ARROWHEAD SETTING DEVICE

Inventor: George F. Shutt, 1210 N.E. 181st St., Apt. 26, Tacoma, Wash. 97230

Filed: Sept. 24, 1973

Appl. No.: 399,940

U.S. Cl. .......... 33/180 R, 273/106.5, 269/38
Int. Cl. ................. A63b 65/02, G01b 5/25
Field of Search .......... 33/180 R; 273/106.5; 269/38; 29/1.2

Primary Examiner—Samuel B. Rothberg
Assistant Examiner—Willis Little
Attorney, Agent, or Firm—Wells, St. John & Robert

ABSTRACT

An arrowhead setting device for setting arrowheads on arrow shafts comprises an arrowhead support and a shaft support mounted to a common base. The arrowhead support releasably mounts an arrowhead with its longitudinal centerline located along a prescribed axis. The shaft support is translationally movable relative to the arrowhead support and supports a shaft therein along the prescribed axis. The device is operable to join the arrowhead to the shaft so that the arrowhead centerline and the shaft axis are coaxial.

6 Claims, 6 Drawing Figures
ARROWHEAD SETTING DEVICE

BACKGROUND OF THE INVENTION

The present invention relates generally to the field of arrow manufacturing equipment and more specifically to such equipment for setting arrowheads on arrow shafts.

It is common practice for archery enthusiasts to construct arrows from available separate components including arrowheads, arrow shafts, feathers, and nocks. Various conventional apparatus is known for mounting feathers to the shafts and further for mounting the nocks to the shaft. Mounting of the arrowhead to the arrow shaft, however, has normally been accomplished by hand. This is usually done by utilizing a hard-setting glue to rigidly fix an arrowhead to the arrow shaft. When this is attempted manually, the outcome is not infrequent that the arrowhead is mounted to the shaft with the arrowhead centerline offset from the axis of the shaft. This misalignment causes inaccuracy in the flight of the arrow and further increases possibility of breakage of the arrow once it strikes a hard surface.

It may be understood from the above discussion that it is desirable for archery enthusiasts or for arrow manufacturers to obtain a device that would facilitate mounting of an arrowhead to an arrow shaft with the arrowhead centerline coaxial with the arrow shaft axis. The apparatus of the present invention accomplishes this by providing an arrowhead support and a shaft support both of which are mounted to a common base. The arrowhead support holds the arrowhead with its centerline lying along a prescribed axis and the shaft support holds the shaft with its longitudinal axis coaxial with the prescribed axis. The arrow shaft support is movable along the base to enable the arrow shaft to be moved transversely along the prescribed axis into the shaft receiving opening of the arrowhead, thereby mounting the arrowhead to the arrow shaft with its centerline coaxial with the shaft axis.

SUMMARY OF THE INVENTION

An arrowhead setting device is described herein comprising an elongated base having mounted thereon an arrowhead support means and a shaft support means. The arrowhead support means is utilized to receive and support an arrowhead with its shaft receiving end facing toward the shaft support means and with its longitudinal centerline coaxial with a prescribed axis. The shaft support means is utilized to receive and position an arrow shaft with its arrowhead receiving end pointed toward the shaft receiving opening and with its shaft axis coaxial with the prescribed axis. The arrowhead support means and shaft support means are translationally movable toward and away from each other along the prescribed axis.

It is another object of my invention to provide such a device that is simple in construction and easy to use.

It is a further object of my invention to provide such a device that may be utilized with arrow shafts having varying diameters.

It is a yet further object of my invention to provide such a device that is adjustable to accommodate arrowheads of varying breadth, especially double blade hunting arrows.

These and other objects and advantages will become evident upon reading the following disclosure which, taken with the accompanying drawings describe a preferred form of my invention.

