United States Patent

[11] **3,574,944**

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[45] Patented **Apr. 13, 1971**

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[54] **EXTENDABLE SIGHTING DEVICE**
2 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** **33/46**
[51] **Int. Cl.** **F41g 1/00,**
F41b 5/00
[50] **Field of Search** 33/46.4;
124/23, 24

[56] **References Cited**
UNITED STATES PATENTS

3,163,938	1/1965	Reynolds	33/64.4
2,909,167	10/1959	Fredrickson	33/64.4
3,488,853	1/1970	Altier	33/46.4

Primary Examiner—Leonard Forman
Assistant Examiner—Steven L. Stephan
Attorney—William R. Jacox

ABSTRACT: A sighting device is disclosed for use on an archer's bow in which a sight member is carried by a range member and the range member is supported in spaced relationship from the bow. A range member support device is adjustable in length so that the sight member may be supported at any desired position in spaced relationship relative to the bow.

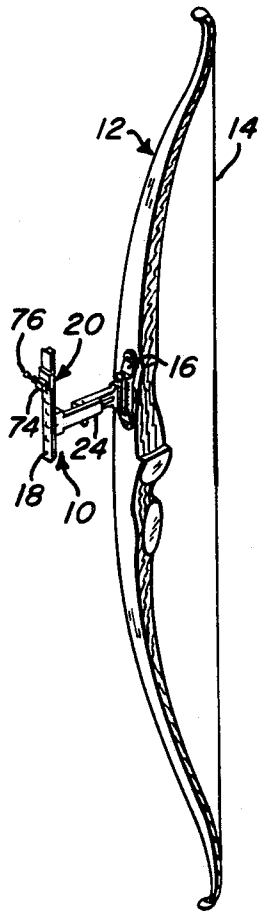
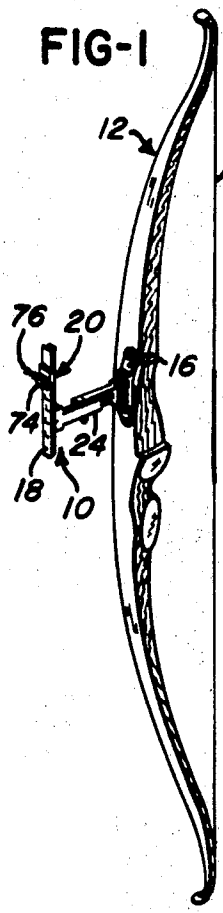


FIG-1



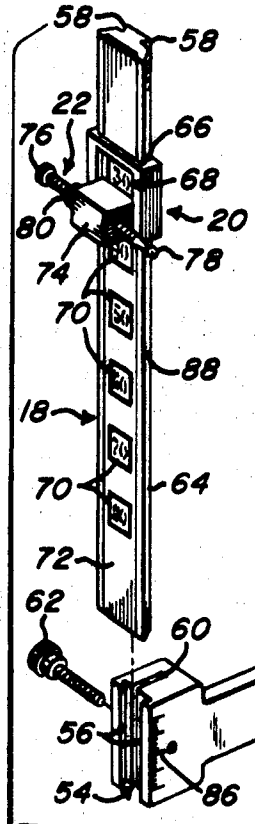


FIG-5

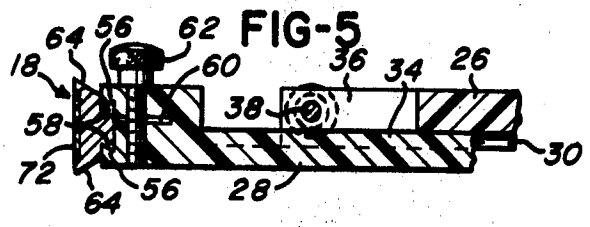
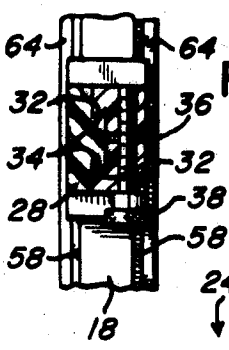


