Nov. 13, 1962 H. W. HANSON 3,063,151

BOW SIGHT

Filed June 22, 1959

FIG. 6

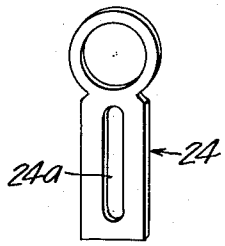


FIG. 1

FIG. 4

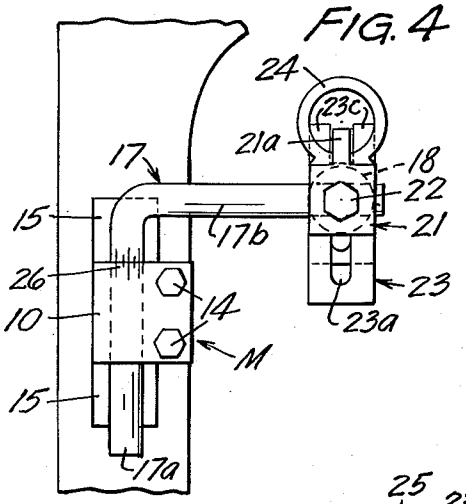


FIG. 7

FIG. 8

FIG. 3

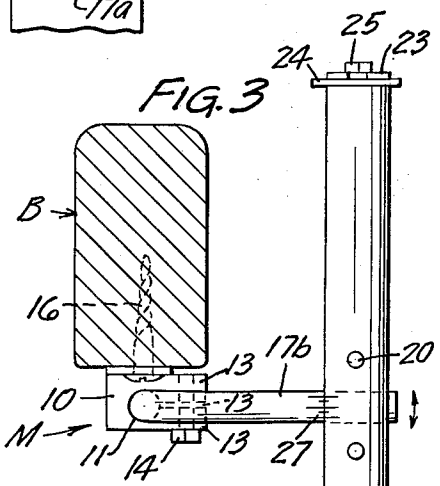


FIG. 2

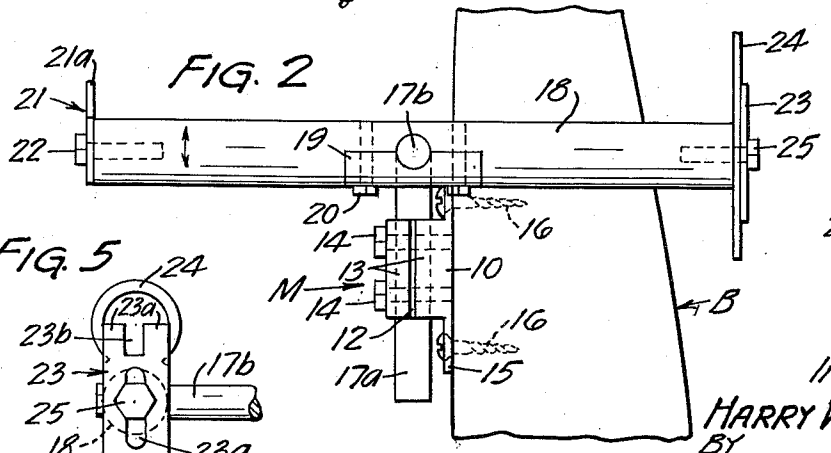


FIG. 5

INVENTOR
HARRY W. HANSON
BY
Williamson, Schroeder, Talmatier
ATTORNEYS

United States Patent Office

3,063,151
Patented Nov. 13, 1962

3,063,151

BOW SIGHT

Harry W. Hanson, 1611 Hillside Parkway, St. Cloud, Minn.

Filed June 22, 1959, Ser. No. 821,872
12 Claims. (Cl. 33—46)

This invention relates to sights for archery bows and particularly to a bow sight capable of almost any type of adjustment to increase the accuracy of the archer in the use of his bow.

An important object of my invention is a novel bow sight of simple design and construction which is capable of a variety of adjustments of almost any nature which might be desired by the archer and which is readily mountable upon any conventional bow without modifying thereof.

