

United States Patent

Getgey et al.

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[45] Aug. 22, 1972

[54] BLOW GUN HAVING TARGET MOUNTED ON ITS BARREL

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[73] Assignee: Rainbow Crafts, Inc.

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273/106.5 A, 124/30 R

[51] Int. Cl. F41b 1/00

[58] Field of Search 273/95 C, 101; 124/12, 30

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Primary Examiner—Richard C. Pinkham

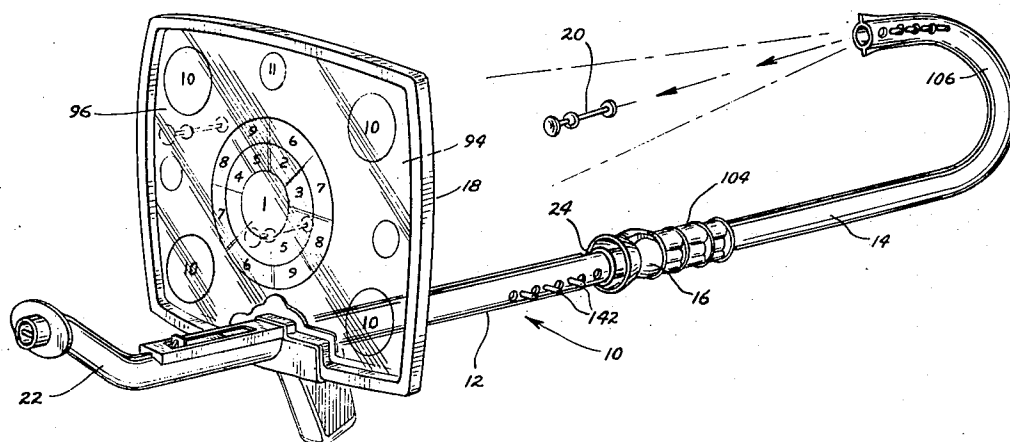
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[57] ABSTRACT

A blow gun toy in which a projectile can be expelled and directed against a combined target and shield affixed to a portion of the toy. The toy includes a tubular barrel having a curved section which is movable with respect to the target in such a manner that the projectile can be aimed at different points on the target.

