

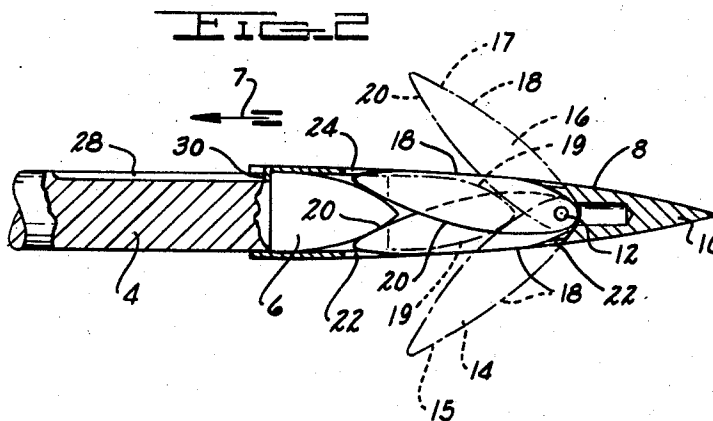
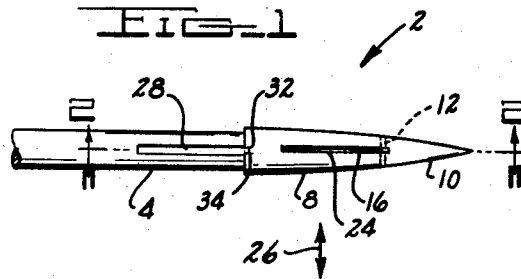
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W. DOONAN

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ARROWHEAD CONSTRUCTION

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INVENTOR
BY WILLIAM DOONAN
SMITH, OLSEN, LEWIS & McRAE
ATTORNEYS

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ARROWHEAD CONSTRUCTION

William Doonan, Ypsilanti, Mich.

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5 Claims. (Cl. 273—106.5)

This invention relates to an arrowhead construction. Objects of the invention are to provide an arrowhead construction wherein:

(1) Retracted cutting blades are contained in the arrowhead and automatically opened when the arrow strikes the game; thereby inflicting a more extensive and deadly wound in the game and preventing the game from easily shaking the arrow loose after the initial arrow penetration,

(2) The cutting blades are entirely retracted within the arrowhead during flight, thereby enabling the arrow to fly in its directed course without the presence of any projecting blade portions which might otherwise deflect the arrow in an undesired direction or decrease the flight velocity.

(3) The retractable cutting blades can be incorporated with conventional arrows without modification of the arrows, and

(4) A low cost mechanism is provided for releasably holding the blades in their retracted positions during flight.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In the drawings:

Fig. 1 is a side elevational view of one embodiment of the invention.

Fig. 2 is an enlarged sectional view on line 2—2 in Fig. 1.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

In the drawings there is shown an arrow construction 2 including a wooden shaft portion 4. Shaft portion 4 carries the usual feathers at its rear end (not shown) and a conventional metal tip portion 6 at its forward end. Mounted on shaft portion 4 for slidable movement in the arrow 7 direction is a tubular head member 8 having a pointed tip portion 10.

A pin 12 extends through head member 8 and serves to mount two cutting blades 14 and 16 for pivotal movement from retracted full line positions within member 8 to the extended dotted line positions 15 and 17. Each of the cutting blades is provided with an outer cutting edge 18 and an inner edge 20 which cooperates with the forward face of tip portion 6 to automatically open the blades to their dotted line positions when tip portion 10 strikes the game.

The walls of member 8 are provided with slots 22 and 24, and blades 14 and 16 are bowed slightly in the direction of arrow 26. As a result the blades frictionally

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engage against the walls of the slots when in their retracted positions. Bowing of the blades serves as a low cost method for releasably holding the blades in their retracted positions.

In use the arrow is fired with blades 14 and 16 in their retracted positions. When pointed tip portion 10 strikes the game forward movement of member 8 is retarded. However shaft 4 continues its forward movement and the faces of pointed tip portion 6 cam against edges 20 of the blades to force them outwardly to their extended positions. In the extended positions of the blades tip portion 6 takes the dotted line position indicated by numeral 19. In the extended positions edges 18 cut into the game and produce a more extensive and deadly wound than that produced by a conventional arrow. Additionally the blades hold securely in the game and prevent the game from easily shaking the arrow loose after the initial arrow penetration.

