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BOW AND ARROW CONSTRUCTION

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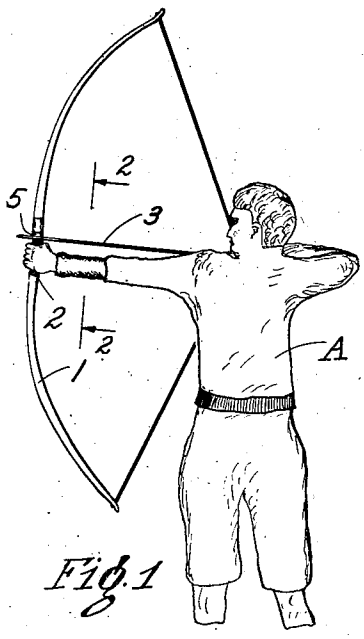

Fig. 1

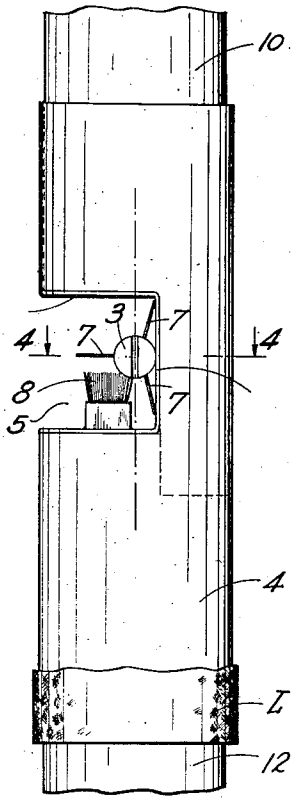

Fig. 2

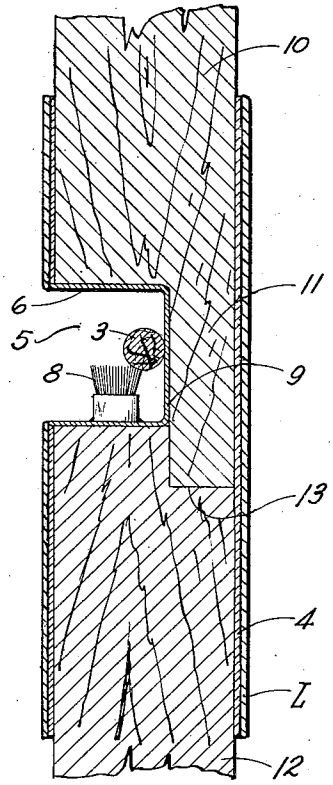

Fig. 3

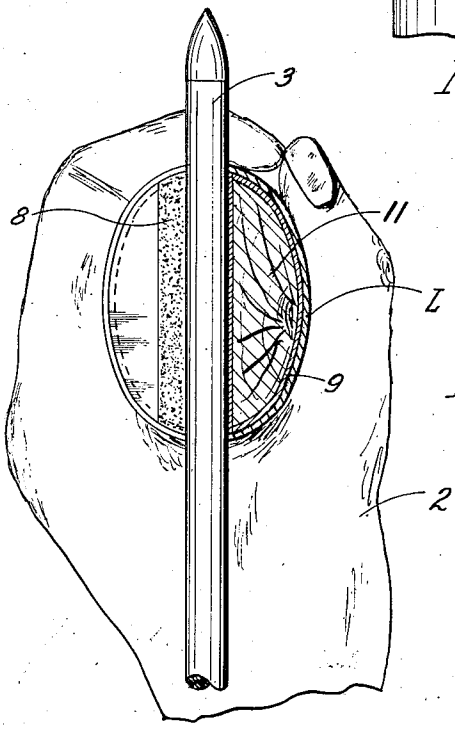

Fig. 4

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BOW AND ARROW CONSTRUCTION

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5 Claims. (Cl. 273—107.5)

This invention relates to archery equipment and more particularly to an improved archery bow construction.

