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3,209,740

MEANS FOR ATTACHING A QUIVER TO AN ARCHERY BOW

Filed Dec. 29, 1961

3 Sheets-Sheet 1

FIG. 1.

FIG. 2.

FIG. 3.

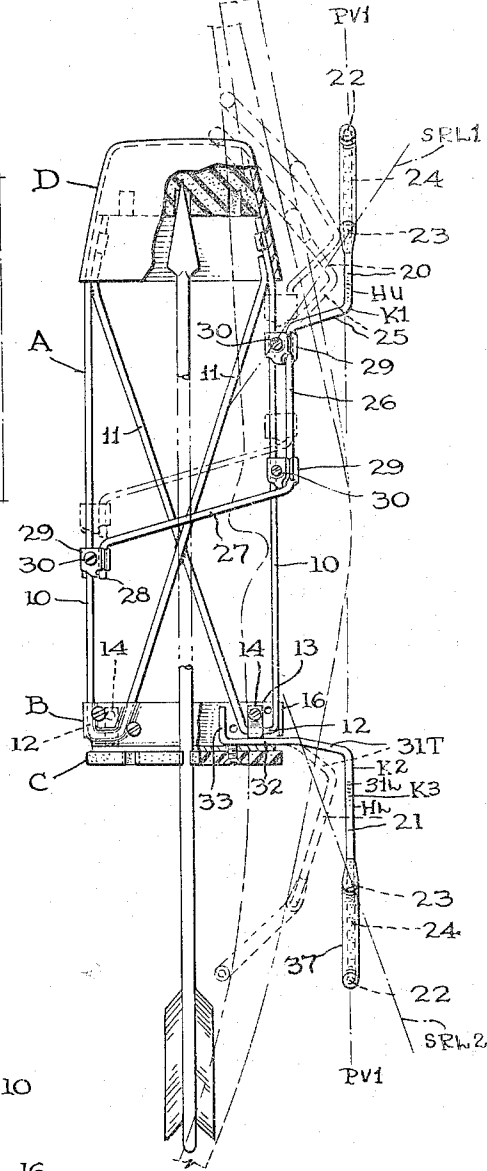
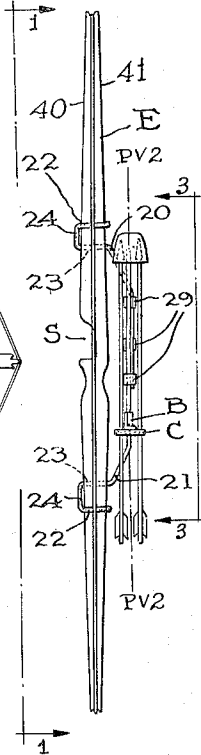
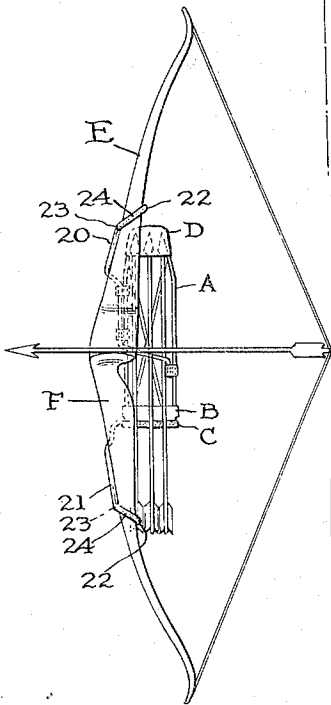
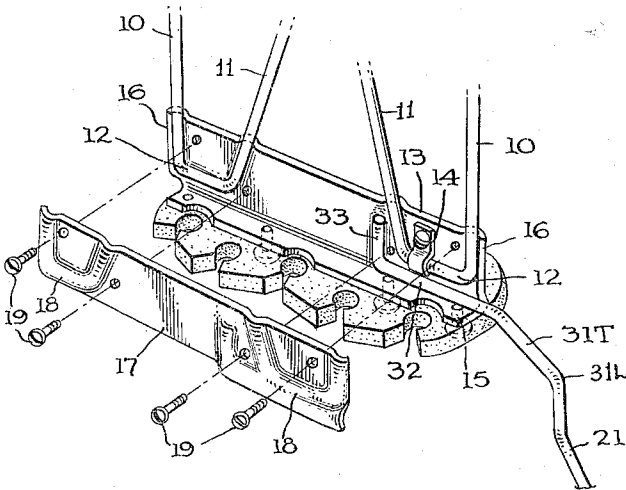


