July 12, 1960 C. WHEELER 2,944,539

ARCHERY BOWS

Filed Feb. 26, 1957

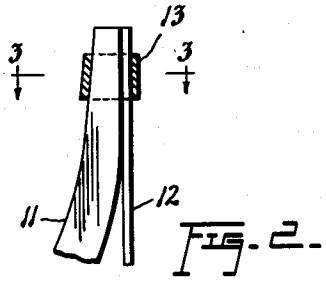


FIG. 2.

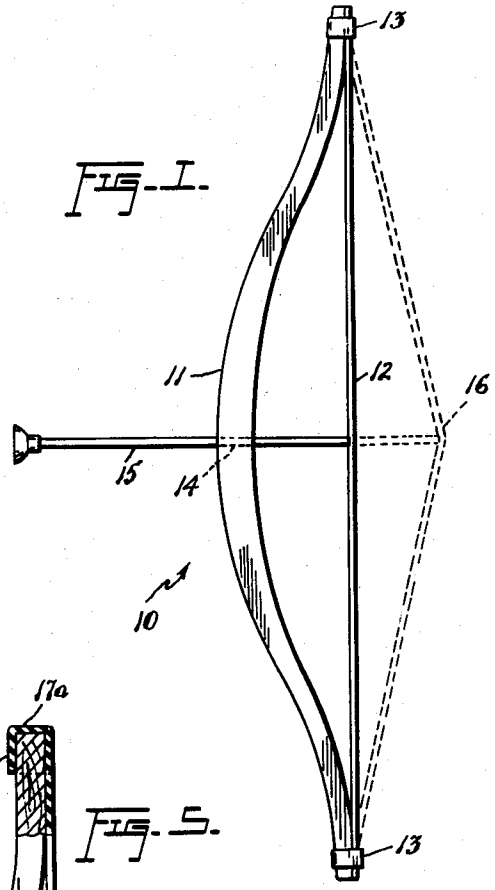


FIG. 1.

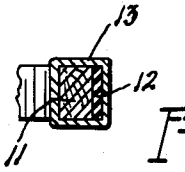


FIG. 3.

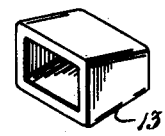


FIG. 4.

FIG. 5.

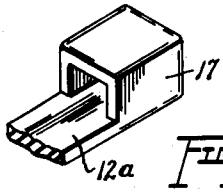


FIG. 6.

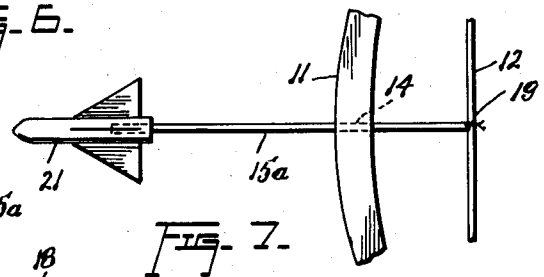


FIG. 7.

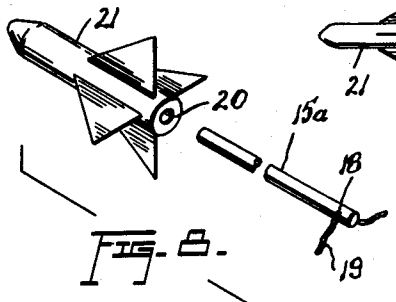


FIG. 8.

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ARCHERY BOWS

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5 Claims. (Cl. 124—22)

This invention relates to new and useful improvements in archery bows, and the principal object of the invention is to provide novel means for anchoring the bow string to the ends of the bow body so that the operating tension of the bow string may be adjusted as desired. As such, the novel anchoring means also afford quick and easy detachment of the bow string from the bow body so that the bow string may be readily replaced when worn or otherwise damaged.

Another important feature of the invention resides in forming the bow body from rigid rather than flexible material and providing a resiliently stretchable bow string in conjunction therewith, whereby the bow string is stretched during actuation while the bow body retains its initial shape.

Another important feature of the invention resides in providing the bow body with a passage for the arrow, whereby the arrow is effectively guided during its discharge from the bow.

Another important feature of the invention involves the provision of means, in a slightly modified form of the invention, for attaching the rear end of the arrow to the bow string so that it is held captive thereby, and removably positioning a projectile on the front end portion of the arrow so that it is discharged thereby when the bow string is actuated.

The invention is particularly well adapted for use by children and some of the advantages of the invention reside in its simple construction, efficient operation, and in its adaptability to economical manufacture.

With the foregoing more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention will be understood from the following description taken in conjunction with the accompanying drawing, wherein like characters of reference are used to designate like parts, and wherein:

Figure 1 is a side elevational view of the archery bow and arrow in accordance with the invention;

Figure 2 is a fragmentary elevational view on an enlarged scale, showing the attachment of the bow string to the bow body and illustrating the attaching keeper or clamp in section;

Figure 3 is a sectional detail, taken substantially in the plane of the line 3—3 in Figure 2;

Figure 4 is a perspective view of the keeper or clamp;

Figure 5 is a fragmentary view, partly in section, of one end portion of the bow, showing a modified form of the string attaching means;

Figure 6 is a fragmentary perspective view showing one end portion of the bow string and attaching means of Figure 5;

Figure 7 is a fragmentary side elevational view of a modified arrangement of the invention, employing a captive arrow and a removable projectile thereon; and

Figure 8 is a group perspective view of the captive arow and projectile.