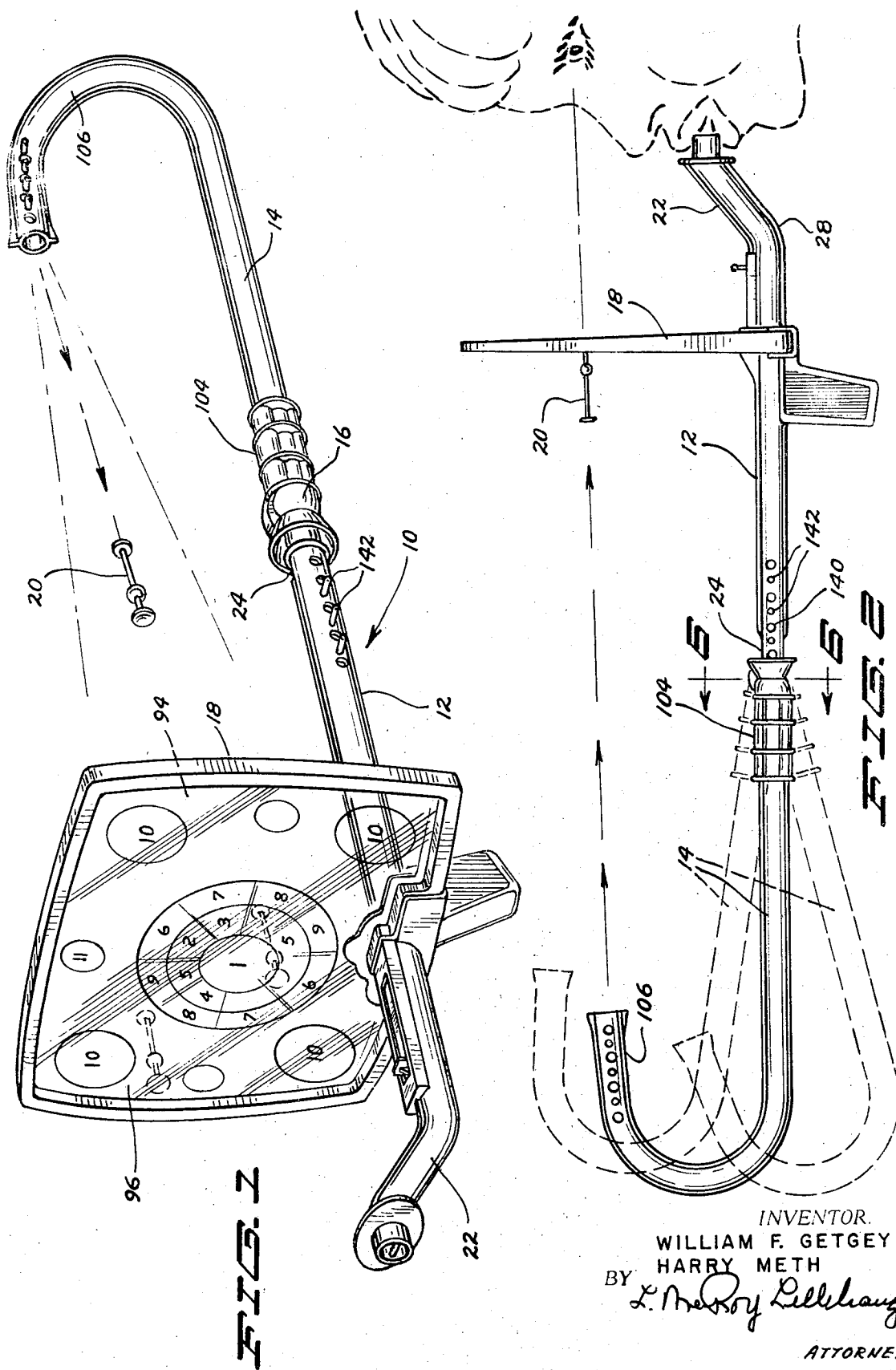
15 Claims, 13 Drawing Figures