FIG. 4.



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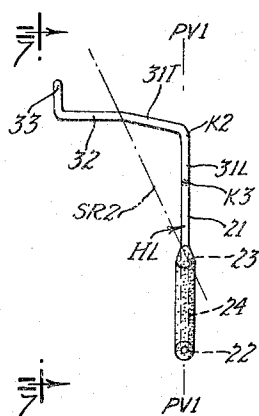
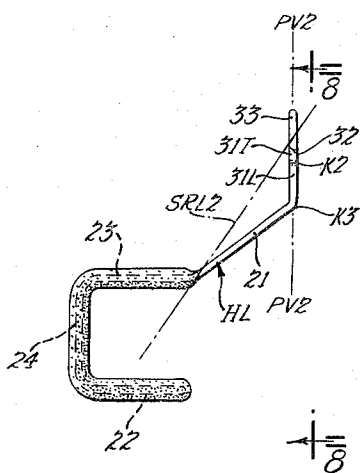
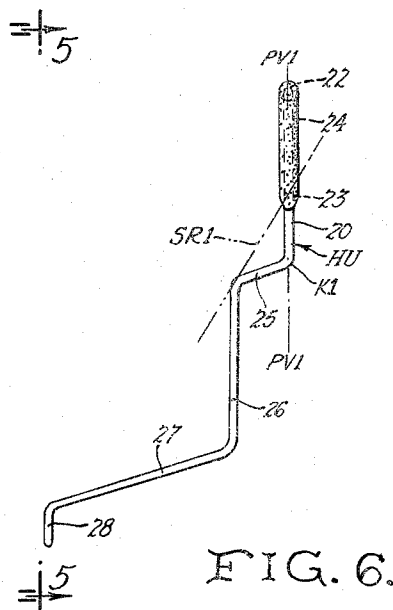
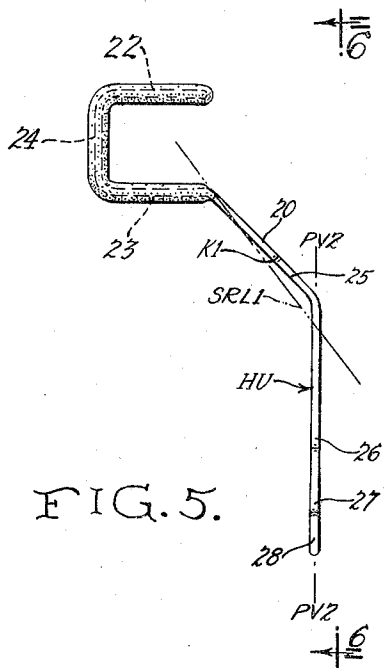
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3 Sheets-Sheet 2



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**MEANS FOR ATTACHING A QUIVER TO AN
 ARCHERY BOW**

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18 Claims. (Cl. 124-24)

This invention relates to novel means for releasably attaching a quiver to an archery bow.

In the past, quivers have been attached to archery bows by means of screws, bolts, or tape which is not only inconvenient, but may permanently mar the appearance of the bow and also damage the bow structure.

Since most State laws require a bow to be in a case when transported, it is usually necessary to remove any attached quiver prior to placing it in the case. Also, situations arise where the archer might wish to use the bow without the quiver or he might desire to transfer the quiver from a small bow to a larger bow, or vice-versa. In addition to the time and inconvenience involved in making the change, the archer frequently finds that the means of attaching the quiver to the bow does not lend itself to adjustment of different bow sizes.