FIG-4



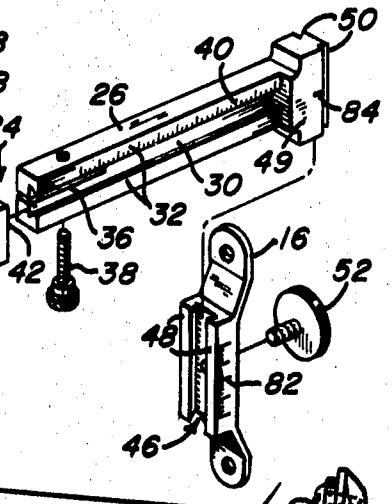


FIG-2

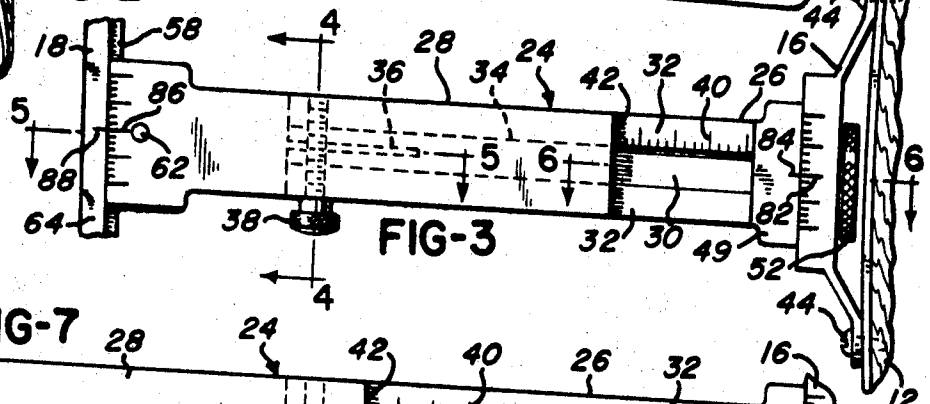


FIG-3

FIG-7

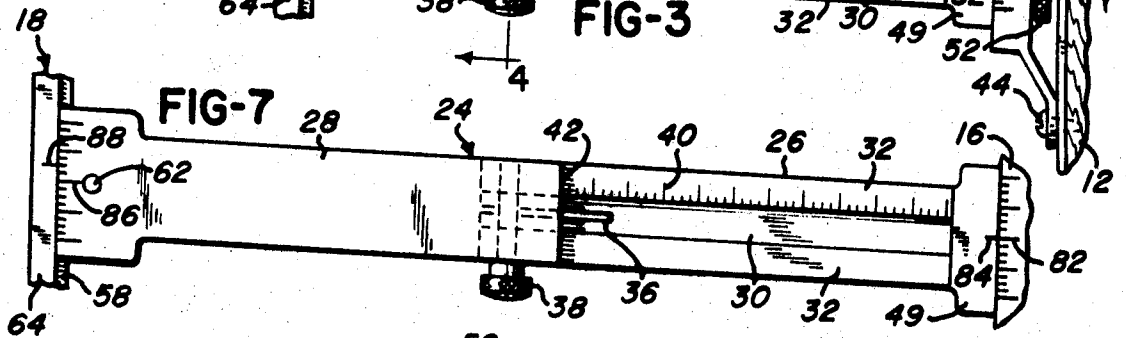
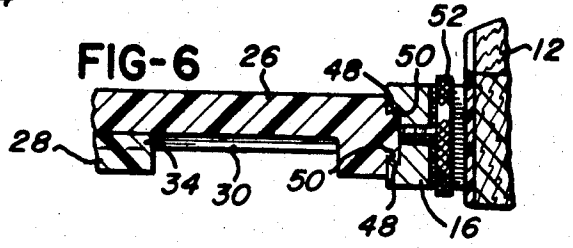


FIG-6



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EXTENDABLE SIGHTING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to a sighting device and more particularly to a sighting device which is adjustably supported in spaced relationship from an archer's bow.

DESCRIPTION OF PRIOR ART

The use of a sighting device on an archer's bow is shown in U.S. Pat. Nos. 3,163,937 and 3,163,938. When the device of each of these patents is attached to a bow, the sighting element thereof is positioned in close proximity to the bow. It has been found, however, that increased archery accuracy may be obtained when the sighting element is supported or maintained in spaced relationship from the bow.

