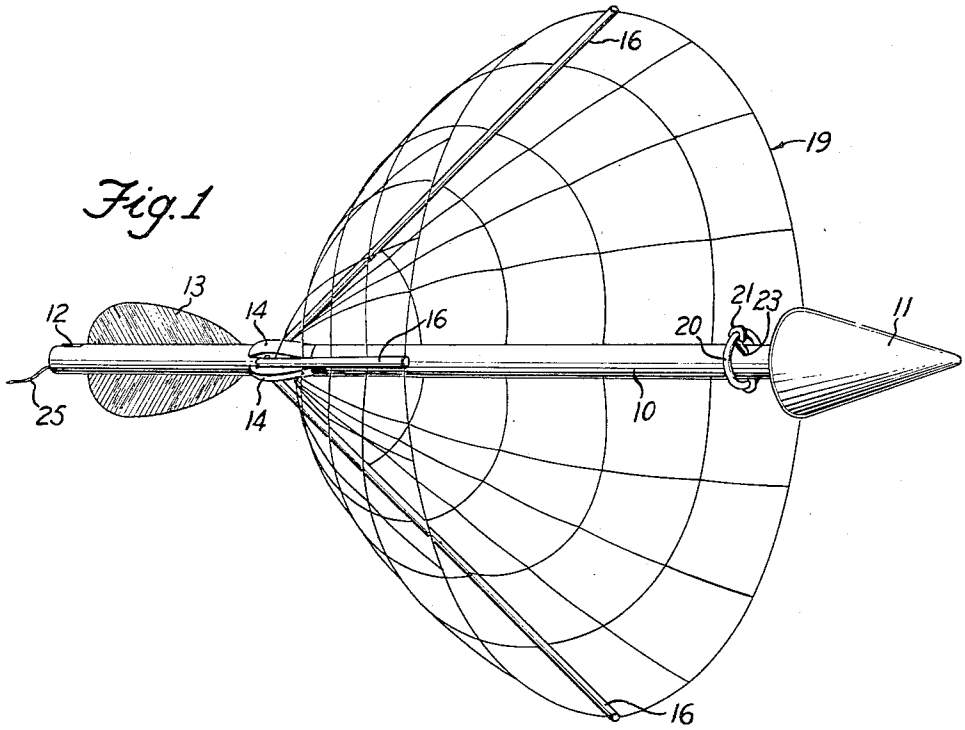
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HUMANE HUNTING ARROW

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Fig. 1



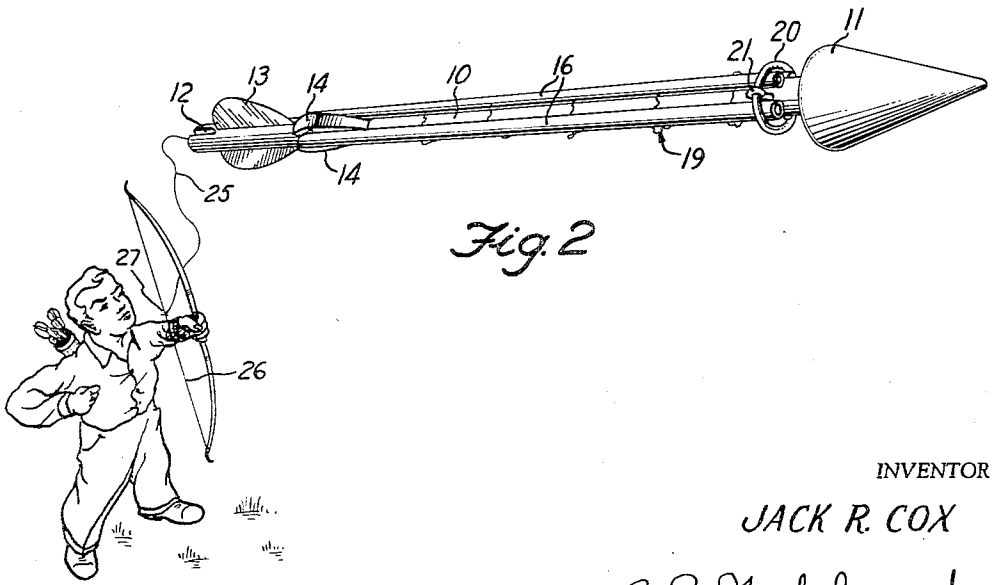


Fig. 2

INVENTOR

JACK R. COX

BY B. P. Fishburne, Jr.

