the rear part of said member overhangs said notch

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and is spaced above said lower edge, a groove on the inner face of the overhanging rear part substantially normal to said lower edge, said groove being of a size to rotatably receive the hinge portion of said support member, the lower edge of said clamping member being engageable with the horizontal surface of said bow shelf with said groove being thereby vertically positioned with respect to said shelf, means for connecting said clamping member to the vertical side wall of said shelf with the hinge portion of said support member being confined between said vertical wall and said groove, said hinge portion being arranged so that said arrow supporting arm is adjacent the upper end of said groove and the counterweight arm is adjacent the lower end of said groove, said arrow supporting member being swingable from a position wherein said counterweight arm extends rearwardly in engagement with the side of said bow and said arrow supporting arm projects laterally from said bow to a position wherein said arrow supporting arm extends forwardly in engagement with the side of said bow and the counterweight arm projects laterally from said bow.

References Cited in the file of this patent

Archery, June 1957, page 55 cited.