Past attempts to support the sighting element away from the bow have been unsatisfactory. Bow sight support members have been of fixed length, which is objectionable since the optimum extension may vary from person to person. Known extension members have also been improperly constructed and not well adapted for use with a bow which momentarily experiences a high amplitude of vibrational forces immediately following shooting of an arrow thereby.

This invention provides an archer's bow sight device which is light in weight and which permits the archer to adjust the sighting element at any desired position with respect to the bow so that maximum accuracy may be obtained.

An object of the present invention is to provide a sighting device which can be easily and readily attached to and removed from an archery bow.

Another object of this invention is to provide such a sighting device which may be easily and readily adjusted to compensate for variable factors.

Another object of this invention is to provide such a sighting device in which the sighting element may be adjusted away from the bow so that an archer may obtain maximum accuracy.

Still another object of the invention is to provide a device of the type described, which is light in weight, simple in construction, durable in use, and readily manufacturable on a production basis.

Other objects and advantages reside in the construction of parts, the combination thereof, the method of manufacture, and the mode of operation as will become more apparent from the description of the illustrative embodiment.

SUMMARY OF THE INVENTION

A sighting device is shown in which a base member is adapted for attachment to a bow. An adjustable support member supports a range member having a sighting element and an indicator thereon in spaced relationship from the bow. Compensation indicia is used between relatively movable members for facilitating proper adjustment and readjustment of the sighting device.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an archery bow with a sighting device of this invention attached thereto.

FIG. 2 is an enlarged perspective exploded view showing a sighting device of this invention.

FIG. 3 is a fragmentary side elevational view, drawn on substantially the same scale as FIG. 2, showing a sighting device of this invention in a partially extended position.

FIG. 4 is a sectional view taken substantially on line 4–4 of FIG. 3.

FIG. 5 is a sectional view taken substantially on line 5–5 of FIG. 3.

FIG. 6 is a sectional view taken substantially on line 6–6 of FIG. 3.

FIG. 7 is a fragmentary side elevational view, somewhat similar to FIG. 3, showing a sighting device of this invention in a fully extended position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the illustrative embodiment of this invention, FIG. 1 shows generally a bow sight device **10** attached to a bow **12** having a bow string **14**.

The bow sight device **10** is seen in an exploded view in FIG. 2 and comprises a bracket or base member **16**, a bar or range member **18**, an indicator or cursor member **20** carried by the range member **18**, a sighting element or member **22**, carried by the cursor member **20**, and a support member **24** for joining the range member **18** to the base member **16** and for supporting the range member or bar **18** in spaced relationship from the bow **12** and the base member **16**.

The support member **24** includes a plurality of telescopically interconnected elements and is attachable to the base member **16** and to the range member **18** in a manner explained herebelow. In the embodiment shown, elongate elements **26** and **28** comprise the support member **24**. The elongate element **26** is provided with a channel **30** which extends the length thereof and which has side portions **32**. The channel **30** of the elongate element **26** is adapted to slidably receive a flange **34** of the elongate element **28**. Thus, the elongate element **28** is slidably axially movable with respect to the elongate element **26**. Although in this illustrative embodiment, the channel **30** and flange **34** are shown to be of dovetail shape, it is apparent that channels and cooperating parts of other shapes may be used.

The elongate element **26** has a slot **36** which communicates with the channel **30** and which splits the element **26** at one end thereof. A screw **38** is threadedly disposed within the elongate element **26** and extends through the slot **36**. Thus, tightening of the screw **38** causes the side portions **32** of the elongate element **26** to be drawn together to clamp or lock the flange **34** of the elongate element **28** in its adjusted position within the channel **30**.

A plurality of adjustment indicia or lines **40** are provided along one of the side portions **32** of the elongate element **26** for alignment with an end surface **42** of the elongate element **28** for noting adjusted position of the elongate element **28** with respect to the elongate element **26**, as shown in FIGS. **3** and **7**. Thus, if later adjustment occurs, desired readjustment may be obtained. Although this illustrative embodiment shows adjustment lines **40** on the upper side portion **32** of the element **26**, the adjustment lines **40** could just as well be placed on the lower side portion **32** or within the channel **30**. It is also apparent that the adjustment indicia **40** could be placed along the top surfaces of the elements **26** and **28**.

