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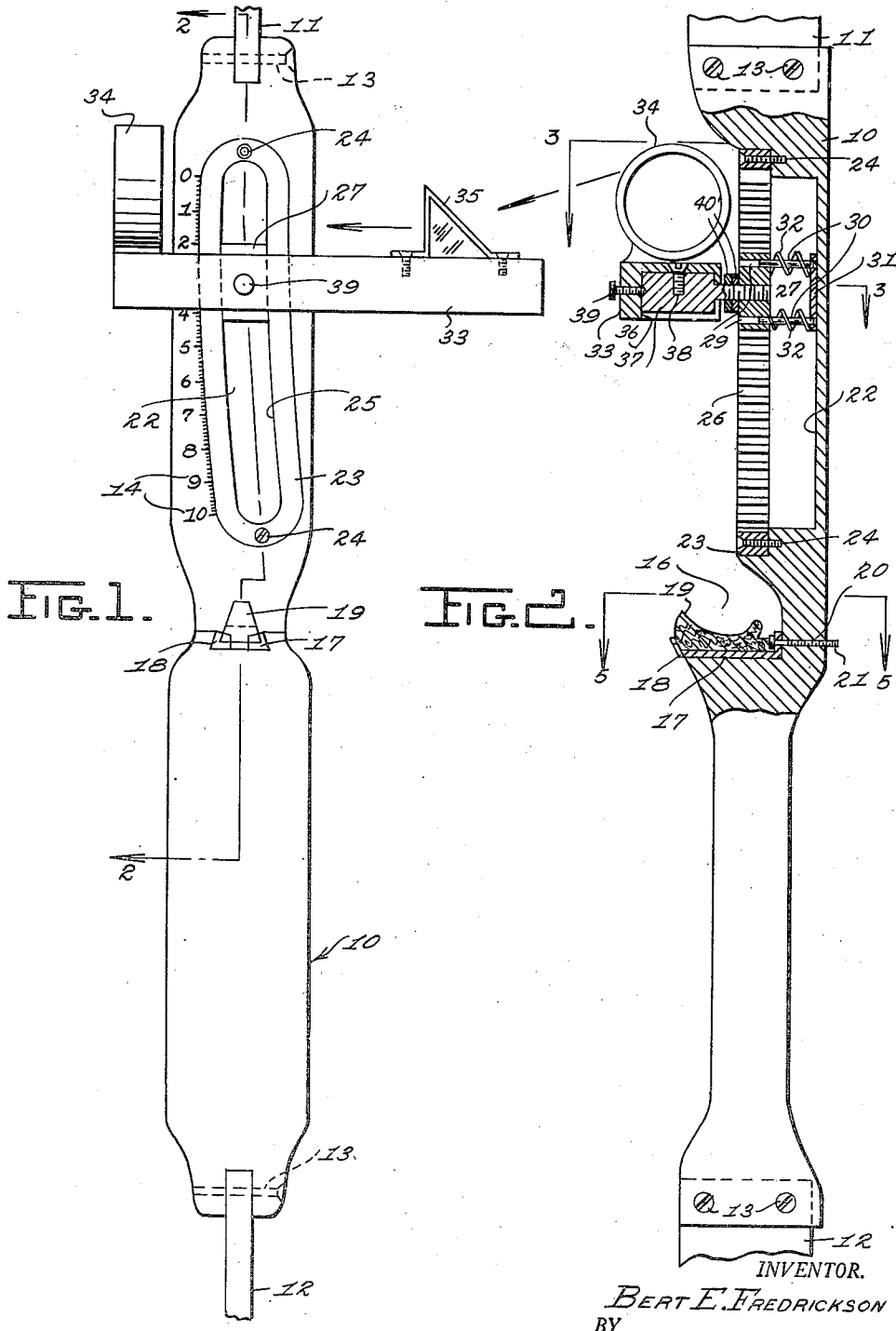
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ARCHERY SIGHT

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ARCHERY SIGHT

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5 Claims. (Cl. 33-46)

1

Sights for archers' bows are well known and frequently include a sight base including front and rear sights, the base being movable vertically along the bow to provide a plurality of sight settings. As is well known, the range of the bow is accomplished by tilting the bow forwardly or rearwardly to decrease or increase the range. With known forms of sights wherein the base includes front and rear sights, the sight base tilts with the bow, whereby at extreme ranges it is impossible to align the front and rear sights with the target.

