June 23, 1964 A. P. McKINZIE 3,138,383

DUAL PURPOSE ARROW HEAD

Filed April 13, 1961

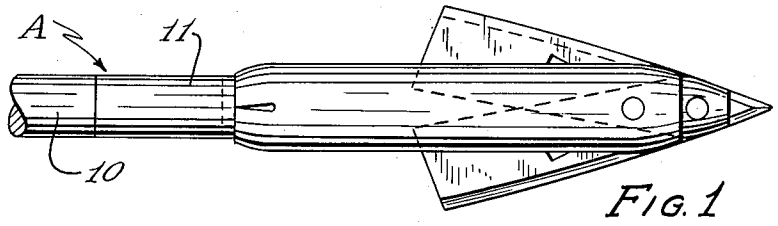


FIG. 1

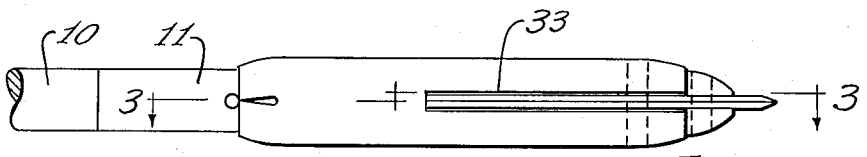


FIG. 2

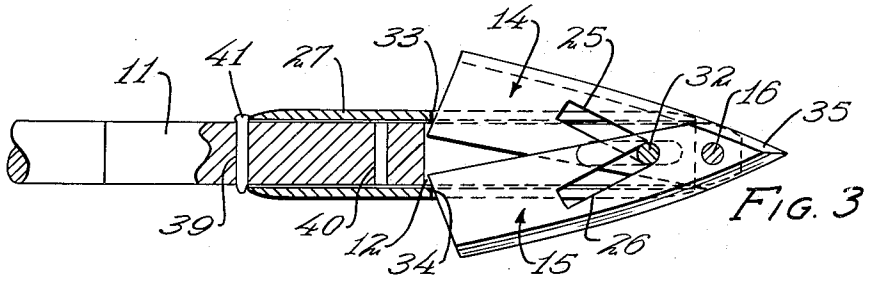


FIG. 3

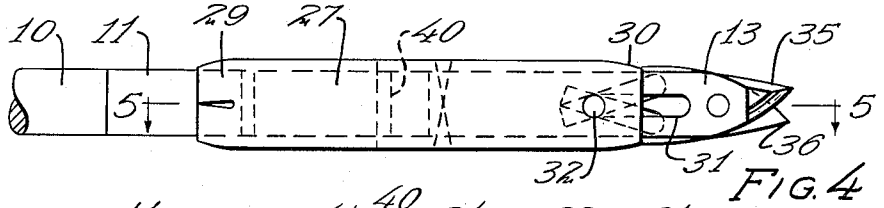


FIG. 4

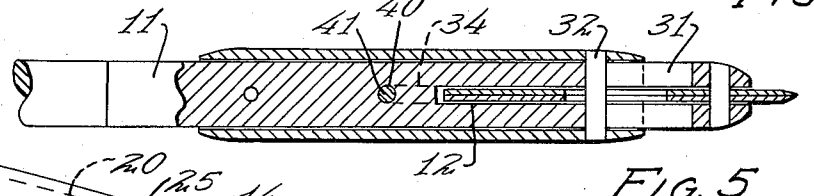


FIG. 5

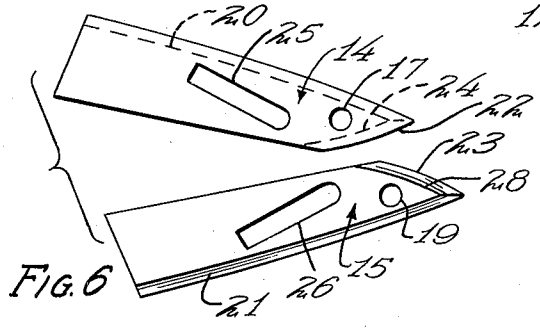


FIG. 6

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DUAL PURPOSE ARROW HEAD

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This invention relates to an improvement in dual purpose arrow head and deals particularly with an arrow which can be used either as a hunting arrow or as a practice arrow.

During recent years the art of hunting game with a bow and arrow has become more and more popular. Certain states have even acted to encourage hunting of this type by providing a lengthened open season for the hunting of deer and other such game with a bow and arrow. Hunting of this type naturally takes considerable skill and practice. Persons who are adept at hunting in this manner usually spend many hours in practice shooting to develop the necessary skill and speed.

