

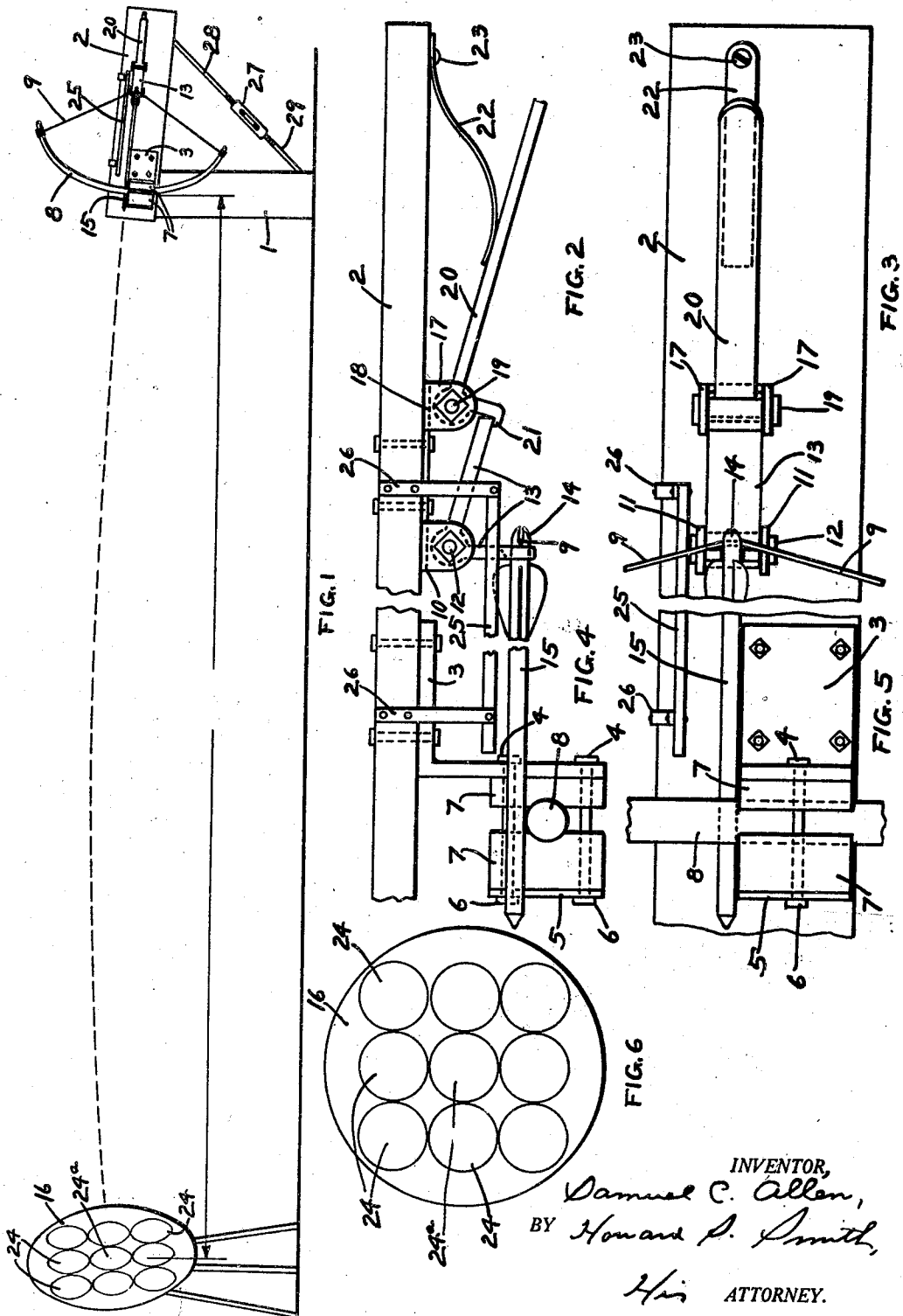
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ARROW TESTING DEVICE

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UNITED STATES PATENT OFFICE

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ARROW TESTING DEVICE

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This invention relates to new and useful improvements in arrow test devices.

It is one of the principal objects of my invention to provide a device or machine from which arrows may be shot at a target for the purpose of testing them. Those arrows which alight in the same circle are grouped in a set, thereby making the arrows of each set uniform. The best arrows are those that enter the center circle, and the excellence of the others is in proportion to the proximity of their alighting points to the center of the target. Thus, the arrows tested by my device are selected from the pattern which they make on the target.

My arrow testing device is simple in construction and may be conveniently set up before a target within or outside of a building.

