United States Patent [19]

Matlock, Jr.

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[54] **BROADHEAD**

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[52] **U.S. Cl.** ..... **273/106.5 B**

[51] **Int. Cl.** **F41b 5/02**

[58] **Field of Search** 273/106.5; D22/12

[56] **References Cited**

UNITED STATES PATENTS

2,570,782	10/1951	Evatt	273/106.5 B
2,829,894	4/1958	Henkel	273/106.5 B
2,909,372	10/1959	Neri	273/106.5 B
2,912,247	11/1959	Doonan	273/106.5 B

OTHER PUBLICATIONS

Archer's Bible 3/22/67 p. 77 "Deadhead" No. RP–442.

Archer's Bible 3/22/67 p. 75 Bear Razor Head No. RP–400 end view actual size.

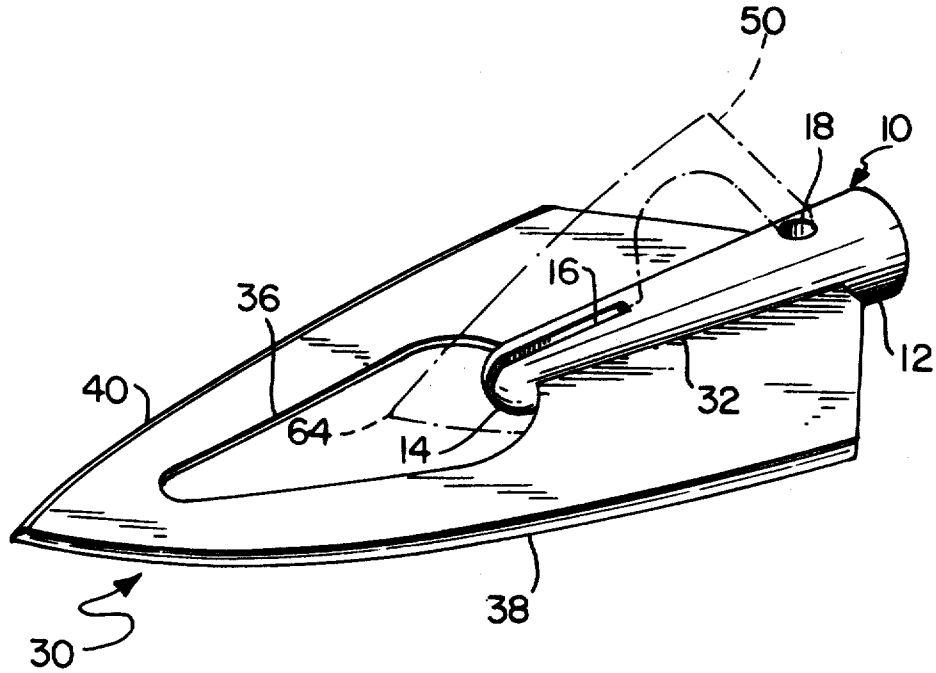
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[57] **ABSTRACT**

An arrowhead comprises a conical ferrule having a rounded tip with a slot therein. A primary blade is securely brazed on the outside of the ferrule. The primary blade extends forward well beyond the rounded tip and has an opening in that portion of the blade which projects beyond the rounded tip. A replaceable auxiliary blade fits into the ferrule slot and includes a pair of fastening arms which snap into a pair of holes on the ferrule. The auxiliary blade is positioned perpendicular to the primary blade with its pointed tip located within the primary blade opening.

