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FLUID INJECTING GAME HUNTER'S ARROW

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Fig. 1

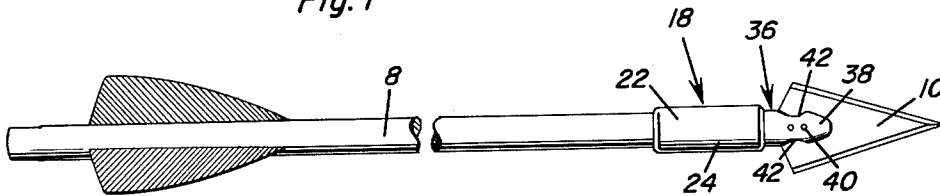


Fig. 2

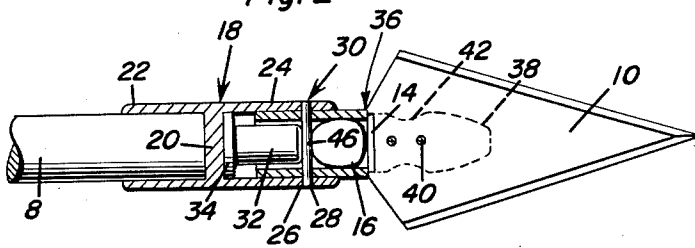


Fig. 4

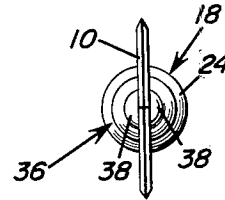


Fig. 3

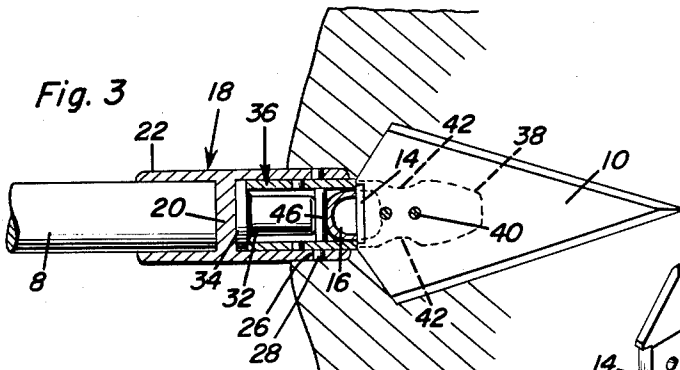


Fig. 6

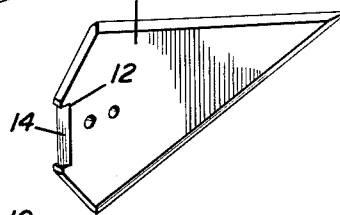
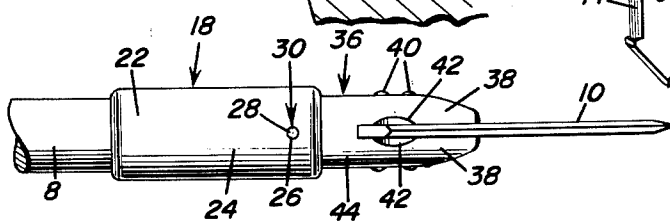


Fig. 5

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## FLUID INJECTING GAME HUNTER'S ARROW

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5 Claims. (Cl. 273-106.5)

This invention relates to a game hunter's broadhead arrow which is improved in that it functions to effectively inject a tranquilizing fluid into the hunted animal's body, results in internal hemorrhage, loss of consciousness and thus prevents the animal from running off, especially when not hit in a vital place, and dying.

It is a matter of common knowledge that it is not new to provide darts, projectiles, and hunting arrows with an injection fluid which is responsive upon impact of the leading end of the arrow with its target. It follows that the instant invention is not predicated on an arrow construction which may be regarded as new in the broad sense of the word. On the other hand, the improvement has to do with an injection type arrow wherein the striking force generated by impact with a hunted animal's body results in the intended injection, the means for accomplishing the result embodying a shaft which is conventional in type, a broadhead of regulation size and weight, and an operating connection which joins the leading end of the shaft to the trailing end of the broadhead and which contains and dispenses the injection fluid.

In carrying out the principles of the instant invention the aforementioned operating connection contains and confines a normally intact but rupturable capsule or pellet which holds the tranquilizing or other injection fluid. Impact and force actuated means is embodied in the operating connection for crushing the capsule, and that part of the connection which is joined to the trailing end of the broadhead has injection fluid discharging and emitting ports therein.