With the foregoing in view, it is an object of my invention to provide an improved archery sight including means for maintaining a single line of sight throughout all sight settings for a given target with the bow tilted at angles commensurate with the various sight settings.

A further object is to provide in such a sight as was mentioned above a fixed arcuate track on the bow, means mounting the sight base on the track in fixed angular relation thereto, and means for adjusting the sight base along the track through a plurality of sight settings, wherein the angular relation of the sight base to the bow is automatically tilted to a different angle at each sight setting.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts, all of which will be readily understood by those skilled in the art upon reference to the attached drawings in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawings:

Figure 1 is an elevational view of the sight according to the invention, showing the same applied to a bow;

Figure 2 is a rear elevation thereof, parts being broken away and shown in transverse vertical section substantially on the plane of the line 2-2 of Figure 1;

Figure 3 is a horizontal sectional view taken substantially on the plane of the line 3-3 of Figure 2;

Figure 4 is a longitudinal vertical sectional view;

Figure 5 is a horizontal sectional view taken substantially on the plane of the line 5-5 of Figure 2;

Figure 6 is an elevational view on a reduced scale, showing the entire bow in use.

Referring specifically to the drawings, wherein like references have been used throughout the

2

several views to designate like parts, 10 designates a hand grip for a bow, and 11 and 12 designate, respectively, upper and lower bow sections detachably secured to opposite ends of the hand grip 10 by any suitable means, such as the screws 13. A bow string 14 is connected to the free ends of the sections 11 and 12 in any suitable manner for the projection of an arrow 15, Figure 6. An intermediate portion of one side of the hand grip 10 is formed with a recess 16 including a laterally-directed dovetail slot 17. A slide 18 is laterally slidable in the slot 17 and has mounted thereon an arrow rest 19 of any suitable form. A bolt 20 is operatively secured to the slide 18 and includes a shank threaded through the hand grip 10. A free end 21 of the bolt extends laterally out of the opposite side of the hand grip and is formed to provide any suitable tool-engaging means, such as a slot, whereby to provide convenient means for turning the bolt. Obviously, upon turning of the bolt, the slide, together with the arrow rest 19, is movable laterally in the slot 17 to provide different laterally-adjusted positions of the arrow rest. Instead of the dovetail slot, a cylindrical hole may be bored in the hand grip 10 to receive a cylindrical support for the arrow rest 19.

Above the arrow rest 19, and on the same side of the hand grip 10, the hand grip is formed with a vertically-directed recess 22 which is covered by a plate 23 secured to the hand grip in any suitable manner, as by the screws 24. The plate 23 is formed with a vertically-disposed, rearwardly-directed arcuate slot 25 opening into the recess 22, the arc of the slot 25 being determined by a radius ascertained by the distance from the eye of the archer to the sighting device when the bow is drawn, which is approximately 25 inches. In the embodiment illustrated, the upper end of the slot 25 is defined by a radius disposed at right angles to the long axis of the hand grip 10, whereby the slot 22 is downwardly and rearwardly directed throughout its length. Those portions of the plate 23 defining the slot 25 are undercut and formed to provide opposed, longitudinally-extending series of transverse rack teeth 26. A latch dog 27 has outer surface portions formed with latch teeth 28 which portions and teeth are complementary to the undercut portions and rack teeth 26 of the plate 23. Thus, with the teeth 26 and 28 interengaged, movement of the latch dog 27 along the slot 25 is impossible. As best seen in Figure 2, the latch dog 27 is formed with two or more laterally-directed passages 29 slidably receiving pins 30 fixed to the

3

pressure plate 31 disposed inwardly of the latch dog in the recess 22. Expansive springs 32 surround the pins 30, whereby to provide means for loading the latch dog 27 into engagement with the rack teeth 26 so as to releasably lock the dog in an adjusted position along the slot 25. A sight base 33 is rigidly secured to the latch dog 27 in any suitable manner in fixed transverse angular relation to the slot 25. The upper surface of the base 33 has fixed thereon in any suitable manner, any suitable front and rear sights 34 and 35. In the embodiment illustrated, the sights 34 and 35 may be substantially identical to the corresponding portions shown and described in my copending application, Serial No. 783,339, filed October 31, 1947. In this connection, it is to be understood that the particular front and rear sights provided on the base 33 form no part of the present invention, as it is contemplated to use any suitable front and rear sight-providing means on the base.