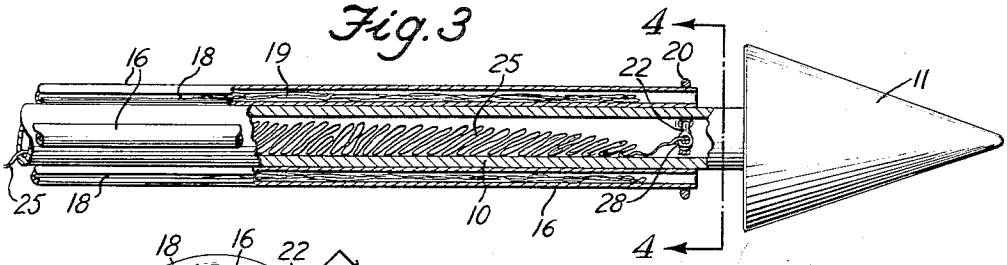
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Fig. 3



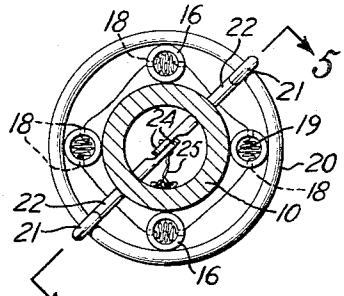


Fig. 4

Fig. 5

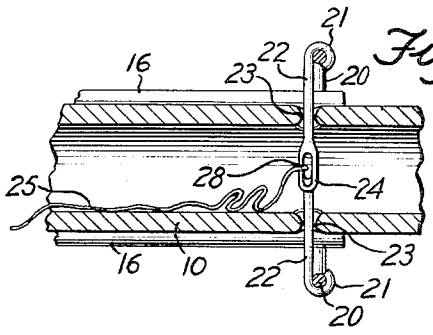


Fig. 8

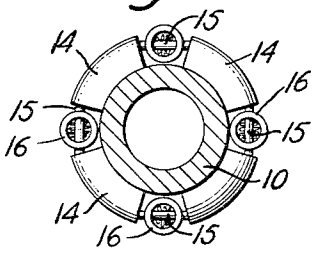
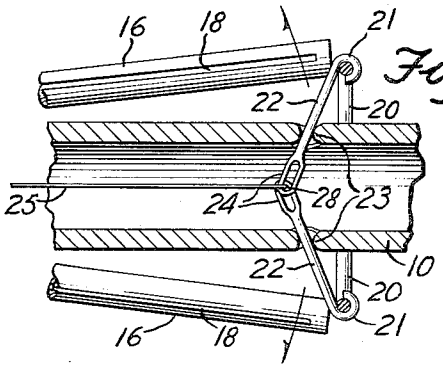


Fig. 6



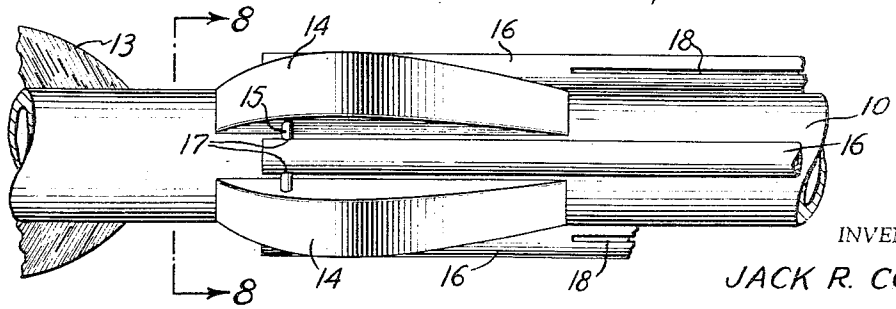


Fig. 7

INVENTOR

JACK R. COX

BY B. P. Fishburne, Jr.

ATTORNEY

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HUMANE HUNTING ARROW

Jack R. Cox, Myrtle Beach, S. C.

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5 Claims. (Cl. 43—1)

The present invention relates to a humane hunting projectile or arrow.

A primary object of the invention is to provide an arrow-like projectile for hunting birds, which projectile may be shot with a conventional bow, and constructed so as not to kill the bird upon impact, but rather to snare or entangle its wings and ground the bird, so that the bird will become an easy prey for a retriever or hunter.

A further object of the invention is to provide a humane arrow for hunting quail, pheasant, ducks and the like, and including a net device for entangling the wings of the flying bird, together with means for triggering the net device to open it while the projectile is in flight.

A further object of the invention is to provide an arrow-like projectile of the above-mentioned character which may be retrieved and reused.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective view of the humane arrow in flight and showing the net in open position.

Figure 2 is a further perspective view of the arrow in flight, before the trigger string has effected the opening of the net.

Figure 3 is an enlarged fragmentary central vertical section through the arrow with the net in collapsed position, parts in elevation.

Figure 4 is an enlarged transverse vertical section taken on line 4—4 of Figure 3.

Figure 5 is a further fragmentary cross section taken on line 5—5 of Figure 4.

