Jan. 5, 1965 M. L. STEWART 3,164,384

ARCHERY TARGET

Filed Sept. 14, 1961

Fig. 1.

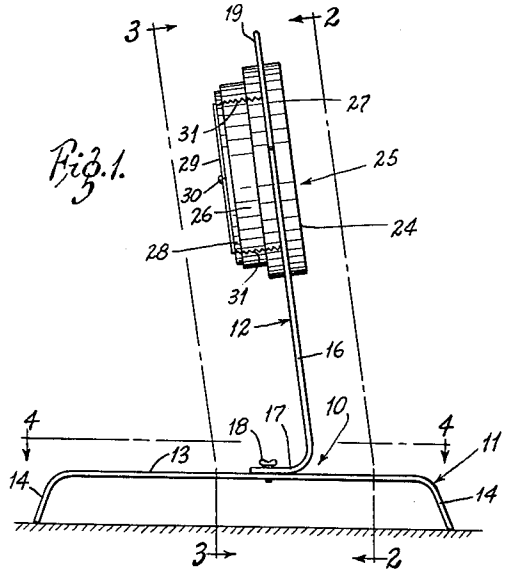


Fig. 2.

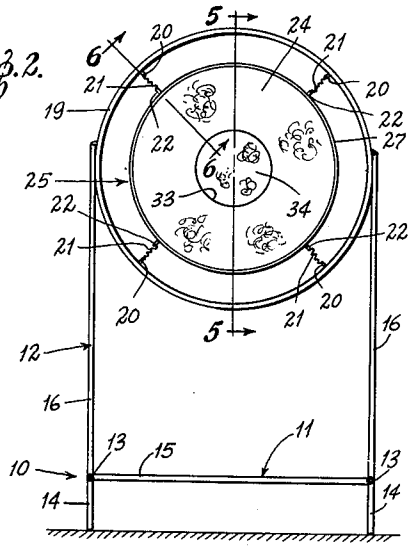


Fig. 4.

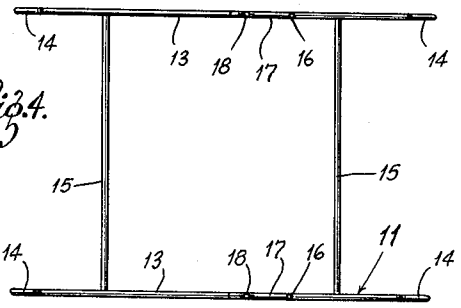


Fig. 3.

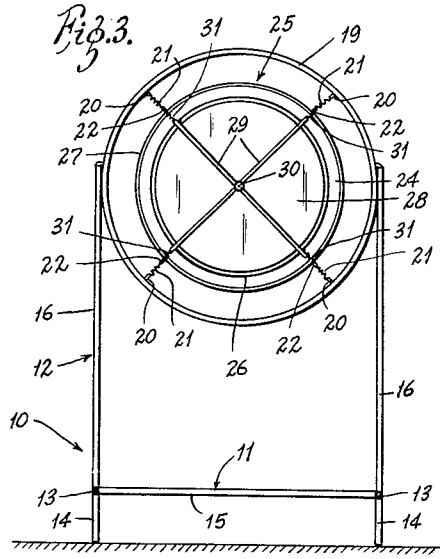


Fig. 5.

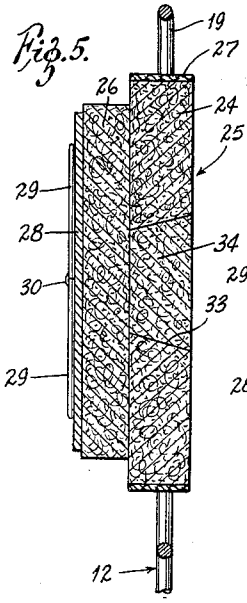


Fig. 6.

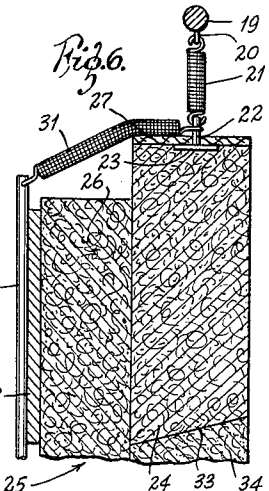
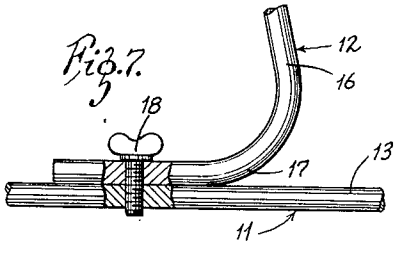


Fig. 7.



