

June 2, 1964

R. A. HOYT
ADJUSTABLE ARROW REST
Filed May 24, 1961

3,135,255

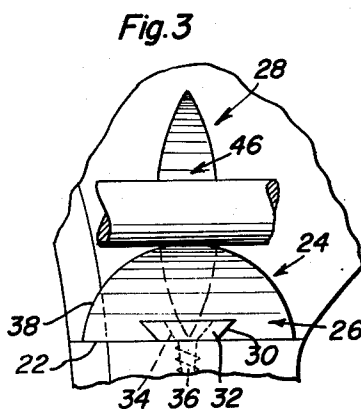
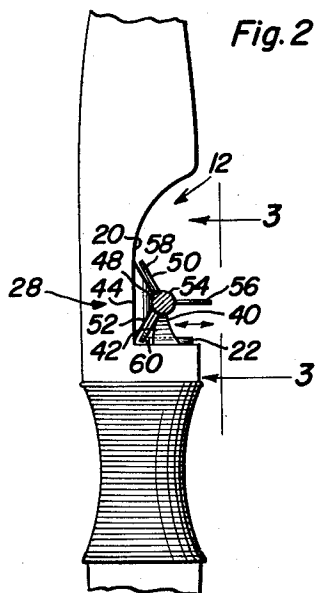
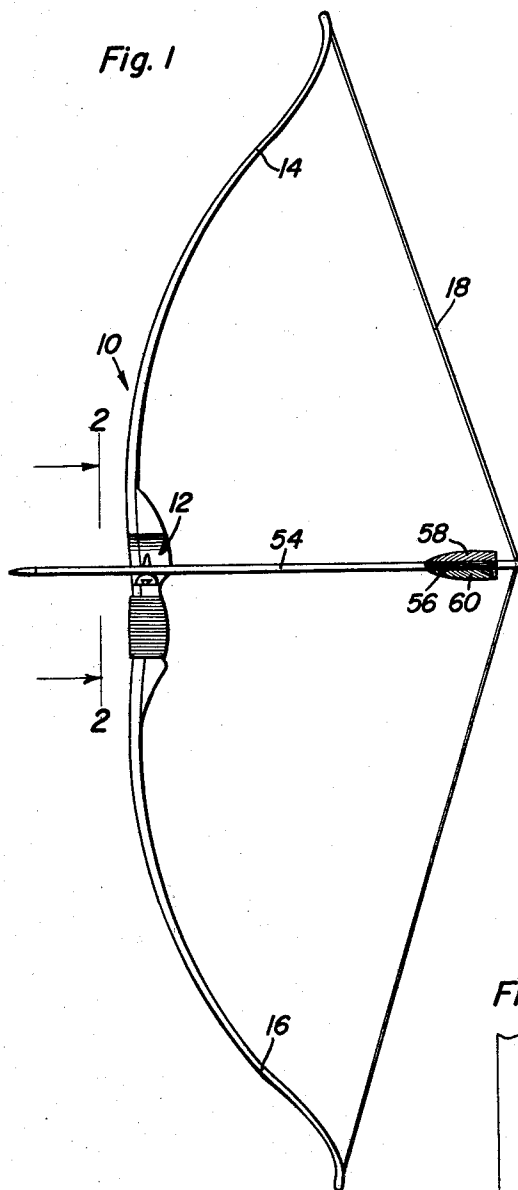
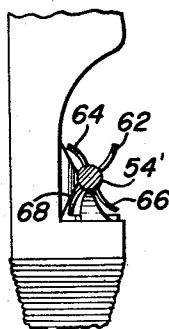


Fig. 4



Robert A. Hoyt
INVENTOR.

