

[54] SNAP-IN ARROW REST
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 [51] Int. Cl.² **F41B 5/00**
 [58] Field of Search..... 124/41 A, 24 R, 26, 35 A,
 124/22, 21; 267/53, 182; 63/29 R, 21

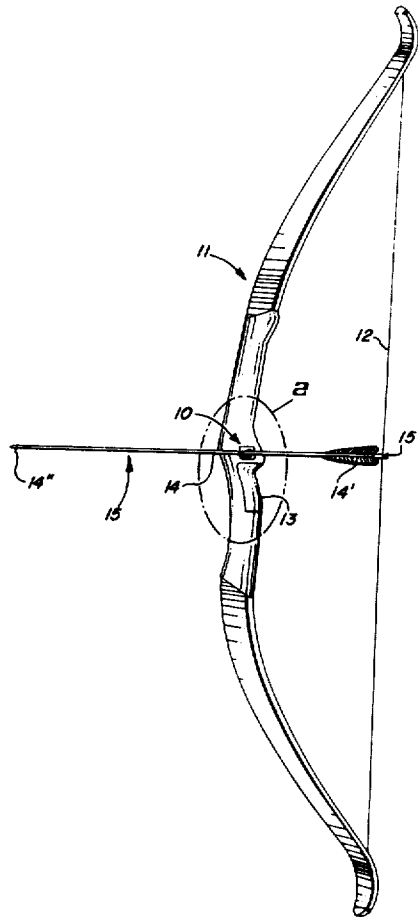
[57] **ABSTRACT**

An arrow rest for mounting on either left or right handed archery bows and utilized to yieldingly support the arrow shaft while drawing the bowstring taut and providing for quick escape of the arrow from the rest when the taut bowstring is released. The arrow rest has a hairpin configuration with arms that are biased toward each other so as to hold an in place arrow therebetween. An adhesive material secures the hairpin configuration to a mounting plate which is removably secureable to an archery bow.

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4 Claims, 12 Drawing Figures