Accordingly, the primary object of the present invention is to provide a novel means of attaching a quiver to an archery bow which means will not in any way mar the appearance of the bow or weaken its structure.

Another object of the invention is to provide means for attaching a quiver to an archery bow whereby said means is readily adjustable so as to adapt the quiver to bows of different sizes.

Another object of the invention is to provide means for attaching a quiver to a bow which is equally adaptable for use by either right or left-handed archers.

Another object of the invention is to provide means for attaching a quiver to a bow which may be quickly and easily accomplished without the use of tools of any kind.

A further object of the invention is to provide a means for attaching a quiver to a bow which is economical to manufacture, attractive in appearance, and efficient in use under field conditions, as well as tournament or practice conditions.

With these and other objects in view which will more readily appear as the nature of the invention is better understood, the invention consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings in which:

FIGURE 1 is a left side elevation showing a quiver attached to a typical bow by slidably adjustable attaching means.

FIGURE 2 is a rear elevation of the bow and attached quiver shown in FIGURE 1.

FIGURE 3 is a right side elevation showing the quiver with the attaching means secured thereto prior to attachment to the bow.

FIGURE 4 is an enlarged detail of the bottom of the quiver shown in FIGURE 3.

FIGURE 5 is a rear elevation of the upper hook member only of the quiver, prior to attachment to the frame of the quiver and to the bow.

FIGURE 6 is a right side elevation of the upper hook member only of the quiver, prior to attachment to the frame of the quiver and to the bow.

FIGURE 7 is a rear elevation of the lower hook member only of the quiver, prior to attachment to the base of the frame of the quiver and to the bow.

FIGURE 8 is a right side elevation of the lower hook member only of the quiver, prior to attachment to the base of the frame of the quiver and to the bow.

FIGURE 9 is a perspective view of another type of quiver with a resiliently adjustable form of attaching means secured to a bow.

FIGURE 10 is a left side elevation of a single wire attaching means only, and possessing both an upper hook member and a lower hook member, prior to attachment to an alternate frame of the quiver and to the bow.

FIGURE 11 is a rear elevation of a single wire attaching means only, and possessing both an upper hook member and a lower hook member, prior to attachment to an alternate frame of the quiver and to the bow.

Similar reference characters designate corresponding parts throughout the several figures of the drawing.

Referring to the quivers shown in FIGURES 1-8 and 9-11, respectively, they each consist essentially of a frame member (A and A' respectively) having a base (B and B' respectively) to each of which is respectively secured an arrow-shaft holding rack (C and C' respectively). A hood (D and D' respectively) is secured to the upper part of each frame to receive and shield arrow heads.

In the quiver assembly shown in FIGURES 1-4, the frame A includes a pair of generally U-shaped members formed of bent wire or rod having vertically disposed side rails 10 and diagonally disposed inner rails 11 which impart rigidity to the frame structure. The webs 12 of each U-shaped member are secured to a back plate 13 of the base B by means of clips 14. The plate 13 is provided with a bottom flange 15 to which the rack C is attached and grooves 16 are pressed in the plate so that the adjacent portion of the quiver frame will nestle therein. The base assembly is completed by a cover 17 having grooves 18 complementary to the grooves 16 in the plate 13. The cover 17 is attached to the plate 13 by means of fasteners 19.

In both the embodiments shown in FIGURES 1-8 and 9-11. The attaching means for securing the quiver to the bow E-E consists broadly of providing upper and lower hook members HU, HU' and HL, HL', respectively, formed of spring wire and including stems 20 and 20', a pair of spaced parallel arms 22, 22' and 23, 23', and a connecting web portion 24, 24'.