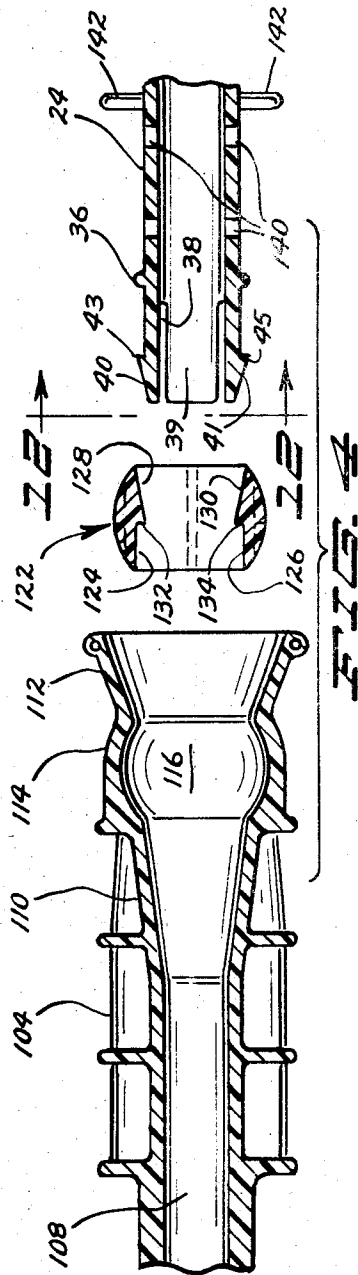
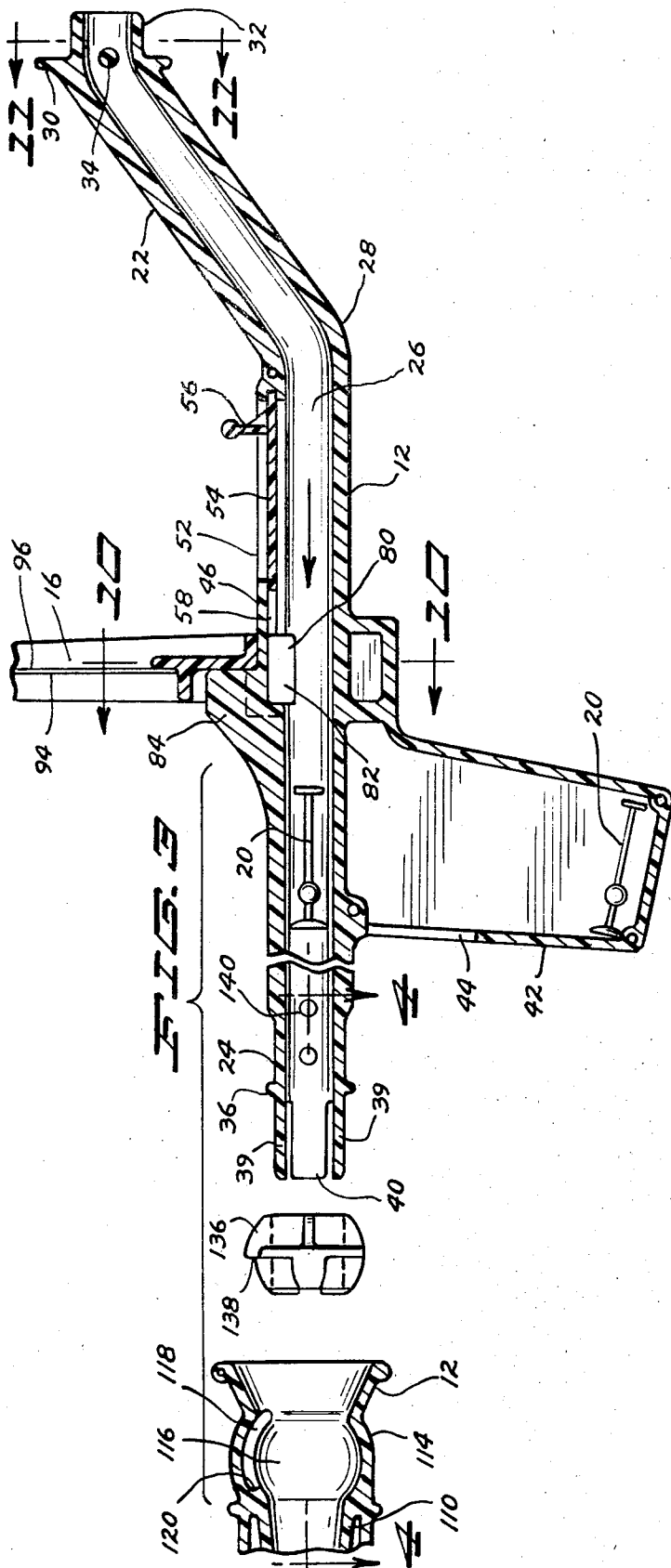


