Nov. 15, 1960 R. J. KOWALCYK 2,959,860

BOW SIGHT

Filed Oct. 6, 1959

Fig. 1.

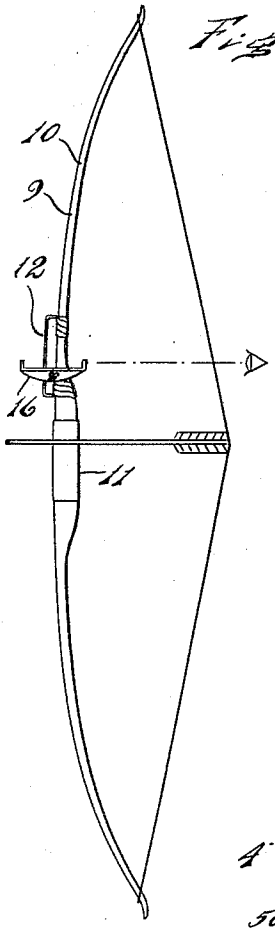


Fig. 5.

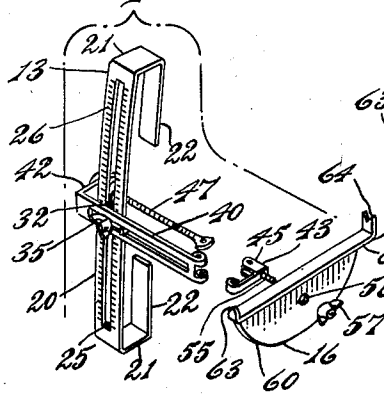


Fig. 2.

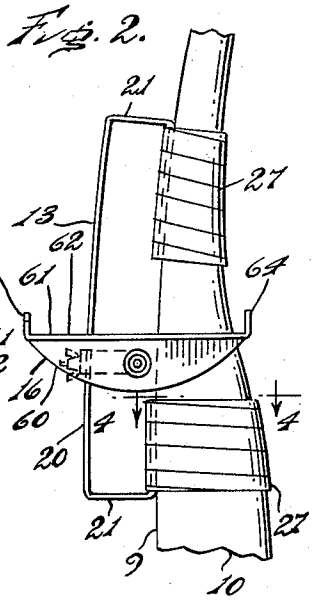


Fig. 3.

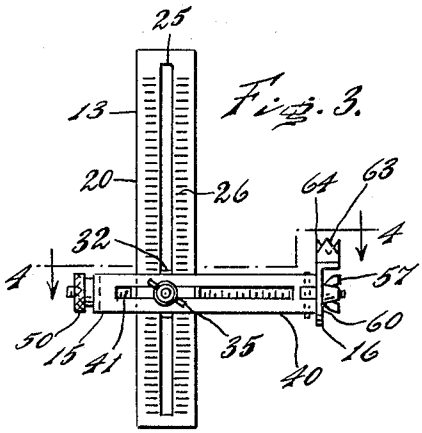


Fig. 4.

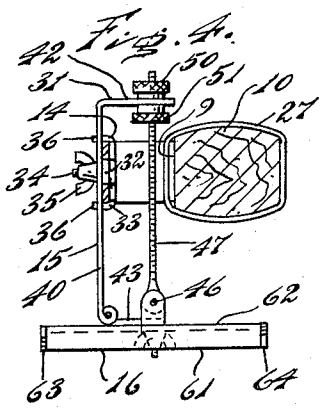
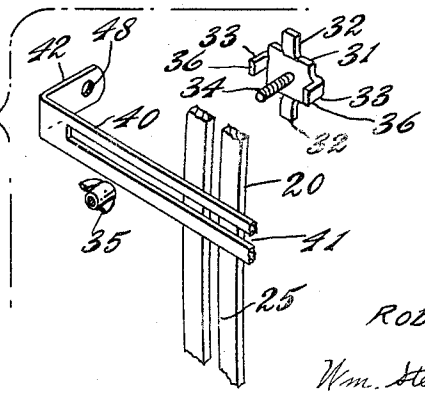


Fig. 6.



INVENTOR
Robert J. Kowalcyk
BY
Wm. Stedl Jackson and Sons
ATTORNEYS.

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BOW SIGHT

Robert J. Kowalcyk, 1073 W. Hannah St., Houtsdale, Pa.

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2 Claims. (Cl. 33—46)

My invention relates to bows, with especial relation to bow sights.

A purpose of my invention is to provide an improved bow sight.

A further purpose of my invention is to provide a bow sight that is relatively simple in construction, yet is a superior sight in overall accuracy, convenience, and comfort in actual use.

