United States Patent

[11] 3,604,708

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[54] **SERPENTINE ARROWHEAD**
2 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **273/106.5B,** D22/12, D34/21.11
[51] **Int. Cl.** **F41b 5/02**
[50] **Field of Search** ..... 273/106.5, 106.5 B; D34/21.11; D22/12

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ABSTRACT: An arrowhead having two cutting edge portions extending rearwardly from their point of attachment to a frontal blade portion, and spiraling about the axis of an arrowhead ferrule. Each cutting edge portion encompasses 180° of the ferrule so that acting together they cut a plug from the flesh of an animal target. At their rear points of attachment the cutting edge portions are fastened by a mechanical interlock to flanges which extend radially outwardly from the ferrule. The cutting edge portions may be made replaceable.

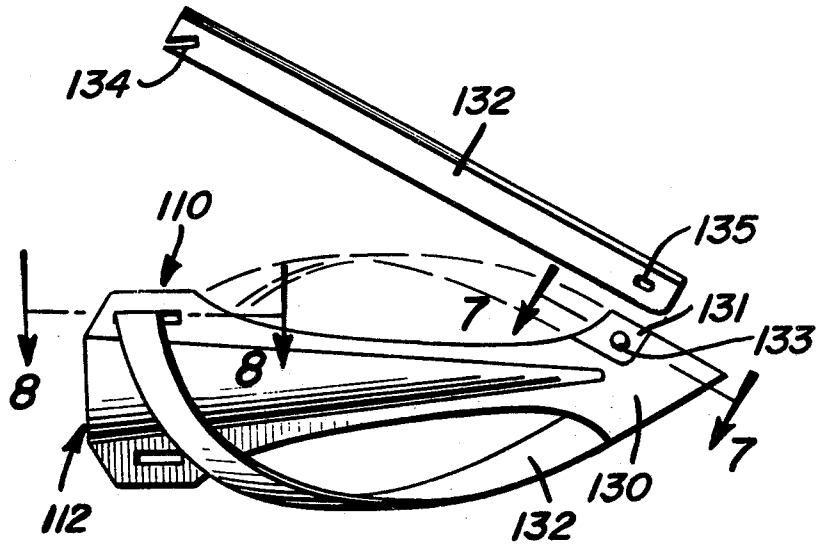


Fig. 1

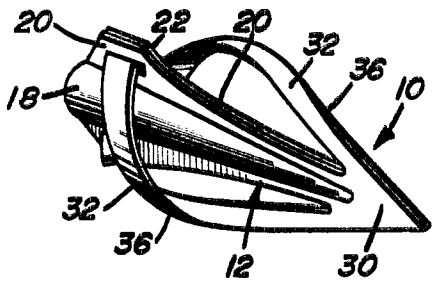


Fig. 2

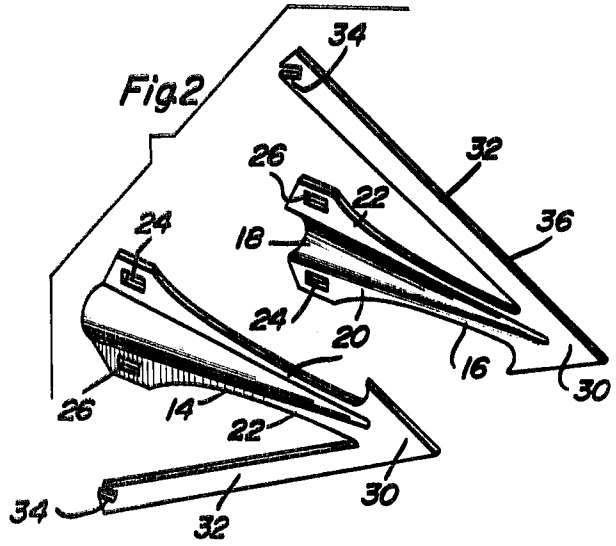


Fig. 3

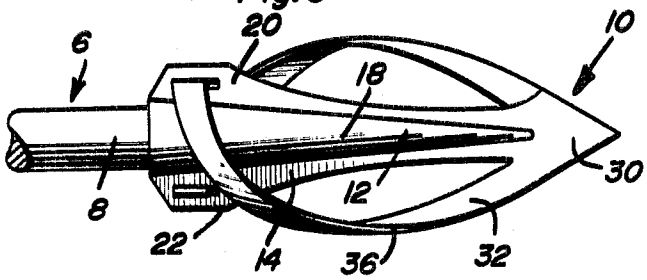


Fig. 4

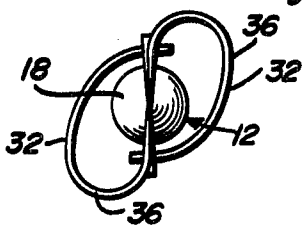


Fig. 5

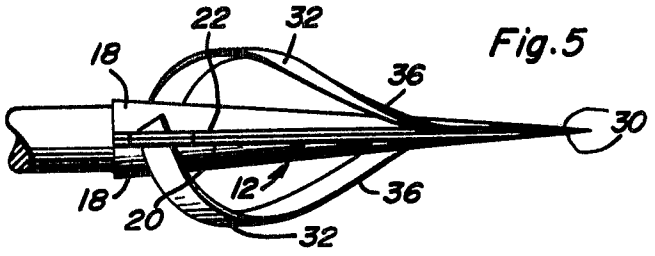