Referring now to the accompanying drawing in detail,

particularly to Figures 1–4 thereof, the archery bow in accordance with the invention is designated generally by the reference numeral **10** and comprises a bow body **11** of the usual shape, which is formed in this instance from any suitable rigid material so that it retains its shape without flexing or bending.

A bow string **12** extends between the ends of the body **11** and is anchored thereto by means **13** hereinafter described. The bow string is resiliently stretchable and may assume the form of an elastic band.

The bow body **11** is provided at the center thereof with a bore **14** which constitutes a passage for a conventional arrow **15**, so that when the rear end of the arrow is engaged with the string **12** and is retracted as indicated by the dotted lines **16**, the string is stretched and upon releasing, the arrow is propelled forwardly from the bow. The passage **14** effectively guides the arrow during its discharge from the bow, and if the arrow should be equipped at its rear end with feathers or other stabilizing means (not shown), the passage **14** may be open at one side of the bow body so that such feathers, or the like, may pass therethrough without impeding the propulsion of the arrow.

The anchoring means **13** facilitate quick attachment and detachment of the string **12** to and from the bow body **11**, as well as adjustment of the tension of the string for proper operation. As will be noted, the end portions of the string **12** are superposed on the end portions of the bow body, and the means **13** are in the form of sleeve-like keepers which embrace the superposed end portions of the bow body and string and frictionally hold the same together.

By simply removing the keepers **13**, the string **12** may be quickly separated from the bow body **11**. Moreover, before re-applying the keepers to the bow body, the string may be stretched, more-or-less, and anchored to the bow body by the keepers with the required amount of pretensioning for proper operation.

Although the keepers **13** may be of a uniform dimension throughout, it is preferred that they be tapered in an outward direction as shown in Figure 4, while the end portions of the bow body **11** are also outwardly tapered as illustrated in Figure 2. Thus, when the keepers are installed, the bow string **12** exerts an inward pulling force thereon and causes them to more firmly wedge themselves on the tapered end portions of the bow body, to correspondingly more firmly anchor the string in place as the tension thereof is increased.

The accompanying Figures 5 and 6 illustrate a modified form of the string anchoring means, in which instance the bow string **12*a*** is provided integrally at the ends thereof with sockets or pockets **17** having closed outer ends **17*a***, the sockets or pockets **17** being adapted for removable positioning on the end portions of the bow for anchoring the bow string thereto. The bow string may be quickly and easily separated from the bow body by simply stretching the string sufficiently to permit removal of the sockets from the bow ends. However, unlike the form of the invention shown in Figures 1–4, the sockets **17** do not facilitate adjustment of the tension of the string.

The accompanying Figures 7 and 8 show another modified arrangement of the invention wherein the arrow **15*a*** is in the form of a simple shaft and is provided in the rear end portion thereof with a transverse aperture **18** through which is threaded a short length of cord **19**. This cord is tied around the bow string **12** as shown in Figure 7 so as to hold the shaft **15*a*** captive. The front end portion of the shaft **15*a*** is slidably and removably receivable in a bore **20** formed in a projectile **21**, and when the bow string is actuated, the movement imparted thereby to the captive arrow shaft **15*a*** will discharge the

projectile from the shaft by propelling it forwardly therefrom.

The projectile 21 may assume any suitable configuration, such as for example, that of a simulated rocket, shown in the drawing.

While in the foregoing there have been described and shown the preferred embodiments of the invention, various modifications may become apparent to those skilled in the art to which the invention relates. Accordingly, it is not desired to limit the invention to this disclosure, and various modifications may be resorted to, such as may lie within the spirit and scope of the appended claims.

What is claimed as new is:

1. The combination of a rigid bow provided at the center thereof with an arrow receiving passage, a resiliently stretchable bow string, recessed keeper means slidable onto and resiliently engaging each end of the bow and quickly removably anchoring each end of said bow string to corresponding ends of said bow in parallel similarly centrally directed relation to said corresponding ends of said bow, and an arrow engageable at its rear end with said string and slidable in said passage of the bow.

2. The combination as defined in claim 1 together with means for attaching said arrow to said bow string to prevent separation thereof therefrom, and a projectile removably positioned on the front end portion of said arrow and adapted to be discharged thereby when said bow string is actuated.

3. The combination of a rigid bow provided at the center thereof with an arrow receiving passage, a resiliently stretchable bow string, recessed keeper means slidable onto each end of the bow toward the center thereof and quickly removably resiliently engaging each end of the bow and quickly removably adjustably anchoring each end of said bow string to corresponding ends of said bow in parallel similarly centrally directed relation to said corresponding ends of said bow, and an arrow engageable at its rear end with said string and slidable in said passage of the bow.

4. The combination of a rigid bow provided at the center thereof with an arrow receiving passage, a resiliently stretchable bow string, recessed sleeve-like encircling keeper means slidable onto each end of the bow toward the center thereof and quickly removably resiliently engaging each end of the bow and quickly removably adjustably resiliently engaging and anchoring corresponding ends of said bow string and forcing same into lateral frictional locking abutment with corresponding ends of said bow in parallel similarly centrally directed relation to said corresponding ends of said bow, whereby to removably and adjustably anchor said bow string to said bow, and an arrow engageable at its rear end with said string and slidable in said passage of the bow.

5. The combination as defined in claim 4 wherein said keeper means and the end portions of said bow are outwardly tapered and wherein the bow string exerts an inward pulling force on said keeper means to fasten the same on the bow.

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