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ARCHERY TARGET

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This invention relates to an archery target and particularly to an archery target that will stop high speed arrows and that is long lasting and weatherproof.

In general, this target has a metal stand with somewhat flexible upright rods that support a target assembly. The target assembly includes front and back pads made of rubberized hair, straw, excelsior, or the like. The rubberized hair is more tightly compacted in the back pad than in the front pad. The front pad is suspended from the upright rods by springs. Other springs hold the back pad against the front pad. A heavy canvas sheet lines the rear face of the back pad.

Arrows shot at the target first strike the front pad and pass through to the back pad. The spaces between the hairs permit arrows to pass through the target, but the latex coating immediately retards an arrow entering the target. In addition, when the arrow strikes the front pad, the upright rods flex and the front pad mounting springs yield under the force of the arrow. After the arrow passes through the front pad and into the back pad its deceleration is even more pronounced because of the more tightly compacted rubberized hair and because of the resilient mounting of the back pad that further dampens the thrust of the arrow. Finally, the then slow moving arrow is stopped by the heavy canvas sheet.

One of the drawbacks in conventional archery targets is their inability to stop high speed arrows. These arrows pass through the target and continue in flight. Because of the potential damage the arrows can cause and because of possible damage to or loss of the arrows, the choice of placement of conventional targets is limited. This target, however, is capable of stopping the fastest arrows. It is, therefore, a principal object of this invention to provide an archery target that is resiliently suspended from a frame and that has an internal frictional substance to retard arrows passing through it, with a heavy, relatively impervious sheet on the back of the target to finally stop the arrows.

Another object is to provide an archery target that has a rubberized string-like pad toward which arrows are shot, wherein the rubber part of the pad provides a frictional stopping force upon arrows.

A further object of the invention is to provide an archery target that has a plurality of separate parts to be struck successively by an arrow, with each of the parts being separately resiliently mounted to dampen the thrust of an arrow.

Another object of the invention is to provide an archery target that is made of rubberized horse hair, hog's hair, straw, excelsior, or the like, whereby the body of the target is held in a compacted unit by the rubber part and the unit can be cut to appropriate size from a large block. A corollary object is to provide such a target wherein the central core part of the target or other part that is damaged by repeated striking of arrows can be cut out and replaced by a plug cut from a piece of the rubberized hair or the like.

Still another object of the invention is to provide an archery target that is supported by a stand made of flexible metal tubing to further dampen the thrust of arrows fired at the target and also to provide an archery target that is supported by a stand that can be readily disassembled.

Other objects and advantages will be apparent to those skilled in the art.

FIGURE 1 is a side elevation view of the archery target;

FIGURE 2 is a front elevation view of the archery target taken along the line 2—2 of FIGURE 1;

FIGURE 3 is a rear elevation view of the archery target taken along the line 3—3 of FIGURE 1;

FIGURE 4 is a plan view of the base of the stand taken along the line 4—4 of FIGURE 1;

FIGURE 5 is a side elevation view in section of the target taken along the line 5—5 of FIGURE 2;

FIGURE 6 is a view in section taken along the line 6—6 of FIGURE 2 and drawn on an enlarged scale; and

FIGURE 7 is an enlarged fragmentary view, partly in section, showing the connection between the base portion of the stand and the upright portion of the stand.

Referring now to the drawing, the target has a stand 10 with a base 11 and an upright 12. The stand 10 may have a variety of constructions, but the one illustrated is desirable from the standpoint of ready disassembly.

The base of the stand comprises a pair of horizontal metal rods 13, the ends of which are bent downwardly to provide feet 14. For stabilization, a pair of cross rods 15 are welded or otherwise attached to each of the horizontal rods 13.

The upright 12 comprises a pair of rods 16 having bent lower ends 17. These lower ends 17 are fastened to the horizontal base rods 13 by wing bolts 18. Above the base 11, the rods 16 are slightly inclined to the vertical so that the bends adjacent the lower ends 17 define acute angles. The rods 16, as well as other parts of the frame, are made of ⅜ inch iron rod, and are, therefore, flexible, especially at the bent parts adjacent the lower ends 17.

Between the rods 16, another rod 19 is formed to circular shape. This circular rod 19 is welded to the upper ends of the upright rods 16.

The circular rod has a plurality of hooks 20, preferably four in number and equally spaced, depending inwardly from it. An end of a coil spring 21 is attached to each hook 20. The other end of each spring is attached to another hook 22 having a plate 23 that is confined by the main section 24 of a target assembly 25.

