Nov. 13, 1951 F. C. STIEBER 2,574,599

SIGHTING DEVICE FOR BOWS AND ARROWS

Filed April 28, 1947 2 SHEETS—SHEET 1

Fig. 1

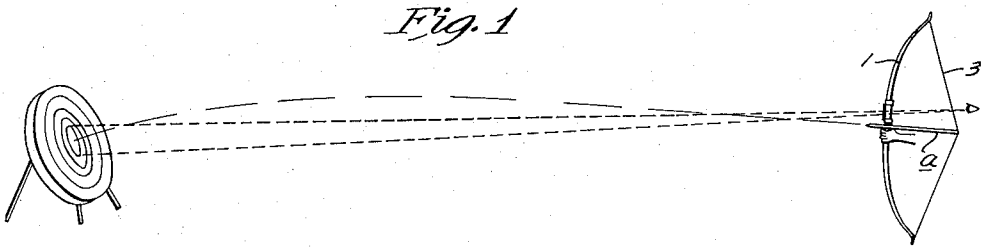


Fig. 2

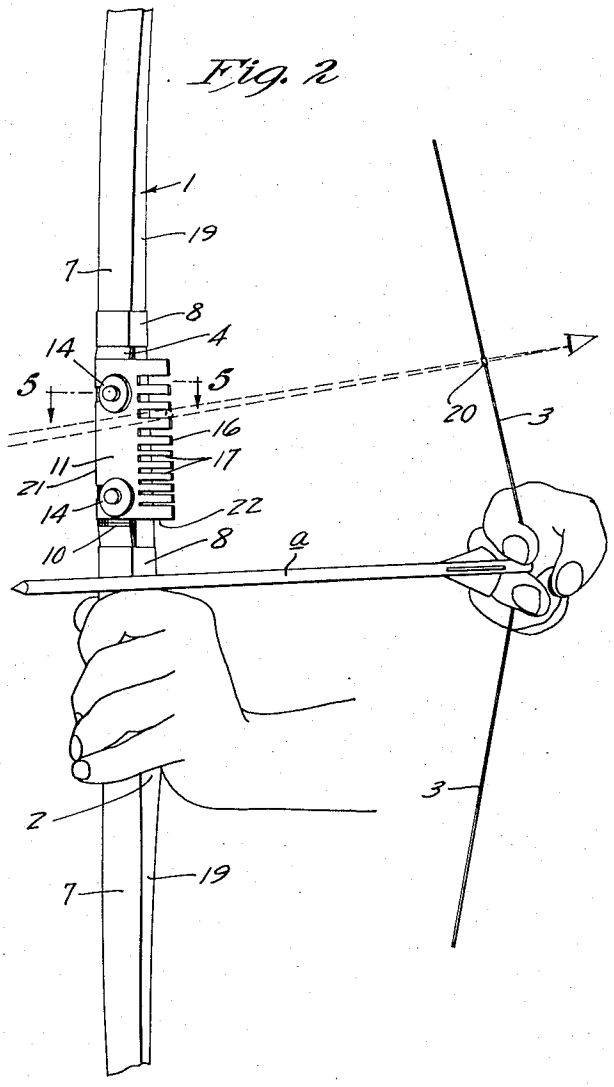
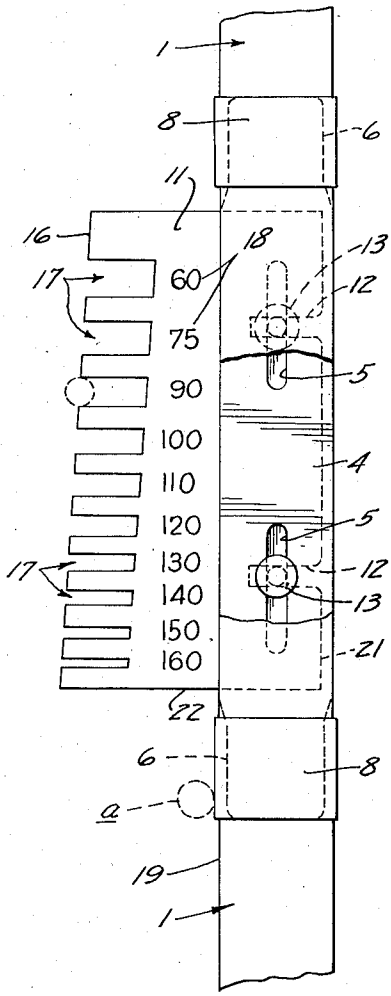