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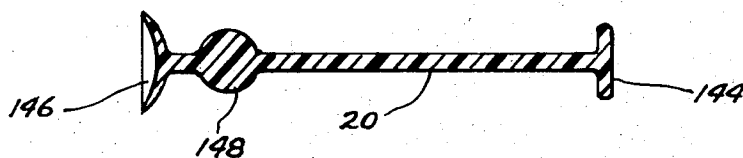
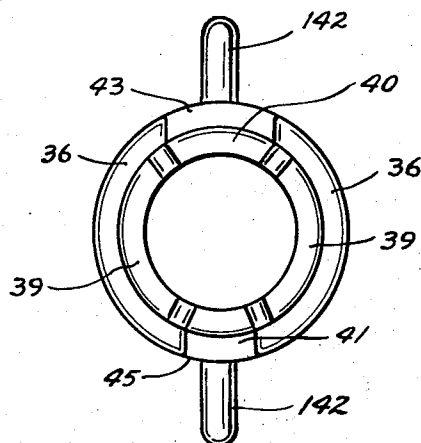
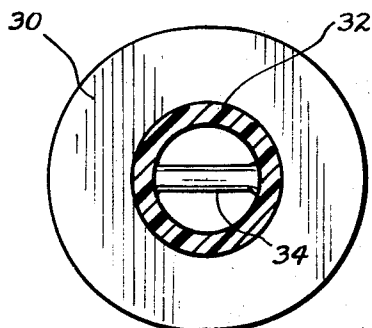
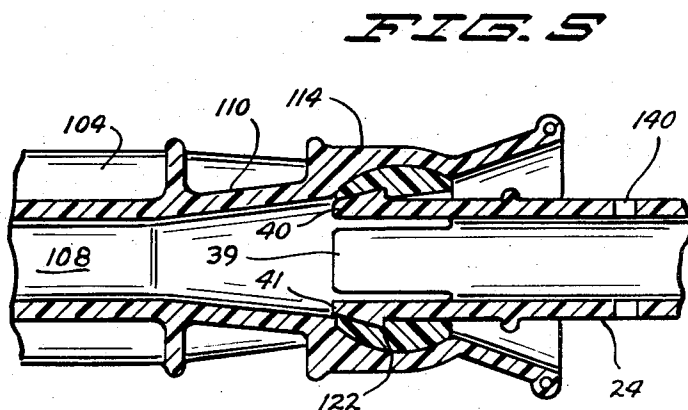
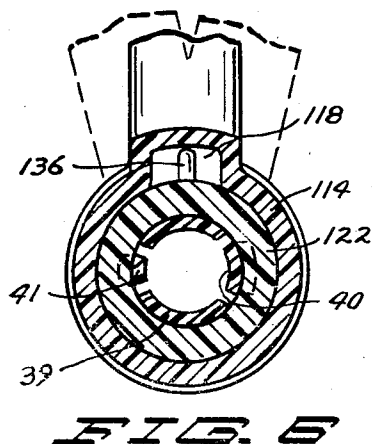
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SHEET 1 OF 4