A BRIEF DESCRIPTION OF THE DRAWINGS

A preferred form of the present invention is illustrated in the accompanying drawings in which:

FIG. 1 is a plan view of the device showing an arrow shaft and arrowhead mounted therein;

FIG. 2 is an elevational view of the device as shown in FIG. 1;

FIG. 3 is a sectioned plan view taken along line 3—3 in FIG. 2;

FIG. 4 is an end view as seen from the right in FIG. 2;

FIG. 5 is a cross-sectional view taken along line 5—5 in FIG. 2; and

FIG. 6 is an end view of the device as seen from the left in FIG. 2.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to FIG. 3 of the drawings, an arrowhead and a portion of an arrow shaft are illustrated as indicated by the reference numerals 10 and 11 respectively. It may be noted that the arrowhead 10 is of the hunting variety having two opposed blades 10a converging to a forward point 10b. A rearward end 12 of the arrowhead is open to receive a tapered forward end 13 of the shaft 11 for mounting purposes. It is the primary purpose of the present invention to facilitate mounting of the arrowhead 10 to the shaft 11 so that the centerline of the arrowhead 10 and the longitudinal axis of the shaft 11 lie coaxial with one another.

The arrowhead setting device as illustrated in FIGS. 1 and 2 basically includes an elongated base 16 having an arrowhead support 17 at a forward end thereof and an arrow shaft support 18 slidable mounted thereto. The arrowhead support 17 is utilized to support the arrowhead 10 with its rearward end 12 facing the shaft support 18 and centered along a prescribed axis X—X.

The shaft support 18 is also utilized to receive and support the arrow shaft 11 with its longitudinal axis coaxial with the prescribed axis X—X. The shaft support 18 is longitudinally movable along the base 16 to enable the shaft 11 to be moved translationally along the prescribed axis to facilitate insertion of the advancing shaft 13 into the open rearward end 12 of the arrowhead.

The arrowhead support 17 is illustrated in greater detail in FIGS. 3, 4 and 5. Support 17 is comprised of vertically spaced mounting blocks 21 fixed to opposite sides of a guide plate 23. The arrowhead support is mounted to the forward end of the base 16 by means of an upright support 22 fixed between the support 17 and the forward end of the base 16. As shown in FIGS. 1 and 5, the arrowhead mounting blocks 21 each include a rearwardly facing recess 21a. Recesses 21a allow clearance for additional blades (not shown) which are commonly utilized with hunting arrow tips. The guide plate 23 also includes a recess 23a that includes forwardly converging guide surfaces 24 (FIG.
3). The surfaces 24 converge to a point on the prescribed axis X—X. The surfaces serve to guide the pointed end 10b of the arrowhead 10 to a point along axis X—X as it is inserted within the arrowhead support 17.

Means for laterally adjusting the position of the arrowhead within the arrowhead support 17 is provided in the form of lateral adjusting screws 26. Adjusting screws 26 are utilized to laterally center the arrowhead 10 along the prescribed axis X—X. The screws 27 may also be utilized to enable adjusting of the support 17 to accommodate arrowheads having varying breadth across the blades thereof.

Elevation of the arrowhead 10 relative to the base 16 is determined by the upright support 22 but may be accurately adjusted through means of vertical adjusting screws 27 and locking nuts 28. The adjusting screws 27 extend vertically through the blocks 21 and guide plate 23 to a pair of upright spacer blocks 29. The locking nuts 27 are provided on the screws 27 adjacent the upward facing surface of the mounting blocks 21 and are utilized to lock the screws 27 against undesired rotational movement within the arrowhead support 17.

The shaft support 18 may best be described with reference to FIGS. 1, 2, 3, and 6. The shaft support 18 is illustrated comprising a plurality of arrow shaft dies 31 removably mounted within a die support block 32. The die support block 32 in turn is fixed to a dovetail slide 37 that it carried within a complementary way 38 formed longitudinally along the base. The way 38 is oriented along the base 16 to enable translational movement of the shaft support 18 and thereby the arrow shaft 11 held therein along the prescribed axis X—X.

The die support block 32 is comprised of two separate block sections 33 that are hinged together by a hinge 34 for pivot movement relative to one another about an axis parallel to the prescribed axis X—X. The block sections 33 each include a longitudinal groove 33a of which together from a rectangular channel for receiving the dies 31. As shown in FIG. 6, the dies 31 are each divided in half to form two die section 35. The sections 35 include longitudinal recesses 35a that, when the sections are brought together, form a circular aperture 36 centered exactly along the prescribed axis X—X. The aperture 36 includes a diameter equal to the diameter of the shaft 11. It is intended that the dies 31 be removable from the die support block 32 to enable replacement with different dies having apertures of varying diameters to accommodate arrow shafts having similarly differing diameters.