It is obvious from the foregoing that the stem 40 connecting the base 33 to the dog 27 mounts the same in laterally-outwardly-spaced relation to the plate 23. Thus, stem 40 may be threaded in dog 27 and locked in a selected adjusted position by lock nuts 40'. Also, by moving the base 33 laterally inwardly, the dog 27 is disengaged from the rack teeth 26, whereby a rapid vertical adjustment of the base 33 in the slot 25 is possible. Likewise, upon release of the base 33, the springs 32 will force the dog 27 outwardly into engagement with the rack teeth 26, whereby to releasably lock the base 33 in a selected sight setting. To facilitate the setting of the sight base 33, the plate 23 and/or adjacent portions of the hand grip 10 are provided with any suitable sight scale 14, Figure 1. Also, it should be noted that the base 33 is formed with a recess 36 in which a disc 37 is pivotally secured by a set screw or pin 38 which provides a substantially vertical axis for the base 33. Thus, although the base 33 is in fixed transverse angular relation to the slot 25, the disc 37 and pivot 38 provide means for deflecting the base 33 laterally to permit deflection settings of the sight base. The base may be locked in any suitably-selected deflection setting by means of a set screw extending through the base 33 and engaging the periphery of the disc 37. The head 39 of the set screw may be knurled to permit ready adjustment of the same.

In use, Figure 6 shows a line of sight from the archer's eye 45 to a target 46, the line of sight being indicated at 47. However, the particular sight setting shown in Figure 6 may not be the correct setting for hitting the target 46, whereby it will be necessary to tilt the bow forwardly or rearwardly. Thus, the archer changes the sight setting by pressing inwardly on the base 33 and moving the same and the dog 27 longitudinally of the slot 25 to the desired new setting. In view of the fixed angular relation of the base 33 to the slot 25, this movement will change the angular relation of the base 33 to the bow, particularly the hand grip 10. However, the archer merely tilts the bow forwardly or rearwardly by raising the arm holding the bow until the front and rear sights 34 and 35 are again lined up on the target 46 along the line of sight 47.

The arm is pivoted on the shoulder socket, the head and eye 45 remain in the same position and the arrow 15 is drawn to the same point at all ranges with the same pull.

In the past, sights have been made for vertical adjustment along the bow, but such sights main-

4

tain a fixed angle with the bow at all sight settings, whereby the angle of the normal line of sight through the front and rear sights increases or decreases relative to the line of sight 47 (which is parallel to the ground line 48) depending upon which way the bow is tilted. This necessitates moving of the head, tilting of the bow-holding wrist and/or varying the direction of pull or the point to which the arrow is drawn for each sight setting. Hence, uniformity of shooting form is lost and inaccuracy results.

However, in my device and within the limits of the slot 25, the sight base 33 is maintained parallel to the line of sight 47 and in the same position relative thereto, irrespective of the sight setting or angle of the bow required for each setting. Uniformity in shooting form is thus assured. Thus, regardless of the position or sight setting of the device, the archer uses the same line of sight for any given target and merely tilts the bow, as aforesaid, to vary the range of the shot. The curvature of the slot 25 automatically tilts the sighting device such that the sight is properly in line as the bow tilts backwardly for greater range and forwardly for a lesser range. This arrangement permits the archer's head to remain in a fixed position and permits him to draw the arrow 15 to the same relative position at all times, the sole change being the tilting of the bow to re-establish the line of sight with the new sight setting.

While I have shown and described what is now thought to be a preferred embodiment of the invention, it is to be understood that the same is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structure shown and described hereinabove except as hereinafter claimed.

I claim:

1. In an archery bow, a sight base, a hand grip, said grip being formed with a substantially vertically-disposed arcuate track, the arc of said track being defined by a radius determined by the distance from the eye of the archer to the sight base, said base having front and rear sights, means mounting said base on said track, said base being disposed at a fixed angle relative to said track, said front and rear sights being fixed on said base, said sight base being movable upwardly and downwardly on said track for various sight settings, said bow being tiltable downwardly and upwardly in accordance with such sight settings, and the angular relation of said sight base to said track being such that said front and rear sights are in alignment on a target with said bow tilted to a degree commensurate with the range designated by each setting of said base on said track.

