March 6, 1945. A. M. DRITZ 2,370,783

TOY BOW AND ARROW

Filed Oct. 8, 1942 2 Sheets-Sheet 1

Fig. 1.

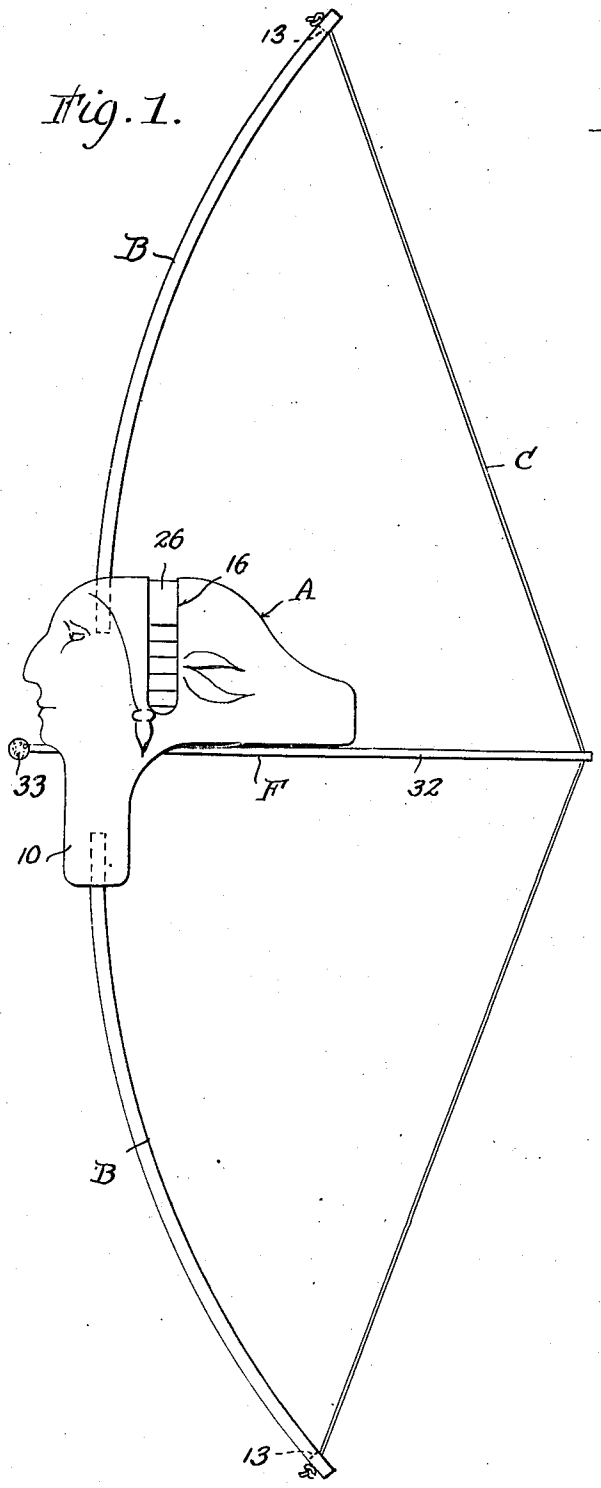
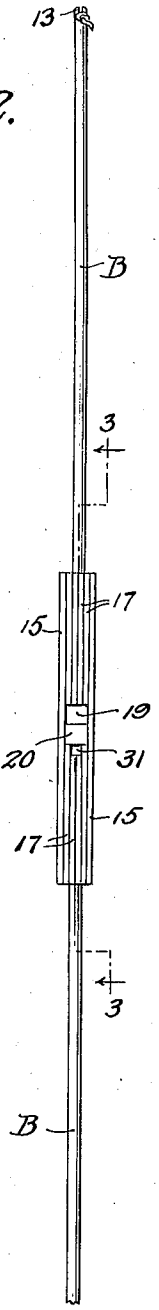


Fig. 2.



INVENTOR.
Arthur M. Dritz
BY
Clark & Ott
ATTORNEYS

March 6, 1945. A. M. DRITZ 2,370,783

TOY BOW AND ARROW

Filed Oct. 8, 1942 2 Sheets-Sheet 2

Fig. 3.