As will be hereinafter observed the broadhead is of legal size, weight and sharpness. It performs its intended task by cutting into the hunted animal's body. The tranquilizing liquid is forcibly injected into the animal's system causing nausea and loss of consciousness. The striking force of the arrow is of key importance and the idea is to not only cause internal hemorrhage but to prevent the animal from scurrying off and dying when not hit in a vital place, and resulting in lost or wasted game, which so often happens in big game hunting activities.

More specifically the aforementioned operating connection is characterized by two component parts each of which is referred to as a sleeve. The two sleeves have telescoping connection and provide a slip joint. One sleeve is fixed to and carried by the leading end of the shaft and the other is fixed to and carried by the trailing end of the broadhead. The telescopically fitted sleeves are held in ready-to-function positions by a frangible shear pin.

Stated along other lines the operating connection comprises a first sleeve fixed to the leading end of the shaft and providing a female joint member, a second sleeve fixed to the trailing end of the broadhead and providing a male joint member, the two members telescoping and said members being connected in joint forming relationship by the aforementioned shear pin. The trailing end of the broadhead has an anvil-like cutting blade and it is against this that the rupturable capsule is forcibly driven in a manner to release the fluid.

It is also preferred in constructing the receding joint or operating connection to utilize a plunger-like pin or stud which strikes and fractures the shear pin and in addition strikes and crushes the capsule by forcing it against the cutting blade at the trailing end of the broadhead. Other objects, features and advantages will become more readily apparent from the following description and the accompanying illustrative, but not restrictive drawing.

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In the drawing, wherein like numerals are employed to designate like parts throughout the same:

FIG. 1 is a view in side elevation showing a game hunter's arrow of the fluid injection type constructed in accordance with the principles of the present invention.

FIG. 2 is a view on a larger scale detailing the forward end of the structure and showing the sleeves of the operating connection and the other component parts in a normal or set position.

FIG. 3 is a similar view but shows the relationship of the components after a strike with the target or prey has been had.

FIG. 4 is a front end elevation observing the construction of FIG. 2 in a direction from right to left.

FIG. 5 is a top plan view.

FIG. 6 is a perspective view of the broadhead by itself.

Referring now to the drawings the aforementioned shaft is conventional and is denoted by the numeral 8. The arrowhead 10 is of legal size, weight and shape to perform the intended task of cutting into the hunted animal's body. However, the rear or trailing end at the center thereof is provided with a notch 12 which is provided in turn with a sharpened portion 14 providing a cutter or cutting blade for the aforementioned disrupturable pellet or capsule 16.

The fitting providing the first sleeve is denoted generally by the numeral 18 and as shown in FIGS. 2 and 3 it is provided intermediate its ends with a partition or divider 20 which provides a ferrule 22 at one end secured to the shaft 8. The other extending end portion defines a socket 24 having diametrically opposite holes therein as at 26 for the end portions 28 of the frangible shear pin 30. The crushing plunger or plunger-pin is denoted at 32 and is confined in the socket and has a disk-like base 34 bearing against the bottom 20 of the socket. This socket 24 is also referred to as a female coupling member.

The second sleeve of this telescoping type operating connection is denoted at 36 and it has a bifurcated end portion defining furcations 38 which straddle and are fixedly riveted at 40 to the trailing end of the arrow. The clearance openings 42 constitute the fluid discharge ports which function in an obvious manner. The cutter blade 14 fits in the crotch of the bifurcated portion and the extended socket portion 44 constitutes a male coupling member and telescopes into the female member or socket 24. Here again this part 44 is provided with openings to permit passage of the body portion 46 of the frangible pin to bring about the ready-to-function relation or set position for the parts depicted in FIG. 2.