10 Claims, 3 Drawing Figures



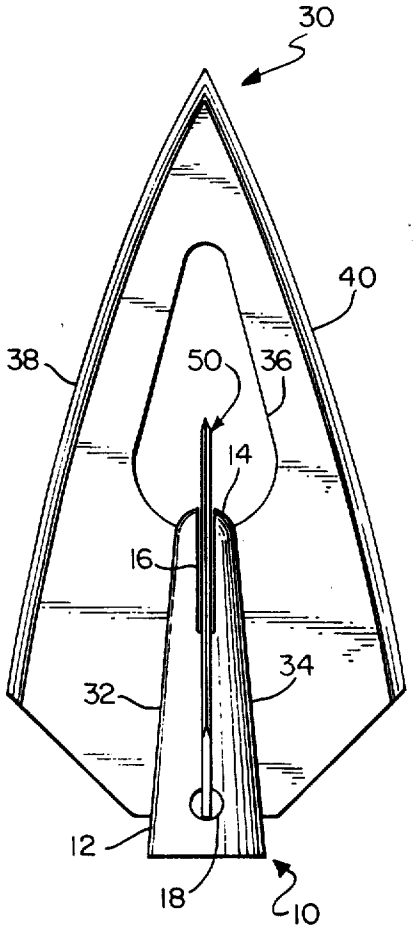


FIG. 2

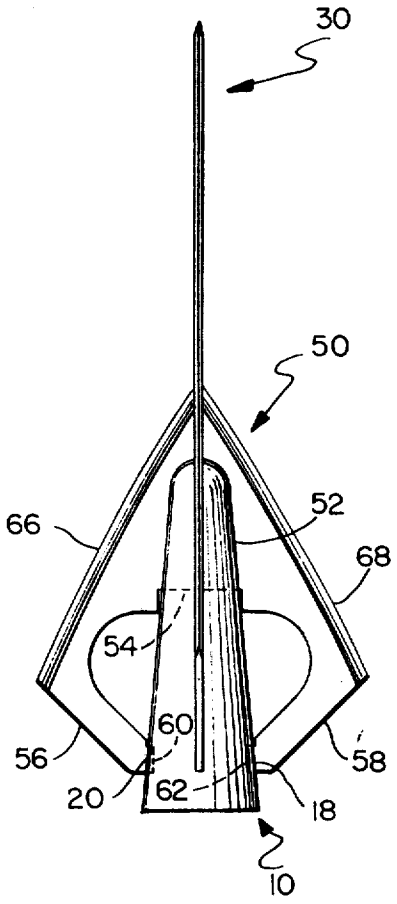


FIG. 3

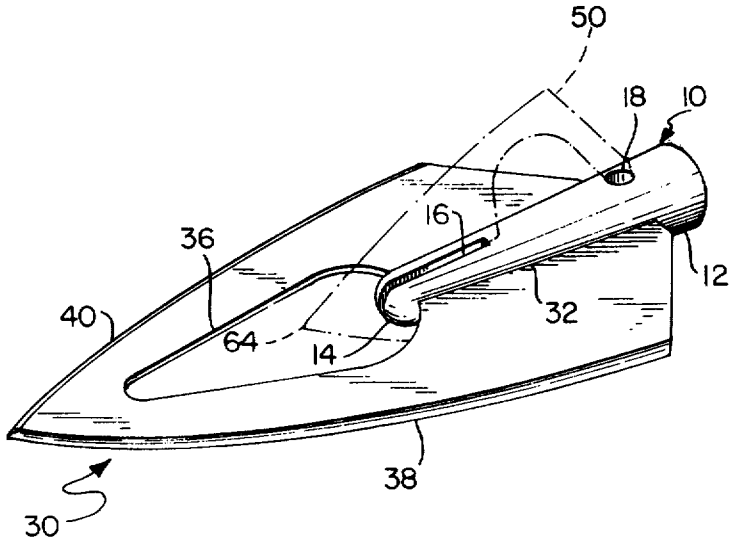


FIG. 1

BROADHEAD

BACKGROUND OF THE INVENTION

The present invention relates generally to arrowheads and more particularly to an improved arrowhead for use in hunting.

In recent years, arrowheads designed for use in hunting have been constructed with various types of replaceable blades to maximize ease of replacement of damaged blades in the field. However, such replaceable blade constructions have presented some shortcomings with respect to the strength of the blade and the ability of these blades to penetrate a target. For example, U.S. Pat. No. 2,829,894 shows an arrowhead wherein both the primary blade and the auxiliary blade are replaceable. In this construction, the ferrule extends well into the forward portion of the primary blade where it may produce a great deal of drag resistance and therefore reduce the velocity of the arrow during flight with a resulting lower impact velocity into the target. In addition, the tip of the auxiliary blade is not exposed since it is located within a slot in the ferrule and the body of the auxiliary blade is positioned well to the rear of the arrowhead.

In U.S. Pat. No. 2,909,372, another arrowhead construction is shown having replaceable primary and auxiliary blades. The primary and auxiliary blades are dove-tailed and clamped against the tip of the ferrule. Since both the primary and auxiliary blades interlock at their rear with the ferrule, if it happens that the arrowhead hits something very hard at the target the twisting forces developed might on occasion twist the primary blade out of its interlock slot on the ferrule and thereby result in less penetration than normally possible. In addition, since the tip of the auxiliary blade is not exposed but dove-tailed within the primary blade maximum exposure of the tip is reduced.