Fig. 6

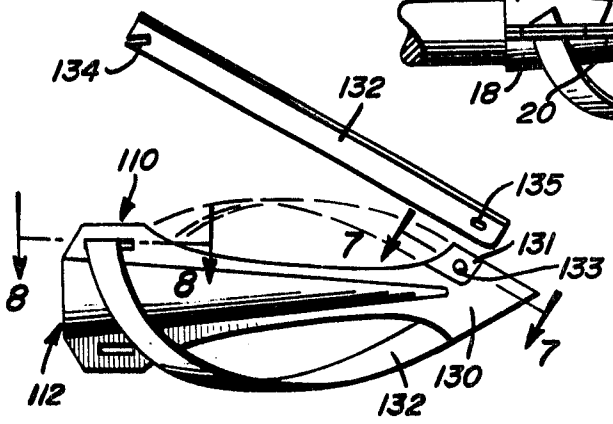


Fig. 9

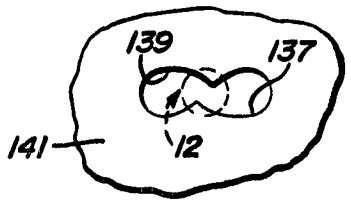


Fig. 8

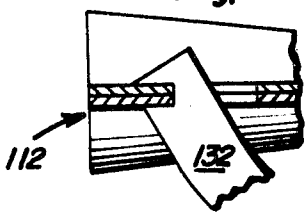
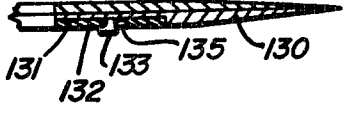


Fig. 7



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SERPENTINE ARROWHEAD

The arrowhead of the instant invention has a pair of opposite side cutting edges and the cutting edges are acutely inclined relative to the longitudinal axis of the head throughout substantially their entire length. In this manner, the cutting edges of the arrow will readily slice any flesh into which the arrow is forced.

Many different types of hunting arrows and the like are provided with cutting edges which extend longitudinally of the associated arrow and are inclined only slightly relative to the longitudinal axis of the arrow, but most of these arrowheads include means only for slitting the flesh into which the arrowhead is shot adjacent the area of the flesh pierced by the arrow shaft and each slit is formed in a manner such that it may readily close in a manner such that free bleeding of big game struck with such an arrow can be substantially completely eliminated.