FIGURES 1-8 illustrate a slidably adjustable form of attaching means which can be adapted to fit bows of various sizes. The upper and lower hook members HU and HL in this instance are separately attached to the quiver, as will now be described. The upper hook member HU has a steeply downwardly inclined stem 20, which connects to arm 23 (FIG. 2). Arms 22, 23, web 24, and stem 20, in their non-bow contacting positions (solid line of FIG. 3), are all in the same vertical plane. The trace of this plane is indicated by PV1-PV1 in FIG. 3 and FIGURES 6 and 8.

Connected to the stem 20 is a depending body portion including slightly downwardly inclined member 25, vertical member 26, member 27 approximately parallel to 25 and a lower terminal vertical portion 28. All portions of the depending body 25, 26, 27, 28 are in a second vertical plane which perpendicularly intersects the first mentioned plane. The trace of this second plane is indicated by PV2-PV2 in FIG. 2 and FIGURES 5 and 7.

Thus, the upper member HU, extending from a base portion 28 to a top portion 22, has six simple bends and one compound bend. Three upper bends, between 22-24, between 24-23 and between 23-20 are coplanar, all in the plane whose trace is designated PV1 in FIG. 3 and FIGURES 6 and 8. Three lower bends, between

25-26, between 26-27, and between 27-28 are similarly coplanar but in a vertical plane perpendicular to the first plane, that is the latter three bends are in the plane whose trace is designated by PV2 in FIG. 2 and FIGURES 5 and 7. The compound bend K1 is between the three upper and the three lower bends and is between 20-25 and is at the vertical intersection of the two planes.

The portions 26, 27 and 28 of the hook body 25 are releasably secured to the rails 10 by means of clamps 29, which are adjustable by set screws 30 to permit vertical slidable adjustment of the hook HU as indicated by dotted lines in FIGURE 3.

It will be observed that the compound bend K1 is located in non-contacting relationship with respect to a medial portion of a straight reference line SR1 extending from the bend 23-20 in alignment plane PV1, to the bend 25-26 in alignment plane PV2. This line is shown by dashes and double dots near the top of FIG. 3 and FIGURES 5 and 6. The bend at 23-20 is at the target side of the bow, and at the end of lower arm 23; and therefore when the quiver is attached to the bow limbs, the upper limb of the bow exerts on the wire at this point a force having an upward component. The bend at 25-26 is at the upper attachment point of the wire to the rail 10, and therefore the quiver rail exerts on the wire at this point a force having a downward component. The wire portion containing the compound bend or kink 1 is therefore under tension when the quiver is attached to the bow as indicated above. The kink therefore has a tendency to straighten out thus providing an adjustable and resilient connection between the top of the quiver and the upper portion of the bow.

The lower hook member HL possesses horizontal parallel arms 22-23, web 24 and steeply upwardly inclined stem 21. These elements in their non-bow contacting positions (solid line FIG. 3) are in the same vertical plane as the upper hook, namely in the plane whose trace is shown by PV1 in FIG. 3 connected to the top of stem 21 is a body portion which includes a short vertical portion 31L which is at the intersection of planes PV1 and PV2. The bend or kink 21-31L is denoted on FIG. 3 as K3. At the top end of 31L but located in plane PV2 is a short slightly inclined wire portion 31U. The bend or kink 31L-31U is denoted on FIG. 3 as K2. Continuing from 31U is a horizontal wire portion 32 which is bent upwardly so that the terminal portion 33 is parallel to the vertical plane PV1 and in plane PV2. Elements 31U, 32 and 33 are coplanar (all are in plane PV2).

It will be observed that kinks K2 and K3 are both located in non-contacting relationship with respect to a medial portion of a straight reference line from the bend 32-31 in alignment plane PV2 to the bend 23-21 in alignment plane PV1. This straight line is shown by dashes and double dots near the bottom of FIG. 3.

Thus, in FIGS. 1-4 both the upper and lower spring wire attachment means of the quiver to the bow have at least one kink between the quiver and the bow. This kink structure is referred to in the claims by the expression "resilient adjustment means" as the bends or kinks act similarly to a small coil spring between the quiver and the bow and makes possible a slight adjustment in length of the attaching arms.