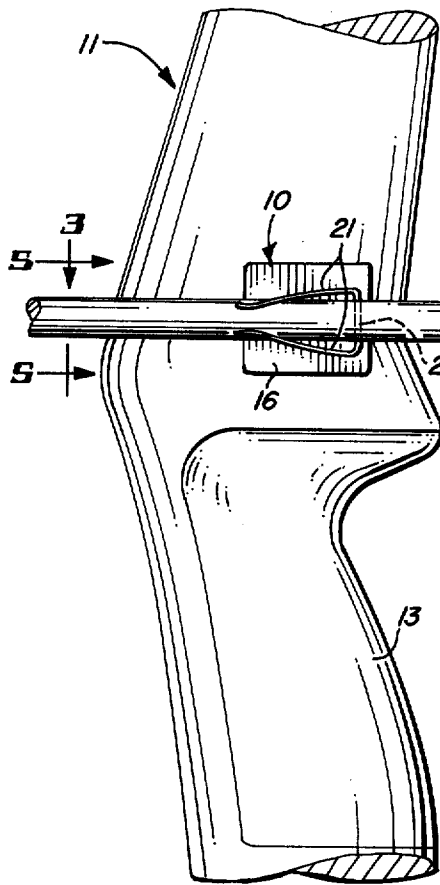


FIG. 1

FIG. 2

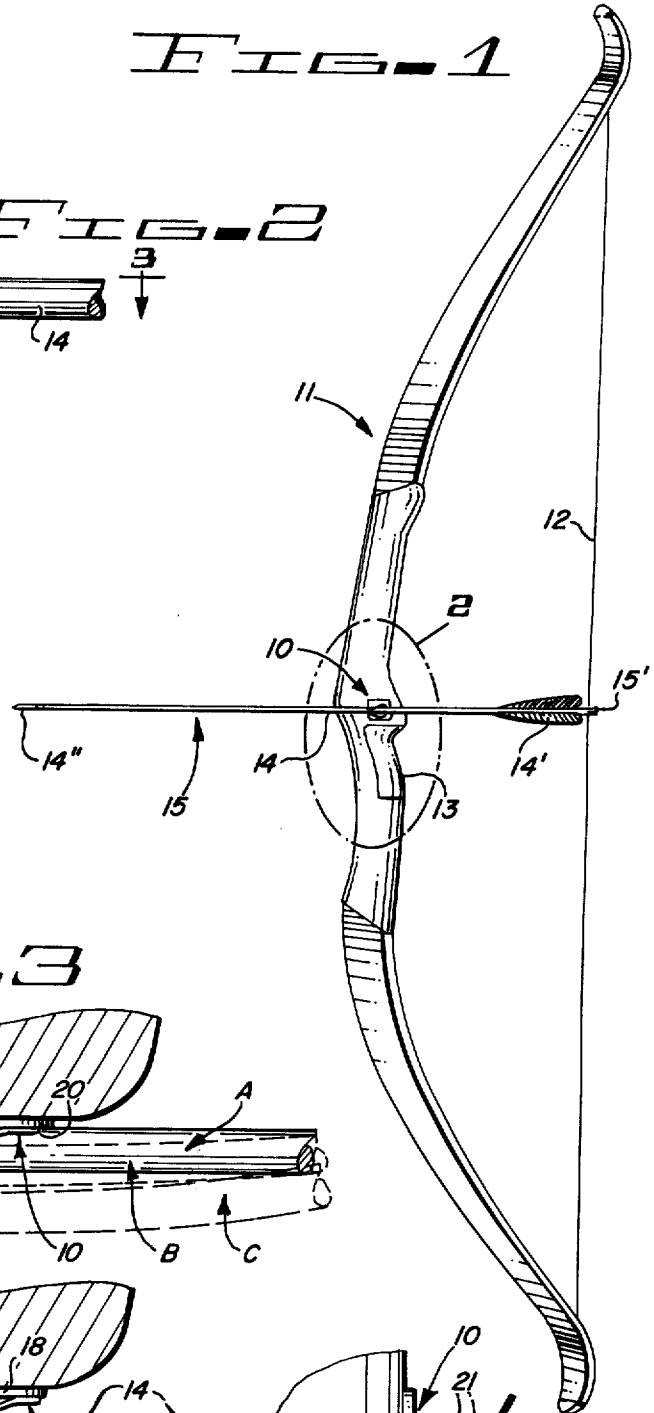


FIG. 3

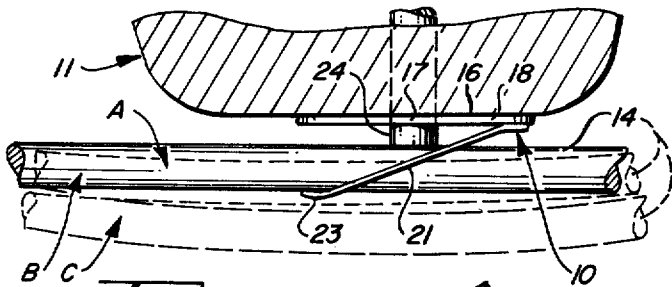
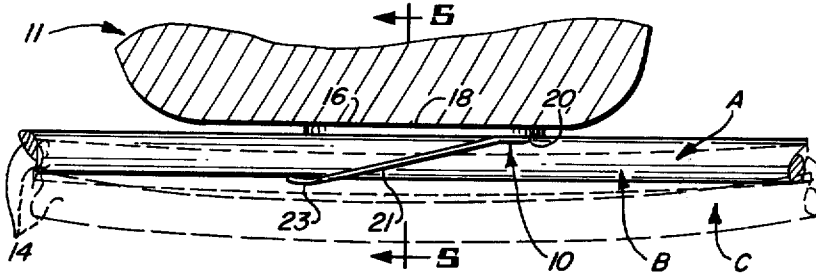
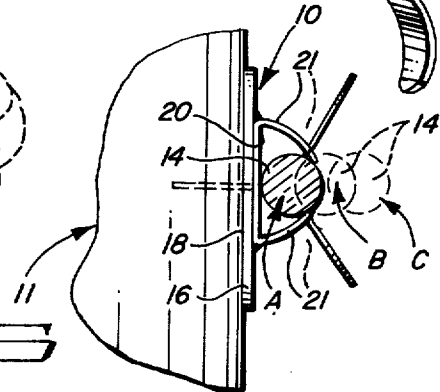


