Dec. 17, 1968 G. D. THOMPSON 3,416,508

SHOCK ABSORBING HANDLE FOR AN ARCHER'S BOW

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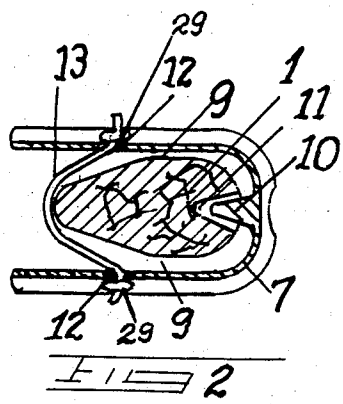


FIG 2

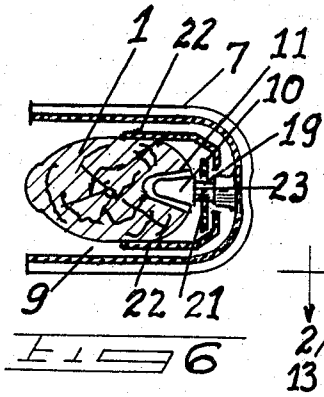


FIG 6

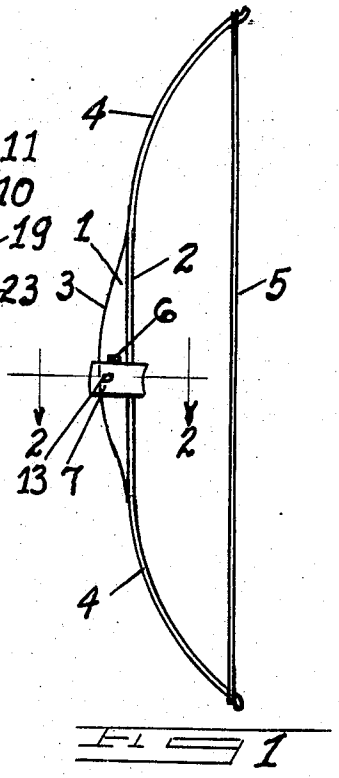


FIG 1

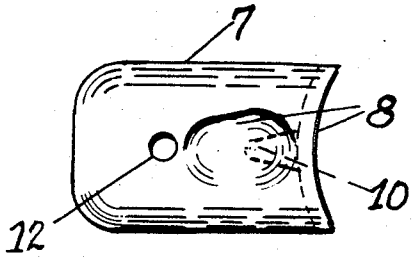


FIG 3

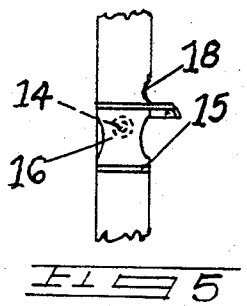


FIG 5

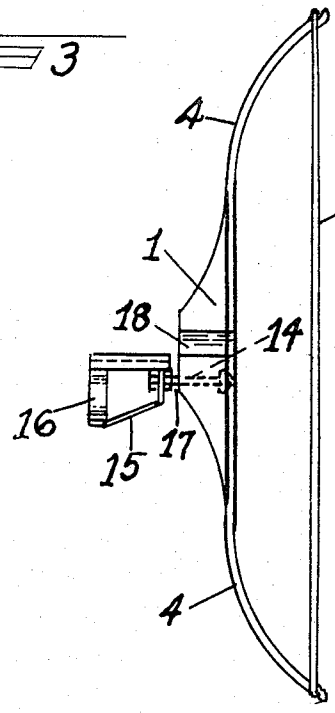


FIG 4

INVENTOR
GEORGE D. THOMPSON
BY George A Schwenzer
ATTORNEY

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SHOCK ABSORBING HANDLE FOR AN ARCHER'S BOW

George D. Thompson, 9100 Cincinnati Dayton Road, West Chester, Ohio 45069

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6 Claims. (Cl. 124—24)

This invention relates more particularly to the type of shock absorbing bow handle that surrounds the usual bow handle of an archer's bow.

In archery the accuracy of trajecting an arrow to a target depends upon keeping the bow in line with the target. This is difficult because of the shock imparted by a bow string when it is released to traject the arrow. Usually the shock causes the archer's wrist and arm to react and tilt or rotate the bow and hence change the direction of the arrow away from the aimed spot on the target.