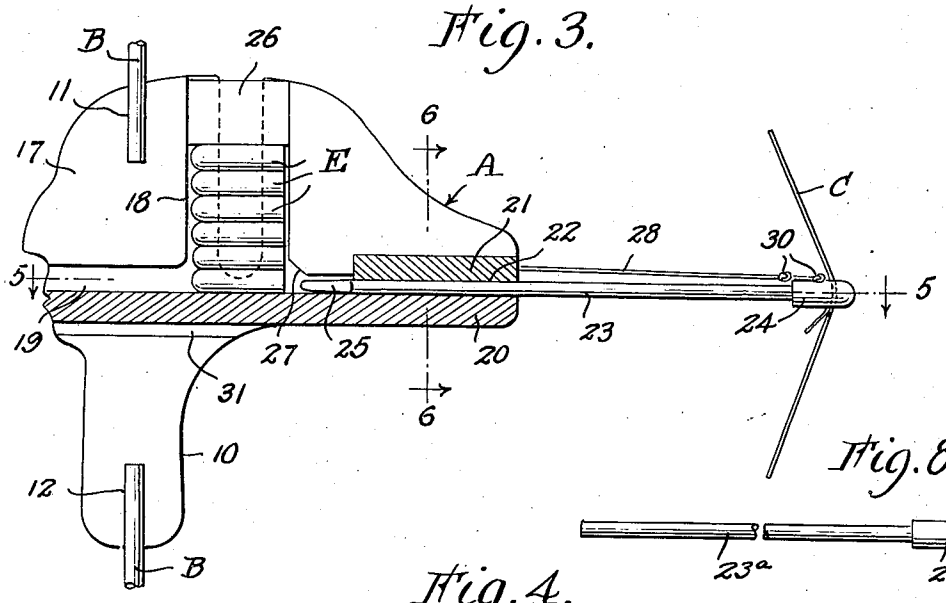


Fig. 8.

Fig. 4.

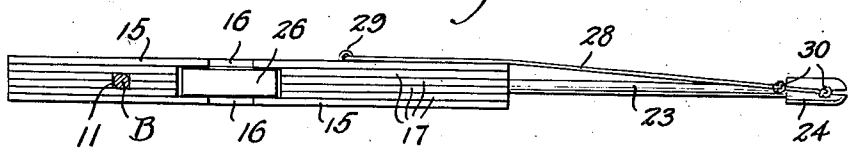


Fig. 5.

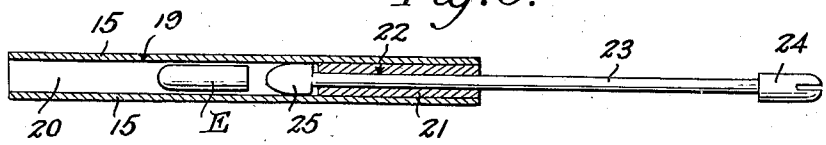


Fig. 6.

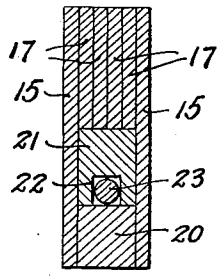
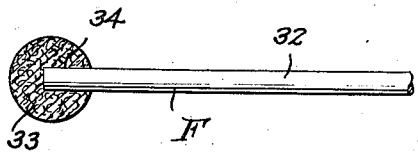


Fig. 7.



INVENTOR.
Arthur M. Dritz
BY
Clark & Ott
ATTORNEYS

Patented Mar. 6, 1945 2,370,783

UNITED STATES PATENT OFFICE

2,370,783

TOY BOW AND ARROW

Arthur M. Dritz, Brooklyn, N. Y.

Application October 8, 1942, Serial No. 461,289

2 Claims. (Cl. 124—24)

This invention relates to toy bows and projectiles used in connection therewith and the invention is more particularly concerned with an improved toy bow which is so constructed and arranged as to permit of the use of the same for shooting arrows, elongated cylindrical objects or other equivalent projectiles.