FIG. 4

FIG. 5



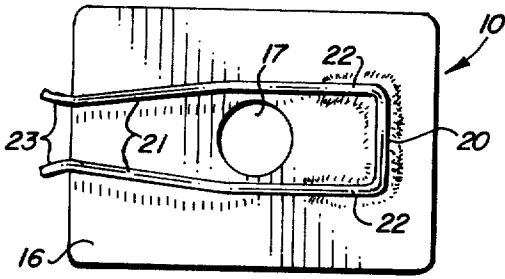


FIG. 6

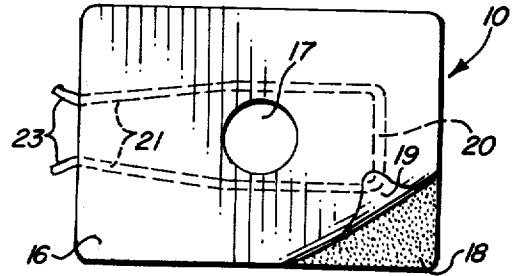


FIG. 6A

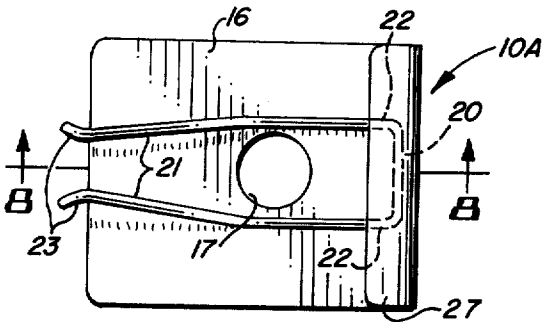


FIG. 7

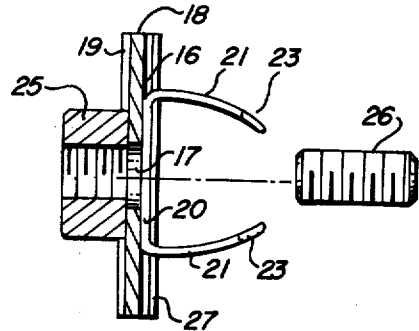


FIG. 10

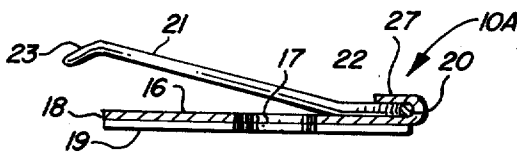


FIG. 8

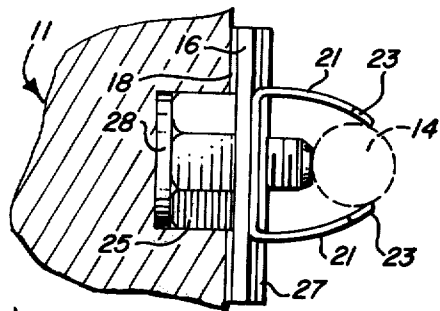


FIG. 11

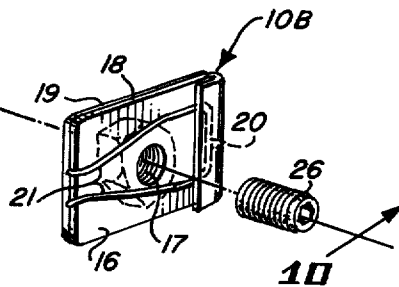
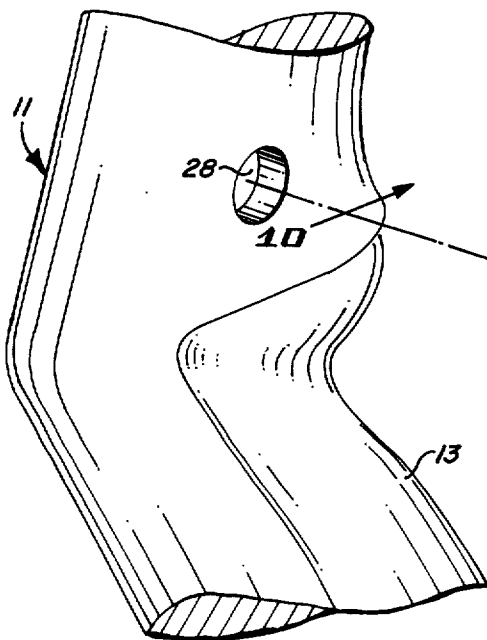


