# United States Patent

**Izuta**

[15] **3,670,712**

[45] **June 20, 1972**


## [54] STABILIZER FOR ARCHERY BOW


[72] Inventor: **Tadao Izuta,** Hamamatsu, Japan

[73] Assignee: **Nippon Gakki Seizo Kabushiki Kaisha,** Hamamatsu-shi, Japan



[22] Filed: **Feb. 17, 1971**

[21] Appl. No.: **116,082**

[30] **Foreign Application Priority Data**

Feb. 21, 1970 Japan.....45/16721

[52] **U.S. Cl.** .....**124/30 R,** 124/24

[51] **Int. Cl.**.....**F41b 5/00**

[58] **Field of Search** .....124/22, 23, 24, 25, 30 R; 267/136, 137



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 3,342,172 | 9/1967 | Sanders | 124/30 R X |
| 3,412,725 | 11/1968 | Hoyt | 124/30 R X |



*Primary Examiner*—Richard C. Pinkham
*Assistant Examiner*—William R. Browne
*Attorney*—Ostrolenk, Faber, Gerb & Soffen



[57] **ABSTRACT**

A stabilizer for an archery bow having a rod portion and a weight body fixed to the free end of the rod portion. The weight body is made into a hollow construction and a mass-body having a suitable mass and weight is supported within the hollow weight body for independent movement by means of a resilient mounting material in such a manner that the mass-body can be vibrated inside of the hollow weight body substantially in all directions.


**4 Claims, 3 Drawing Figures**

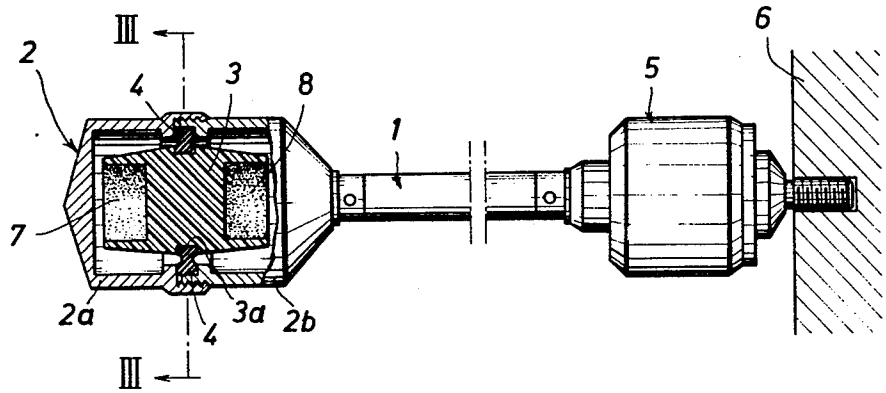
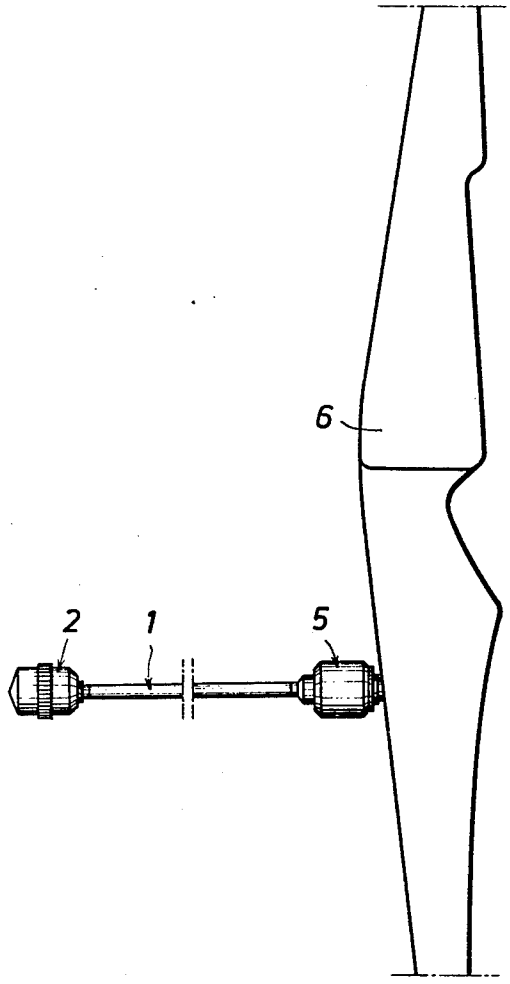