The invention also comprehends a toy bow structure which is preferably made up of a center-piece and a pair of detachably associated bow end sections to permit the parts thereof to be readily assembled for use or separated in order to reduce the over all size thereof to facilitate the packing, shipping, carrying or storage of the same, while also permitting the end sections when associated with the center-piece to be turned with reference thereto for the purpose of properly centering the bow-string with reference to the opening in the center-piece which receives the arrow or projectile plunger and to further allow by the turning of said end sections, the disposition of the grain of said bow sections if made of wood, in the best position for obtaining the greatest resiliency.

The invention further resides in a toy bow structure of the indicated character in which the center-piece is made up of a plurality of laminations of a combination of paper or fibre board and wood which facilitates the production and fabrication of the same and reduces the cost of manufacture.

As a still further feature, the invention contemplates a plunger type bow in which means is provided for permitting of and limiting the extent of movement of the plunger to regulate the power of the bow, and which means is adjustable.

As a still further object, the invention resides in the provision of a toy arrow which is formed with an improved safety tip spun or otherwise fashioned of a soft yieldable absorbent material so as to prevent injury to persons or damage to property and which at the same time may be impregnated with a colored marking substance such as a powder for registering a mark on a target.

With the above enumerated and other objects in view, the invention is set forth in greater detail in the following specification and illustrated in the accompanying drawings in which:

Fig. 1 is a side view of a bow constructed in accordance with the preferred form of the invention and illustrating the same employed for shooting an arrow.

Fig. 2 is a front view thereof with the arrow removed.

Fig. 3 is an enlarged fragmentary vertical sectional view taken approximately on the line 3—3 of Fig. 2 and illustrating the bow employed for shooting cylindrical objects.

Fig. 4 is a plan view of the bow as shown in Fig. 3.

Fig. 5 is a horizontal sectional view taken approximately on the line 5—5 of Fig. 3.

Fig. 6 is a vertical transverse sectional taken approximately on the line 6—6 of Fig. 3, the same being shown on a larger scale.

Fig. 7 is an enlarged fragmentary side view of the arrow with the tip shown in section.

Fig. 8 is a side view of a modified form of projectile projecting plunger.

Referring to the drawings by characters of reference, the toy bow consists generally of a center-piece A, a pair of yieldable resilient ends B and a bow-string C.

The center-piece A, which may be of any desired ornamental configuration, is preferably designed, as shown, in the form of a generally rectangular block-like body having a depending handle or hand grip portion 10 and said body is formed with an upper substantially vertical socket 11 opening through the upper edge thereof and the handle portion is formed with a similar socket 12 opening through the lower end thereof. The bow ends B, which are preferably made of wood such as a length of dowel pin stock, are fitted at their inner ends in the sockets 11 and 12 respectively so as to extend upwardly and downwardly from the center-piece A. Preferably they are removably associated with the center-piece so that they may be readily disassembled therefrom to reduce the over all size of the bow to facilitate the packing, shipping, carrying or storage of the same. It should however be understood that, within the scope of the invention, the bow ends may be permanently secured within the sockets 11 and 12 if the detachable feature is not desired. As shown the outer extremity of each bow end B is formed with a notch or opening 13 with which the opposite terminals of the bow-string C are engaged and secured for bending the bow and placing the same under tension in the usual manner.

The center-piece A is preferably made up of a plurality of plies or laminations of paper or fibre board and includes two outermost plies or laminations 15, 15 of identical configuration, each of which is formed with a substantially vertical notch 16 opening through the upper edge thereof,

with the notch of one of said plies registering with that of the other and utilized for a purpose to be hereafter set forth.

The intermediate plies or laminations 17 are cut out at certain areas thereof to define the sockets 12 and to provide a vertical magazine chamber 18 and a horizontal passage 19 extending fore and aft and completely through the body of the center-piece A, with the magazine chamber communicating at its lower end with the medial portion of the passage 19 and extending upwardly therefrom and opening through the upper edge of the center-piece body. A lower reenforcing strip 20, preferably of wood extends completely throughout the length of the passage 19 at the lower portion thereof and an upper reenforcing strip 21 is superimposed upon the strip 20 at the rear portion thereof and is formed on its under face with a guide groove 22. The upper reenforcing strip 21 extends from the rear end of the lower strip and has its forward end terminating in spaced relation to the magazine chamber. The notches 16 are located at and are of a lesser width than the fore and aft size of the magazine chamber 18 and serve as means to facilitate the positioning of cylindrical projectiles E in the magazine chamber in stacked relation arranged on their sides, while serving to display the number of projectiles in the magazine. The plies 15, 15 and 17 and the wood reenforcing strips 20 and 21 may be secured together in assembled relation in any desired manner such as by an adhesive or by any equivalent means.