FIG. 9

SNAP-IN ARROW REST

BACKGROUND OF THE INVENTION

This invention relates to arrow rests for use in conjunction with archery bows.

1. Field of the Invention

This invention is particularly directed to lightweight, durable arrow rests consisting of a minimum number of inexpensive components which may be detachably mounted on either left or right handed archery bows to yieldingly support the arrow shaft in aligned relationship during the pull of the drawstring. This arrow rest quickly releases the arrow therefrom upon the release of the drawstring without affecting the aim or trajectory of the arrow or causing any damage to the fletchings attached thereto.

2. Description of the Prior Art

Heretofore, many kinds of arrow rests have been designed, fabricated, marketed and utilized by archers which, when attached to their bows, assist them in the function of supporting the arrows while pulling the drawstring of their bows taut, aiming the arrow and subsequently releasing the taut bowstring to impel the arrow forward in the direction aimed.

Some of these arrow rests are as simple as a ledge or shelf that may be an integral part of the bow or a similarly shaped bracket may be temporarily or permanently secured to the side of the bow at its spine-point (where the arrow shaft normally contacts the bow) for an arrow rest. Other available arrow rests which are quite complicated and expensive to purchase and install, usually consist of several associated component parts of metal or plastic that are often quite heavy and not very durable when subjected to constant use, thus affecting the balance of the bow or requiring frequent replacement.

Most of the arrow rests described above have the common disadvantages of:

1. Failing to suitably hold and prevent lateral movement and bouncing of the arrow shaft when the same is being ejected from the bow by the release of the tensioned bowstring.

2. Failing to quickly release the arrow shaft from the rest when the same is being ejected by the release of the bowstring.

3. Failing to prevent damage to the fletchings attached to the rear portion of the arrow shaft as they pass through or by the rest during their ejection.

All of the above pointed out disadvantages result in the necessity for manual handling and positioning of the arrow shaft on the arrow rest and the resulting and constant adjustment of the same.

SUMMARY OF THE INVENTION

In order to obviate the disadvantages and incapacities of presently available arrow rests, a new and improved snap-in arrow rest is provided which is light in weight, extremely simple in design and inexpensive to manufacture and which may be quickly and easily attached or detached from the side surfaces of a conventional archery bow.

It is, therefore, one object of this invention to provide an improved lightweight, inexpensive arrow rest for archery bows that may be attached to either side of the bow in proper relationship to its spine-point and used to support the shaft of the arrows during the launching process.

Another object of this invention is to provide an improved arrow rest comprising a minimum number of component parts which include a pair of forwardly projecting, opposed, flexible control arms between which the arrow shaft is manually snapped into place to yieldingly support the same during the preparation for launching and to allow for the automatic release of the shaft during the launching process.

A further object of this invention is to provide an improved snap-in arrow rest having means which, when associated with preformed counterbores in the side surfaces of the bow, prevent any possibility of side slipping or misalignment of the arrow rest after its initial installation on the bow.

A still further object of this invention is to provide an improved snap-in arrow rest assembly having adjustable means for varying the degree of pressure imposed on the arrow shaft by its flexible control arms to permit easy manual insertion of the shaft between the control arms and to provide automatic release of the shaft from its control arms during the launching of the arrow.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a conventional archery bow showing the snap-in arrow rest of the present invention attached to one side of the bow and supporting a conventional arrow with the untensed bowstring positioned in the neck of the arrow in readiness for the initial draw and tensing of the bowstring.