As shown in FIGURES 3 and 4, the terminal portion 33 of the body 31 and the angularly bent portion 32 thereof rest in the grooves 16 of the back plate 13. When the cover plate 17 is secured to the back plate 13, the lower hook member HL is gripped in the complementary grooves 16 and 18 and is securely held in position.

The embodiment shown in FIGURES 9-11, illustrates a non-slidably adjustable form of attaching means and consists of a single piece of spring wire 34, the opposite ends of which are bent to form hook members HU' and

HL' previously referred to, while the medial portion 35 is welded or otherwise secured to an adjacent side rail 10' of the frame A. One or more screw clamps similar to 29, 30 of the first embodiment may be used to secure this medial portion 35 to the adjacent side rail 10'. The medial portion 35 of this type of one-piece attaching means is bent or bowed slight (rightwardly in FIG. 9) out of the vertical plane of the stems 20', 21' as indicated at 36, 36, so as to offset the quiver from the bow so that it will not interfere with the drawing of the bow string or the sighting of the arrow. Bends or kinks 36, 36 are located in non-contacting relationship with respect to a medial portion of straight reference lines SRL3 and SRL4 extending between the inward ends of horizontal arms 23', 23', and the extreme points of attachment of the medial portion 35, 35, and thus each bend 36, 36 is also a kink (see K4, K5 of FIG. 11) and each acts as the aforementioned shapes K1, K2, K3 of the first modification and makes possible a slight adjustment in length of the attaching means.

Where a large adjustment in vertical length of the attaching means is desired, the first structure of FIGS. 1-8 should be used, as the upper hook member HU is slidably secured to the rail 10, thus giving greater vertical adjustment than the resilient adjustment means K1, K2, K3 alone. However, lesser vertical adjustability of the attaching means is sometimes sufficient, in which case, the structure of FIGURES 9-11 is preferable, as it is simpler than the structures of FIGS. 1-8, and it is proof against accidental extensions by working loose of screws 30, etc. As mentioned above, elements 36, 36 of the FIG. 5 structure makes possible this slight vertical adjustability.

In both forms of the invention, the parallel arms, the web, and an adjacent portion of the stems of the hook members, are coated with rubber or a plastic material 37 to provide a non-slip cushioning surface when the arms are in engagement with the normally highly polished and slick surface of the average bow and will also prevent marring of the finish of the bow. The remainder of the attachment means, such as 25-28 (FIGURES 3, 5, and 6), 31T to 33 (FIGURES 3, 7, 8), and the middle portion (FIGURES 8, 9, 10) between 36, 36 are not coated, thus leaving these parts with their natural spring action.

Either form of quiver may be quickly and easily attached to the handle section F of a bow, by holding the bow in the left hand, and with the quiver in the right hand, the arm 22 of the upper hook HU or HU' is placed against the face 40 of the bow above the sight window S, and the lower arm 23 is placed in engagement with the back 41 of the bow. The lower hook member HL or HL' is then applied to the bow by pulling the quiver rearwardly (towards the back of the bow, as the right side in both FIGS. 2 and 9) and placing the arm 23 of the lower hook HL or HL' against the back surface of the bow below the sight window and then the lowermost arm 22 is snapped over the side of the bow so that 24 engages the face of the bow. In attached position, the bow is cradled between each pair of arms with the sighting edge of the bow (the front or left side in FIGS. 2 and 9) abutting the web 24, as shown clearly in FIGURES 2 and 9. The disposition of the arms just referred to may be altered if desired; however, the method of attachment just described affords maximum security of bow and quiver since the bottom hook HL or HL' is placed under greater tension by following the method described.

In either form of the invention the spacing of the quiver from the side of the bow may be varied by lengthening the arms 23, 23', which provides a deeper pocket or cradle for the bow to rest in when the sighting edge of the bow is moved to a position flush against the web 24.