The base member **16** is secured to the bow **12** by any conventional means, such as by screws **44**, as shown in FIG. **3**. Although the base member **16** is shown as a unitary member, it may, if desired, be constructed in two or more pieces. The base member **16** is provided with an elongate channel **46**, shown in FIG. **2**, and having side portions **48**, shown in FIGS. **2** and **6**.

The base member **16** is adapted to receive one end of the support member **24** and more specifically, one end of the elongate element **26**. The elongate element **26** has a bracket portion **49** which is provided with a flange **50**. The flange **50** slidably fits into the channel **46** of the base member **16**. A locking screw **52** is threadedly carried by the base **16** and extends into the channel **46** for engaging the flange **50** to lock the bracket **49** in adjusted position with respect to the base **16**.

One end of the elongate element **28** is adapted to receive the range member **18** and is provided with an elongate channel **54**, shown in FIG. **2**, having side portions **56** shown in FIG. **5**. The range member **18** has a flange **58** which slidably fits into the channel **54** of the elongate member **28**. Thus, the range member **18** is axially movable with respect to the elongate element **28** as the range member **18** moves transversely with respect to the elongate element **28**. The range member **18** is thus also relatively movable with respect to the base member **16** which supports the support member **24** at the end thereof opposite the range member **18**.

The end of the elongate element **28** adjacent the channel **54** has a slot **60** through which a screw **62** is threadedly inserted. The slot **60** is in communication with the channel **54**. Thus, tightening of the screw **62** causes the sides of the channel **54** to be drawn together to clamp or lock the range member **18** in its adjusted position within the channel **54**.

The range member or bar **18** has tapered side edges **64** which slidably retain inwardly extending side projections **66** of the indicator or cursor member **20**. The indicator or cursor member **20** is provided with a window **68** which is adapted to be aligned with any one of a plurality of range indicator marks **70**. The range indicator marks **70** are shown as being applied to a strip **72** which is recessed within the bar or range member **18** or which are applied to the bar **18** in any other suitable manner. The side projections **66** of the cursor **20** are slightly resilient in order to provide a slidable clamping effect of the cursor member **20** on the range member or bar **18**. The cursor member **20** thus remains in any adjusted position upon the range member **18**.

The indicator or cursor member **20** is provided with a block **74** which carries the sighting element **22** which is threadedly attached thereto. The sighting element **22** is provided with a head **76**. The head **76** may be rotated to adjust the sighting member **22** with respect to the block **74**. The sighting member **22** has a sight or pointer **78** at the end thereof which is moved toward or away from the block **74** with threaded adjustment of the sighting element **22**. The position of the sighting element **22** is secured by a lock nut **80** carried by the sighting element **22** which is adapted to engage the block **74**.

The range indicator marks **70** are applied to the range member **18** in accordance with the action of the bow **12**. The action or shooting ability of the bow **12** is found by experiment. The indicator marks **70** are then applied to the range member **18**. As seen in FIG. **2**, the range indicator marks **70** indicate distances for shooting arrows with the bow **12**. When, for example, it is desired to shoot an arrow a distance of 30 units, the indicator **20** is moved so that the window **68** is in alignment with the desired indicator mark **70**, as shown in FIG. **2**. The sighting element **22** is adjusted so that the lateral position of the sight or pointer **78** is at a desired position to compensate for any breeze or wind which may exist. Thus, in sighting the bow **12**, the bow **12** is held at the proper angular positions.

Frequently, it is necessary to attach a new string **14** to the bow **12** to which the bow sight device **10** is attached. A new string **14** may change the distance that an arrow may travel when the bow **12** is held in a given angular position. Therefore, after a new string **14** is attached to the bow **12**, the bow **12** is tested and the range member or bar **18** is axially adjusted with respect to the element **28** and the base **16** to compensate for changes in range resulting from the change resulting from attachment of the new string **14** to the bow **12**. All that is necessary to compensate for the change in action in the string **14** is to move the bar or range member **18** upwardly or downwardly to its newly desired position upon the elongate element **28**. For such adjustment, the range member **18** is loosened with respect to the elongate element **28** by loosening of the screw **62**. When the newly adjusted position for the range member **18** is found, the range member **18** is firmly clamped with respect to the elongate element **28** by the tightening of the screw **62**.