BY *Alvanice A. O'Brien*
and *Harvey B. Jackson*
Attorneys

United States Patent Office

3,135,255

Patented June 2, 1964

1

3,135,255

ADJUSTABLE ARROW REST

Robert A. Hoyt, 4615 College Ave., College Park, Md.
Filed May 24, 1961, Ser. No. 112,318
3 Claims. (Cl. 124-24)

This invention relates to an improved arrow rest specifically adapted to greatly increase the cast (speed, distance and trajectory) of an arrow. The arrow rest of the instant invention is also designed and adapted to eliminate erratic arrow flights which can be caused by the arrow being disposed in exact alignment with a plane defined by the bow string of a bow during the flight of the arrow from a bow. In the past it was thought that if the arrow be placed in alignment with a bow string when being released the flight of the arrow would be as true as possible. However, it has been proven by slow motion movie pictures that the great amount of thrust applied to the rear end of an arrow shaft will bend the intermediate portion of the arrow shaft to one side or the other as the arrow is released. Accordingly, inasmuch as substantially all arrow shafts will bend upon their initial release, it has been proven advantageous to cause the arrow shaft to bend in only one direction whereby any deflection of the arrow shaft in this direction may be compensated for by the archer. On the other hand, the archer may select the arrow shafts he uses and use shafts too stiff to shoot to the left and too weak to shoot to the right and thus obtain extreme accuracy. The arrow rest of the instant invention is specifically adapted for use with bows having sight windows and includes an upstanding guide abutment adapted to be secured to the upstanding inner wall of a bow sight window insuring that the center line of the arrow will be positioned outwardly of the center line of the bow thus insuring that the arrow shaft will bend around the bow and in one direction only at its initial release.

The adjustable arrow rest of the instant invention includes an upstanding narrow rest element adapted for mounting within a bow sight window and for regulatable adjustment transversely of the direction of flight of an arrow shaft. The rest element is provided with a narrow upper surface adapted to support a shaft of an arrow between two adjacent feathers secured to the arrow shaft. The concept includes means for anchoring and adjustably positioning the rest element transversely of the direction of the flight of the arrow whereby the use of arrow shafts of varying diameter may be compensated for as a larger diameter shaft would have its longitudinal axis positioned a slight distance laterally of the bow and outwardly of the sight window of the bow away from the center line of a small diameter arrow shaft inasmuch as the longitudinal side edges of an arrow shaft disposed innermost in the side window abut against the inner upstanding wall of the sight window.

In conjunction with the arrow rest element, an upstanding guide abutment member is provided and the abutment member includes an upstanding inside base side adapted for securement to the upstanding inner wall of a sight window. The guide abutment member includes an opposite upstanding outer side having an intermediate guide face generally paralleling the base side and upper and lower inclined surfaces diverging toward the base side of the guide abutment member. The guide abutment member functions to provide a guide surface for the innermost longitudinal side edge of an arrow shaft and positions the longitudinal center line of the arrows outwardly of the sight window from its normal position and out of alignment with the bow string.

The main object of this invention is to provide an

2

arrow rest for an archer bow having a sight window which will greatly increase the flight of an arrow by reducing the frictional engagement of an arrow with various parts of the bow from which it is being propelled.

A further object of this invention, in accordance with the preceding object, is to provide an arrow rest which may be utilized to support an arrow shaft during the process of propelling the arrow from the bow in a manner whereby the feathers secured to the rear end of the arrow shaft will not be forced to bend or otherwise deflected by engagement with the bow from which the arrow is being fired.

Still another object of this invention is to provide an arrow rest which may be utilized to adjust the positioning of an arrow shaft inwardly or outwardly of a bow sight window in order that the most effective positioning of the arrow may be obtained for a given bow and a given archer using that bow.

Yet another object of this invention is to provide an adjustable arrow rest wherein the principal components are constructed of fluorocarbon resins such as "Teflon" in order that the frictional engagement of the arrow shaft with the rest will be maintained at a minimum.

A still further object of this invention is to provide an arrow rest which may be utilized to indicate to an archer when he has drawn back the bow string and arrow beyond the desired limit.

A final object to be specifically enumerated herein is to provide an adjustable arrow rest for a bow which will conform to conventional forms of manufacture, is of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view of a bow with an arrow shaft engaged therewith and disposed in the firing position and the adjustable arrow rest being shown mounted upon the bow and supporting the arrow shaft;

FIGURE 2 is a fragmentary enlarged vertical sectional view taken substantially upon the plane indicated by section line 2-2 of FIGURE 1;

FIGURE 3 is a fragmentary side elevational view on somewhat of an enlarged scale taken substantially upon the plane indicated by section line 3-3 of FIGURE 2; and

FIGURE 4 is a fragmentary vertical sectional view similar to that of FIGURE 2 but showing the arrow rest being used in connection with a four feathered arrow.