FIG. 1




INVENTOR
TADAO IZUTA

BY
Ostrolenk, Faber, Gerb & Soffen
ATTORNEYS

FIG. 2

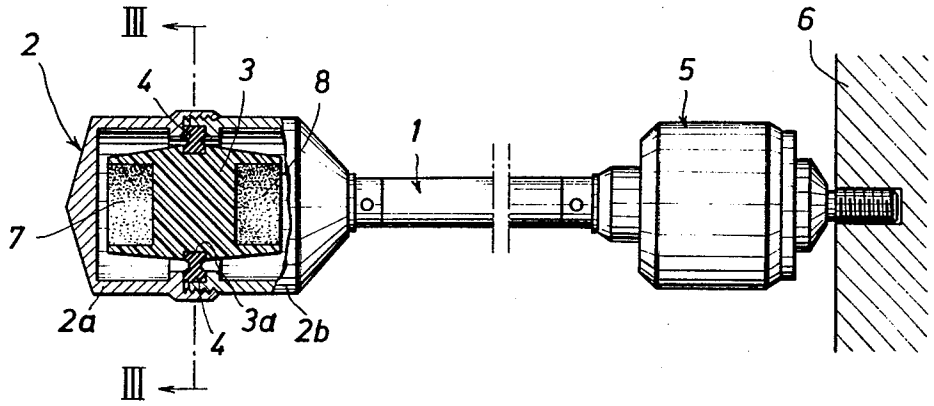
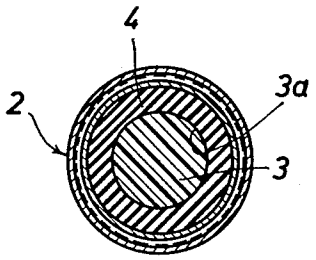



FIG. 3




INVENTOR
TADAO IZUTA

BY
Ostrolenk, Faber, Gerb & Soffen
ATTORNEYS

# STABILIZER FOR ARCHERY BOW

## BACKGROUND OF THE INVENTION

This invention relates to a stabilizer which is provided for absorbing vibration or shock created in an archery bow and for improving hitting rate of the archery bow.

When an arrow is notched on a bow and the bow is fully drawn, a vibration of small amplitude but of a high pitch is created within the bow because of the highly tensioned archer's muscles, and when the arrow is released, vibration or shock of greater amplitude is caused in the bow because of the quick recovery of limbs and string of the archery bow to their original positions.

A stabilizer for an archery bow is employed for absorbing these vibrations or shocks, and also for compensating any unbalance in moments of inertia which might exist around the hand-gripping portion of the archery bow especially in the right-and-left direction of the bow.

Various researches have been carried out on the stabilizer and its positions attached on the bow for effectively absorbing these vibrations and shocks and for compensating any unbalance in the inertia moments around the gripping portion. However, most of the conventional stabilizers have had a comparatively long rod portion and a weight body connected with the rod portion in an integral manner, and such stabilizers have been attached to the desired positions on the handle section of the bow perpendicularly. Although the construction of these stabilizers are simple and can be easily manufactured, it is found that the stabilizer of such a construction is insufficient in absorbing the vibrations or shocks.

## SUMMARY OF THE INVENTION

Therefore, a primary object of the present invention is to provide a stabilizer wherein the weight body is constructed in a manner whereby the vibration or shock absorbing nature of the stabilizer is greatly enhanced.

Another object of the present invention is to provide a stabilizer having a weight body which includes a resilient mounting member supporting a mass body, whereby the vibration or shock in substantially all directions can be absorbed by the stabilizer.

These and other objects of the present invention can be achieved by the claimed stabilizer wherein the weight body fixed to one end of the rod portion is made in the shape of a hollow housing, and a mass body having a suitable mass and weight is independently supported within the hollow weight body by means of a resilient mounting material interposed therebetween, whereby the mass body can be vibrated in either of up-and-down or right-and-left direction.