One of the obstacles which has been encountered lies in the fact that under normal circumstances a different type of arrow is used for hunting than is normally used for practice. Hunting arrows are usually equipped with pointed blades having diverging sharpened edges so as to penetrate into the game to the desired extent. However, blades of this type are not normally used for practice shooting in view of the destruction which they cause to targets. If the practice shooting takes place in wooded areas, there is also a considerable danger of injuring the arrowhead or dulling the blades by engagement with trees and underbrush. However, the use of other arrows as practice arrows sometimes creates difficulty because the weights of the arrows may vary, and the flight characteristics of the arrow might also vary. Accordingly, it is the object of the present invention to provide a dual purpose arrow which may be used either as a hunting arrow or for practice.

An object of the present invention resides in the provision of an arrowhead including a pair of blades which are pivotally connected together and which are capable of swinging from an extended form in which the edges of the blade extend rearwardly and outwardly from the arrow point along diverging lines to a collapsed position in which the blades are substantially completely overlapped, and so that the sharp edges of the blades do not extend beyond the periphery of the arrowhead. When in one position, the arrow may be used for hunting purposes, and will act similarly to almost any hunting arrow. When in collapsed position, the blades are virtually confined within the body of the arrowhead, and therefore will not cause damage to targets, and will not be damaged thereby.

A further feature of the present invention resides in the provision of an arrowhead which is diametrically slotted in order to accommodate the blades therebetween. The blades are pivotally connected near their forward ends to the arrowhead. A sleeve or ferrule is slidably supported upon the head of the arrow and includes diametricaly extending slots which register with the first named slot and through which the blades may project. The sleeve also includes a diametrically extending pin which extends through a slot in the head end of the arrow at right angles to the first named slots. This pin extends through cam slots in the blades. By sliding the sleeve or ferrule in one direction, the pin acts to move the blades into projected position. When the sleeve is moved in the opposite direction, the blades are pivoted into retracted position. Means is provided for retaining the sleeve in either extreme position.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

FIGURE 1 is a side elevational view of an arrowhead showing the general arrangement of parts therein.

FIGURE 2 is a plan view of the arrowhead shown in FIGURE 1.

FIGURE 3 is a longitudinal sectional view through the arrowhead, the position of the section being indicated by the line 3—3 of FIGURE 2.

FIGURE 4 is a side elevational view of the arrowhead with the blades in collapsed position.

FIGURE 5 is a sectional view of the arrowhead in collapsed position, the position of the section being indicated by the line 5—5 of FIGURE 4.

FIGURE 6 is an elevational view of the two blades removed from the remainder of the arrowhead.

The arrow is indicated in general by the letter A. For the purpose of illustration, the shaft **10** of the arrow is shown as being a solid rod which might be of wood or other suitable material. However, if the arrow is to be made of metal, such as aluminum, the shaft **10** may be of hollow tubular form. Also in the present illustration, the arrowhead is shown as including a forward end portion **11** which may be integral with the main portion of the shaft **10**, or which may be detachably connected thereto.

As indicated in the drawings, the end portion **11** of the arrow A is provided with a diametrically extending slot **12** which extends into the arrow shaft end **11** from the forward extremity thereof. The forward extremity **13** of the shaft portion **11** is preferably tapered or beveled as indicated at **13**. A pair of blades **14** and **15** are pivotally secured in the slot **12** by a pivot **16**. The pivot **16** extends through the forward extremity **13** of the arrow shaft and through registering apertures **17** and **19** near the forward portions of the blades **14** and **15** respectively.

The blades **14** and **15** are generally similar, one blade being reverse of the other. The blades may be provided with one flat side, and the outer edge of the other side of each blade may be marginally sharpened as indicated at **20** and **21** respectively. The forward end of each blade is cut off diagonally as indicated at **22** and **23** respectively and these edges are marginally sharpened as indicated at **24** and **28** respectively. The blades are elongated and the sharpened edges may curve slightly but in general the blades are no wider than the portion of the arrowhead in which they are supported, as will be later described.

The blades **14** and **15** are provided with cam slots **25** and **26** which are angularly related relative to the longitudinal axis of the blades. These cam slots **25** and **26** provide a means of pivoting the blades in unison, as will be later described.

A sleeve **27** which is preferably provided with tapered ends **29** and **30** is slidably supported upon the end **11** of the arrow shaft near the forward end **13** thereof. The arrowhead body **11** is provided near its forward extremity with a slot **31** which intersects the previously described slot **12** at right angles. A pin **32** extends diametrically through the sleeve **27** and extends through the slots **31**. As is indicated in FIGURE 3 of the drawings, the pin **32** also extends through the cam slots **25** and **26** of the blades **14** and **15**. When the sleeve **27** is moved forwardly toward the forward end **13** of the arrowhead, the pin **32** extends through the forward ends of the slots **25** and **26** and the blades **14** and **15** are swung outwardly so that the sharpened cutting edges thereon are in outwardly and rearwardly diverging relation. In this position, the pointed ends of the two blades are in contiguous relation as may also be seen in FIGURES 1 and 3 of the drawings. By sliding the sleeve **27** rearwardly away from the forward end of the arrow, into the position shown in

FIGURE 4 of the drawings, the pin **32** moves rearwardly in the slots **25** and **26**, and pivots the two blades **14** and **15** in unison until they are retracted into the slot **12** and the registering slots **33** and **34** in the sleeve **27**. When in the position shown in FIGURE 4, the cutting edges of the blades are substantially retracted within the confines of the sleeve **27** so that the blades are ineffective. When in this position, the arrow may be used as a practice arrow and the likelihood of injuring the blade is greatly reduced. At the same time, the weight of the arrowhead remains unchanged and the flight characteristics of the arrow remain substantially unchanged. As a result, the same arrow may be used either for practice or as a hunting arrow, and there is no danger of shooting errors due to the fact that practice arrows are of one weight and the actual hunting arrows are of another. When the blades are in the concealed position illustrated in FIGURE 4 of the drawings, the pointed ends of the two blades which are indicated in FIGURE 4 swing slightly out of registry due to the fact that the pivot cannot well be at the extreme forward end of the blades. However, these pointed ends project but slightly beyond the forward extremity **13** of the arrowhead body and are protected thereby.

In the preferred form of construction, the arrowhead body **11** is provided with a pair of parallel apertures **39** and **40** extending therethrough. The aperture **39** is exposed as the sleeve **21** is moved into its forward position illustrated in FIGURE 3 of the drawings, and a small locking pin **41** may be inserted through the aperture **39** to hold the sleeve **27** in its adjusted position.

When the sleeve is moved rearwardly to the position shown in FIGURES 4 and 5 of the drawings, the forward aperture **40** is exposed through the rear ends of the slots **33** and **34**, and the locking pin **41** may be engaged in the aperture **40** to hold the sleeve in its rearward position. The pin **41** may frictionally engage in place, or may be held in place by any suitable means, and projects from the arrowhead body to the extent necessary to lie in the path of movement of the sleeve. The blades are of sufficient thickness and strength to withstand the strain to which they are subjected.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in dual purpose arrow heads, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A dual purpose arrow head including a body portion having a diametrically extending slot therein, a pair of blades of a width substantially no greater than the diameter of the body portion, and a pivot extending through the forward portions of said blades and through the forward end of said body portion, said pivot supporting said blades for pivotal movement from side by side relation in said slot and substantially within the diameter thereof to outwardly and rearwardly diverging relation, and manually operable means engageable with said blades for pivoting the same in unison, and means for holding said last named means in either extreme position.

2. The structure of claim 1 and in which said blades extending beyond the forward end of said body.

3. A dual purpose arrow head including an elongated body having a slot extending therethrough at one end thereof, a sleeve slidably supported upon said body and having slots therein in registry with said slot in said body, a pair of flat blades in said slot in said body, pivot means extending through and pivotally connecting the forward ends of said blades to the forward end of said body, said blades being pivotal from a side by side relation in substantially surface contact in said first named slot to a position in which said blades diverge outwardly and rearwardly through said slots in said sleeve, means carried by said sleeve for pivoting said blades in unison, and means for selectively holding said sleeve in either extreme position.

4. A dual purpose arrow head including an elongated body having a slot extending therethrough at one end thereof, a sleeve slidably supported upon said body and having slots therein in registry with said slot in said body, a pair of blades in said slot in said body, means pivotally connecting the forward ends of said blades to said body, said blades being pivotal from a side by side relation in said first named slot to a position in which said blades diverge outwardly and rearwardly through said slots in said sleeve, said blades having cam slots therein and said body having a second slot extending longitudinally of said body and intersecting said first slot and including means on said sleeve extending through said second slot and into said cam slots for pivoting said blades in unison upon longitudinal movement of said sleeve.

5. The structure of claim 4 and including means for holding said sleeve in adjusted relation on said body.

6. A dual purpose arrow head including a body portion having a diametrically extending slot, a pair of blades in said slot and being of a width not substantially exceeding the diameter of said body, a pivot extending through the forward ends of said blades and through the forward end of said body, and manually operable means for selectively pivoting said blades from side by side relation substantially within the diameter of said body to an outwardy and rearwardly diverging relation.

7. A dual purpose arrow head including an elongated body having a slot extending therethrough at one end thereof, a sleeve slidably supported upon said body and having slots therein in registry with said slot in said body, a pair of flat blades in said slot in said body, pivot means extending through and pivotally connecting the forward ends of said blades to the forward end of said body, said blades being pivotal from a side by side relation in substantially surface contact in said first named slot to a position in which said blades diverge outwardly and rearwardly through said slots in said sleeve, means carried by said sleeve for pivoting said blades in unison, and means for selectively holding said sleeve in either extreme position, said blades including cam slots, and said means carried by said sleeve including a pin extending through said cam slots.

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