Referring now more specifically to the drawings, the numeral 10 generally designates a conventional type of bow which is notched in the manner shown to provide a sight window generally referred to by the reference numeral 12, a pair of resilient arms 14 and 16 and a bow string 18 interconnecting the free ends of the arms 14 and 16. The sight window 12 includes an upstanding inner or vertical wall 20 and a right angled or horizontally disposed bottom wall 22.

The arrow rest of the instant invention is generally referred to by the reference numeral 24 and includes a rest element referred to in general by the reference numeral 26 and in combination therewith a guide abutment member generally referred to by the reference numeral 28. The rest element 26 includes an elongated bottom wall or surface 29 which has a dovetailed groove 30 formed therein. A dovetailed guide bracket 32 is keyed

in the groove or slot 30 and is apertured as at 34 for reception of a fastener 36 which is utilized to fixedly secure the guide 32 to the bottom wall 22 of the sight window 12. The arrow rest element 26 includes a longitudinally convexed upper surface 38 which is substantially semi-circular and extends the full length of the arrow rest element 26. The arrow rest element 26 is provided with upwardly convergent opposite sides 40 and 42 and it will be noted that the side 40 is vertically concaved and that the side 42 is vertically convexed.

The vertical guide abutment member 28 includes an elongated upstanding inside base 44 and an opposite side upstanding outer side generally referred to by the reference numeral 46 which is provided at its median portion with a generally flat intermediate guide face 48 and upper and lower inclined surfaces 50 and 52 which are divergent toward the base side 44.

From FIGURE 2 of the drawings it may be observed that the arrow shaft 54 is supported along its lower surface by means of the semi-circular or convex surface 38 of the rest element 26 and that one longitudinal side surface of the shaft 54 rests against and is guided by the intermediate guide face 48.

The arrow shaft 54 includes three feathers 56, 58 and 60 and it will be noted that the upper and lower inclined surfaces 50 and 52 of the abutment substantially parallel the plane of flight of the feathers 58 and 60 and that the feather 60 is received in spaced relation between the lower inclined surface 52 and the convex side 42 of the rest element 24. The upper surface 38 is disposed in substantial vertical alignment with the longitudinal axis of the arrow shaft 54 and the intermediate guide face 48 positions the longitudinal axis of the arrow shaft 54 laterally of a plane passing through the opposite end of the bow string 18 in a direction away from the upstanding inner wall 20 of the sight window 12. In this manner, the arrow shaft 54 will be assured of bending around the bow 10 rather in the opposite direction.

From FIGURE 3 of the drawings it will be noted that the base side 44 of the guide abutment 28 is elongated and tapered at its opposite end portions.

With attention now directed to FIGURE 4 of the drawings it will be noted that the arrow rest including both the rest elements 24 and the guide abutment member 28 are also particularly well adapted to be used in connection with arrow shafts such as that designated at 54' which are provided with four feathers 62, 64, 66 and 68.

A four feathered arrow is usually a hunting arrow and it will be noted that the feathers 62, 64, 66 and 68 are transversely curved. The feathers may be curved in either direction although the curvature of the feathers on a single arrow shaft is always in the same direction. Feathers curved in one direction come from one wing of a bird and the feathers curved in the other direction come from the other wing of a bird. It will be noted that the concave space 40 conforms to the curvature of the feather 66 and that the convex space or side 42 corresponds to the curvature and positioning of the feather 68. If the feathers 62, 64, 66 and 68 are oppositely curved, the rest element 24 is completely removed from engagement with the anchoring and adjusting guide 32, reversed in position relative thereto restored to its slidably keyed state on said guide. In this manner, the rest element 26 may be used in conjunction with arrows having feathers curved in opposite directions.

The arrow rest 26 and also the guide companion guide abutment member 28 are preferably molded from fluorocarbon resin "Teflon," for example, although other suitable friction-resisting materials may be used. However, if "Teflon" is used, the reduction of the frictional drag together with the ability of the arrow rest 24 to support an arrow shaft without the feathers of the arrow shaft striking the bow greatly increases the cast of the arrow. The trajectory of the arrow begins to noticeably improve at 40 yards distance from the bow 10 and gradually im-

proves as the distance increases to approximately 80 yards distance from the bow 10 at which point the trajectory of the arrow is approximately three feet higher.