SUMMARY OF THE INVENTION

The present invention provides an arrowhead comprising a ferrule having a conical body with a rounded tip on the forward end thereof. The ferrule has a planar slot in its forward end extending rearward into its conical body and has a pair of holes located on opposite sides of the conical body lying in substantially the same plane as the planar slot. A flat primary blade is securely affixed to the outside of the conical body and lies in a plane substantially perpendicular to that of the planar slot. The primary blade extends forward well beyond the rounded tip of the ferrule and has an opening in its forward portion which projects beyond the rounded tip of the ferrule. A flat auxiliary blade has its forward portion positioned within the planar slot. The forward portion of the auxiliary blade extends forward beyond the rounded tip of the ferrule and terminates in a pointed tip which is located within the primary blade opening. The auxiliary blade further comprises a pair of fastening members, one of which is positioned within each of the holes in the conical ferrule body.

OBJECTS OF THE INVENTION

An object of the present invention is the provision of an improved hunting arrowhead.

Another object of the present invention is the provision of an arrowhead which may utilize either one or two blades.

A further object of the present invention is the provision of a hunting arrowhead having maximized exposure of its cutting blades to thereby provide maximum cutting action.

Yet another object of the present invention is the provision of a hunting arrowhead in which the cutting blades are positioned to maximize penetration.

A still further object of the present invention is the provision of a hunting arrowhead which is stable in flight and compression resistant on impact.

Another object of the present invention is the provision of a hunting arrowhead which is easily removable from the arrow shaft.

Yet another object of the present invention is the provision of a hunting arrowhead in which the auxiliary blade is extremely inexpensive and easy to replace in the field.

Other objects, advantages and novel features of the present invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings.

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 is a pictorial view of the arrowhead of the present invention with the auxiliary blade shown in phantom;

FIG. 2 is a front view of the arrowhead of the present invention;

FIG. 3 is a side view of the arrowhead of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. **1**, **2** and **3**, the arrowhead of the present invention will be described in detail. The arrowhead is formed about a ferrule **10** which has a conical body portion **12** and a rounded tip **14** on its forward end. A planar slot **16** is cut in the forward end of the ferrule and extends rearward therefrom. A pair of holes **18** and **20**, which are preferably circular, are located on opposite sides of the rear portion of the ferrule with the centers of the holes being coplanar with the planar slot **16**, located on opposite sides of the rear portion of the ferrule with the centers of the holes being coplanar with the planar slot **16**. The ferrule **10** is preferably made of steel.

A flat primary blade **30** is securely affixed to the outside of the conical ferrule body **12** so as to lie in a plane substantially perpendicular to the planar slot **16**. The primary blade **30** is preferably attached to the conical ferrule body **12** by braising along the tapered straight portions **32** and **34** of the rear portion of the primary blade **30**. The primary blade **30** extends well forward of the rounded ferrule tip **14** and has a generally teardrop shaped opening **36** in its forward portion. The opening **36** also extends well beyond the rounded ferrule tip **14**. The primary blade **30** has curved ground edges **38** and **40**. The primary blade **30** is preferably formed of spring steel, having a thickness of 0.040 inch. The arrowhead as described thus far will function with excellent effectiveness as a single blade broadhead.

However, where additional cutting action is desired, an auxiliary blade **50** (as shown in phantom in FIG. **1** and in place in FIGS. **2** and **3**) may be easily added. The flat auxiliary blade **50** is attached to the ferrule **10** by rotating one side of the blade through the opening **36**

in primary blade **30** and then positioning the forward portion **52** of the blade **50** in the planar slot **16.**

The blade **50** is lowered into the slot **16,** until flat portion **54** abuts the bottom of the slot **16,** and a pair of fastening arms **56** and **58** are sprung in an outward direction until the tips **60** and **62** of arms **56** and **58** snap into holes **20** and **18,** respectively. The auxiliary blade **50** may be removed by merely reversing the process and springing the arms **56** and **58** in an outward direction while lifting the blade **50** out of the slot **16** and rotating it through the opening **36** in the primary blade. When snapped into position, the forward portion of the auxiliary blade **50** extends beyond the rounded ferrule tip **14** and terminates in a pointed tip **64** which lies within the opening **36** in the primary blade **30.** The auxiliary blade **50** has a pair of curved cutting edges **66** and **68.** The blade **50** is preferably made of spring steel having a thickness of 0.010 inch.