As shown in FIGS. **2**, **3**, and **7**, a plurality of adjustment lines **82** are provided in the side surface of the base **16** for alignment thereof with a suitable mark or marks **84** on the side surface of the bracket **49** of the elongate element **26**. Thus, if it is necessary to remove the support member **24** from the base **16** at any time, the support member **24** may be readjusted to the desired position with respect to the base **16** as shown by the lines or marks **82** and **84**.

Adjustment marks or lines **86** and **88** are provided respectively on the cooperating side surfaces of the elongate element **28** and the range member **18**. Thus, for example, the range member **18** may be removed from the support member **24** and may be readjusted to the desired position when reassembled.

FIG. **3** shows the set of adjustment lines or marks **82** and **84** and the set of adjustment lines or marks **86** and **88** at a given position. The adjustment lines or marks **86** and **88** shown in FIG. **7** indicate that the range member **18** has been adjusted upwardly from that of FIG. **3** for compensation, such as compensation for a change in the bow string **14**.

FIG. **3** shows a given extended position of the support member **24**. FIG. **7** shows a greater extended position of the support member **24**. One archer may desire a given extended position of the support member **24** and another archer may desire a greater or lesser extended position of the support member **24**.

It should be noted that in this embodiment, the construction and dimensions of the channels **46** and **54** are the same and the cooperating flanges **50** and **58**, respectively, therein are the same. Hence, it is possible to eliminate use of the support member **24**, if maximum accuracy is not desired. The range member **18** is then inserted into the channel **46** of the base member **16** for slidable movement relative thereto.

A range member of the bow sight device is adjustable for accommodating changes in conditions of the bow and string thereof. The range member may be extended in a spaced relationship from the bow to improve the accuracy of the bow.

Thus, it is understood that the bow sight device of this invention provides means by which the desired angular position of a bow can be readily and accurately obtained and maintained for shooting an arrow any distance of which the bow and the archer are capable.

A bow sight device of this invention is easily and readily attachable to a bow for the use thereof. A bow sight device of this invention may be easily and readily removed for carrying of the bow when desired. It is thus seen that the objects of this invention as previously set forth have been accomplished.

I claim:

1. In a sighting device for attachment to a bow, the sighting device being of the type having a base member, the base member being attachable to a bow, an elongate range member, an indicator mounted on the elongate range member for relative movement with respect thereto;

the improvement comprising:

an adjustable support member connected to the base member and to the range member for supporting the range member in adjustable spaced relationship from said base member, said adjustable support member including: a plurality of elongate elements telescopically interconnected for telescopic operation, wherein the range member is supported in spaced relationship from the base member at any desired position within the span of relative telescopic movement of the elongate elements;

the support member having an end connected to the base member and an opposite end connected to the range member, and locking means carried by at least one of the elongate elements for locking the elongate elements in any relative position, one with respect to the other, wherein said range member is secured in any desire adjusted position with respect to the base member;

said one end of the support member having a complementary portion slidably movable within the channel of the base member wherein the support member is adjustably slidably movable within the channel of the base member;

first clamping means for securing said one end of the support member relative to the base member;

the opposite end of said support member having a channel therein;

the range member having a complementary portion within the channel of the support member whereby the range member is adjustably slidably movable within the channel of the support member; and

second clamping means for securing the range member relative to the support member.

2. A sighting device as set forth in claim 1 in which the base member and said one end of the support member have complementary compensation indicia thereon for indicating the position of the support member with respect to the base member:

the other end of the support member and the range member having complementary compensation indicia thereon for indicating the position of the range member with respect to the support member;

the respective channels in the base member and the support member being parallel so that the two sets of complementary compensation indicia indicate the transverse position of the range member relative to the base member.

PO-1050
(5/69)

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,574,944 Dated April 13, 1971

Inventor(s) David William Reynolds

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 4, line 57, change "desire" to ---desired---; after line 58 and before line 59, insert the following: ---the base member having a channel therein,---. Thus, lines 57 - 60 read as follows:

"wherein said range member is secured in any desired adjusted position with respect to the base member; the base member having a channel therein, said one end of the support member having a"

Signed and sealed this 10th day of August 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents