Sept. 22, 1959 R. K. NIEMEYER 2,905,166

BOW STRING NOCK

Filed Sept. 5, 1956

Fig. 1

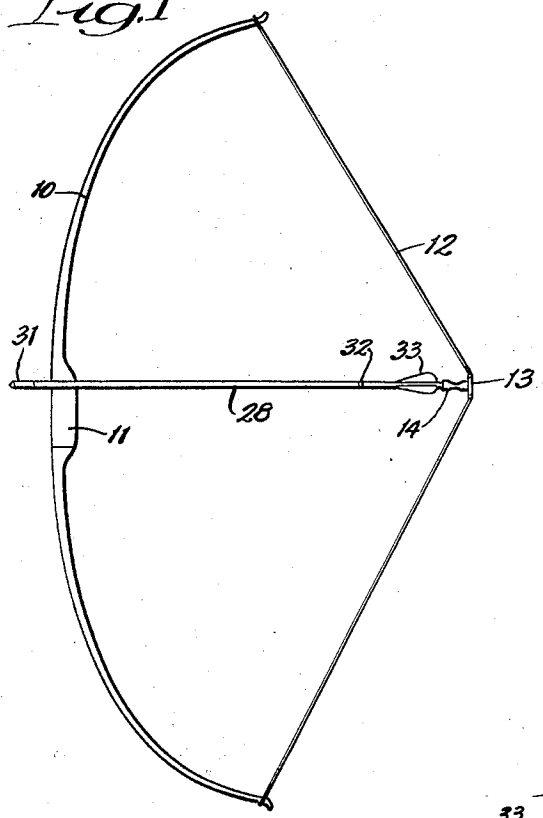


Fig. 2

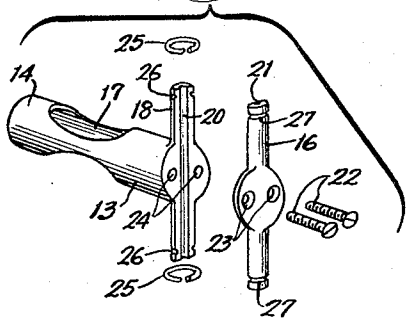


Fig. 3

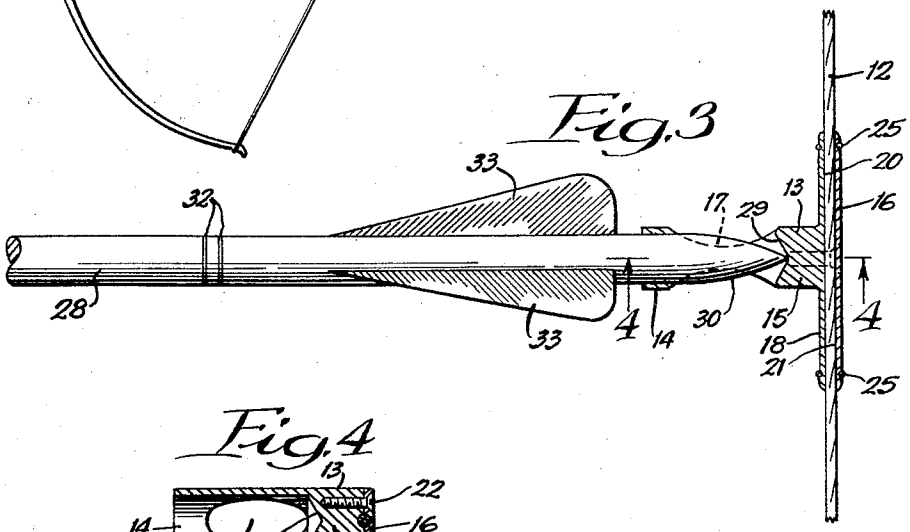
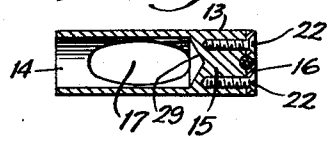


Fig. 4



INVENTOR:
Roy K. Niemeyer,
BY Dawson, Tilton & Graham,
ATTORNEYS.