The nature, principle, and utility of the present invention will be more clearly understood from the following detailed description of the invention when read in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a profile view of a stabilizer according to the present invention, which is attached to the handle section of an archery bow;

FIG. 2 is a profile view, partly in section, of the stabilizer shown in FIG. 1; and

FIG. 3 is a sectional view of the stabilizer taken along the line III—III in FIG. 2.

## DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. 1 showing a stabilizer according to the present invention attached to the handle section of an archery bow, there is indicated that the stabilizer comprising a rod portion 1, a weight body 2 integrally fixed to one end of the rod portion 1, and a base portion 5 integrally fixed to the other end of the rod portion 1 is attached to a handle section 6 of the archery bow.



The weight body 2 is formed into a hollow housing as is best seen in FIG. 2, and a mass-body 3 having a suitable mass and weight is supported by a resilient material 4 within the hollow weight body 2 so that the body 3 can be freely vibrated substantially in all directions.

More specifically, in an embodiment shown in FIGS. 2 and 3 the weight body 2 is formed into a pair of casings 2*a* and 2*b* which can be joined together through thread engagement. Inside of the casings 2*a* and 2*b*, there is accommodated a mass-body 3 of a suitable mass and weight consisting of a hard rubber which is formed preferably into a drum-shape having recesses 7 and 8 at both ends thereof. The drum-shaped mass-body 3 has a groove 3*a* along its central periphery, and a resilient material 4 such as elastic rubber formed into a ring is received in the groove 3*a*. The resilient mounting material 4 is further supported between the pair of casings 2*a* and 2*b* so that the mass-body 3 is concentrically supported inside of the weight body 2.

When the stabilizer according to the present invention is attached to the handle section 6 of an archery bow through the base portion 5 of the stabilizer, any vibration or shock created in the archery bow at its fully drawn time or at releasing time of an arrow is transmitted through the base portion 5 to the rod portion 1 of the stabilizer. As a result, the rod portion 1 will be vibrated laterally around the base portion 5 with the weight body 2 fixed to the free end of the rod portion 1 swung around the base portion 5 thus absorbing a part of vibration or shock of the bow. Inside of the weight body 2, the mass-body 3 is also vibrated relative to the supporting portion of the resilient material 4, and consequently a considerable part of the vibration or shock is further absorbed by the mass-body 3.

As is apparent from the above described construction of the stabilizer according to the present invention, the weight body 2 at the free end of the rod portion 1 is made into hollow casings 2*a* and 2*b*, and the mass-body encased inside of the hollow body 2 is also made vibratory. For this reason, the stabilizer according to this invention can absorb the vibration or shock created in the archery bow far better than the conventional stabilizer. Furthermore, the mass-body 3 supported by the resilient material 4 inside of the weight body 2 can be vibrated not only in the up-and-down or right-and-lift direction as viewed in FIG. 2, but also it can vibrate in a composite direction of these two directions, whereby the stabilizer according to the present invention affords to absorb vibration or shock in substantially all directions, and the hitting rate of the archery bow provided with the stabilizer can be much improved.

Since the weight body 2 of this stabilizer simply includes a mass-body 3 supported by the resilient material freely to vibrate, the construction thereof is not so complicated and the cost of the stabilizer can be kept considerably low.

What is claimed is:

1. In a stabilizer for an archery bow wherein said stabilizer comprises a rod portion and a weight body fixed to the free end of the rod portion, said weight body is made in the shape of a hollow housing with a mass-body having a suitable mass and weight is supported for independent movement within said hollow weight body by means of a resilient material interposed between said weight body and mass-body, so that the mass-body can be vibrated within and independently of said hollow weight body, said rod portion having an end opposite the free end which is adapted to be attached to an archery bow, and said housing being closed ended.

2. The structure as claimed in claim 1 wherein said resilient mounting material is made into a ring and receives said mass-body in said ring.

3. The structure as claimed in claim 1 wherein said mass-body has a groove therearound and said resilient material is fitted within said groove.

4. The structure as claimed in claim 1 wherein said weight body comprises a pair of casings engaging each other, said resilient member being supported between said pair of casings.

* * * * *