The target assembly 25 generally has a main section 24 and a rearward section 26. Both of these sections are made of rubberized hair, such as hog's hair, horse hair, etc., or they may be made of rubberized straw, rubberized cellulose or other string-like matter suspended within a self-sustaining rubber pad. An example of a target composition is a combination of forty percent hog's hair, thirty percent horse hair and thirty percent cow's hair, sprayed with neoprene latex paint. Otherwise, these pads of rubberized strands are made by any conventional molding process. The rearward section 26 differs from the forward section 24 in being more compact to thereby provide a greater stopping force against the thrust of arrows.

The forward section 24 has a burlap ring 27 about its outer edge. The hooks 22 extend through the burlap, but the burlap retains the plates 23 to keep the hooks 22 in place.

There is a thick canvas sheet 28 across the back surface of the second target section 26. This canvas sheet is of about the same thickness as canvas belting and is sufficiently impervious to stop arrows that pass through the sections 24 and 26. The canvas sheet 28 is glued to the rear face of the second target section 26.

A pair of rods 29 are crossed and pressed against the exposed surface of the canvas sheet 28. These rods may be, but need not be, connected together at their centers by a rivet 30. The rods 29 are of light gauge metal so arrows will not hit them. A coil spring 31 is connected

at one end to each end of a rod 29. The other end of each coil spring 31 is connected to a hook 22. These coil springs yieldably press the second target section 26 against the back of the main target section 24.

From the foregoing description, it is apparent that there are a number of forces applied to arrows to stop them. An arrow first strikes the main target section. As it does so, the upright rods 16 flex somewhat, bending rearwardly (to the left as viewed in FIGURE 1), and the springs 21 elongate, allowing the target assembly 25 to shift rearwardly under the impact of the arrow. At the same time, the rubber constituent of the pad 24 applies a frictional stopping force to the arrow as it passes through the target section 24.

When the arrow enters the second target section 26, that target section is allowed, by the springs 31, to move rearwardly of the first target section, thus applying additional dampening to the thrust of the arrow. In passing through the second target section 26, the arrow is more rapidly decelerated because of the more compact composition of the second target section 26.

The arrow finally strikes the canvas sheet 28 and is stopped.

One of the advantages of this target is that the target sections 24 and 26 are self-sustaining and parts of them can be cut away and replaced by a plug. For example, the center of the target illustrated is assumed to have been hit so often by arrows as to have finally been damaged. This center has been cut away, leaving an opening 33. A plug 34, cut from a separate pad included with the target for the purpose, fills the hole 33. Thus, damaged parts of the target can be repaired easily and a new target need not be bought.

Another advantage of this target is its light weight. A target assembly 25 of about four feet in diameter weighs only about twelve pounds compared to about fifty-eight pounds for conventional straw targets.

This target can be disassembled for shipment and for transport by the owner. The upright section 12 of the frame is removed from the base 11 by simply removing the wing bolts 18. The target assembly is removed from the frame by unhooking the springs 21. The second target section 26 is removed from the main target section 24 by unhooking the springs 31. Reassembly is correspondingly easy, and when the target is assembled, it is attractive enough to complement the landscape of any residence.

This target is weatherproof. It need not be brought in during inclement weather and can be used immediately following precipitation. It does not become water-logged as do conventional straw targets.

Various changes and modifications may be made within the process of this invention as will be readily apparent to those skilled in the art. Such changes and modifications are within the scope and teaching of this invention as defined by the claims appended hereto.

What is claimed is:

1. An archery target comprising first and second pads, each of said pads being comprised of substantially the same rubberized composition having a plurality of hair-like strands randomly suspended in situ therein, said hair-like strands consisting of at least one member of the group consisting of cow hair, horse hair and hog hair, the composition being self-sustaining, said second pad being under relatively greater compression than said first pad, said first pad having a removable centrally located core having a composition essentially the same as said first and second pads.

2. An archery target comprising a frame having a base portion adapted to rest flat upon the ground and an upright portion, means for releasably attaching the upright portion to the base portion, a target assembly, yieldable means for suspending the target assembly in spaced relation from the upright portion of the frame, the target assembly comprising a plurality of units, said units being each comprised of a rubberized pad composition having a plurality of hair-like strands imbedded in situ in said rubberized composition, elastic means for compressing the second pad against the back of the first, said elastic means extending across the rear of the second pad and compressing the second pad against the first pad while leaving the first pad relatively uncompressed, and said first pad having a replaceable rearwardly tapering center core.

References Cited in the file of this patent

UNITED STATES PATENTS

225,734	Tangeman	Mar. 23, 1880
1,837,627	Mead et al.	Dec. 22, 1931
2,722,420	Adamson	Nov. 1, 1955
3,048,401	Dishon	Aug. 7, 1962

FOREIGN PATENTS

5,295	Great Britain	1886
696,139	Great Britain	Aug. 26, 1953