United States Patent Office 2,905,166
Patented Sept. 22, 1959

2,905,166

BOW STRING NOCK

Roy K. Niemeyer, East Lansing, Mich.

Application September 5, 1956, Serial No. 608,070

1 Claim. (Cl. 124—30)

This invention relates to bow and arrow construction and more specifically to a structure for insuring proper nocking of arrows.

In conventional archery equipment the butt ends of arrows are generally equipped with notched tips, commonly referred to as nocks, which are adapted to engage the bow strings and to provide an area for grasping the arrows during shooting.

For proper shooting, it is apparent that the ratio of the distances between opposite ends of the bow and the "nocking point," or the point on the string engaged by the notched end of the arrow, must be the same as the distance relationship between those ends of the bow and the point adjacent the handle where the arrow is supported during the draw and release. Otherwise the arrows will tend to wobble in flight and loss of accuracy and impact force will result.

In handling archery equipment, considerable difficulty is often encountered in consistently nocking the arrows at the proper position along the string. Beginners often find that the notched ends of the arrows tend to slide along the string during the draw, or drop away from the string during the draw or release, as a result of improper nocking. Even experts sometimes find difficulty in keeping arrows properly nocked, as for example, during hunting where an arrow carried in nocked position is likely to engage bushes, shrubs and other obstacles.

Therefore one of the main objects of the present invention is to provide a structure which overcomes the aforementioned disadvantages in the use of present archery equipment. Another object is to provide a structure carried by the bow string for insuring proper nocking of the arrows. Another object is to provide a string nock for maintaining the butt ends of arrows in proper nocking position during the draw and release, the string nock permitting the archer to grip the ends of the arrows between his fingers as they are drawn in the conventional manner. A further object is to provide a string nock adapted for use in connection with conventional archery equipment and particularly suitable for use in conjunction with nockless arrows—that is, arrows which are not equipped with the customary notched tips, but which instead have smooth tapered ends.

Other objects will appear from the specification and drawings in which:

Figure 1 is a side elevation of a bow and arrow combination equipped with a string nock embodying the present invention; Fig. 2 is an exploded perspective view of the string nock; Fig. 3 is a broken vertical section illustrating the string nock in connection with an arrow; and Fig. 4 is a horizontal sectional view taken along line 4—4, Fig. 3.

In the embodiment of my invention shown in the drawings, the numeral 10 generally designates a bow having an enlarged centrally positioned handle or grip 11 and equipped with a bow string 12 attached to opposite ends thereof. The bow may be formed from flexible wood or other suitable material and is entirely conventional except for the string nock 13 which will now be described.

The string nock structure essentially comprises a tubular sleeve 14 having a solid end portion 15 and a clamping member 16 adjacent thereto for securing the sleeve with its longitudinal axis perpendicular to the bow string. As illustrated most clearly in Figs. 2 and 3, sleeve 14 is provided with a pair of longitudinally-elongated and diametrically disposed openings 17 intermediate the ends thereof. Oval-shaped openings 17 are vertically aligned, and in view of the relative size of these openings with reference to the dimensions of the cylindrical sleeve, it will be seen that the width of the sleeve portions disposed between the openings, measured along their narrowest parts, is substantially less than the inside diameter of the sleeve. Consequently, an archer may hook his fingers across the upper and lower openings of the sleeve to grip the end of an arrow carried therein.

Except for its rear end construction, arrow 28 is similar to conventional arrows in present use. The arrow is equipped with the customary pile or pointed tip 31, crest 32, and fletching or grouped vanes 33.

At the rear end of the cylindrical sleeve are a pair of oppositely-disposed, radial arms or elongated portions 18 extending along the intermediate portion of the bow string. Aligned arms 18 and clamping member 16 are provided with complementary channels or grooves 20 and 21 for receiving and clamping the intermediate portion of the bow string therebetween. In the illustration given, clamping member 16 is secured to sleeve 14 by means of screws 22 which project through openings 23 and are threaded into openings 24 provided in the solid end portion of the sleeve. If desired, annular spring clips 25 may be fitted within grooves 26 and 27 extending circumferentially about each vertically elongated arm 18 and the adjacent clamping member 16 respectively, to aid in maintaining the parts in contiguous relation.

In Fig. 3 it will be seen that the rear end of arrow shaft 28 is slidably received within the horizontal tubular sleeve of string nock 13. If desired, the solid wall portion of the cylinder may be provided with a conical recess 29 to aid in centering the tapered end portion 30 of the arrow. It is to be noted that arrow 28 is a nockless arrow; that is, the arrow is not equipped with a notched end piece as in conventional arrow construction but instead is merely finished to provide a smooth uninterrupted tapered surface. Hence the arrows used in connection with the present invention are less expensive to manufacture than conventional arrows and because the rear ends of the arrow shafts are tapered and uncapped, such arrows are lighter and are balanced better than present arrows. The result is greater arrow speed and shooting accuracy. In addition, the tendency for arrow nocks to split or break as a result of the inherent weakness of notched tip construction is eliminated by the solid end construction made possible by this invention.

Since the string nock is securely clamped to the central portion of the bow string, it provides a consistently correct nocking point in alignment with the portion of handle 11 against which the arrows rest during shooting. The distance ratio between string nock 13 and the ends of the bow is the same as the distance ratio between those ends and the point on the bow against which the arrow rests during the draw and release. Consequently, even beginners can achieve surprisingly accurate shooting results without encountering the customary difficulties caused by improperly nocked arrows.

An important feature of the present invention lies in the fact that during use of the string nock the arrows are shot in the conventional manner. An archer simply hooks his fingers about the string so that the tubular string nock is interposed between the first two fingers of his hand; the first and second fingers respectively pass-

ing above and below the recessed sleeve and pressing against opposite sides of the arrow portion slidably carried within that sleeve. In addition to preventing lateral movement of the arrows along the bowstring during the draw and release, the tubular sleeve helps to hold the rear ends of the arrows adjacent the string and reduces the possibility that the archer will grip the end of the arrows too tightly, thereby unseating them from the handle rest.

In hunting it is desirable to maintain an arrow in nocking position so that when game is sighted the arrow is ready to be quickly drawn and released. Heretofore hunters have encountered considerable difficulty in maintaining the notched ends of the arrows at the proper position on the bow strings because brush, shrubs and other obstacles may strike the arrows and tend to move their notched ends along the strings. It is apparent that this difficulty is overcome by the present invention since the tubular sleeve serves to hold the tapered lateral rear end of the arrow shaft in proper nocking position despite forces resulting from engagement with branches, shrubs and the like.

While in the foregoing I have disclosed my invention in considerable detail for purposes of illustration, it will be understood by those skilled in the art that these details

may be varied widely without departing from the spirit and principles of the invention.

I claim:

In a bow structure having a bow string extending between opposite ends thereof, a string nock comprising, a sleeve having a cylindrical wall for slidably receiving the rear portion of an arrow shaft having a solid end portion equipped with a pair of outwardly extending arms, a clamping member for clamping said arms along the intermediate portion of said bow string, said sleeve being provided with a pair of vertically aligned arcuate openings on opposite sides thereof, the wall between each of said openings having portions thereof narrower than the inner diameter of said sleeve for exposing the rear end portion of an arrow shaft received within said sleeve, whereby said cylindrical sleeve prevents movement of the rear portion of said arrow along said string as said arrow is pulled longitudinally by an archer grasping the same through said aligned openings.

References Cited in the file of this patent

UNITED STATES PATENTS

1,605,300	Thompson	Nov. 2, 1926
1,785,589	Mead	Dec. 16, 1930
2,125,591	Smith	Aug. 2, 1938