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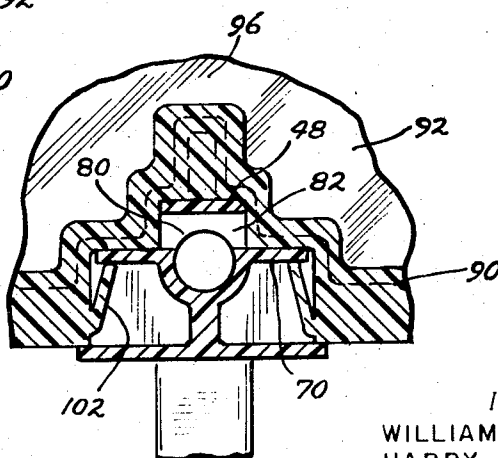
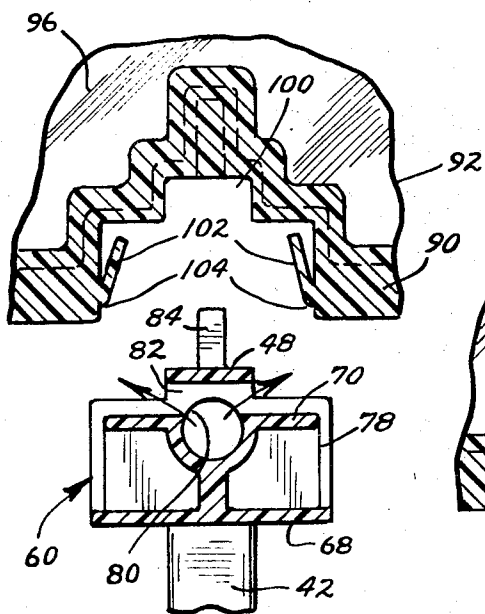
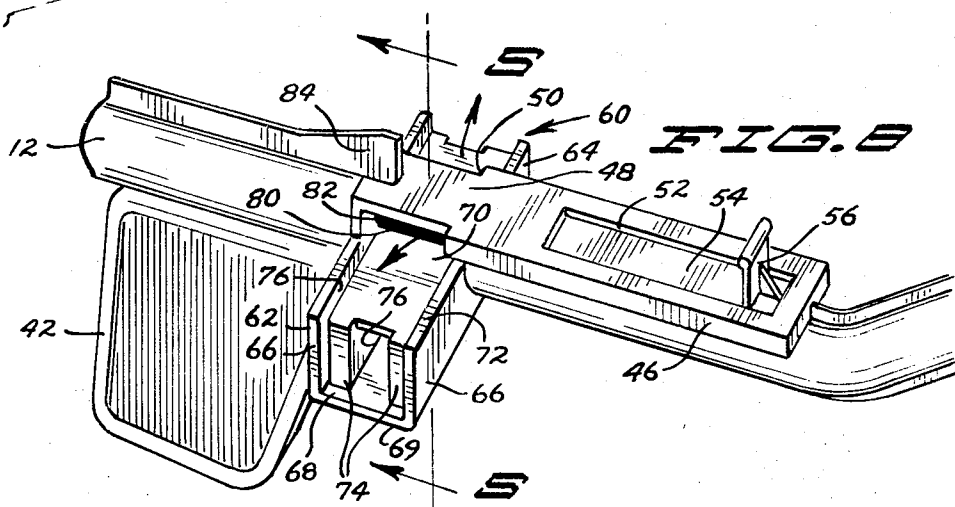
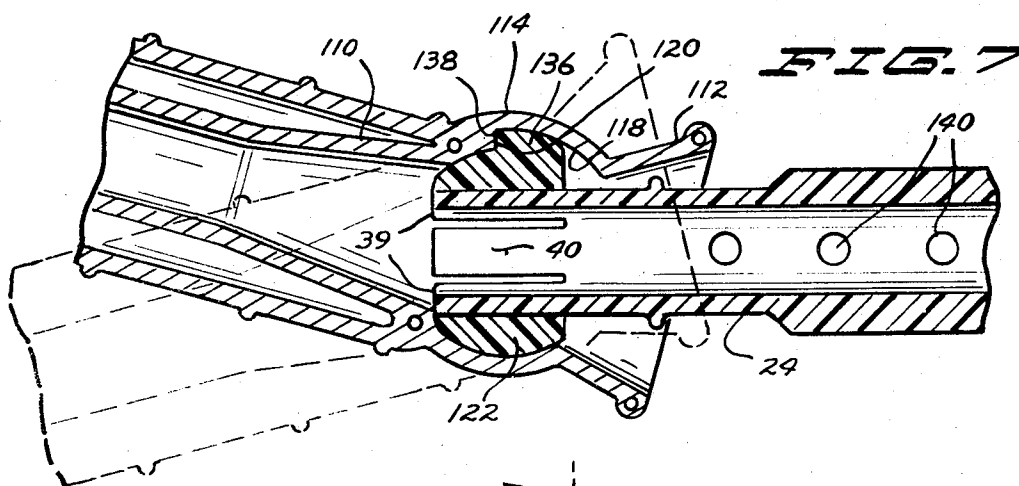


FIG. 9

FIG. 10

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BLOW GUN HAVING TARGET MOUNTED ON ITS BARREL

The present invention relates to toys, and more particularly to a blow gun toy wherein a projectile or missile can be expelled against a target affixed to a portion of the blow gun.