Fig. 3



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SIGHTING DEVICE FOR BOWS AND ARROWS

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Fig. 4

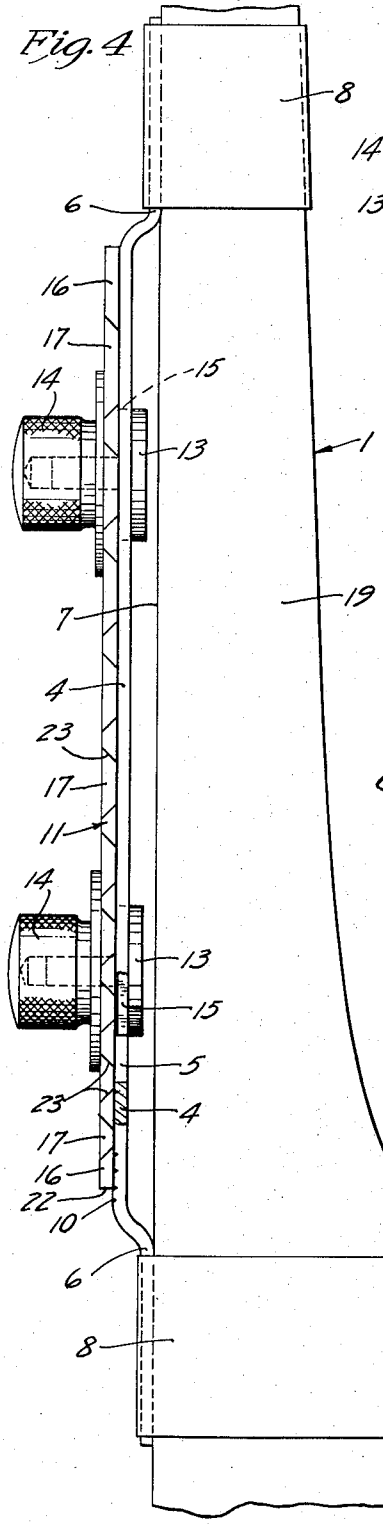


Fig. 5

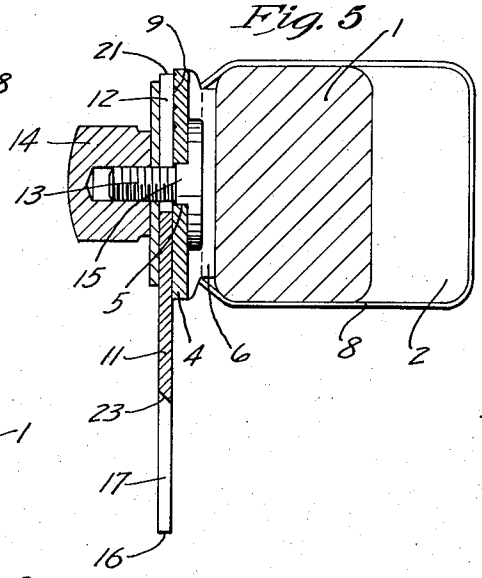


Fig. 6

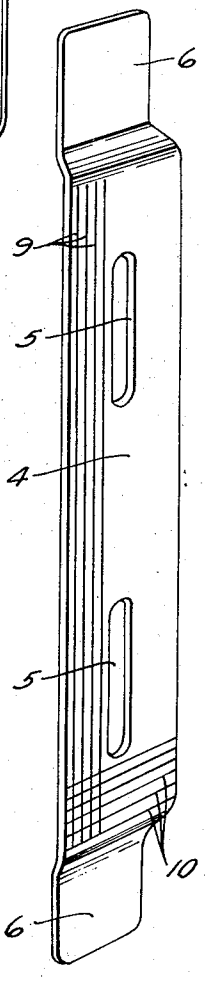


Fig. 7

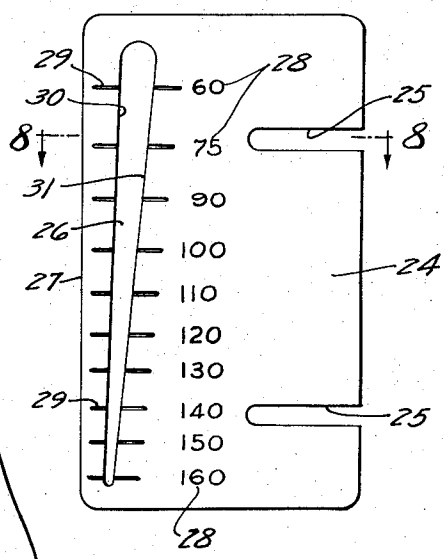
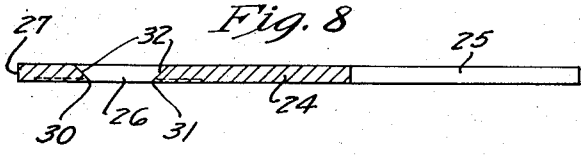


Fig. 8



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UNITED STATES PATENT OFFICE

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SIGHTING DEVICE FOR BOWS AND ARROWS

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4 Claims. (Cl. 33—46)

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My invention relates to a novel sighting device and range finder for use on archery bows and the like.

An important object of my invention is the provision of a plurality of gauge-acting sighting apertures associated with the intermediate portion of the bow and which are generally longitudinally spaced with respect to the bow and of progressively smaller size from the upper to the lowermost thereof. These gauge-acting sighting apertures, when associated with indicia, indicating progressively greater distances, may be effectively used as sighting and range finding apertures when used in locating a target of a given size.

Another highly important object of my invention is to provide a sight which will automatically allow for veerage or lateral deflection of the arrow in its flight.

Another object of my invention is to provide a sighting device which is adjustable in any direction to compensate for various bow characteristics and also to compensate for weakening of a bow after long periods of use.