Further purposes will appear from the remainder of the specification and the claims.

My invention is illustrated in the drawings by a particular embodiment chosen from the standpoint of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 of the drawings, which shows an embodiment of my invention, is an elevation view of an entire bow with string and arrow and also a stylized indication of line of sight.

Figure 2 is a similar view, enlarged, of a fragmentary part of the foregoing, showing only the sight itself together with the adjacent part of the bow.

Figure 3 is a front elevation of the sight itself.

Figure 4 is a section of the bow including the sight and is along the line 4—4 in Figure 3 as to the sight and along the line 4—4 in Figure 2 as to the adjacent part of the bow.

Figure 5 is a partly exploded perspective view of the sight.

Figure 6 is a fragmentary exploded perspective view of a part of the sight which is shown assembled in Figure 5.

In the description which follows of the sight and the bow of which it forms a part, to avoid confusion the direction which will be toward the target in shooting will be uniformly called "front" and the direction which will be away from the target in shooting will be uniformly called "rear" or "back," whenever such terms are employed. Thus, the description as a whole will be brought into conformity with the normal use of the terms "front sight" and "rear sight." However, in view of the fact that the side of the bow proper which is toward the target in shooting has in the past often been called the "back" of the bow, in conflict with the above system of terminology, that side of the bow proper will herein be called the "target side" and the side of the bow proper which is opposite it will be called the "string side," avoiding use of the terms "front" and "back" in that particular connection.

As shown in Figures 1 and 2, mounted on the target side **9** of long bow **10**, in a suitable position above grip **11**, is sighting arrangement **12**.

Sighting arrangement **12** is made up of mounting member **13**, rider member **14**, transverse member **15**, and sighting member **16**.

Mounting member **13** consists of arcuate strip **20**, backwardly extending strips **21** extending backward from either end more or less at right angles to it, and back strips **22** which extend toward each other from the back ends of the respective backwardly extending strips.

Actually the entire mounting member **13** is preferably made out of one single strip of metal suitably bent to form the above-mentioned elements, although of course if desired it could be made out of separate strips suitably fastened or united together. Running longitudinally along almost the entire length of arcuate strip **20**, and located in its center, is slot **25**, along the sides of which are range graduations **26** (shown in Figures 3 and 5 but omitted for the sake of simplicity of illustration from Figure 6).

Mounting member **13** is mounted on bow **10** by attaching back strips **22** to the target side **9** of the bow in any suitable manner, as by placing them firmly against said target side and wrapping tape **27** tightly around both strip and bow.

Rider member **14** is in the form of a cross, with body **31**, vertical arms **32**, and cross arms **33**. It is mounted on mounting member **13** by means of threaded rod or screw **34** projecting from its body **31** through slot **25** and wing nut **35** on screw **34**, together with vertical arms **32** which are bent forward to lie in slot **25**, and cross arms **33**. Body **31** is in back of arcuate strip **20**, while cross arms **33** have forward projections **36** lightly contacting the respective outside edges of arcuate strip **20** and extending forward to project substantially beyond that strip. Rider member **14** is thus adapted to ride up and down along arcuate strip **20**.

Transverse member **15** includes transverse strip **40** having slot **41** running most of its length. Fixed to one end of strip **40** is backwardly extending member **42**, preferably a part of the same metal strip bent around; and hinged at the other end of transverse strip **40** is pivot member **43**, also extending backward.

Pivot member **43** at its rear end has ears **45** extending parallel to the transverse strip and seating pivot pin **46**, around which long screw **47** is pivoted. (The hinge pin and pivot pin are not shown in the exploded views.) Long screw **47** extends across in a transverse direction through hole **48** in backwardly extending member **42**, and is locked on to the backwardly extending member by thumb nuts **50** and **51**, which are on the long screw on opposite sides of the backwardly extending member.

Transverse member **15** is mounted on rider member **14** by means of projections **36** on the cross arms **33** of the rider member, which projections extend through slot **41** and thus hold the transverse member in position to ride transversely across while mounted on the said rider member. Screw **34** also extends through the slot **41** and wing nut **35** is outside of the transverse member and holds it against arcuate strip **20**.

Pivot member **43** includes short screw **55** extending in the rear in a direction opposite to that of ears **46**. Mounted to turn on this short screw **55** is sighting member **16**, the screw extending through hole **56** in the mounting portion **60** of the sighting member and the sighting member being held on by wing nut **57** on the screw. Mounting portion **60** of the sighting member is a vertical plate more or less in the shape of a shallow half-moon, and on it is sighting portion **61** consisting of a straight flanged rim **62** on top of the mounting portion, with front sight **63** and rear sight **64** at the respective ends.