It should be understood that the embodiment of the invention described and illustrated is believed to be the

best embodiment. However, the invention may be practiced otherwise than as specifically described and illustrated, within the scope of the appended claims.

I claim:

1. A quiver attachment for an archery bow comprising, in combination, a vertical quiver frame including arrow holding means secured thereto, means for removably attaching said quiver frame to the bow, said means comprising upper and lower flexible members connected to said frame, a kinked member portion adjacent the frame connection, the free end of each of said members outwardly beyond the kink being offset from all portions of said frame and bent to form a pair of spaced, horizontally extending arms with a vertical web portion connecting said arms, said kinked portion adapted by its reaction to tension or compression forces thereon to adjustably position the free end portions, and said arms adapted to engage and grip said bow on opposite ends of the handle section and thereby retain said quiver in position.
2. A quiver attachment for an archery bow comprising, in combination, a frame, arrow holding means secured to said frame, upper and lower horizontally directed pairs of flexible arms with a vertical web portion connecting said arms, the innermost arm of each pair connected to an inwardly directed stem, each stem connected to a kinked flexible portion and the latter terminally secured to the frame, the flexible arms adapted to snap on to said bow so that one arm of each pair of arms engages the face of the bow and the other arm of each pair engages the back of said bow, to thereby secure the quiver attachment to the bow with a firm grip.
3. The structure of claim 2, wherein each of the pairs of arms are covered with a non-marring, non-slip cushioning material.
4. In combination with a quiver having a frame, means for attaching the quiver to an archery bow, said means comprising a vertical spring wire member, the medial portion of which is attached to one side of said frame, each end of said member bent to form a connected pair of spaced apart arms adapted to engage and grip the bow on opposite ends of the handle section, a substantially straight intermediate wire portion between the medial portion and each end portion, each intermediate portion containing a first end bend connecting to the medial portion to bow the intermediate portion out of the vertical plane of the medial portion and towards the vertical axis of the bow, and a second and reverse end bend, or kink in the opposite end of the intermediate portion to redirect the wire to a direction parallel to the medial portion, a stem member connecting each intermediate portion to an end of each inner one of each pair of spaced apart arms, the reverse bends or kinks by their reaction in use to pairs of opposed forces acting thereon serving as means to provide a slight adjustment in the distance apart of the gripping positions on the bow by the arms.
5. The combination according to claim 4, wherein each of said pairs of arms are disposed at substantially right angles to the longitudinal axis of the medial portion of the spring wire member.
6. The combination according to claim 5, wherein the inner arm of each pair of arms is of sufficient length to space the medial portion of the spring wire member and the quiver attached thereto horizontally away from the bow to provide ample room for the bow gripping hand.
7. The combination with a bow and quiver, of connector means carried by the quiver, said connector means each having hooked end portions for engaging said bow at similar locations each side of the handle section, and means for adjusting the distance between said end portions of the connector means and consequently the distance between the engaging locations, said means including kinks in each connector, to thereby permit attachment of the quiver to bows of different lengths.
8. The structure of claim 7, wherein said adjusting

means includes kinks in each connector, and one connector with a longitudinally adjustable quiver clamp.