A still further object of my invention is the provision of an adjustable sighting bead on the bow string which, when utilized in cooperation with my novel sighting means, will greatly increase the efficiency and accuracy of the archer.

A still further object of my invention is the provision of a novel sighting plate incorporating my novel arrangement together with novel means for adjustably anchoring the same to a bow.

A still further object of my invention is the provision of a sighting means and range finder for archery bows and the like which is inexpensive to manufacture, rugged in construction, and durable in use.

The above and still further objects and advantages of my invention will become apparent from the following detailed specification, appended claims, and attached drawings.

Referring to the drawings, wherein like characters indicate like parts throughout the several views:

Fig. 1 is a diagrammatical view of the relative directions of the line of sight and the flight of the arrow when utilizing my novel sighting arrangement;

Fig. 2 is a fragmentary perspective diagrammatical view showing a bow and arrow having secured thereto the preferred embodiment of my invention;

Fig. 3 is a rear elevation of the intermediate portion of the structure of Fig. 2 on an enlarged scale, some parts being broken away;

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Fig. 4 is a fragmentary side elevation of the parts shown in Fig. 3 on a still further enlarged scale;

Fig. 5 is an enlarged transverse section taken on the line 5—5 of Fig. 2;

Fig. 6 is a view in perspective of the anchoring bracket of my sighting device;

Fig. 7 is a front elevation of a sighting plate incorporating a modified embodiment of my invention; and

Fig. 8 is an enlarged view in section, taken on the line 8—8 of Fig. 7.