FIG. 2 is an enlarged fragmentary side elevation of that portion of the bow to which the arrow rest is attached as indicated by the encirclement of the area "2" in FIG. 1 and showing in greater detail the associated supporting relationship of the arrow rest with shaft of the arrow.

FIG. 3 is an enlarged fragmentary sectional view taken along line 3-3 of FIG. 2 showing in full lines the relationship of the arrow shaft to the side face and control arms of the arrow rest when yieldingly supported therein as indicated by the arrow position "A" and the relationship of the arrow shaft to the same when emerging from contact with the control arms shown in dash lines and indicated by the arrow positions "B" and "C."

FIG. 4 is an enlarged fragmentary sectional view similar to FIG. 3 showing the relationship of the arrow shaft to the side face and control arms of the arrow rest when the shaft contacts an adjusting pin which projects through the bow and the center of the arrow rest as indicated.

FIG. 5 is an enlarged fragmentary vertical elevational view, partly in section, taken on the line 5-5 of FIG. 3 showing the relationship of the arrow shaft to the side face and control arms of the arrow rest as the arrow is caused to assume the respective positions indicated by full and dash lines A, B and C in FIG. 3.

FIG. 6 is an enlarged front side elevational view of the snap-in arrow rest of this invention illustrating one form or attachment of its control arms.

FIG. 6A is an enlarged rear side elevational view of the arrow rest shown in FIG. 6 illustrating one method of protecting the adhesive backed plate of the arrow

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rest by a temporary covering.

FIG. 7 is an enlarged front side elevational view of a modification of the arrow rests shown in FIGS. 1-6.

FIG. 8 is a longitudinal sectional view of the arrow rest shown in FIG. 7 taken on the line 8-8 thereof.

FIG. 9 is an exploded perspective view showing a fragmentary portion of the archery bow to which the arrow rest illustrated in FIGS. 7, 8, 10 and 11 is to be attached with the respective components thereof arranged in the proper order for installation on the side of the bow.

FIG. 10 is an exploded vertical sectional view taken substantially on the line 10-10 of FIG. 9, illustrating in greater detail the relationship of the arrow rest's components to the counterbore and side surface of the bow in and on which they are to be installed.

FIG. 11 is a fragmentary vertical sectional view through the side face and counterbore provided in the bow showing in end elevation the relationship of the components of the arrow rest and its adjustable plunger when securely attached to the side face of the bow with its rear center extension projecting into the counterbore and its flexible control arms gripping the circumference of the arrow shaft (shown in dash line).

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring more particularly to the drawings by characters of reference, FIGS. 1-5 disclose one form of a snap-in arrow rest 10 as it would appear when attached in the proper location at the spine-point of an archery bow 11, i.e., where an arrow would normally contact the side of a bow. The archery bow 11 is provided with the usual bowstring 12 and a contoured hand grip portion 13 that is located just below the spine-point of the bow for supporting a shaft 14 of a conventional arrow 15.

The detailed construction of arrow rest 10 is illustrated in FIGS. 3-6A and its component parts include an attaching plate 16 which is provided with a centrally located clearance hole 17. Plate 16 is coated on its rear surface with a suitable adhesive 18 which is temporarily protected by a lightly adhering, removable paper covering 19. Secured to the front smooth surface of the attaching plate 16 in horizontal alignment with the plate is the bight portion 20 of a pair of flexible fingers or control arms 21.

The attaching plate 16 is preferably fabricated of light gauge stainless steel or aluminum to preclude the damaging effects of rust and has enough flexibility to allow full adherence of its rear surface to the sometimes slightly curved section of the bow at the point of its attachment thereto. Its front exposed surface could be painted or otherwise finished to present an attractive appearance.