In using the ordinary type of archery bow the arrow is placed on one side of the bow, the notch in the rear end of the arrow engaging the bow string in well known manner. It has long been known that this is not an ideal arrangement as it causes the arrow to lie at an angle to a plane passing through the bow string and the longitudinal center line of the bow and to the plane of the path of the bow string. This angle varies as the bow string is drawn back and released in shooting. Such variation causes a bending action of the arrow as it passes the bow when the bow string is released and, in order to make all arrows shoot alike, it is necessary to carefully match the "spine" or whip of the arrow.

To overcome this difficulty, which results in inaccurate shooting due to the different action of each arrow, it has frequently been proposed to make a bow having a hole directly in its center through which the arrow may pass. This construction, however, has never been entirely satisfactory due to obvious difficulties which are experienced in arranging for the feathers on the arrow to pass through the hole in the bow, difficulty in loading due to the fact that the arrow must be inserted in the hole preparatory to shooting and difficulties in aiming resulting from the fact that the bow lies directly in the archer's line of sight to the targe. Another difficulty which is experienced with bows having a hole directly through their center results from the fact that the archer, when he releases his bow string, unconsciously flinches to a greater or less extent and the arm which holds the bow moves. As this movement takes place before the arrow emerges from the hole in the bow it will be seen that, as the walls of the hole completely surround the arrow, movement of the archer's arm in any direction will cause the bow to strike the arrow and force it out of its aimed line of flight.

It is among the objects of our invention to provide a bow possessing all of the theoretical advantages obtained by having the arrow pass through the center line of the bow but with none of the disadvantages resulting from the old type of bow having a central hole.

Other objects are the provision of an archery bow of extremely strong and simple construction and which may be economically manufactured; the provision of an archery bow which eliminates the necessity of using arrows which have been matched as to "spine" or whip; the provision of an archery box which may be readily "loaded" preparatory to shooting and which permits the arrow to pass directly through the center line of the bow; the provision of an archery bow which may be easily and accurately aimed at the point of aim, and the provision of an archery bow in which the arrow at all times will lie substantially in a plane of the path of travel of the bow string.

The above and other objects of our invention will be seen from the following description of a preferred embodiment thereof, reference being had to the accompanying drawing in which—

Fig. 1 is an illustrative view showing an archer about to shoot with our improved bow;

Fig. 2 is a fragmentary view of the central portion of the bow taken in the direction indicated on line 2—2 of Fig. 1;

Fig. 3 is a vertical cross section of the portion of the bow illustrated in Fig. 2, and

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 2 and showing the archer's hand in position.

Referring now to Fig. 1 the archer A is seen in the usual position for a right handed person. The bow 1 is grasped in the archer's left hand 2. The arrow 3 lies on the side of the bow toward the archer's body and his right hand grasps the string and arrow to draw the bow preparatory to shooting.

The present invention relates to the central portion of the bow only and we prefer to use a standard form of bow, made of yew or other suitable wood. The central portion of our bow consists of a tubular member 4, preferably made of chrome molybdenum steel or other suitably strong material. This tubular member 4 is preferably of an oval cross section as seen in Fig. 4 so as to provide a comfortable grip for the archer's hand. A notch 5 is formed in one side of the tubular portion and is reinforced by a substantially U-shaped piece 6 which is preferably welded in position to close the otherwise open walls of the notch.

As is clearly seen in Figs. 2 and 3 the notch 5 extends in from the side of the bow to a point beyond the center line of the bow. The distance which the notch extends inwardly beyond the center line of the bow is preferably equal to approximately one-half the diameter of the arrow, so that the arrow, when in position in the bow, will lie directly on the center line of the bow. The vertical height of the notch is made sufficiently great to permit free passage of the feathers 7 therethrough. These feathers are

illustrated in Fig. 2 which shows the arrow 3 in its position as it is just about to leave the bow.