Of course, when an archer makes a vital hit on a big game animal, he hopes for a good blood trail for tracking. Too often this trail is meager or absent, leaving the bow hunter no recourse except to abandon his search. Of course, although the hunter may not be able to trail such big game, substantially all boradheaded arrowheads will kill and the wounded game will eventually die with no benefit being gained. Accordingly, it is the main object of this invention to provide a broadheaded arrowhead which will be operable to completely cut away portions of flesh immediately adjacent the portion of flesh pierced by the arrow shaft so as to induce free bleeding which cannot be checked to any great extent by the flesh closing about the arrow shaft.

While a sharpened concentric ring carried by and spaced outwardly from all sides of an arrowhead or at least portions of such a ring might be operable to cut away portions of flesh immediately adjacent the area of flesh pierced by an associated arrow shaft, such rings or ring portions do not readily slice through flesh and are operable to cut the flesh in the desired manner only when there is sufficient momentum of the associated arrow to drive the ring or ring portions through the flesh. Accordingly, it is another important object of this invention, in accordance with the immediately preceding object, to provide an arrowhead including sharpened edge portions for cutting away portions of flesh but which are inclined, throughout substantially their entire length, at least 30° relative to a plane disposed normal to the associated arrow shaft.

Yet another object of this invention is to provide an arrowhead in accordance with the preceding objects and including readily removable and replaceable cutting edges.

A final object of this invention to be specifically enumerated herein is to provide an arrowhead in accordance with the preceding objects which conform to conventional forms of manufacture, be 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:

FIG. 1 is a perspective view of a first form of arrowhead constructed in accordance with the present invention;

FIG. 2 is an exploded perspective view of the two opposite side components which are utilized to form the arrowhead;

FIG. 3 is a side elevational view of the arrowhead mounted on the forward end of an arrow shaft;

FIG. 4 is a front elevational view of the arrowhead of FIG. 3;

FIG. 5 is a top plan view of the arrowhead of FIGS. 3 and 4;

FIG. 6 is a side elevational view of a second form of arrowhead constructed in accordance with the present invention and including removable cutting blade portions;

FIG. 7 is a fragmentary enlarged sectional view taken substantially upon the plane indicated by the section line 7—7 of FIG. 6;

FIG. 8 is a fragmentary enlarged sectional view taken substantially upon the plane indicated by the section line 8—8 of FIG. 6; and

FIG. 9 is a fragmentary plan view of a flexible panel member constructed of leather or similar material and through which an arrow equipped with the arrowhead of the instant invention has been shot, the flexible panel clearly including an opening cut by the arrow having two enlarged portions disposed on opposite sides of the portion of the panel pierced by the arrow shaft.

Referring now more specifically to the drawings the numeral 6 generally designates an arrow including a shaft 8 and a first form of arrowhead generally referred to by the reference numeral 10. The arrowhead 10 includes an elongated center body portion referred to in general by the reference numeral 12 and is formed from two identical half sections 14 and 16. Each half section 14 includes a half conical portion 18 and a pair of oppositely directed opposite side coplanar flange portions 20 and 22 provided with short generally rectangular slots 24 and 26. Further, each of the half sections 16 includes a generally triangular point or forward portion 30.

The half sections 14 and 16 are secured together with the flange portions 20 and 22 and the point portions 30 disposed in surface to surface contacting relation in any convenient manner such as by soldering or brazing. The half conical portions 18 then define a full conical portion or recess into whose major diameter end portion the associated arrow shaft 8 may be wedged.