The integral connecting bight portion 20 and the pair of flexible control arms 21 are preferably fabricated of light gauge stainless steel spring wire which has sufficient resiliency and strength to apply the necessary pressure to the circumference of the arrow shaft which it is adapted to receive and support in moving relationship thereto. The control arms must also withstand the constant and intermittent flexing necessary in use. The control arms and their integral connecting portion 22 are shaped in the general form of a hairpin with the arms spaced apart sufficiently in substantially parallel relationship to straddle the sides of the clearance hole 17 in plate 16 and to extend forward slightly beyond

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the vertical center of hole 17 where they bend and taper inwardly toward each other at a slight angle continuing forwardly to a point which is in alignment with the forward edge of plate 16. At this point, they again bend and taper outwardly to form the small, smooth curved front end portions 23 which are adapted to contact the arrow shaft in supporting relationship thereto.

The integral connecting bight portion 20 of the flexible control arms 21 and a comparatively short length of their rear portions 22 are flattened out to lie in the same plane as the rear face of the attaching plate 16 to which they are rigidly secured in full contact therewith, as shown in FIGS. 3, 4 and 8. As shown, the control arms 21 are bent or formed to project outwardly and forwardly at a predetermined angle from the rear face of the attaching plate 16 so that their smooth, curved front end portions contact the circumference of shaft 14 of a conventional arrow 15 somewhat beyond its vertical longitudinal center to yieldingly grip and hold the arrow shaft when it is inserted between the control arms of the arrow rest by the archer.

Conventional arrows commonly used by archers for competitive target shooting, hunting, fishing or other purposes are quite similar in their general design but may vary considerably in weight, overall length and the diameter of their shafts in accordance with their intended specific usage. These differences necessitate the use of different materials for their component parts including the usual cylindrical or tubular shaft 14, the type and size of fletchings 14', the type and size of the point 14'', and the nock 15' at the rear end of the arrow.

The cylindrical or tubular shafts 14 are usually fabricated of such materials as aluminum, fiberglass or wood (cedar), and the fletchings 14' usually consist of feathers or plastic vanes which may be easily damaged and are difficult and expensive to replace. Regardless of the kind of materials used in their fabrication, the arrows are usually well balanced and their shafts have one common characteristic; that is that they all have a considerable amount of flexibility that varies somewhat due to their diameter and overall length. This characteristic enables the arrow shaft to automatically release itself from its held and supported position between the flexible control arms 21 as hereinafter described.

When the archer is preparing to load or position arrow 15 on bow 11 in readiness for aiming and shooting the same, his first manual function is to place the bifurcated end of nock 15' over the untensed, vertically disposed drawstring 12. He then lines up shaft 14 with the previously attached snap-in arrow rest of this invention on the bow and pushes that portion of the shaft inbetween the pair of flexible control arms 21. These fingers or arms hold and support the shaft in longitudinally movable relationship. The archer then draws back on nock 15' of the arrow, letting the shaft slide rearwardly while in the grip of the smooth front end portions 23 of the control arms 21 until the drawstring 12 is taut and under tension. This action places the nock end of the arrow under considerable pressure, manually maintaining this relationship of bow, arrow and drawstring until ready for release.

Upon the release of the tensed bowstring 12, the forward thrust imposed on the rear end of the arrow shaft through the nock is much greater than the forward thrust transferred to the front portion of the shaft. This feature is due to the normal frictional resistance of the

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air pressure and a minimal frictional resistance imposed on the circumference of the shaft by the slight pressure imposed at the ends of the flexible control arms 21, thus creating a differential in thrust pressures at the opposite ends of the arrow shaft 14. This difference in thrust pressure causes it to flex or curve outwardly away from the side of the bow and consequently spreads the ends of the control arms 21 sufficiently to allow the release or escape of the arrow shaft therefrom. The arrow then continues its forward flight and again straightens out without its shaft or its vulnerable fletchings 15' coming into contact with the arrow rest 10 or the side of the bow 11. The inherent flexing of the arrow shaft 14 and its consequent release from the flexible control arms 21 is illustrated by the full and dotted line positions indicated by arrows A, B and C in FIGS. 3 and 4 of the drawings.

Some archery bows are provided with an adjustable plunger or button 24, as shown in FIG. 4, which usually extends through the bow and is adjustable from the opposite side. This type of plunger or button arrangement may be used in conjunction with the snap-in arrow rest 10 of the present invention by letting it project through the clearance hole 17 in the attaching plate 16. This button causes the arrow shaft 14 to be moved farther out from the side of the bow and if used with the arrow rest, merely necessitates increasing the angle of the control arms 21 so that they function in the same manner as described above.