It will be noted that the rest element 26 may also be used as a gauge for draw length. An archer may watch the point of his arrow and as the arrow is drawn rearwardly and the forward end thereof passes the uppermost point of the rest element 26, the forward end of the arrow will drop slightly which may be detected either visually or by feel. Then, the archer may allow the distal end of the arrow to creep forward until just the forward tip thereof is disposed forwardly of the crest of the rest element 26.

The guide abutment member 28 is secured to the inner wall 20 of the sight window 12 in any convenient manner such as by gluing or bonding. Further, in addition to being mounted for movement laterally of the bow 10, the rest element 26 may be mounted on the bow 10 by means of a transverse bore formed through the rest element adjacent its lower surface which may be utilized to snugly and slidably receive a horizontally disposed and transversely extending slide pin which is secured to and extends outwardly of the upstanding inner wall of the sight window 12. In any case, it will be advantageous to have the lower surface 28 of the rest element 26 disposed in sliding contacting relation with the horizontal bottom wall 22 of the sight window 12. If the cross-sectional thickness of the guide abutment member from its base side to the intermediate guide face 48 is slightly greater than needed, either the guide abutment member 28 may be recessed in the upstanding inner wall 20 of the sight window 12 or the desired amount of material may be removed from the base side 44 of the guide abutment member 28.

With attention directed to FIGURES 2 and 4, it will be noted that the feathers 58, 60, 64, 66 and 68 cooperate with the matching surfaces of arrow rest 24 in a manner whereby they are not engaged by either the bow 10 or the rest 24. In this manner the far more durable plastic feathers may be used without the plastic feather engaging the bow 10 or rest 24 to deflect the flight of the arrow or to cause damage to the semi-rigid plastic feathers.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination, a bow having an arrow clearing and sight window embodying an upstanding substantially vertical wall and a complementary horizontal wall at the lower end thereof and at right angles thereto, an anchoring bracket dovetailed in cross-section affixed atop a central portion of said bottom wall and extending transversely across said wall, an arrow rest element substantially semi-circular in side elevation having a flat bottom side and a longitudinally curving top edge, said bottom side slidably contacting said bottom wall and having a transverse dovetail-shaped groove slidably keyed on said bracket and permitting said element to be adjusted toward and from the vertical wall and also to be bodily detached, reversed and again keyed for use on the bracket, one lengthwise side surface being concave and the opposite lengthwise surface being convex, and in combination, an arrow stabilizing abutment interposed between the median portion of said rest element and vertical wall and affixed to said vertical wall, said abutment having an outward vertically extending edge spaced from the adjacent side of said element, said edge having a flattened median surface providing an auxiliary rest for a cooperating side of the arrow's shaft and said surface being positioned in a plane slightly above the uppermost arrow supporting surface of said rest element in a manner to coordinate therewith and to assist in enabling the archer to maintain the

selected poise of the arrow shaft with the latter simultaneously contacting both of said rests.

2. In combination, a bow having an arrow clearing and sight window embodying an upstanding substantially vertical wall and a complementary horizontal wall at the lower end thereof and at right angles thereto, an upstanding arrow rest element adjustably mounted and keyed atop said bottom wall and manually shiftable toward and from said vertical wall in a plane parallel to the plane of said bottom wall, whereby to support an arrow with its lengthwise axis a predetermined increment of an inch off the plane of the bow's string, said arrow rest element being substantially semi-circular in side elevation, bodily detachable and reversible, one lengthwise side surface being

concave and the other lengthwise surface being convex, and said side surfaces converging upwardly toward and thus narrowing the curvate top portion of said rest element.

3. The structure according to claim 2, and wherein said rest element is made of friction minimizing fluorocarbon resin.

References Cited in the file of this patent

UNITED STATES PATENTS

2,542,501	Fredrickson	Feb. 20, 1951
2,600,250	Lake et al.	June 10, 1952
2,665,679	Gaskell	Jan. 12, 1954
2,998,811	Sackman	Sept. 5, 1961