9. A structure for removably attaching a quiver to a bow comprising,

- upper and lower flexible bar means connectable to a quiver,
- the opposed ends of the means including pairs of horizontally extending arms with a vertical web portion connecting the arms,
- a stem attached to and making a sharp angle with the end of each innermost arm,
- the arms, web, and stem being coplanar,
- a depending body portion attached to the innermost end of each stem and attachable to the quiver,
- each body portion making an abrupt angle with each stem,
- whereby a kink is present in both the upper portion and the lower portion of the bar means,
- to absorb opposing forces between the quiver and the ends of the flexible bar means, when the structure is adjustably attached to the bow by engagement of the arms and the bow.
10. The structure of claim 9, wherein the upper and lower bar means are separate.
11. The structure of claim 9, wherein the upper and lower bar means is continuous.
12. The structure of claim 1, wherein the quiver frame includes at least one generally U-shaped wire member including a vertical side rail and a horizontal web at the base of the member,
- a bottom plate and a facing bottom cover with complementary grooves therein shaped to accept the web and adjacent portions of the wire member therebetween, and fastening means between plate and cover to thus nestle the said member portions therein,
- an arrow-shaft holding rack attached to the bottom plate, and arranged with receiving slot means outward of both plate and cover,
- a hood secured to the top of the side rail and provided with slot-aligned means to receive and shield the arrow heads.
13. The structure of claim 12 wherein the bottom plate is provided with a bottom flange, and the rack is attached to said flange.
14. The structure of claim 12, wherein the bottom plate and bottom cover are provided with a horizontally aligned opening, and the rack partially projects through the opening.
15. The structure of claim 12 wherein the quiver frame includes a pair of generally U-shaped wire members each including a vertical side rail, a horizontal web at the base of each member, and a diagonally disposed inner rail, the inner rails crossing each other at about mid-height of the frame, and the diagonal rail of each U-shaped member connected at its top to the top of the vertical rail of the opposed U-shaped member.
16. In a quiver attachment for archery bows, said quiver including a frame with at least one straight vertically extending side rail,
- an upper and a lower spring wire attaching hook each of a similar shape to the perimeter of a limb of the bow at opposed slanting cross sections adjacent the handle section of the bow,
- each hook opening in the same side direction, each hook possessing a stem portion directed generally toward the stem of the other hook, and each hook and stem enclosed within a resilient covering,
- a bare spring wire connected to and vertically extending between said stems, and including a straight medial portion of sufficient length as to be firmly affixed to one of said side rails for substantially the complete height of said side rail,
- whereby the hooks are adapted to yieldingly engage said opposite limbs of the bow and said hooks and base connecting wire acting as units, are adapted to

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releasably position a quiver adjacent the midsection of the bow.

17. An archery bow in combination with a manually attachable and removable quiver, the quiver including a vertical frame which is positioned horizontally away from the vertical side of the bow and adjacent but spaced from the handle section of the bow, the quiver being relatively thin in lateral dimension and having a larger dimension from front to rear so as to obscure a minimum of view from the rear in the general forward direction of a target, a pair of vertically oppositely directed resilient bent connections each permanently attached to the quiver frame, and each frictionally contacting an opposed limb of the bow by a terminal open hook including angularly related arms and connecting web, said two connections solely positioning the quiver near said handle section of the bow, and each limb of the bow being peripherally angular in cross section within each hook to reduce forward and rearward mispositioning of the quiver.

18. A thin quiver including a frame made up of a forwardly and rearwardly extending base, two vertical coplanar side rails and a hood, each side rail connected at a lower end to an end of said base, the base carrying at least one rack for holding the shaft of at least one arrow and each side

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rail connected at an upper end to said hood, the latter constructed to receive a head of at least one rack-held arrow,

vertically spaced apart means for manually attaching said frame to and detachably removing it from a midheight portion of an archery bow, said means consisting of

two oppositely directed bent wire members first firmly attached to said frame at one end, then directed vertically and slantingly towards separate bow limbs, and finally terminating at the opposite end with similarly oriented open hooks which are so formed as to snugly but slidingly fit the major portion of the periphery of a portion of a limb which is more distant from the center and hand portion of the bow than are the extremes of said adjacent base and hood.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,209,740

October 5, 1965

John Hauch

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 16, for "SR1" read -- SRL1 --; column 3, lines 44, 45 and 49, for "31U", each occurrence, read -- 31T --; column 3, line 45, for "king" read -- kink --; column 6, line 75, for "base" read -- bare --.

Signed and sealed this 7th day of February 1967.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

EDWARD J. BRENNER

Commissioner of Patents