In operation, the user first inserts an arrowhead 10 within the arrowhead support 17 so that the point 10b contacts the point of the converging guide surfaces 24, and the blades 10a engage the ends of the lateral adjusting set screws 26. It may be assumed that the set screws 26 have previously been adjusted to laterally center the arrowhead 10 along the prescribed axis X—X and that the vertical adjusting screws 27 have also been adjusted to set the centerline of the arrowhead angularly along the axis. Once the arrowhead 10 has been inserted within the arrowhead support 17, the user may then mount a shaft 11 to the shaft support 18. He does this by first pivoting the upper block section 33 about the axis of hinge 34 to an open condition. The arrow shaft may then be fitted within the recesses 35a formed in the die sections 35 of the lower block section 33 as illustrated in FIG. 3. When the shaft 11 is longitudinally positioned with the forward end 13 rearward of the die support blocks 32 the user may close the upper block section 33 over the shaft 11 so that the upper die sections 35 come into contact with the shaft 11. With the shaft so supported, the user then applies a hard-setting glue to the forward end 13 of the shaft, subsequently slides the shaft, along with the shaft support 18, toward the arrowhead support block 17 to thereby insert the forward end 13 into the open rearward end 12 of the arrowhead 10. The joined arrowhead 10 and shaft 11 may be removed from the device after a period of time sufficient to allow the glue to set. This is done simply by moving the shaft and shaft support rearwardly relative to the arrowhead support 17 and again opening the upper block section to allow access to the shaft. The resulting completed arrow is thereby formed with the head 10 mounted exactly along the longitudinal axis of the shaft 11.

It may become obvious from the above disclosure and accompanying drawings that various changes and modifications may be made therein without departing from the scope of this invention. It is therefore intended that only the following claims be taken as definitions of the present invention.

What I claim is:
1. An arrowhead setting device, comprising:
   an elongated base;
   arrowhead support means for receiving and supporting an arrowhead with an open rearward end facing rearwardly;
   shaft support means for receiving and positioning the arrow shaft rearwardly of the arrowhead; and
   means for mounting the arrowhead support means and the shaft support means to said base for permitting relative translational movement of the arrowhead support means and the shaft support means along said base and for maintaining the arrowhead and shaft coaxial with a prescribed axis during such movement.
2. The device set out in claim 1 wherein the shaft support means includes:
   a die support block;
   a die releasably held by the die support block; and
   an aperture extending longitudinally along the prescribed axis through the die having a diameter substantially equal in size to the diameter of the arrow shaft.
3. The device set out in claim 2 wherein the die support block is further comprised of two block sections hinged to one another along an axis parallel to the prescribed axis and wherein the die is split longitudinally along the center of the aperture into two sections, each releasably mounted to a block section.
4. The device set out in claim 3 wherein the arrow shaft support means is mounted to the base for free translational movement along the prescribed axis, and the arrowhead support means is held stationary relative to the base along the prescribed axis.
5. The device set out in claim 1 wherein the arrowhead support means further includes adjusting means for selectively adjusting the angular position of the centerline of the arrowhead relative to the prescribed axis.
6. The device set out in claim 1 wherein the last-named means is comprised of:
   a support member fixed between the arrowhead support means and base to hold said arrowhead sup-
port means against movement along said prescribed axis; a slide fixed to the shaft support means; and a way formed within the base slidably receiving the slide, said way being parallel to said prescribed axis whereby said slide and shaft support means are permitted free movement relative to said arrowhead support means, along said prescribed axis.
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,859,728 Dated January 14, 1975

Inventor(s) George F. Shutt

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Inventor's address should be:

1210 N.E. 181st St. Apt. 26
Portland, Oregon 97230

Signed and sealed this 1st day of April 1975.

(SEAL)
Attest: C. MARSHALL DANN
RUTH C. MAJON Commissioner of Patents
Attesting Officer and Trademarks