Another object is a bow sight of the class described which is sturdily mounted so as to maintain any desired adjusted position without displacement or movement thereof during use of the bow.

Still another object is a bow sight of the class described which is angularly adjustable in a horizontal plane to correct for horizontal deflection or windage control.

Another object is a bow sight of the class described which is readily angularly adjustable in a vertical plane to provide for range or trajectory adjustment at various ranges.

Still another object is a bow sight of the class described which may be raised or lowered vertically and moved laterally back and forth in a horizontal plane to permit adjustment for individual physical and facial characteristics and in personal preferences of the archer in the positioning of the sight with respect to his own face and eyes.

Still another object is a sight of the class described which is provided with a plurality of sights to accommodate the individual preference of the archer and to permit the use of a different sight for different uses of the bow as for example in hunting and in target shooting.

A further object is a bow sight of the class described in which the individual sight members are rotatable in a vertical plane transverse to the line of sight to permit the bow to be tilted in a vertical plane transverse to the line of sight and held at an angle while keeping the sight vertical with respect to the ground so that the bowman need not tilt his head in such a situation, the tilting of the head being not only uncomfortable but also resulting in less accurate shooting.

Still another object is a bow sight of the class described which may be readily calibrated by the archer after mounting on a given bow and after use and zeroing of such bow since it is virtually impossible to accurately calibrate prior to mounting a bow sight since the calibration depends in large part on the type of bow upon which it is used and upon the personal manner in which the bow is used by the individual archer.

These and other objects and advantages of my invention will more clearly appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a left side elevational view of the sight of my invention mounted on a recurved bow;

FIG. 2 is a side elevational view of the bow sight of my invention on an enlarged scale;

FIG. 3 is a top plan view of the bow sight;

FIG. 4 is a front elevational view of the bow sight;

FIG. 5 is a rear elevational view of the bow sight; and

FIGS. 6, 7 and 8 are detail perspective views of the individual sight members employed in the bow sight of my invention.

Referring to the drawings which illustrate a preferred embodiment of my invention, and particularly to FIG. 1, the bow sight of my invention is indicated generally by S and is mounted on a recurved bow B just above the grip G of the bow. As shown in FIG. 1, the bow is provided with a pair of outwardly extending brackets R which cooperate to provide an arrow rack and is strung with an arrow A resting on the arrow rest X and engaged with the bow string Y. The bow sight S is affixed or mounted on the bow by means of suitable mounting means indicated generally by M. These mounting means include a block member **10** having a vertically disposed opening or cylindrical bore **11** providing a continuous passageway from the top to bottom thereof. The block is also provided with a vertically disposed slot **12** which extends between the bore **11** and one side of the block to divide that side of the block into two disconnected opposed sides **13** which define the bore **11** and which are sufficiently resilient to permit the sides to be drawn together or moved apart to provide adjustable clamping pressure to an element enclosed or clamped within the bore **11**. The sides **13** are provided with aligned suitably threaded apertures, which receive in threaded engagement a pair of adjusting screws **14** which simultaneously engage both of said sides **13** and are adapted to draw the same together or extend them apart to adjust the clamping pressure applied by said sides.

The mounting block **10** is provided with upstanding and depending flanges or mounting brackets **15** adjacent the rear marginal edge thereof and which lie or rest against the front face of the bow and are secured thereto by means of suitable mounting fasteners such as the screws **16**.

A sight bridge supporting member such as the angulated rod **17** is employed to adjustably mount the sight bridge on the mounting block **10**. The rod **17** has a downwardly depending portion or vertical leg **17***a* and a horizontal portion or arm **17***b*, the vertical or depending leg **17***a* being inserted in the bore **11** and enclosed and clamped by the sides **13** so as to be vertically and rotatably movable with respect thereto. This mounting arrangement permits the sight bridge and the sights mounted thereon (hereinafter to be described) to be vertically moved up and down to adjust for the archer's personal facial characteristics and shooting habits, and to be tilted or turned in a horizontal plane to allow for windage and horizontal deflection. The horizontal arm **17***b* of the rod **17** extends laterally to one side of the bow and has mounted thereon adjacent its outer end an elongate sight bridge or bar **18** which in the form shown is cylindrical in shape, the bridge member **18** being provided with a cylindrical bore or opening disposed transversely thereof in the medial portion thereof for receiving and enclosing the leg **17***b*. The bridge **18** is provided with a removable semi-cyclindrical segment **19** which includes approximately half of the cylindrical bore wall surface provided therein which segment functions as a pressure plate to adjustably mount the bridge **18** on said leg **17***b*. A pair of adjusting members or screws **20** are disposed or inserted in suitably aligned apertures provided in the bridge **18** to threadedly engage the same and hold the pressure plate against the leg **17***b* in adjustable clamping fashion. This mounting arrangement permits the bridge to be moved laterally along the length of the leg **17***b* and also permits the bridge **18** to be tilted or moved in pivotal fashion in a vertical plane about arm **17***b* to adjust for range and elevation.

The forward end of the bridge **18** is provided with and carries in adjustable fashion a conventional front

sight member 21 having an upstanding sight leg or bar 21*a*. The front sight 21 is removably mounted to the bridge by means of a suitable fastener 22 about which the sight 21 may be pivotally moved so as to be rotatable or adjustable in a vertical plane transverse to the sight bridge and the line of sight.

The rear end of the bridge 18 carries a pair of sight members thereon such as the partridge sight 23 and the aperture sight 24. The sight members 23 and 24 are removably fastened to the bridge by means of a suitable fastening element 25 which extends through elongate vertically disposed slots 23*a* and 24*a* of the partridge sight and aperture sight respectively to fasten said sights to the bridge and also permit said sights to be vertically and slidably adjustable with respect to each other, to the bridge member 18, and to the front sight 21, and also permits them to be individually or simultaneously rotated about said fastener in a vertical plane transverse to the bridge 18.

Thus, when the rear sights 23 and 24 are employed together in cooperation with the front sight 21, the bridge 23*c* of the partridge sight 23 is normally disposed approximately horizontally and diametrically of the aperture sight 24, with the archer usually centering the leg 21*a* of the front sight 21 in the vertical slot 23*b* of the partridge sight and aligning the top of said leg 21*a* with the bridge 23*a*.

The vertically adjustable feature of the sights 23 and 24 permits fine adjustment for range and elevation to complement the broader adjustment for range and elevation provided by the pivotal tilting movement of the bridge in a vertical plane about the leg 17*b*. The pivotal movement of the front and rear sight members permits the sights to be rotated or tilted to any desired angle and permits the bow to be held at an angle offset from the vertical while permitting the sights to be maintained in vertical fashion to prevent tilting of the head and less accurate shooting resulting therefrom. In addition, the pivotal movement of the rear sights permits either of them to be rotated to an out of the way position while leaving the other one remaining in operative position. This is advantageous since some archers prefer to use only the aperture sight or the partridge sight in given situations.

The leg 17*a*, the block 10, the arm 17*b* and the bridge 18 may be provided with suitable reference markings or calibrating lines such as at 26 and 27 respectively, which may be provided during manufacture or added by the archer himself after the bow sight has been mounted and employed in conjunction with a particular bow. In either event, the meaning or significance of the cooperating reference lines will have to be ultimately determined and entered by the archer himself for the particular distances and angles and adjustments which these reference lines indicate after the bow sight has been used by the archer on a given bow.

From the foregoing description, the advantages of my invention are readily apparent. It can be seen that my bow sight is capable of multiple adjustments which may readily be made to allow for almost every conceivable variation which might occur and for which adjustments need be made. To adjust for range and elevation, the bridge is tilted up or down by simply loosening the pressure plate fasteners 20 and resetting the pressure plate after the bridge 18 has been suitably tilted and the adjustment has been made. For finer adjustments, the sights themselves may be vertically adjusted as desired. To account for horizontal deflection and windage control, the bridge sight is simply tilted or angled in a horizontal plane by loosening the mounting bracket fasteners 14 to permit rotation of the leg 17*a* therein to the bow sight angle desired following which the fasteners are reset to fix the leg 17*a* and the bow sight at the desired horizontal angulation. To adjust for the individual features and

personal preferences of the archer himself and his physical characteristics, the sight may be vertically raised or lowered by moving the leg 17*a* up or down in the mounting block and to permit a horizontal adjustment, the bridge is simply slid back and forth on the arm 17*b*. For use of the bow while holding the same at an angle to the vertical, the sight fasteners 22 and 25 are simply loosened sufficiently to permit rotation of the front and rear sight members to any position desired preferably that which will permit the bowman to keep his head in a substantially normal vertical upright position, even though the bow itself is tilted.

In short, the entire bow sight is vertically and laterally adjustable to allow for variations in facial structure, the sight members may be angled right or left to allow for windage and horizontal deflections and may be tilted up and down to adjust for elevation and distance. The sight members themselves may be vertically adjusted to obtain fine elevation and distance control and may also be rotated about their axis to permit the bow to be used at an angle offset from the vertical without the bowman having to tilt his head to make use of the sight itself.

Thus, it can be seen that in a single, simple, novel bow sight structure I have incorporated features which permit the sight to be adjusted for every conceivable situation requiring different types of adjustment, which multiple adjustment features have not been available on bow sights of the past or on those presently available.

It should also be noted that the variable pressure clamping means provided by the resilient sides 13 of the mounting block 10 and the pressure plate 19 of the bridge 18 permit the leg 17*a* and the bridge 18 to be immovably mounted in desired position so that any movement or adjustment of the members 17*a* and 18 can take place only upon loosening of the clamping members, or the clamping pressure may be applied to a degree which will hold the members 17*a* and 18 in fixed position during use and will resist the normal shock encountered but which may be manually turned to another adjusted position by sufficient application of turning force thereto without loosening the clamps.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What I claim is:

1. A bow sight comprising a bridge member having cooperatively aligned front and rear sight members mounted in spaced apart relations thereon, mounting means carried by said bow, and a bridge supporting member for mounting said bridge on said mounting means laterally of the bow, said supporting member including elongate portions disposed at substantially right angles to one another, one of said portions being swivelly and longitudinally movably mounted on said mounting means, the bridge member being swivelly mounted on the other portion and movable longitudinally thereof whereby said bridge member is capable of selective vertical and horizontal tilting and horizontal and vertical straight line adjustment relative to said bow.

2. The structure set forth in claim 1, in which the sight members extend radially outwardly from said bridge and are vertically adjustable with respect to one another and rotatable about the longitudinal axis of said bridge member to enable the sights and head of the user to remain in substantially upright position when the bow is operated from a position offset from the vertical.

3. A bow sight comprising an elongate bridge member having cooperatively aligned front and rear sight members mounted in spaced apart relation thereon adjacent the ends thereof, a supporting member including elongate portions disposed substantially at right angles to one another, one of said portions being mounted on a mounting member carried by the bow and being swivelly and longitudinally movable with respect thereto, said mount-

ing member including clamping means detachably engaging and holding said supporting member and means for varying the clamping pressure applied by said clamping means, the other portion of said supporting member having the bridge member clamped thereon and swivelly movable thereabout and movable longitudinally thereof, and means for varying the clamping pressure of said bridge member with respect to said supporting member.

4. A bow sight comprising an elongate bridge member having cooperating front and rear sight members mounted in spaced apart relation at the ends thereof, said bridge member having a cylindrical bore disposed transversely thereof and a removable portion including a portion of the wall surface defining said bore for clamping a member in said bore, and means for fastening said removable portion to said bridge member and adjusting the pressure applied thereby, a mounting member secured to the bow and having a vertical cylindrical bore therein and resilient sides defining at least a portion of said bore providing adjustable clamping surfaces for varying the diameter of said bore, adjusting means interconnecting said sides for selectively varying the clamping pressure applied thereby, and a supporting member including elongate portions disposed at right angles to one another, one of said portions being clamped in the bore of said mounting member and turnably and longitudinally movable therewithin, the other of said portions being clamped in the bore of said bridge member which is turnable thereabout and movable with respect to the length thereof.

5. The structure of claim 4 wherein the front and rear sight members are vertically movable with respect to one another.

6. The structure of claim 4 wherein the front and rear sight members extend radially outwardly from said bridge member and are pivotable about the longitudinal axis of said bridge member.

7. The structure of claim 4 wherein the rear sight members include an aperture sight and a partridge sight each adapted for the relative vertical movement with respect to each other and individually rotatable about the longitudinal axis of said bridge member.

8. The bow sight set forth in claim 4, including first cooperating calibration markings on said mounting member and the portion of said supporting member clamped therein to selectively readjust the bow sight for windage and second cooperating calibration markings on said bridge member and the other portion of said supporting member upon which it is mounted to selectively adjust said bow sight for elevation.

9. In a bow sight including an elongate sight member generally longitudinally aligned with the direction of sight, and means for mounting said member on a bow, cooperating first and second sighting means mounted adjacent opposite ends of said member and extending radially outwardly therefrom, said first means including a pair of sighting elements adapted for use in combination with each other and said second means, said sighting elements being mounted for individual movement relative to said member whereby either of said elements may be moved to an out of the way mounted position whereby the other element is used alone in combination with said second means.

10. The bow sight of claim 9, wherein both of said sighting means are rotatable about the longitudinal axis of said member to enable the archer to operate the bow at an angle offset from the vertical while maintaining his head and said sighting means in substatially upright position.

11. In a bow sight including an elongate sight member generally longitudinally aligned with the direction of sight, and means for mounting said member on a bow, front and rear sighting means mounted adjacent opposite ends of said member and extending radially outwardly therefrom, said front sight means including an elongate reference member, and said rear sight means including an aperture type sight element and a bifurcated partridge type sighting element, the sighting elements of said second means being adapted for cooperative alignment with said front sighting means either in combination with each other or individually, all of said sighting means being rotatable about the longitudinal axis of said sight member to enable the archer to operate the bow at an angle offset from the vertical while maintaining his head and said sighting means in substantially upright position, the sighting elements comprising said rear sight means being adapted for relative vertical movement with respect to one another and to said front sighting means to obtain the selective adjustment desired.

12. In a bow sight including an elongate sight member generally longitudinally aligned with the direction of sight, and means for mounting said member on a bow, cooperating first and second sighting means mounted adjacent opposite ends of said member and extending radially outwardly therefrom, said first means including a pair of sighting elements adapted for use in combination with each other and said second means and individually with said second means, both of said sighting means being rotatable about the longitudinal axis of said member to enable the archer to operate the bow at an angle offset from the vertical while maintaining his head and said sighting means in substantially upright position, the sighting elements of said first means being adapted for relative vertical adjusting movement therebetween.

References Cited in the file of this patent

UNITED STATES PATENTS

2,163,503	Tate	June 20, 1939
2,351,103	Brown	June 13, 1944
2,496,082	Ashenfelter	Jan. 31, 1950
2,500,509	Bailey	Mar. 14, 1950
2,534,946	Bradley	Dec. 19, 1950
2,545,454	Fredrickson	Mar. 20, 1951
2,559,927	Beloungy	July 10, 1951
2,669,023	Pizzuti	Feb. 16, 1954
2,909,167	Frederickson	Oct. 20, 1959

FOREIGN PATENTS

172 of 1886	Great Britain	Jan. 5, 1886
17,721 of 1895	Great Britain	July 25, 1896
768,096	Great Britain	Feb. 13, 1957