

Jan. 7, 1958

R. L. NELSON  
YIELDABLE TIP DART  
Filed Aug. 26, 1955

2,819,086

FIG. 1

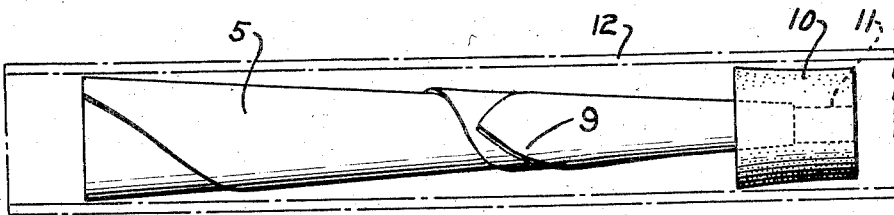


FIG. 2

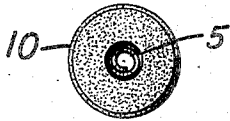


FIG. 3

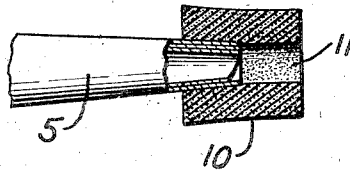
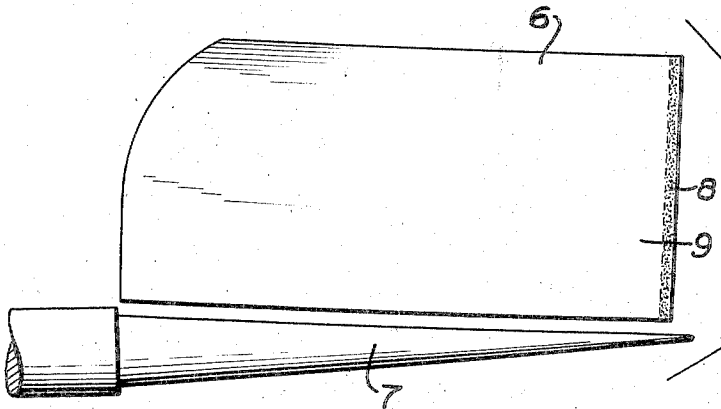


FIG. 4



INVENTOR

*Richard L. Nelson*

BY

*Roy A. Plant*

ATTORNEY

1

2,819,086

## YIELDABLE TIP DART

Richard L. Nelson, Battle Creek, Mich.

Application August 26, 1955, Serial No. 530,673

5 Claims. (Cl. 273—106.5)

The present invention relates broadly to toys, and in its specific phases to a blow tube dart. Darts have long been produced for use with blow tubes, and also for throwing at bull's eye targets. Such darts, except for the suction cup type, have universally been made with hard or sharp points which are inherently dangerous to a person or animal struck by same, with the most serious danger being the possibility of someone being hit in the eye with such a dart. It was a recognition of this problem and the complete lack of any fully satisfactory solution for same which led to the conception and development of the present invention.

Accordingly among the objects of the present invention is the production of a novel toy dart to be impelled through and out of a blow tube by air pressure supplied by the user's lungs.

Another object is to provide a simple and inexpensive dart which will not injure any living animal if struck thereby, even in the eye, with such dart thus being safe for use even by very small children.

In accordance with this invention a slender conical body is provided to be blown from a suitable size blow tube, and the smaller front end of said conical body is supplied with a yieldable tip preferably formed from sponge rubber; and an important object of the invention is to have this tip coact with the larger rear end of the conical body in accurately guiding the dart during its travel through the blow tube.

Another object is to provide a dart tip in the form of a substantially cylindrical yieldable body having an approximately central opening in which the front end of the conical dart body is secured.

Yet another object is to extend the substantially cylindrical yieldable body forwardly a substantial distance beyond the front extremity of the conical dart body, thereby providing an effective shock absorbing cushion.

A still further object is to produce the conical body of the dart from a paper sheet rolled into conical form with same held in finished shape by means of adhesive at the terminal wound edge of the blank from which the dart is formed.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the dart means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of the various ways in which the principle of the invention may be used.

In the annexed drawing:

Figure 1 is a side elevation of the dart, a portion of a blow tube being shown in broken lines.

Figure 2 is a front end view of the dart.

Figure 3 is a fragmentary longitudinal sectional view

2

of the dart partly in elevation, showing the tip and connected portion of the conical body.

Figure 4 is a plan view of the paper blank and mandrel used in constructing the conical body of the dart.