It is an object of my invention to provide a shock absorbing handle that will allow the wrist and arm of an archer to remain stationary and thereby prevent the deflection of an arrow from its aimed course.

Another object is to provide a shock absorbing handle for an archer's bow that will allow the bow to move in the direction of the course of trajectory without deflecting the bow and arrow from its aimed course.

Generally it is an object of my invention to provide a secondary handle for an archer's bow that will prevent the shock of trajecting an arrow from deflecting the bow and arrow from its aimed course.

These and other objects will become apparent to those skilled in the art from the specifications and drawings comprising this application.

In the drawings:

FIGURE 1 is a side elevation view of an archer's bow.

FIGURE 2 is a plan in section of the bow taken on line 2—2 of FIGURE 1.

FIGURE 3 is a side elevation of my secondary handle for a bow.

FIGURE 4 is a side elevation of an archer's bow showing an alternate form of a shock absorbing handle.

FIGURE 5 is an elevation of a fragment of a back of an archer's bow with the alternate shock absorbing handle.

FIGURE 6 is a plan in section of an alternate form of bumper for my secondary handle.

Referring to FIGURE 1, there is illustrated an archer's bow having a handle **1** with a face **2** and a back **3**. Extending from the handle are flexible limbs **4** adapted to be flexed by a string **5**. The limbs when fixed, by pulling the string to the right in FIGURE 1, acquire a potential energy which when the string is released is imparted to an arrow and causes the arrow to leave the bow to depart in its aimed course. A shelf or rest **6** for an arrow is located on the side of the handle. The arrow slides on this shelf until it is shot from the bow by the reaction of the limbs and string. Surrounding the handle there is a U-shaped handle **7** that has concave contours **8** to enable an archer to comfortably and securely grasp the U-shaped handle and leave the bow handle free to slide within the secondary handle while shooting an arrow. There is a clearanec space **9** between the U-shaped handle and the bow handle thereby allowing the U-shaped handle to be gripped firmly and at the same time allow the bow handle to move inside of the U-shaped handle. Interior of and fixed on the U-shaped handle there is a conical spur **10** adapted to slide and tilt in a conical concave sheath **11**. The conical sheath has a tapered interior with an angle that it greater than the angle of the spur in relation to the axis of the sheath and spur to prevent

binding between the spur and sheath. The spur is depressed in the conical concave sheath loosely because of the difference in the taper of the spur and sheath when the bow string is stretched to the right preparatory to trajecting an arrow. When the string is released the limbs react and spring forward together with the string and the arrow. Before the instant when the arrow leaves the bow the string comes to bracing height and the momentum of the limbs' mass will cause them to vibrate. This momentum of the limbs imparts a shock to the bow and causes the bow handle to move away from the archer and consequently the concave sheath on the bow handle moves away from the conical spur secured on my shock absorbing handle. The spur has limited movement and does not leave the conical sheath.

Holes **12** in the sides of the U-shaped handle are provided for a flexible leather lace **13** that extends from one side of the U-shaped handle around the back of the bow handle and to the other side of the U-shaped handle. The lace is held in place by means of knots tied in its ends **29**. The leather lace holds the U-shaped handle loosely around the bow handle and acts as a bumper stop for the bow handle when an arrow is shot by the bow. The archer grips the U-shaped handle and not the bow handle consequently the shock of shooting the arrow is not transmitted to the archer's wrist until the arrow has passed from the bow.

Referring to FIGURE 6 there is illustrated another form of a bumper. An annular groove **19** at the base of the spur has a circular disc **20** loosely retained in the groove **19**. The disc is free to slide back and forth on a bearing **21** in the bottom of the groove. Hook members **22** are fixed on the bow handle. The hook members are arranged to hook on the circular discs when the bow moves forward in my handle. The hooked members move the disc forward until the disc meets a shoulder **23** in the groove. When the disc contacts the shoulder the bow will be inhibited from further sliding within my handle. During the sliding of the bow the spur will remain within the sheath. When the bow string is pulled to the right of FIGURE 1 the spur will seat in the sheath and at the same time the hook members will release the disc and leave the bow handle free for aiming.