In order to hold the arrow in the proper position without it having to rest on the archer's left hand we have provided the supporting brush member 8. As seen in Figs. 2 and 3 this brush is mounted on the bottom of the notch 5 and extends in the direction of the line of flight of the arrow. It is also preferably spaced from the inside wall 9 of the notch 5 to permit the feathers to pass the bow with a minimum of interference. This brush 8 may be made of tufted textile material, bristles, felt or other suitable material, preferably of a somewhat resilient nature. The outside of the tubular member 4 is preferably covered with leather L, or the like, in order to form a non-slipping grip and it will be understood by those skilled in the art that the grip portion of the tubular member 4 may be shaped in any desired manner.

The use of our tubular center section makes it possible to make the bow in two detachable pieces so that it may be conveniently taken apart and carried. As seen in Fig. 3 the upper section of the bow 10 extends down into the upper part of the tubular member 4 and has a tongued portion 11 which extends down beyond the notch 5. We prefer to cement the upper section 10 of the bow into the tubular member 4 while the lower section 12, which is cut out at 13 to accommodate the projecting tongue 11, is made to have a snug sliding fit in the lower part of the tubular member 4.

When the lower section 12 is inserted in position and the bow is strung a perfectly rigid structure results. Due to the strength of our tubular center section it is unnecessary to enlarge the central section of the bow to make it strong enough to withstand the stress to which it is subjected in use.

In using our improved bow the archer grasps it in the usual manner and places the arrow in the notch 5 in the same way as he usually lays it against the bow. He then draws back on the bow string and sights directly at his point of aim. Due to the fact that one side of the notch is open and that it is of relatively great height it is possible to sight directly through this notch and thus secure an exceedingly accurate line to the target. When he releases the bow string his left arm may jerk or flinch but this will have no effect on the flight of the arrow unless it happens to be in a direction toward the open side of the notch 5. In other words, after the bow string is released the arrow is entirely unaffected by movement of the archer's arm in three directions, namely, up, down and to the archer's right.

It will be seen by those skilled in the art that we have provided a bow construction which is extremely simple and strong and which may be used by an archer in exactly the same manner as the old style bow but which will give distinctly improved shooting results due to the fact that the arrow may be aimed directly at the target and does not have any bending action due to the angularity of the arrow and the plane of travel of the bow string inherent in old style bows.

Although we have described the illustrated embodiment of our invention in some detail, it will be understood by those skilled in the art that modifications and variations may be made therein without departing from the spirit of my invention. We do not, therefore, limit ourselves to the precise details shown and described but claim as our invention all forms thereof coming within the scope of the appended claims.

We claim:

1. An archery bow having a notch extending inwardly from one side thereof and disposed in position to permit an arrow to pass therethrough and a resilient arrow supporting member extending upwardly from the bottom of the notch and adapted to hold an arrow away from the bottom of said notch.

2. In an archery bow a tubular center section having a notch formed in one side thereof and a U-shaped member secured in said notch and forming walls therefor.

3. An archery bow having a tubular metallic center section, said center section being notched out on one side to a depth equal to at least one-half the thickness of the bow, a reinforcing member in said notch adapted to form top, bottom and side walls therefor, an arrow supporting member mounted on said bottom wall of the notch, said arrow supporting member extending upwardly from said bottom wall and longitudinally in a direction parallel to said side wall.

4. An archery bow having a tubular metallic center section, said center section being notched out on one side to a depth equal to at least one-half the thickness of the bow, a reinforcing member in said notch adapted to form top, bottom and side walls therefor, an arrow supporting member mounted on said bottom wall of the notch, said arrow supporting member extending upwardly from said bottom wall in spaced relation to said side wall and extending longitudinally in a direction parallel to said side wall.

5. An archery bow having a tubular metallic center section, said center section being notched out on one side to a depth equal to at least one-half the thickness of the bow, a reinforcing member in said notch adapted to form top, bottom and side walls therefor, a resilient arrow supporting member mounted on said bottom wall of the notch, said arrow supporting member extending upwardly from said bottom wall in spaced relation to said side wall and extending longitudinally in a direction parallel to said side wall.

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