Each of the half sections 14 and 16 includes an elongated thin striplike blade member 32 which projects outwardly and rearwardly from the corresponding point portion 30 and defines a rearward extension of the corresponding side edge thereof. The free end of each blade member 32 is notched as at 34 and the forwardly facing edge 36 thereof is sharpened. The blade members 32 are twisted about their longitudinal axes approximately 270° while the free ends of the blade members are urged inwardly toward the half conical portions 18 for anchoring engagement of the notches 34 within the corresponding pairs of registered slots 24 and 26. Thus, the free ends of the blade members 32 are readily releasably anchored to the rear end portions of the flange portions 20 and 22. Of course, if it is desired to sharpen the blade members 32 along the sharpened edges 36 thereof, it is only necessary to disengage the notched ends of the blade members 32 from the flange portions 20 and 22 and to renew the sharpened edge 36. However, it is possible to sharpen the sharpened edges 36 while the blade members 32 are anchored to the flange portions 20 and 22 and therefore the notched ends to the blade members 32 may be soldered or brazed to the flange portions 20 and 22 after having their notched ends engaged in the corresponding pair of registered slots 24 and 26.

From FIGS. 3 and 5 of the drawings it may be seen that the sharpened edge portions 36 are inclined at least 30° relative to a plane disposed normal to the longitudinal centerline of the arrowhead 10 and FIG. 4 of the drawings it may be seen that the blade members 32 enclose enlarged areas on opposite sides of the body portion 12 which will be cut away from the flesh into which the arrowhead 10 is forced.

With attention now invited more specifically to FIGS. b–8 of the drawings, there will be seen a modified form of arrowhead referred to in general by the reference numeral 110 and which is substantially identical to the arrowhead 10 except that the blade members 132 thereof are fully removable from the arrowhead 110, portions of the arrowhead 110 corresponding to various numbered portions of the arrowhead 10 having been given similar reference numerals in the 100 series.

The opposite sides of the forward triangular platelike portions 130 of the arrowhead 110 are recessed as at 131 to receive the forward ends of the blade members 132 and are provided with notched anchor pins 133 to which the forward ends of the blade members 132 may be removably anchored by reception of the notched anchor pins 133 through the apertures 135 formed in the blade members 132. Of course, the

rear ends of the blade members **132** are notched as at **134** and may therefore be secured to the rear end portion of the body **112** in the same manner in which the rear ends of the blade members **32** are secured to the body member **12**.

Of course, the operation of the arrowhead **110** is substantially identical to the operation of the arrowhead **10** and it may be seen from FIG. **9** of the drawings that a pair of diametrically opposite enlarged cutout areas **137** and **139** are formed in the panel **141** upon the arrowhead **110** being shot through the panel **141**.

Of course, as can be viewed from FIG. **4**, the curved blade members **32** and **132** do not present any frontal area greater than their sharpened edge portions toward the front of the arrowheads **10** and **110** and therefore the provision of the curved blade members **32** and **132** does not appreciably increase air resistance to the arrowheads **10** and **110** passing through the air. Further, any tendency of the associated arrow to rotate about its longitudinal axis will assist in the blade members **32** cutting plugs of flesh out of the animal adjacent the portion of the flesh pierced by the associated arrow shaft by the drilling action of the rotating arrow, its forward movement, and the configuration of the blade members **32** and **132**.

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.

1. An arrowhead including an elongated body adapted to be lengthwise mounted on the front end of an arrow shaft with the center axis of said body coinciding with the centerline of said shaft, said body including a blade structure having a forward platelike portion generally triangular in plan shape, the forward portion being disposed generally in a diametric plane of said shaft with one of its apices disposed forwardmost, the side marginal edges of said forward portion diverging rearwardly from said one apex and terminating rearwardly in elongated blade portions including forward ends forming rearward continuations of said marginal edges, said blade portions, rearward of said forward portion, being spiraled about said body in the same direction with the rear ends of said blade portions curving inwardly toward and secured to said body and intersecting said plane on the sides of said axis remote from the corresponding forward ends of the blade portions, said body including rearwardly disposed longitudinally extending and generally radially outwardly projecting flange portions disposed in said plane, the rear ends of said blade portions being secured to said flanges for support of said rear ends from said body.

2. The combination of claim **1** wherein said rear ends extend through the medial planes of said flanges.