Referring with great particularity to the drawings, the numeral 1 indicates, in its entirety, a conventional archery bow having an intermediate portion or bow handle 2, and a bow string 3 secured to opposite ends thereof. An anchoring bracket 4, having spaced longitudinally-extended slots 5, is provided at its opposite ends with offset mounting feet 6 which are adapted to rest upon the forward surface 7 of the bow 1 immediately above the bow handle 2. The anchoring bracket 4 may be fastened to the bow by any suitable means but, as shown, is fastened thereto by means of bands 8 of any suitable material such as adhesive tape. The anchoring bracket 4 is provided with a plurality of longitudinally-extending laterally-spaced parallel marking grooves 9 adjacent one edge thereof and is provided with a plurality of longitudinally-spaced laterally-extending parallel marking grooves 10 adjacent the lower end portion thereof.

A sighting plate 11 is provided with a pair of open-ended slots 12 which extend inwardly from one side edge thereof. A pair of headed mounting screws 13 extend outwardly through the slots 5 in the anchoring bracket 4, and the slots 12 in the sighting plate 11, for adjustably locking the sighting plate 11 to the anchoring bracket 4, and are provided with washer-equipped knurled thumb nuts 14. A slot-engaging shank portion 15 on the screws 13, immediately under the heads thereof, are seated in the slots 5 of the anchoring bracket 4 to prevent the mounting screws from turning when the thumb nuts 14 are tightened thereon.

It will be observed that the laterally-projecting side edge 16 of the sighting plate 11 is provided with a plurality of open-ended vertically-spaced gauge-acting sighting slots 17, the distance between the side edges of which decreases progressively from the uppermost thereof to the lowermost. At its intermediate portion, the plate 11

is provided with vertically-spaced distance-indicating indicia 18, each indicium being adjacent to and associated with a sighting slot or aperture, the width of which coincides with the apparent diameter of a circle of given diameter when viewed by the archer therethrough at the distance indicated by said associating indicium. To illustrate, the normal bull's-eye of an archery target is 8 inches in diameter. This bull's-eye has an apparent diameter at any given distance, which, of course, is a great deal less than the actual diameter. At 90 feet for instance, the bull's-eye has an apparent diameter to the eye of the archer, measurable in fractions of an inch. The sides of one of the gauge-acting slots 17 (see Fig. 3) are spaced apart to coincide with this apparent diameter of the 8 inch bull's-eye when viewed by an archer therethrough (while the same is held at normal average arm's length from the eye) from a distance of 90 feet. The same is done for a number of other spaced distances within a given range. Thus, it will be seen, by reference to Figs. 2 and 3, that in the uppermost gauge-acting slot 17, the sides thereof are spaced the farthest apart, because the apparent diameter of the 8 inch target will be greatest at the shortest distance, there measured, to wit, 60 feet. Likewise the distance between the sides of the lowermost slots 17 is the least, because the apparent diameter of the 8 inch bull's-eye is the smallest from the 160 feet indicated. From the foregoing, it will be seen that, with a bull's-eye of known diameter, it is possible by sighting through different of the sighting slots 17, to determine the distance of the target from the archer. Obviously the substantially vertical arrangement of the sighting apertures, with the widest thereof at the top, provides the proper elevation of the bow for any one of the indicated distances, as the proper sighting aperture is interposed between the eye of the archer and the target.

It will also be observed that the edge 16 is so associated with the anchoring structure that it conforms to a plane downwardly diverging from the adjacent longitudinal edge 19 of the bowl 1 when the plate 11 is secured thereto. This divergence of the edge 16 with respect to the longitudinal edge 19 of the bow is designed to compensate for veerage or lateral deflection of the arrow a in its flight caused by the normal off-center relationship of the arrow to the bow during projection therefrom by the bow string 3 (see Fig. 3).