Figure 6 is a further sectional view similar to Figure 5 and illustrating the release of the net ribs by the trigger string and associated elements.

Figure 7 is an enlarged fragmentary side elevation of the rear portion of the arrow.

Figure 8 is a transverse vertical section taken on line 8—8 of Figure 7.

In the drawings wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates the shaft of the arrow, which is tubular. The tubular shaft 10 has rigidly secured to its forward end a rather large and blunt conical arrowhead 11, which is preferably relatively heavy and formed of hard rubber or the like. The tubular shaft 10 is provided at its rear end with the usual nock 12 to receive the bow string, and the arrow may be suitably feathered in any desired manner as indicated at 13.

Near and forwardly of the feathers 13, a plurality of elongated forwardly tapering ring segments 14 are suitably rigidly secured to the arrow shaft 10. The segments 14 surround the arrow shaft in circumferentially equidistantly spaced relation, as shown in Figure 8. The tapered segments 14 are interconnected by pin elements 15, preferably rigid therewith, and these pin elements are disposed near the rear ends of the segments 14 as shown

in Figure 7. The forward ends of the tapered segments 14 fair smoothly into the shaft 10 so as not to deflect the flight of the arrow as it is leaving the bow.

A plurality of tubular net arms or ribs 16, preferably four in number, extend longitudinally of the arrow shaft 10, throughout the major portion of its length, Figure 2. The rear ends of the tubular ribs 16 are pivotally secured to the pin elements 15 as indicated at 17 in Figure 7. The forward ends of the tubular ribs 16 terminate near and rearwardly of the arrowhead 11 when the ribs are parallel to the shaft 10. As shown in the drawings, the tubular ribs 16 are adapted to contact the tubular shaft 10 when arranged parallel thereto in circumferentially equidistantly spaced relation, Figures 2 and 8.

Each tubular rib 16 is provided throughout substantially its entire length with a pair of diametrically opposed longitudinal slots 18, formed through the side walls of the rib. An extremely light umbrella-like net 19 of fine nylon thread or the like is provided, and this net has a large open mesh construction, so as to afford a minimum resistance to the flight of the arrow through the air when open. The material of the net, however, is quite strong so that the net will be capable of entangling the wings of the flying bird without breaking. The net 19 is forwardly open when released or expanded as shown in Figure 1.

When in the collapsed or folded position, the net 19 is adapted to be substantially contained within the tubular ribs 16. As best shown in Figure 4, sections or portions of the net 19 are folded and stored within the tubular ribs 16, and the net extends through the pairs of slots 18 of each tubular rib 16 in a continuous manner as indicated in Figure 4. When the net 19 is opened by trigger means to be described, the thin net 19 is pulled from the slots 18 of the tubular ribs and is readily opened in generally umbrella-like fashion, as clearly shown in Figure 1, the open side of the net facing forwardly.

Means are provided to secure the net in the collapsed or closed condition, and to release the same so that it may open while the arrow is in flight. This means comprises a latch ring 20, loosely surrounding the shaft 10 near and rearwardly of the arrowhead 11. The ring 20 has pivoted to it at 21 a pair of diametrically extending actuating arms 22, which extend inwardly radially through rounded openings 23, formed through the side wall of the arrow shaft 10. Within the bore of the shaft 10, the arms 22 have eyes 24 formed thereon, for attachment to a trigger string 25 of desired length. The trigger string 25 is stored within the bore of the arrow shaft 10, as clearly shown in Figure 3. The length of the trigger string 25 determines the point at which the net 19 will be opened while the arrow is in flight, and while the length of the trigger string may be varied somewhat as found desirable, I contemplate making the same from forty to fifty yards long. The trigger string 25 is preferably formed of light thread-like material which may readily break under tension, although strong enough to pull the arms 22 from their positions of Figure 5 to those of Figure 6, before breaking. The trailing end of the trigger string 25 is attached to the bow string 26, Figure 2, by a clip or the like, as indicated at 27. The trigger string 25 remains attached to the bow string until removed therefrom to ready the bow for another arrow. The forward end of the trigger string 25 is connected with both of the eyes 24 as shown at 28.

The use or operation of the humane arrow is as follows:

With the net 19 in the collapsed condition, the trailing end of the trigger string 25 is secured to the bow string 26. The latch ring 20 is in the position shown in Figure 5 for retaining the net ribs 16 parallel to the shaft 10. The trigger string 25 is at this time stored within the

bore of the shaft **10**, and the arrow is ready for use with a conventional hunter's bow.