2. In an archery bow, a sight base, a hand grip, said grip being formed with a substantially vertically-disposed arcuate track, the arc of said track being defined by a radius determined by the distance from the eye of the archer to the sight base, said base having front and rear sights, means mounting said base on said track, said base being disposed at a fixed angle relative to said track, said front and rear sights being fixed on said base, said sight base being movable upwardly and downwardly on said track for various sight settings, said bow being tiltable downwardly and upwardly in accordance with such sight settings, the angular relation of said sight base to said track being such that said front and rear sights are in alignment on a target with said bow tilted to a degree commensurate with the range desig-

5

nated by each setting of said base on said track, said track being formed with a plurality of rack teeth, said mounting means being formed with a latch having at least one complementary latch tooth, and means normally loading said latch tooth into engagement with said rack teeth to lock said base in an adjusted position on said track.

3. In an archery bow, a sight base, a hand grip, said grip being formed with a substantially vertically-disposed arcuate track, the arc of said track being defined by a radius determined by the distance from the eye of the archer to the sight base, said base having front and rear sights, means mounting said base on said track, said base being disposed at a fixed angle relative to said track, said front and rear sights being fixed on said base, said sight base being movable upwardly and downwardly on said track for various sight settings, said bow being tiltable downwardly and upwardly in accordance with such sight settings, the angular relation of said sight base to said track being such that said front and rear sights are in alignment on a target with said bow tilted to a degree commensurate with the range designated by each setting of said base on said track, said mounting means and track being formed with normally-engaged complementary interengaging means for locking said base in a selected sight setting relative to said track, and means for permitting quick disengagement of said interengaging means to thereby allow rapid adjustment of said base along said track.

4. In an archery bow, a hand grip, said grip being formed with a longitudinally-directed recess, a plate secured to said hand grip across said recess, said plate being formed with a vertically-extending arcuate slot opening into said recess, said plate being formed with undercut edge portions defining opposite sides of said slot, said edge portions each being formed with a vertical series of transverse rack teeth providing latch detents, a latch dog in said recess, said dog having surface portions and latch teeth respectively complementary to said edge portions of said plate and said rack teeth, spring means operatively associated with said dog and loading the same and said latch teeth into engagement with said rack teeth whereby to releasably lock said dog in selected positions along said slot, a sight base, means operatively connecting said base to said dog in fixed transverse angular relation to said slot and with said base disposed in laterally outwardly-spaced relation to said plate, said base and dog being laterally inwardly movable relative to said plate to disengage said teeth of said dog and plate and permit rapid adjustment of

6

said base along said slot through a plurality of sight settings, front and rear sights on said base, said bow being tiltable upwardly and downwardly for ranges commensurate with said sight settings, and said slot and base cooperating to provide a single line of sight through said front and rear sights for each sight setting on a fixed target and corresponding tilted position of said bow.

5. In an archery bow, a hand grip, said grip being formed with a longitudinally-directed recess, a plate secured to said hand grip across said recess, said plate being formed with a vertically-extending arcuate slot opening into said recess, said plate being formed with undercut edge portions defining opposite sides of said slot, said edge portions each being formed with a vertical series of transverse rack teeth providing latch detents, a latch dog in said recess, said dog having surface portions and latch teeth respectively complementary to said edge portions of said plate and said rack teeth, spring means operatively associated with said dog and loading the same and said latch teeth into engagement with said rack teeth whereby to releasably lock said dog in selected positions along said slot, a sight base, means operatively connecting said base to said dog in fixed transverse angular relation to said slot and with said base disposed in laterally outwardly-spaced relation to said plate, said base and dog being laterally inwardly movable relative to said plate to disengage said teeth of said dog and plate and permit rapid adjustment of said base along said slot through a plurality of sight settings, front and rear sights on said base, said bow being tiltable upwardly and downwardly for ranges commensurate with said sight settings, said slot and base cooperating to provide a single line of sight through said front and rear sights for each sight setting on a fixed target and corresponding tilted position of said bow, and said means operatively connecting said base to said dog including means for traversing said base laterally for deflection settings.

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