A plunger 23 is slidably mounted in the guide groove 22 of the upper strip 21 and protrudes rearwardly from the rear edge of the center-piece A. The rear end of the plunger is formed with an enlarged notched head 24 which is engaged by the bow-string C. The plunger is formed with an enlarged forward terminal 25 which is adapted to forcibly strike the lowermost projectile E and project the same through the forward portion of the passage 19 which serves as a barrel to guide said projectile. After the lowermost projectile of the stack has been projected and the plunger withdrawn, the remaining projectiles in the stack will move downwardly by gravity and the weight of the block 26 which is superimposed upon the stack and which also functions to preclude the upward displacement of the stack under the impact of the plunger 23 as it is driven forward by the force of the bow when tensioned and released. It will thus be understood that the downward movement of the projectiles E will successively feed the lowermost one of the stack into the path of movement of the plunger until the stack is depleted. In order to prevent canting or cocking of the projectiles in the magazine chamber and to thereby insure proper feeding of the same, a chamfer 27 is provided at the juncture of the rear wall of the magazine chamber with the upper wall of the passage 19.

In order to adjustably limit the extent of rearward movement of the plunger 23 and thereby regulate the power of the bow in effecting the projection of the projectiles E, an inextensible flexible element or cord 28 is anchored at one end to a staple 29 driven into one side of the center-piece A and said cord is provided at its opposite end with a series of knots 30 which are adapted to be selectively engaged with the notched head 24 of the plunger.

The intermediate plies or laminations 17 at the juncture of the handle portion 10 with the main body portion of the center-piece A are also cut away and spaced from the under side of the lower strip 20 to define a horizontally extending fore and aft guide opening 31 disposed at the transverse center of the center-piece to serve as a guide for the shafts 32 of arrows F which may be shot from the bow in lieu of the projectiles E.

The shaft 32 of each arrow F is provided with a spherical tip 33 of soft yieldable absorbent material such as cotton or a similar fibrous material which is spun on a mandrel to provide an opening 34 of a size to snugly fit over the forward end of the arrow shaft 32 and which tips are preferably secured in place thereon by an adhesive. The tips 33 may be and preferably are impregnated with a target marking substance such as a powder and the tips of certain arrows may be impregnated with a powder of a distinguishing color from that of other arrows to identify the archers.

Where the cord 28 is employed for limiting the rearward movement of the plunger, the plunger head at the forward end thereof may be eliminated and a plunger 23a such as shown in Fig. 8 may be utilized. In such case it is apparent that the plunger 23a may be readily removed from the guide groove 22 so that the passage 19 and guide groove 22 may be alternatively used for shooting arrows therethrough.

What is claimed is:

1. In a toy bow including a rigid center-piece, a pair of resilient aligned end pieces carried by and respectively extending outwardly in opposite directions from the upper and lower edges of the center-piece and a bow-string connecting the outermost ends of said end pieces, said center-piece comprising a pair of outer and a plurality of intermediate plies of fiberboard, the latter being cut away to respectively provide a horizontal passage extending completely therethrough from front to rear thereof and a vertical projectile magazine chamber communicating with and extending upwardly from said passage, a lower wooden reenforcing strip extending throughout the length of the lower portion of the passage, an upper wooden reenforcing strip superimposed upon the lower strip and extending from the rear of the upper portion of said passage and terminating in rear of the magazine chamber, said upper strip having a grooved lower face defining a guideway, and a plunger mounted in said guideway for axial movement and engaged at its rear end by the bow-string.

2. In a toy bow as set forth in claim 1 in which the intermediate plies of the center-piece is further cut away to provide a second horizontal passage parallel with the first passage and adapted to serve as a guide for an arrow shaft to be optionally used with the bow.

ARTHUR M. DRITZ.