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PLASTIC FINS FOR ARCHERY ARROWS

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FIG. 1

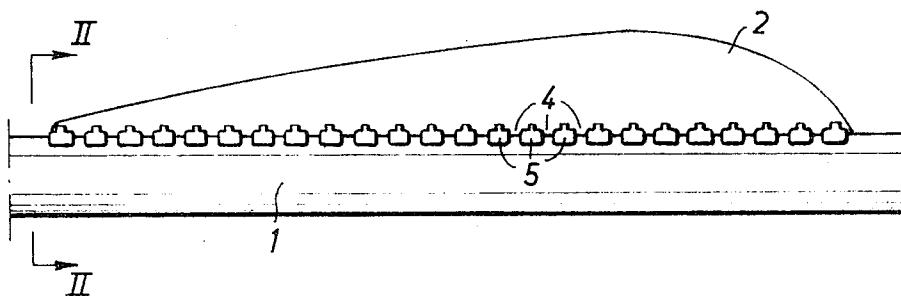


FIG. 2

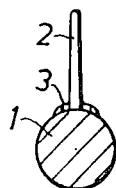
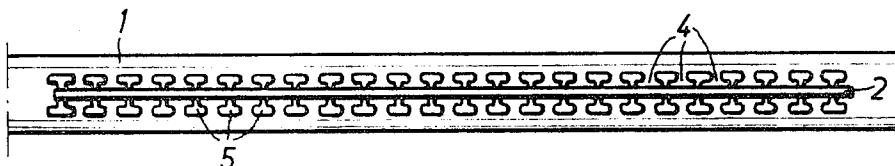


FIG. 3



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PLASTIC FINS FOR ARCHERY ARROWS
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1 Claim

ABSTRACT OF THE DISCLOSURE

A plastic guide fin for archery arrows, the edge surface of said fin adapted to be secured to the arrow shank by gluing being shaped like a foot having narrowly spaced notches to provide a penetration of glue therethrough and an embedding of the foot portions therebetween whereby a mechanical glue joint is obtained.

BACKGROUND OF THE INVENTION

The present invention relates to arrows for archery and particularly the shape of the mounting surface of the guide fins or vanes which are to be secured to the arrow shaft by means of gluing.

Prior art fins in archery arrows have been made of natural feathers mostly from turkey, but even if impregnated such feathers have bad characteristics as to moisture resistance, uniformity of thickness and stiffness etc. There has thus long been a demand for a plastic fletching that would surpass such natural feathers. The plastic fins or vanes which have been produced so far can be divided into two main groups viz:

(1) Vanes made of relatively stiff or hard, chemically soluble plastics (mainly cellulose plastics) that are glued to the arrow shaft by means of adhesives containing proper solvents, and

(2) vanes of pliable, chemically insoluble plastics (mainly polyolefin plastics) or only slightly soluble plastics, that can only be glued by means of pressure-sensitive binders.

Such plastic fins, however, have a number of drawbacks. The disadvantage of the type (1) plastic vanes is their rigidness. With only a slight shooting error, the fletching often touches the bow and/or the arrow rest. When this occurs, the rigid fletching of this plastic kind causes a greater deviation in the flight of the arrow than with a fletching of natural feathers or sufficiently flexible plastic vanes. Attempts have been made to produce sufficiently flexible vanes of highly softened cellulose plastics but the poor mechanical properties of these materials render them unsuitable for the purpose. Similar attempts have been made with vinyl plastics and various elastomers but without satisfactory results.

The major disadvantage of the type (2) plastic vanes is that they cannot be glued satisfactorily. The vanes thus loosen from the arrow shaft too readily during shooting and upon impact with the target.

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SUMMARY OF THE INVENTION

The main object of the present invention is to provide an archery arrow vane having a mounting surface of a shape that will secure a greatly improved glue attachment to the arrow shank. This object is achieved by the feature that the edge surface of said fin or vane, which is adapted to be secured to the arrow shank, is shaped like a rib-like foot extending laterally to both sides of said fin and having narrowly spaced notches adapted to provide a penetration of glue therethrough and a partial or total embedding of the foot portions between the notches, whereby a mechanical glue joint is obtained.

BRIEF DESCRIPTION OF THE DRAWINGS

By way of example, the invention will be further described below by referring to the accompanying drawings, in which

FIG. 1 is a side elevational view of a fin according to the invention mounted on the shank of an archery arrow,

FIG. 2 is a cross-sectional view of the fin according to FIG. 1 taken substantially along the line II—II, and

FIG. 3 is a plan view of the same fin.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings, a section of an arrow shank 1 is illustrated having mounted thereon a guide fin or vane 2 of suitable contour. Said fin is made of a plastic material, preferably a polyamide material such as "Polyamide 11" or "Nylon 11." Although said fin 2 has been illustrated as being non-apertured in the drawings, it can of course be provided with suitable apertures in the form of slots, rows of holes etc., as required for aerodynamical purposes.

According to the invention, on its mounting edge the fin is shaped like a rib-like foot generally designated 3. More especially, said foot 3 is extended laterally to both sides of said fin and provided with narrowly spaced notches 4, leaving therebetween foot portions 5. Owing to said notches, when said fin 2 is to be mounted to the arrow shank 1 having a layer of suitable glue disposed thereupon, said glue will penetrate from below through said notches 4 to provide a partial or total embedding of the foot portions 5, whereby a mechanical glue joint is obtained.

In connection with the polyamide material used for the fin, it has turned out to be most suitable to utilize a glue of a nitrile rubber type, but of course also other glues might be used provided only that they exhibit the proper Shore hardness.

In order to further improve the glue attachment of the fin or vane 2 to the arrow shank, according to a preferred embodiment of the invention the notches are formed wider, as seen longitudinally of said arrow, adjacent their base at the fin proper and narrower at their portion remotest from the fin, so that the foot portions 5 lying therebetween become shaped narrowing from their outer extremity towards the fin, as seen in plan view.

Although the invention has been described above as applied to some preferred embodiments, it is evident that also a number of modifications and alterations can be made by those skilled in the art.

What I claim is:

1. A plastic guide fin for archery arrows, the edge surface of said fin adapted to be secured to the arrow shank by gluing being shaped like a rib-like foot, said foot extending laterally to both sides of said fin and having narrowly spaced notches adapted to provide when gluing said fin to the arrow shank, a penetration of glue therethrough and at least a partial embedding of the foot portions between said notches whereby a mechanical glue joint is obtained, said notches being wider, as seen longitudinally of said arrow, adjacent their base at the fin proper and narrower at their portion remotest from the fin, so that the foot portions lying therebetween narrow

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in shape from their outer extremity towards the fin, as seen in plan view.

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