Referring to FIGURES 4 and 5, there is illustrated an alternate type of shock absorbing handle for an archer's bow. In this alternate a stud **14** is slidably retained within the bow handle. The stud is adjustably fixed in a hilt **15** having a contoured grip **16** for an archer's hand. A space **17** between the hilt and back of the bow handle allows the bow to slide on the stud when the shock of shooting the arrow causes the bow to move away from an archer and the shock is not transmitted to the archer's wrist and arm until the arrow has left the bow. An opening **18** in the bow handle is provided as a shelf for an arrow during the aiming and shooting of an arrow.

To shoot an arrow with my shock absorbing handle an arrow is attached to the string and supported on the shelf. The archer grasps the shock absorbing handle by wrapping his hand around it. The archer then draws the string towards himself and aims the arrow. When the archer draws the string the bow will also move towards him until the spur is seated in the bottom of the sheath. The tension in the lace bumper will be released and the bumper will be in loose contact with the back of the bow.

As soon as the archer releases the string, the limbs rebound and the arrow will be shot from the bow. At the extremity of the forward movement the arrow leaves the string and it, together with the limbs, will vibrate strenuously because of the momentum of the mass of the limbs being opposed by the string connecting the limbs. This opposition to the momentum imparts a shock and causes

the bow to move away from the archer. Since the bow is free to slide in my handle its forward movement will cause it to come in contact with the bumper thereby delaying the transmission of the shock to the archers arm and hand gripping my handle. By the time the shock is transmitted through my handle to the archer's arm and wrist the arrow will be free from the bow. Consequently the reaction of the bow cannot alter the flight of the arrow.

Each bow has inherent individual characteristics and require utmost care and skill by an archer to adjust himself to these characteristics when shooting an arrow. With my handle these inherent characteristics are automatically adjusted.

The archer assumes the same grip on my handle each time and since the bow is slidable and rotatable in my handle it will adjust itself to its proper shooting position.

Having thus described my invention I claim:

1. An archer's bow for shooting an arrow comprising;
a bow handle with flexible limbs fixed to said bow and extending lengthwise therefrom;
a string connected to ends of said flexible limbs for shooting said arrow from said bow;
a U-shaped shock absorbing handle loosely surrounding said bow handle adapted to be held stationary and having sufficient clearance relative to said bow handle to permit said bow handle to translate as a unit back and forth within said U-shaped handle;
spur means fixed on said U-shaped handle in communication with another means on said bow handle to guide and position said bow relative to said U-shaped handle when said bow handle is moved backward on the drawing of said bow string preparatory to shooting said arrow and flexible means surrounding the back of said bow handle and connecting the U-shaped handle and bow handle to limit the forward movement of said bow within said U-shaped handle.

2. An archer's bow as set forth in claim 1 wherein said spur means comprises a conical spur fixed on an inner said of said U-shaped handle, and said another means comprises a concave sheath adapted to move back and forth on said conical spur.

3. An archer's bow as set forth in claim 1 wherein said flexible means surrounding the back of said bow is a lace having its ends secured in the sides of said U-shaped handle to limit the forward movement of said bow within said U-shaped handle when said arrow is shot from said bow.

4. An archer's bow for shooting an arrow comprising;
a bow handle with flexible limbs for shooting said arrow from said bow;
an archery bow string connecting the ends of said limbs;
a U-shaped shock absorbing handle loosely surrounding said bow handle adapted to be held stationary and having sufficient clearance relative to said bow handle to permit said bow handle to translate as a unit back and forth within said U-shaped handle;
spur means fixed on said U-shaped handle in communication with another means on said bow handle to guide and position said bow relative to said U-shaped handle when said bow handle is move backward on the drawing of said string preparatory to shooting said bow arrow;
slidable means retained on said spur means fixed on said U-shaped handle;
and means fixed on said bow handle adapted to engage said slidable means on said spur means to inhibit and limit the forward movement of said bow handle within said U-shaped handle.

5. An archer's bow as set forth in claim 4 wherein said slidable means on said spur means fixed in said U-shaped handle is a disc adapted to tilt and slide within a groove on said spur means when said hooks on said bow contact said disc.

6. An archer's bow as set forth in claim 4 wherein said slidable means on said spur means being adapted to have its forward movement arrested by a shoulder on said spur means when said slidable means is engaged by and being moved forward by said means fixed on said bow handle and thereby arrest the forward movement of said bow in said U-shaped handle.

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RICHARD C. PINKHAM, *Primary Examiner.*

WILLIAM R. BROWNE, *Assistant Examiner.*

U.S. Cl. X.R.

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