

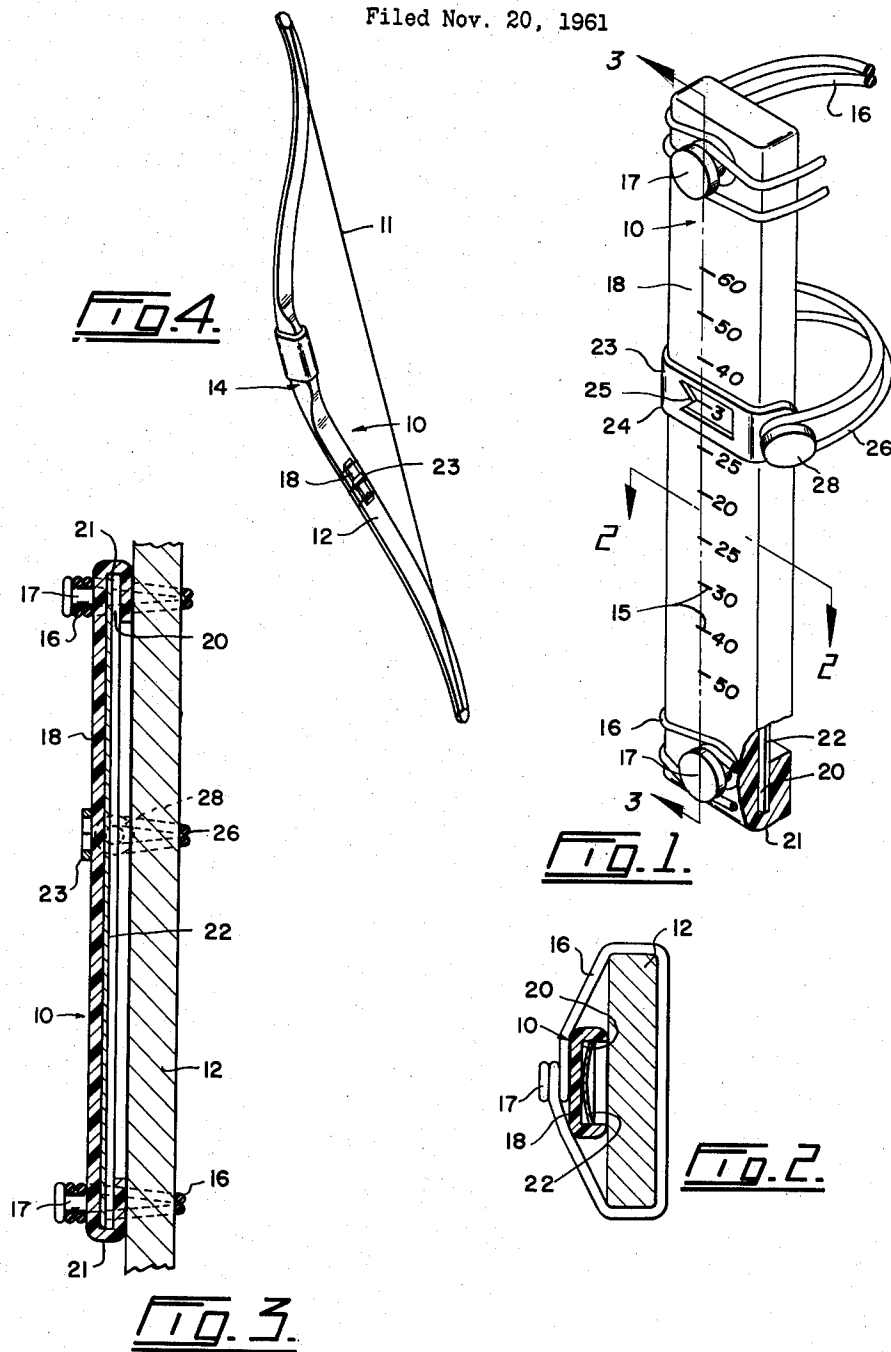
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BOW PULL INDICATOR

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## BOW PULL INDICATOR

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This invention relates to a bow pull indicator for use with a bow for shooting arrows.

An archer who wishes to achieve the best possible marksmanship with a bow and arrow must attempt to maintain the same posture, grip on the bow, manner of holding the arrow, etc. for each shot. One of the most difficult operations to repeat in exactly the same manner is the operation of pulling back the bow string by a fixed amount so that the force against the arrow is the same for each shot. Some attempts have been made to devise bow pull indicating devices for measuring the tension in the drawn bow. However, such indicating machines have usually been bulky and unwieldy, and have served only as a practice guide for indicating to the archer approximately how far he should pull back his bow string in order to achieve a certain degree of force. But, when the arrow is placed in the bow for an actual attempt at a target, previously known indicating devices cannot be used because of the fact that they interfere with the archer's correct use of the bow.

It is therefore an object of the present invention to provide a bow pull indicator which indicates to the archer that a desired force has been produced in the bow string, is inexpensive to manufacture, is easily placed on the bow without interfering with use of the bow, gives an audible indication when the force has produced, and is adjustable for a plurality of different bow string forces thereby allowing the archer to select any desired force over a suitable range.

An example of the invention will now be described with reference to the accompanying drawings, in which:

FIGURE 1 is a front view of a bow pull indicator constructed according to the present invention;

FIGURE 2 is an enlarged section taken along the line 2—2 in FIGURE 1;

FIGURE 3 is a vertical section taken along the line 3—3 of FIGURE 1; and

FIGURE 4 is a reduced side view of the bow pull indicator shown in FIGURE 1 attached to a bow.

Referring to the drawings, a bow pull indicator 10 includes a strip of flat, somewhat flexible material 18 provided with hook shaped ends 21 which form a recess 20 when the strip 18 is placed against the lower limb 12 of a bow 14 as shown in FIGURE 4. In the recess 20 is a strip of spring steel 22 having curved cross section and extending the length of the recess 20 and held more or less firmly in place by the hooked ends 21 of the strip 18. Strip 18 and its hooked ends 21 form a container for steel strip 22. The concave side of the spring steel strip 22 should face the limb 12 (see FIGURE 2) if the bow pull indicator is mounted on the lower limb 12 as shown in FIGURES 3 and 4. Suitable clasp means 16 are used for attaching the bow pull indicator to the lower limb 12. In practice, strong elastic bands are sufficient for the purpose. In this example, 16 is an endless elastic band, and there is one at each end of strip 18. Each band extends around bow limb 12 and is looped over a headed pin 17 projecting outwardly from strip 18 near an end thereof and in a direction away from said limb.

A sliding band 23 includes a stiff section 24 slidably mounted on strip 18, and an elastic band section 26 extending around bow limb 12, said elastic band being looped over pins 28 projecting laterally from opposite sides of section 24 to hold the latter on strip 18. With this arrange-

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ment, band 23 may be adjustably positioned at any point between the two clasp members 16. The band 23 is provided with a pointer 25 which moves over a scale 15 on strip 18 when said band is shifted longitudinally of the strip. The scale 15 may be conveniently marked in pounds, indicating the desired bow pull force. Some calibration may be required, or some adjustment of the position of the indicator on the bow may be necessary if the scale is to give a correct reading.

In operation, the bow pull indicator is attached to the bow by means of bands 16, as indicated in FIGURE 4. If the draw string 11 of the bow 14 is drawn back, the strip 18 and the curved spring steel strip 22 bend with the lower limb 12 of the bow. When the steel strip 22 has been bent a certain amount, it will suddenly bend sharply with a snap, causing an audible click. The degree of bending which is required to cause the audible click depends not only upon the dimensions of the spring steel strip, but also upon the setting of the band 23. If the band 23 is near the centre point between the two ends of the strip 22, the click will be produced with relatively low bow pull force. If the band 23 is moved towards either of the clasp means 16, the amount of force required to produce the audible click caused by the snap of the spring steel strip 22 increases. Thus, the desired bow pull force can be obtained by adjusting the band 23 to the desired position, and drawing back the bow string 11 until the audible click of the snapping steel spring strip 22 is heard. Thus, the archer is enabled to draw back the bow string 11 by a predetermined fixed amount for each shot. Unlike previously known devices, the present invention can be used when an arrow is to be shot, without interfering in any way with the archer's use of the bow.

Although the bow pull indicator is conveniently mounted on the lower limb 12 of the bow, it can be placed elsewhere on the bow. It is preferable to have the bow pull indicator mounted on the inner concave side of the bow, but if the clasp means 16 are sufficiently firm, the bow pull indicator might also be mounted on the outer convex side of the bow. If the latter, the convex surface of the spring steel strip 22 would have to face the bow.

If desired, the member 18 might be a hollow flexible member having the spring steel strip inside it, rather than a partially open member with a portion of the spring steel strip lying immediately next to the lower limb 12 of the bow. Sufficient room must be allowed, in any case, for the spring steel strip to bend sufficiently to snap thereby to produce the audible click.

What I claim as my invention is:

1. A bow pull indicator comprising a spring steel strip of curved cross section and adapted to give an audible click when the strip has been bent a predetermined amount, a bendable container adapted to confine the ends of said strip and to permit said strip to bend when the container and the strip are placed on a bendable part of a bow limb, attachment means for attaching said container and said strip to the bow limb to bend therewith whereby the strip is substantially parallel to the bow limb and the strip faces said limb with its concave surface.

2. A bow pull indicator as claimed in claim 1, additionally including bearing means adapted to bear against said strip in a number of adjustable positions along the length of the strip thereby to vary the amount of bending which will cause said strip to yield the audible click.

3. A bow pull indicator comprising a strip of material adapted to give an audible signal when bent between ends thereof across the general plane of the strip, and means for securing the ends of said strip to a surface of a limb of a bow which bends when the bow is drawn with the strip extending longitudinally of said bow surface, said securing means causing the strip to bend with the bow limb,

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whereby an audible signal is given by the strip when the bow limb is bent a predetermined degree.

4. A bow pull indicator as claimed in claim 3 including loop means extending around the bow limb and the strip and shiftable longitudinally of the latter to alter the bending characteristics of said strip and thereby change the predetermined degree of bending of the bow limb required to produce an audible signal.

5. A bow pull indicator as claimed in claim 3 including means for spacing the strip outwardly of the adjacent bow limb.

6. A bow pull indicator comprising an elongated flexible container adapted to extend longitudinally along a surface of a limb of a bow which bends when the bow is drawn, means connected to the container to secure the latter against said limb surface to cause the container to bend with the limb, and signal means in the container adapted to give an audible signal upon a predetermined degree of bending of the bow limb.

7. A bow pull indicator as claimed in claim 6 including means adjustably mounted on the container for changing the predetermined degree of bending of the bow limb required to produce an audible signal.

8. A bow pull indicator as claimed in claim 6 in which the signal means comprises a strip of spring steel of curved cross section mounted in the container with ends thereof fixed to the container and the portion of the strip between said ends free to move across the general longitudinal plane of the strip.

9. A bow pull indicator comprising a covering strip of flexible material adapted to extend longitudinally along a surface of a limb of a bow which bends when the bow is drawn, a pocket at each end of said strip on the same side thereof, said pockets opening towards each other, a

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strip of spring steel of curved cross section with ends thereof fitting in said pockets, and means for securing the ends of the covering strip against said limb surface to cause the cover and steel strips to bend with the limb, said steel strip snapping to give an audible signal upon a predetermined degree of bending of the bow limb.

10. A bow pull indicator as claimed in claim 9 in which the pockets are located between the covering strip and the bow limb when said strip is secured to the latter.

11. A bow pull indicator as claimed in claim 9 in which the means for securing each end of the covering strip against the limb surface comprises an endless elastic band extending around said limb and looped over a pin mounted on the covering strip.

12. A bow pull indicator as claimed in claim 9 including an adjusting band slidably mounted on the covering strip, and means for securing said band to the adjacent bow limb in any adjusted position longitudinally of the covering strip, whereby the predetermined degree of bending of the bow limb required to produce an audible signal may be changed by shifting the band along the covering strip.

13. A bow pull indicator as claimed in claim 12 in which the means for securing the adjusting band in position comprises an endless elastic band extending around the adjacent bow limb and looped over pins mounted on said adjusting band.

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