When the hunter observes a flying bird within reasonable range, say seventy yards, the arrow is shot through the air in the usual manner, and when the trigger string **25** is fully withdrawn from the tubular shaft **10**, it is tensioned and pulls the arms **22** rearwardly, as indicated in Figure 6. When this occurs, the arms **22** will react against the openings **23**, and shift the latch ring **20** forwardly on the shaft **10**, and this releases the forward extremities of the ribs **16** from the latch ring **20**, as shown in Figure 6. As soon as the trigger string **25** has performed its function of shifting the arms **22** to their positions of Figure 6, the trigger string will break under tension, so that the arrow may continue its flight toward the bird. The string **25** is very light, and consequently will not materially deflect the course of the arrow, and the rather heavy arrowhead **11** will tend to maintain the arrow on straight flight toward the bird.

When the ribs **16** are released from the ring **20**, the net **19** will immediately open in umbrella-like fashion, due to the action of the air within it, but the net will actually offer relatively little resistance to the flight of the arrow due to its lightness and its extreme open mesh construction.

The arrow, with the net **19** in fully opened condition, will now continue toward the bird until striking the same, and the blunt arrowhead **11** upon impact will not penetrate the bird or kill it, but will merely tend to stun the bird and turn it sidewise from its direction of flight, so that the wings of the bird will become entangled within the net **19**. The bird will now be unable to fly and will fall to the earth with the arrow. This will render the bird, such as a duck, quail, pheasant, or the like, an easy prey for a retriever or an anxious hunter.

The use of this humane arrow not only prevents the killing of wildlife in the usual manner but renders the hunt more enjoyable and intriguing. With practice, the hunter will be able to net the birds in flight and cause them to fall to the earth substantially uninjured where they may be readily captured and disposed of as desired.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention of the scope of the subjoined claims.

Having thus described the invention, I claim:

1. A humane hunting projectile comprising an arrow shaft, a plurality of ribs having corresponding ends pivotally connected with the arrow shaft near one end of the latter and adapted to lie substantially parallel to the arrow shaft and to have their forward ends swung outwardly from the arrow shaft, a net connected with said ribs and shiftable therewith from a collapsed to an open position, means to releasably secure said ribs and net in collapsed position close to said arrow shaft, and means operable during the flight of the projectile to release the last-named means so that said ribs and net may shift to the open position.

2. A humane hunting arrow comprising a tubular shaft, a plurality of ribs having corresponding ends pivotally

secured to said shaft near the trailing end of the shaft, said ribs adapted to lie substantially parallel to the shaft in substantially contacting relation therewith and to have their forward ends swing outwardly from the shaft, a forwardly open umbrella-like net connected with said ribs and shiftable therewith from a collapsed position upon said shaft to an open position, movable means connected with said ribs to releasably hold them with said net in the collapsed position, and a flexible element contained within the bore of the tubular shaft and connected with said movable means to actuate the same for releasing said ribs while the hunting arrow is in flight.

3. A humane hunting arrow comprising a tubular arrow shaft, a relatively heavy blunt arrowhead secured to said shaft, a plurality of tubular ribs having corresponding ends pivotally connected to the shaft near the rear end of the latter, said ribs having longitudinal slots formed therethrough, a net extending through the slots of the ribs and adapted to be partly contained within the bores of the tubular ribs when the net and ribs are folded upon the arrow shaft, releasable latch means for the ribs near the forward end of the arrow shaft to hold the ribs with said net in collapsed position, and a flexible element of substantial length contained within the bore of said tubular shaft and connected with said latch means to actuate the same for releasing the ribs while the arrow is in flight, said flexible element adapted for attachment to the string of the bow used by the hunter for propelling said arrow.

4. A humane hunting arrow comprising a tubular arrow shaft, ribs extending longitudinally of the arrow shaft externally thereof and having corresponding ends pivoted to the arrow shaft near the rear end of the latter, the forward ends of said ribs being freely disposed, an umbrella-like net connected with said ribs to be opened when the ribs swing outwardly from the arrow shaft, a ring engageable over the forward ends of said ribs to releasably hold the ribs collapsed upon said arrow shaft, said shaft having side openings formed therethrough near said ring, actuating arms extending movably through said side openings and pivoted to said ring, and a flexible element connected with said arms inside of the tubular arrow shaft and being of substantial length and adapted for attachment to the string of a bow used to propel the arrow, whereby the flexible element may pull said actuating arms in a direction to release said ribs while the arrow is in flight.

5. A humane hunting projectile comprising an arrow shaft, a plurality of spaced ribs extending longitudinally of the arrow shaft and having their rear ends pivotally mounted upon the arrow shaft so that their forward ends are free to swing laterally from the arrow shaft, a flexible net connected with said ribs and movable with them, a ring surrounding the arrow shaft and adapted to receive the forward ends of the ribs to hold the ribs in the closed position, and means to move the ring forwardly out of engagement with the forward ends of said ribs.

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