As a further aid to the archer in the utilization of my novel sighting plate, I provide an adjustable sighting bead 29 on string 3 which is interposed between the eye of the archer and any given one of the gauge-acting sighting apertures 17 and aligned therethrough with the target.

For adjustment of the sighting plate 11 with respect to the bow 1, to compensate for peculiarities of a given bow or weakening of a given bow during use, the thumb nuts 14 are loosened and the plate 11 is moved either longitudinally of the bow 1 or laterally thereof, the marking grooves 9 and 19 being used as guides for the edges 21 and 22 respectively of the plate 11.

In order to provide sharp definition of the gauge-acting sighting apertures 17, it will be noted that I preferably taper the edges thereof as indicated at 23 from the back side of the plate 11 to provide relatively sharp edges to the side edges of the slots 17.

In the modified form of sighting plate shown in Figs. 7 and 8, a sighting plate 24 is shown

having laterally-extended mounting slots 25 and a tapered sighting slot 26, the sides of which converge from the upper end portion to the lower end portion thereof. The sighting slot 26 is adjacent the laterally outwardly projecting edge 27 of plate 24, and spaced range or distance-indicating indicia 28 are vertically arranged on the intermediate portion of the plate 24. Marking lines 29 are associated with the indicia 28 and extend laterally across the sighting slot 26. The side edge portions 30 and 31 of the sighting slot 26, adjacent each marking line 29, form sighting apertures and are spaced apart to coincide with the apparent diameter of a given circle when viewed by the archer at the distance indicated by the indicium. In other words, the primary difference between the sighting plates 11 and 24 is that, in the former, the side edges of the sighting apertures are vertically spaced, whereas in the latter they are substantially horizontally-spaced.

It will be observed that a line drawn through the longitudinal center of the slot 26 conforms to a plane downwardly diverging from the adjacent longitudinal edge 19 of a bow when the plate 24 is operatively attached to the bow in the same manner as the side edge 16 of sighting plate 11. Here again, this divergence compensates for veerage or lateral deflection of the arrow in its flight. As shown in Fig. 8, the side edges 30 and 31 of the slot 26 are beveled or tapered, as at 32.

It should be obvious that my sighting plates 11 and 24 could be made of any suitable material, even glass or other transparent sheet material, which will render visible a maximum of the area surrounding the target.

My invention has been thoroughly tested and found to be completely satisfactory for the accomplishment of the above objects.

What I claim is:

1. In a sighting device for archery bows, a sighting plate, means for anchoring said plate to the longitudinal intermediate portion of the bow in a vertical plane with a portion thereof projecting laterally outwardly of one side of the bow, vertically-spaced indicia on said plate indicating from the uppermost to the lowermost thereof progressively greater distances forwardly thereof, the laterally-projecting side edge of said plate being provided with a plurality of open-ended vertically-spaced gauge-acting sighting slots the distance between the side edges of which decrease progressively from the uppermost thereof to the lowermost, each of said slots being adjacent to and associated with one of said indicia, the inner ends of said slots from the uppermost thereof to the lowermost thereof being spaced progressively a greater distance from the adjacent side of the bow whereby to compensate for lateral veerage of an arrow by the bow.

2. The structure defined in claim 1 in which the laterally-projected side edge of said plate is substantially parallel to a line drawn through the inner ends of said slots whereby to produce sighting slots of substantially uniform depth.

3. The structure defined in claim 1 in which said indicia is located on the laterally-projected portion of said plate intermediate said slots and the adjacent side edge of the bow.

4. The structure defined in claim 1 in further combination with a sighting bead on the bow string above the longitudinal center thereof, said bead being adapted to be visually aligned with

the target through a selected one of said slots in said sighting plate.

FRANK C. STIEBER.

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