In setting up the sight as a whole for a particular user, the user will first hold his bow in his typical position and sight along the line of sight with wing nut **57** loose and then tighten the wing nut with sighting member **16** in the angular position involved, in order to fix the proper angular position of the sight for his particular stance and loosing position, that is the position of his bow string hand relative to his face or body. When he has done this, he will try out the bow with the line of sight pointed perpendicularly to transverse strip **40** from the horizontal standpoint, to determine the windage involved in a typical shot. By windage is meant of the tendency of the arrow

for various reasons to fly in a direction which varies horizontally from the direct line of sight. Once he has found the windage angle by observing where arrows directed in a particular direction actually land in still air conditions, he can adjust the two thumb nuts **50** and **51**, to change the horizontal sighting angle an amount necessary to compensate, and try it out again if need be to see that windage has been compensated for. Either in conjunction with the windage adjustment or after the windage adjustment, he can loosen wing nut **35** and move transverse member **15** across the bow until he can sight along the sight with his eye in its normal position when holding the bow, without need for moving his eye horizontally to accommodate to the sight. He will normally then put a mark on the transverse member **15** to show the proper position of the transverse member as far as he is concerned. He will also try out his device for different ranges, to see how much variation in direction of aim is required for the different ranges, and mark on his arcuate strip these various ranges.

Then in shooting at a given range, all he needs to do is to loosen wing nut **35**, and holding transverse member **15** at the mark in its slot, set it at that range on the arcuate strip **20**. Then, after tightening wing nut **35**, he can sight directly on the target with due allowance for variation due to air conditions such as especially wind direction and velocity, and shoot.

The device is very helpful in accurate shooting in archery. Without the necessity of any special point of aim different from the target, it substantially eliminates or allows elimination of all variables except those involved in air conditions such as wind, and those which are due to variation in technique by the archer, such as release of the bow string or steadiness of holding the bow or the like, or variation in the archer's equipment, such as especially in the arrows. At the same time, the device is relatively simple and inexpensive and sturdy and dependable.

In view of my invention and disclosure, variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A bow sight comprising,

a mounting member having a strip arcuate in shape with the radius of the arc perpendicular to the broad longitudinal back of the strip, said strip having a slot running longitudinally of it and extending most of its length and extending completely through from front to back, said strip having fixed thereto mounting means at top and bottom extending in each case back from the strip and then respectively toward each other in a position spaced from the strip,

a cruciform rider member having a body to the rear of the strip, upper and lower arms riding in the said slot, side arms extending from the rear out past the front of the strip, a central screw extending through said slot out to a point beyond the front of the said slot and a wing nut on said screw,

a horizontal member having a horizontal strip with its back perpendicular to the radius of the arc of the said acruate strip, a horizontal slot extending most of the length of the horizontal strip and through from back to front thereof, said horizontal strip being mounted on and riding upon said rider member with the side arms and central screw of said rider member extending through said horizontal slot and the wing nut of the rider member being beyond the front of said horizontal strip, said horizontal strip having fixed thereto at one end thereof a backwardly extending strip and having hinged at the opposite end thereof to swing in a horizontal plane a backwardly extending pivot member, the horizontal member also including a long screw which is pivotally attached to the rear of the pivot member and extends approximately parallel to the horizontal strip through a hole in said backwardly extending member, and the horizontal member having two thumb nuts on the long screw, one respectively on either side of the backwardly extending member, and a short screw fixed to the pivot member and extending approximately oppositely from the long screw and having a wing nut thereon, and

a sight member having a mounting portion mounted on the short screw between the pivot member and the wing nut and swingable about said short screw in a vertical plane, and a front and rear sight fixed on top of the mounting portion.

2. A bow comprising a bow portion and an arcuate strip mounted longitudinally of the bow portion on the target side thereof in a position spaced therefrom with a slot running longitudinally most of the length of the strip and extending through from front to back of the strip, a rider member riding in the said slot and having projecting structure, a strip transverse to the bow portion, which strip has a transverse slot extending most of the length of the strip and rides on the projecting structure in a direction transverse to the bow portion by means of the said transverse slot, a backwardly extending member fixed to one end of the transverse strip, a pivot member hinged to the other end of the transverse strip and extending backward therefrom, a long screw pivoted to the pivot member and extending across approximately parallel to and back of the transverse strip through a hole in the backwardly extending member, two nuts on the long screw, one on either side of the backwardly extending member, and a sight member mounted on the pivot member for rotational movement in a vertical plane which approximately includes the line of direction in which the bow is pointed, the sight member having a front and rear sight thereon.

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