In accordance with the present invention a dart having a relatively long and slender, light-weight conical body 5 is provided. This body is preferably formed by rolling a paper blank 6, as shown in Figure 4, around a suitable rotating conical mandrel 7. By rounding the end of the blank, in the manner shown, the rear end of the dart will be substantially perpendicular to the axis of the dart, as shown in Figure 1, which not only improves the dart's appearance but helps to stabilize same for straighter flight under forward propulsion. Before rolling, a paste, glue, or the like 8 is applied in a narrow stripe to one end 9 of the blank on the side of same which becomes the inner one of the finished dart. This end 9 forms the last convolution, which is the outer one, of the rolled blank, as will be clear from Figure 1, and the glue or the like 8, which is moist when the blank is rolled, effectively anchors this end so that no further gluing or the like is necessary in forming the finished conical body 5.

A yieldable tip 10 is secured to the front or small end of the conical body 5. This tip 10 is preferably in the form of a cylindrical body of foam rubber, said body being formed with a substantially central opening 11. The rear portion of the opening 11 receives the front end of the conical body 5 and the two are secured together by means of glue, paste, or the like. In preferred construction substantially half the length of the yieldable body 10 extends forwardly beyond the front extremity of the conical body 5 and thus provides an effective cushion and shock absorber which will prevent the dart from seriously injuring living animals or marring furniture or the like.

The diameter of the yieldable tip 10 is preferably about the same as that of the rear or large end of the conical body 5. Thus, this rear end of the body 5 and the yieldable body 10 coact in accurately guiding the dart during its travel through and out of a blow tube 12 as illustrated in Figure 1.

For securing the blank end 9 after rolling the body 5, and for securing the body 5 and yieldable tip 10 together, an odorless paste, glue, or the like, is preferably used in order that the darts may be enclosed as prizes in packages of cereal, or other dry foods, without imparting any objectionable foreign odor or contamination to the latter. A mixture of flour, sugar, and water can be used to form an effective odor-free paste for this purpose. One cup of flour to one quarter cup of sugar, with a suitable quantity of water added and the mixture boiled, will meet most requirements. The consistency of the finished paste made in this manner is preferably such that the mixture, when at room temperature, will run somewhat when the paste container is tilted.

The tips 10 may be easily and rapidly die-cut from suitable thickness sheet foam rubber, which may be natural, synthetic, or mixtures of same, and the conical bodies 5 may be easily and rapidly formed from paper, cut to suitable size and shape before rolling, and the assembly of same may be easily and rapidly accomplished. For most purposes 16 to 24 pound paper has proven to be very satisfactory for the forming of these darts, although the paper can be varied somewhat from this specific weight range and yet be suitably rolled. A very inexpensive article may thus be provided, yet one which will afford a great deal of pleasure for children.

While preferences have been disclosed, minor variations may well be made within the spirit and scope of the invention. For example, sponge rubber could be employed instead of foam rubber for the tips 10, but since sponge rubber is more firm than foam rubber it is a little less

3

suitable for safe use as a shock absorbing cushion for the toy darts.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the article herein disclosed, provided the means stated by any of the following claims, or the equivalent of such stated means, be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A dart adapted for impulsion from a blow tube, said dart comprising a slender conical body, and a relatively soft yieldable tip on the small end of said body, said yieldable tip being substantially of the same outside diameter as the large end of said conical body, and the small end of said conical body extending part way through said yieldable tip, said conical body and yieldable tip being substantially concentric.

2. A dart for impulsion from a blow tube, comprising a slender conical body which is of thicker wall section at its small end than at its base, and a yieldable soft rubber tip on the small front end of said conical body, said tip being substantially concentric with said conical body and having a diameter approximately the same as that of the large end of said conical body; whereby said large end of said body and said yieldable tip will coact in guiding the dart in its passage through the blow tube, and said yieldable tip will prevent serious injury to a living animal if struck by the dart.

3. A structure as specified in claim 2; wherein said conical body consists of the combination of a paper sheet

4

and adhesive, said body having more plies of paper at its small end than at its base.

4. A structure as specified in claim 2; wherein said yieldable soft rubber tip consists of a substantially cylindrical body having a central opening completely therethrough and in which said small front end of said conical body is secured, a substantial portion of the length of said cylindrical body extending forwardly beyond the front extremity of said conical body.

5. A structure as specified in claim 2; wherein said yieldable tip consists of a substantially cylindrical foam rubber body, said foam rubber body having a central opening completely therethrough and in which said small front end of said conical body is secured, a substantial portion of the length of said foam rubber body extending forwardly beyond the front extremity of said conical body, and wherein said conical body consists of the combination of a paper sheet and adhesive, said body having more plies of paper at its small end than at its large.

References Cited in the file of this patent

UNITED STATES PATENTS

873,628	Stivers -----	Dec. 10, 1907
2,011,749	Brading -----	Aug. 20, 1935

FOREIGN PATENTS

18,230	Great Britain -----	1898
675,674	France -----	Nov. 8, 1929