A unique and highly significant feature of the arrowhead of the present invention is the complete exposure of all four cutting edges **38, 40, 66** and **68.** This feature provides for maximum cutting action. In addition, since the ferrule **10** is positioned well to the rear of the primary blade **30,** and since even the auxiliary blade **50** projects beyond the ferrule tip **14,** the ferrule **10** does not interfere in any way with the penetration of the arrowhead into the target. Furthermore, since the primary blade **30** possesses exceptional hardness and strength and since the blade **30** is securely affixed to the ferrule **10,** the arrowhead of the present invention is highly compression resistant on impact. The primary blade **30** is of sufficient thickness and strength to be resharpened in the field if necessary. The easily replaceable auxiliary blade **50** locks firmly and in true alignment to the ferrule **10** to prohibit loosening on impact and to prevent wind planing and noise during flight.

The ferrule **10** may be hollow or have a bore in that it may be mounted directly on an arrow shaft by inserting the shaft into the rear portion of the ferrule, or in the alternative, the ferrule **10** may be fitted with a screw on adapter to permit the arrowhead of the present invention to be screwed on and off an arrow shaft so that the arrowhead may be replaced with another hunting arrowhead or with various target arrowheads.

While there has been described what is at present considered to be the preferred embodiment of the present invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention. It is, therefore, aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. An arrowhead comprising:

a ferrule having a conical body with a tip on the forward end of the ferrule, a planar slot in the ferrule extending rearward from the tip of the ferrule into the conical body;

a flat primary blade securely fixed to the outside of the conical body, the primary blade lying in a plane substantially perpendicular to that of the planar slot and extending forward well beyong the ferrule tip, the primary blade having an opening in the portion of the primary blade which projects beyong the ferrule tip;

a flat auxiliary blade having a forward portion thereof positioned within the planar slot and rearwardly directed tips, the forward portion extending forward beyond the ferrule tip and terminating in a point located within the primary blade opening; and

means on the ferrule located on the opposite sides of the conical body substantially in the same plane as the slot for receiving the rearwardly directed tips of the auxiliary blade.

2. An arrowhead as recited in claim **1** wherein the means located on the ferrule are holes.

3. An arrowhead as set forth in claim **2** wherein said flat auxiliary blade further comprises a pair of fastening members, one of which is positioned within each of said holes.

4. An arrowhead as set forth in claim **2** wherein each of said pair of holes is circular, the centers of said circular holes being coplanar with said planar slot.

5. An arrowhead as recited in claim **2** wherein the holes are circular holes.

6. An arrowhead as recited in claim **2** wherein the conical body has a bore for receiving one end of an arrow shaft.

7. An arrowhead as set forth in claim **1** wherein said flat auxiliary blade is substantially thinner than said flat primary blade.

8. An arrowhead as set forth in claim **1** wherein said primary blade is brazed on the outside of said conical body.

9. An arrowhead comprising:

a ferrule having a conical body with a rounded tip on the forward end of said ferrule, a planar slot in said ferrule extending rearward from the forward end of said ferrule into said conical body, and a pair of circular holes located on opposite sides of said conical body, the center of said circular holes being coplanar with said planar slot;

a flat primary blade securely brazed on the outside of said conical body, said main blade lying in a plane substantially perpendicular to that of said planar slot, and extending forward well beyond said rounded tip, said primary blade having an opening in the portion of said main blade which projects beyond said rounded tip; and

a flat auxiliary blade having a forward portion thereof positioned within said planar slot, said forward portion extending forward beyond said rounded tip and terminating in a pointed tip located within said primary blade opening, said auxiliary blade having a pair of fastening members, one of which is adapted to fit in each of said circular holes.

10. An arrowhead comprising:

a ferrule having a conical body with a tip on the forward end of the ferrule, a planar slot in the ferrule extending rearward from the top of the ferrule into the conical body,

a flat primary blade securely fixed to the outside of the conical body, the primary blade lying in a plane substantially perpendicular to that of the planar slot and extending forward well beyong the ferrule tip, the primary blade having an opening in the portion of the primary blade which projects beyong the ferrule tip; and

a flat auxiliary blade having a forward portion thereof positioned within the planar slot, the forward portion extending forward beyond the ferrule tip and terminating in a point located within the primary blade opening.

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