It will be noted that during flight the blades are entirely retracted; i. e. no portions of the blades project beyond the outer surface of member 8. Any projecting portions might disturb the flight of the arrow by acting as "deflecting" elements. The projecting portions would strike against any cross currents of air to deflect the arrow from its course. Any projecting portions would also serve to increase the frontal area of the arrow so as to provide an arrow of increased flight resistance and decreased flight velocity.

In most cases member 8 can be retained on shaft 4 merely by its frictional fit. However, if desired, one or more grooves 28 can be formed in shaft 4 and member 8 formed with an inwardly projecting follower portion 30 extending into the groove. Portion 30 can be conveniently formed by cutting two slits 32 and 34 in member 8 and bending the wall portion between said slits into groove 28. The provision of groove-follower means 28, 30 insures that member 8 will not be accidentally disengaged from shaft 4. Aside from the optional use of groove-follower means 28, 30 no modification of the conventional arrow is required to utilize the retractable cutting blades with the conventional arrow.

During the foregoing specification the apparatus has been described as containing two retractable blades 14 and 16. However it is contemplated that one of the blades can be omitted if desired. This is especially true when the apparatus is used to hunt small game or fish, since fish and small animals can be killed by a comparatively small wound. The primary purpose of the retractable blade in this case is to prevent the game from shaking the arrow loose after the initial arrow penetration.

I claim:

1. An arrow construction comprising a shaft; a head slidably positioned on the forward end portion of the shaft for limited axial movement thereon; a blade pivotally carried by said head for movement from a retracted position within said head to a position extended therefrom; the pivot for said blade being located adjacent the forward limit of the blade, and said blade being configured as a substantially flat member with its lateral edges converging together in a rearward direction; the forward end of said shaft being positioned in registry with the innermost of the blade's lateral edges; and said head being at its forwardmost position relative to the shaft when said blade is in its retracted position; whereby when the arrow construction is fired with the blade in a retracted position, engagement of the head with the game causes the shaft to move forward relative to the head and cammingly engage against the blade's innermost lateral edge, thereby moving said blade to its extended position.

2. The combination of claim 1 wherein an axially extending groove is formed in the surface of the shaft; and

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said head is provided with an inwardly projecting portion extending into said groove; said groove being spaced from the forward limit of the shaft whereby to form a shoulder cooperating with the inwardly projecting portion for preventing detachment of the head from the shaft.

3. The combination of claim 1 wherein the head is formed with a slot and the blade is positioned in said slot; said blade being bowed at right angles to its thinnest dimension whereby to put at least one of the blade faces in frictional engagement with a slot wall so as to releasably retain said blade in a retracted position except when the shaft cams against the blade's innermost lateral edge.

4. An arrow construction comprising a shaft; a head slidably mounted on the forward end portion of the shaft for limited axial movement thereon; a blade movably carried by said head for movement from a retracted position extending lengthwise along said head to an extended position projecting angularly away from said head; said blade lying in unobstructed registry with the forward end portion of the shaft, with the outer edge of said blade being unconfined by the head when in the retracted position so as to permit movement from the retracted position to the extended position; and said head being at its forwardmost position relative to the shaft when said blade is in its retracted position; whereby when the arrow construction is fired with the blade in a retracted position, engagement of the head with the game causes the

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shaft to move forward relative to the head and forcibly engage the blade, thereby moving said blade to its extended position.

5. An arrow construction comprising a shaft; a head slidably mounted on the forward end portion of the shaft for limited axial movement thereon; a blade pivotally carried by said head for movement from a retracted position extending lengthwise along said head to an extended position projecting angularly away from said head; said blade lying in unobstructed registry with the forward end portion of the shaft, with the outer edge of said blade being unconfined by the head when in the retracted position so as to permit movement from the retracted position to the extended position; and said head being at its forwardmost position relative to the shaft when said blade is in its retracted position; whereby when the arrow construction is fired with the blade in a retracted position, engagement of the head with the game causes the shaft to move forward relative to the head and forcibly engage the blade, thereby moving said blade to its extended position.

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