In the accompanying drawings illustrating my invention, Figure 1 is a side view of my arrow testing device set up a predetermined distance from a target which is shown in perspective. Figure 2 is a top view of the trigger mechanism for releasing the arrow in the drawn bow shown in Figure 1. Figure 3 is a side view of the same. Figure 4 is a top view of the bow holding means. Figure 5 is a side view of the same. And Figure 6 is a face view of the target, showing the grading circles therein.

Referring to the accompanying drawings for a detailed description of the form of embodiment of my invention illustrated therein, the numeral 1 designates a standard to the upper portion of which there is secured the front end of a slightly inclined flat supporting member 2. The latter is disposed in a vertical plane, and to its front side there is bolted an angle plate 3.

Attached to the outwardly projecting part of the angle plate 3 are two bolts 4, 4 which project in the same direction as the supporting member 2. Slidably mounted on the outer threaded ends of these bolts 4, 4 is a plate 5 which is held on them by nuts 6, 6.

Slidably mounted on the bolts 4, 4 between the angle plate 3 and the nuts 6, 6, are two clamping members such as the rubber blocks 7, 7. These blocks or pads 7, 7 are adapted

to firmly grip between them the middle part of a bow 8 to whose ends a string 9 is connected. This string 9 is adapted to be drawn back to the position shown in Figure 1, where it will be held by a finger mechanism now to be described.

Referring to Figures 4 and 5, there is secured to the inclined member 2 at the place to which the middle portion of the bow string 9 is drawn, a bracket 10 having two ears 11, 11 which act as a support for a pivot bolt 12. Mounted on this bolt is a preferably flat bell crank lever 13. The latter has a bifurcated front end to receive the nock 14 of an arrow 15 whose front portion is above the angle plate 3 ready to be shot at a target 16 hereinafter to be described.

The bifurcated end of the lever 13 in its right angled position shown in Figures 2 and 3, is in front of the drawn string 9 to restrain it from sending the arrow toward the target until released by the trigger mechanism now to be described.

Secured between the ears 17, 17 of a bracket 18 is a pivot bolt 19 on which there is mounted a right angled trigger member 20. The front end of this member terminates in a hook portion 21 that is adapted to engage the rear end of the bell crank lever 13 to restrain its outward movement when the bow 8 is deformed. The trigger member 20 is held in this position by a resilient member such as the flat spring 22 which is secured at its rear end to the supporting member 2 by a screw 23. (See Figures 2 and 3).

When the rear end of the trigger member 20 is pressed inwardly by the fingers, its hook portion 21 will release the rear end of the bell crank lever 13, whereupon the front end of the latter will no longer oppose the straightening of the drawn string. The arrow will now be shot toward the target 16 upon whose face there is a group of circles 24, the center one being designated by the numeral 24^a.

The middle circle 24^a has as its center the center of the circle. All arrows which alight in it are grouped in one set as those of superior quality. Those entering the other circles are grouped together, their proficiency

being determined by the proximity to the center of the circle in which they alight. Thus, with my device, it is possible to make a flight test of an arrow by shooting it from the fixed
5 or stationary bow, at a target showing group circles for classifying it.

In order to prevent the string 9 from whipping the arrow when the latter is shot from the bow, I provide a string guide in the form
10 of a rod 25 which is secured to the supporting member 2 above the angle plate 3 by overhanging arms 26, 26 attached to the top of said member. This guide rod 25, which is adapted to be engaged by the string 9 when the
15 latter is released by the trigger, restrains any inward movement of the string that would have a tendency to whip or swerve the arrow from its true course.

The supporting member 2 is pivotably secured to the standard 1 so that its projectory
20 angle may be minutely adjusted by a turnbuckle 27 which receives the ends of rods 28 and 29 connected respectively to the supporting member 2 and standard 1. (See Figure 1.)
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Having described my invention, I claim:

1. An arrow flight-testing device comprising a horizontal fixed member, a bow, means
for securing the middle portion of the bow to said member, a string connected at the ends
30 of the bow, a bell crank lever pivoted to said member, one end of said lever being bifurcated to receive an arrow and to engage the string when drawn back by the latter, and a
25 trigger lever also pivoted to said member, the front end of said trigger member formed to hook shape to engage the free end of the bell crank lever for the purpose specified.

2. An arrow flight-testing device comprising a fixed bow support, a bow secured thereto, a string connected at the ends of said bow, means for holding said string in its drawn
40 position and for releasing the same, and a guide rod secured lengthwise to said support and between it and the string for the purpose specified.
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In testimony whereof I have hereunto set my hand this 13th day of April, 1928.

SAMUEL C. ALLEN.

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