Although the above described adjustable plunger is capable of performing its function when associated with the arrow rest of this invention and most other arrow rests, the necessity of providing a fairly large diameter hole that extends through the section of the bow at its spine-point may not be a desirable means of supporting the adjustable plunger because the hole for receiving the plunger could weaken the bow structure at a very critical location and possibly cause eventual breakage or rupture of the same.

In view of these undesirable features, another slightly modified form of the snap-in arrow rest of this invention is provided which is illustrated in FIGS. 9-11 of the drawings. This arrow rest 10B is substantially identical to arrow rest 10 and 10A previously described and having the parts thereof described with the same reference characters except that it is provided with a standard hexagon nut 25 and a male threaded, adjustable plunger 26 which may be in the form of a common Allen set screw. FIGS. 7 and 8 illustrate a modification of the arrow rest shown in FIGS. 6 and 6A wherein the integral connecting bight portion 20 of the pair of control arms 21 of arrow rest 10A is tack welded to the front face of the attaching plate 16 with the projecting edge 27 of plate 16 folded over the same and again welded to the face of the plate.

The standard hexagon nut 25 may be of any suitable size having a female threaded central bore which is adapted to receive a male threaded plunger of the same diameter. The thickness of the nut is preferably less than the depth of a counterbore 28 which has been formed or drilled in either or both sides of bow 11 exactly at the spine-point of the bow where the arrow rest 10A is to be attached. The counterbore 28 must be of a slightly greater diameter than the across-corners dimension of the nut 25 to receive the nut after it has

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been securely welded to the rear face of the attaching plate 16 (as shown in FIG. 11) to prevent any possible lateral movement of the arrow rest 10A after it has been attached to the side of the bow.

The above described snap-in arrow rest 10B with its attached hexagon nut 25 and the threaded adjustable plunger 26 would function in the same manner as its counterpart, arrow rests 10 and 10A, when used in conjunction with the adjustable plunger or button 24 (shown in FIG. 4). It is capable of positioning the arrow shaft 14 in parallel relationship to the face of the attaching plate 16 and the side of the bow the desired distance to thereby increase or decrease the pressure of the control arms 21 on the circumference of the arrow shaft to obtain the desired results by merely turning the threaded plunger 26 in or out of the hexagon nut 25.

It should also be noted that to install and utilize the adjustable plunger feature of the arrow rest 10B, it is only necessary to provide a comparatively small diameter counterbore 28 of minimum depth on one or both sides of the bow so that the arrow rest could be used by either right or left handed archers.

Although but two embodiments of the invention have been illustrated and described, the appended claims are intended to cover and embrace any and all modifications which fall within the spirit and scope of the invention.

What is claimed is:

1. An arrow-rest for mounting on an archery bow to yieldingly support the arrow shaft while drawing the bowstring taut and providing for quick escape of the arrow from the arrow-rest when the taut bowstring is released comprising:

a mounting plate,

means mounted on said plate for releasably gripping the shaft of an arrow,

said means comprising a hairpin configuration having a pair of juxtapositioned cylindrical wire control arms interconnected by a bight portion and biased toward each other to jointly hold the shaft of an arrow therebetween,

said bight portion being attached to said mounting plate with said control arms extending laterally therefrom and angularly of said mounting plate, said control arms extending from said mounting plate longitudinally the length thereof and also generally in the direction of an in-place arrow on a bow and each arm movable independently of the other to flex toward and away from a shaft of an in-place arrow.

2. The arrow-rest set forth in claim 1 wherein: said control arms and bight portion are formed in one piece from resilient metal wire.

3. The arrow-rest set forth in claim 1 wherein: said control arms taper toward each other from the bight portion toward their free ends.

4. The arrow-rest set forth in claim 1 in further combination with:

adhesive means applied to the surface of said plate opposite to the surface on which said bight is attached, and

a removable paper covering attached to said adhesive means.

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