Whereas the set or normal relationship of parts is illustrated in FIG. 2, the operated relationship is depicted in FIG. 3. As already mentioned the striking force of the arrowhead 10 against the target, the animal's body, is the key to the whole operation of the hunting broadhead. The safety type shear pin 30 accomplishes the task of holding the three main components in the unified relationship seen in FIG. 2. Obviously, this frangible pin shears off when the arrowhead makes contact with its intended target. In practice the shear pin has been made of wood. It might be mentioned here that the invention while still in the experimental stage has been made and used and performs with effectiveness and reliability. The objectives and aims as set forth in the beginning of the description have been carried out time and again with success and efficiency. It is submitted therefore that the instant invention constitutes a construction wherein a simple, practical, properly unified coupling between the trailing end of a broadhead and leading end of a shaft provides a container and dispenser for a tranquilizing or equivalent fluid. It follows that the invention is one which may be properly indorsed by manufacturers, wholesalers, retailers, and more particularly, by big game hunters who understand

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the needs and desires and are so often perplexed by lost and wasted game which so often happens in big game hunting.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination, an arrow shaft, a rigid fitting at the forward leading end of said shaft comprising a first sleeve provided internally and intermediate its ends with a divider defining a ferrule on one side and a socket on the other side, said ferrule telescopically receiving and being secured to the leading end of the shaft, the wall of the socket adjacent the open end of the socket being provided with diametrically opposite shear pin receiving and retaining holes, a broadhead having a trailing end provided with a notch, the edge between the end shoulders of said notch sharpened and providing an anvil-like cutting blade, a second sleeve separate from the first sleeve and having a forward bifurcated end with the furcations straddling the trailing end of the broadhead and with said cutting blade situated at the crotch existing between the inner ends of the furcations, that part of the sleeve to the rear of the broadhead constituting a second socket and fitting telescopically into the first socket and having shear pin holes lined up normally with the shear pin holes in the first named socket, and a shear pin passing through the aligned holes in the respective sockets.

2. The structure defined in claim 1 and in combination, said shear pin being of readily frangible wood, a rupturable pellet in the second named socket between the shear pin and cutting blade, and a plunger-like force pin having a circular base seated in the first socket and a restricted portion telescoping into the cooperating end portion of the second socket and a tip bearing against the median portion of the shear pin in line with the pellet.

3. For use by a game hunter; a fluid injection-type arrow wherein the striking force generated by impact with a hunted animal's body results in the intended injection comprising, in combination, a conventional-type shaft, a broadhead of regulation size and weight, an operating connection joining the leading end of said shaft and the trailing end of the broadhead in prerequisite axial alignment, said connection containing and confining a normally intact but rupturable capsule having an injection fluid therein, and impact and force actuated means embodied in said operating connection for rupturing said capsule, that part of said operating connection which is joined to

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said trailing end having injection fluid emitting ports, said operating connection comprising a first sleeve fixed to said leading end and providing a female jointing member, a second sleeve fixed to said trailing end and providing a male jointing member and telescoping into the female member, said members being connected in joint-forming relationship by a shear pin piercing the telescoped portions of said members.

4. For use by a game hunter: a fluid injection-type arrow wherein the striking force generated by impact with a hunted animal's body results in the intended injection comprising, in combination, a conventional-type arrow shaft, a complementary broadhead of regulation size and weight, a first sleeve fixed in axial alignment on the leading end of said shaft and having a portion thereof projecting axially beyond said leading end, a second sleeve fixed on the trailing end of the broadhead, said sleeves having telescoping slip-joint connection with each other, a frangible shear pin carried by and providing a connection between said sleeves, a normally intact but rupturable injection fluid containing pellet confined in said sleeves and having one end abutting, said shear pin, and means cooperable with the sleeves and pellet for rupturing the pellet and discharging the fluid, said means embodying a cutter blade on the trailing end of the broadhead against which the other end of said pellet is forcibly driven.

5. For use by a game hunter: a fluid injection-type arrow wherein the striking force generated by impact with a hunted animal's body results in the intended injection comprising, in combination, a conventional-type arrow shaft having leading and trailing ends, a broadhead of regulation size and weight, a first sleeve in axial alignment with and having a ferrule fixed on the leading end of said shaft, the trailing end of said shaft being fletched with customary feathers, a second sleeve fixed on the trailing end of the broadhead, said sleeves being fitted telescopically together and thus providing slip-joint connection, a frangible shear pin passing through and connecting said sleeves together, a normally intact injection fluid pellet confined in said sleeves and having one end abutting said shear pin, means cooperable with the sleeves and pellet for rupturing the pellet and discharging the fluid, said means embodying a cutter blade on the trailing end of the arrowhead against which the other end of said pellet is forcibly driven, and a pellet rupturing plunger pin confined for operation in the first named sleeve.

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