Blow guns of various types have been used as amusement devices for many years. As known to those in the art, such devices generally include a tubular member through which a projectile, missile, pellet, or the like, can be expelled or ejected. Generally, the projectile is inserted within the tube, and pressure is exerted against one end of the tube, usually by blowing into the tube, and the projectile is expelled therefrom. It has been found that while such devices can provide a certain amount of amusement for the user, especially children, they are oftentimes dangerous, especially when used in a careless or reckless manner. Perhaps one of the most common accidents occurs when the projectile strikes an individual in the face, thus causing an injury.

Accordingly, one object of the invention is to provide a new and improved toy which may be used for expelling or ejecting a projectile along a prescribed path.

Another object is to provide a blow gun toy for expelling a projectile against a target which forms a part of the blow gun.

A further object is to provide a blow gun toy designed in such a manner that a projectile may be expelled along one of several paths so as to impinge against a predetermined area on a target.

A still further object is to provide a blow gun toy having improved safety features for preventing accidents and injuries from occurring.

Other objects and advantages of the invention will become apparent from a consideration of the following specification and accompanying drawings. Before proceeding with a detailed description of the invention however, a brief description of it will be presented.

Preferably, the invention comprises an elongated tubular element or barrel comprised of first and second tubular members or sections which are movably connected together at one end, such movement being limited in a prescribed manner. One of the projecting end portions is curved approximately 180° so that the end is directed substantially toward the other end of the tube. A combination target and shield is affixed to the blow gun proximate said other end, against which the projectile is caused to collide when expelled from the gun. The target is divided into prescribed areas, which have different point values assigned thereto. The projectile is formed in such a manner that it will at least temporarily stick to the surface of the target when it strikes it properly.

The invention will best be understood by reference to the following drawings wherein:

FIG. 1 is a perspective view illustrating the blow gun toy;

FIG. 2 is a front elevational view of the blow gun toy shown in FIG. 1;

FIG. 3 is an exploded, partial sectional view which illustrates part of the toy in greater detail;

FIG. 4 is an enlarged exploded, partial sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a partial sectional view similar to FIG. 4 illustrating the components in an assembled condition;

FIG. 6 is a cross-sectional view taken along line 6—6 of FIG. 2;

FIG. 7 is a partial sectional view similar to FIG. 3 but showing the components in an assembled condition, as well as a different operating condition;

FIG. 8 is a partial perspective view depicting the toy from a different angle;

FIG. 9 is a partial sectional view taken along line 9—9 of FIG. 8; which illustrates the target separated from the tubular element;

FIG. 10 illustrates the target and the tubular element in an assembled condition;

FIG. 11 is an enlarged cross-sectional view taken along line 11—11 of FIG. 3;

FIG. 12 is an enlarged view taken along line 12—12 of FIG. 4; and

FIG. 13 is a longitudinal sectional view of the projectile.

FIGS. 1 and 2 illustrate the blow gun toy as having an elongated tubular element or barrel 10 comprised of a first tubular member or rear member 12 and a second tubular member or front member 14, such members being movably connected together by a universal connector member designated generally by numeral 16. A combined target and shield 18 is secured to the member 12, and a projectile 20 is caused to collide or strike a portion of the target, by aiming the movable member toward the target and expelling it from the end of the blow gun. Preferably, the toy is formed of plastic material and the components can readily be formed by techniques well known to those in the art.

FIG. 3 depicts the tubular member 12 in greater detail. As shown, the tube 12 is substantially circular in cross-sectional area, and it includes a first end portion 22, a second end portion 24, and a continuous passage 26 which extends between the ends. The end portion 22 is bent at 28 in such a manner that it forms an angle or elbow with respect to the main portion of the tube 12. A collar or flange 30 surrounds the first end portion of the tube proximate the end and a mouth piece 32 is formed. A cross piece 34 (note FIG. 11 as well) extends from one side of the tube 12 to the other side.

The second end portion 24 of the tube 12 is provided with a circular flange 36, and a plurality of slits 38 which extend axially from the flange 36 to the tip of the tube so as to form a pair of substantially equal size fingers 39, and a pair of unequal size fingers 40 and 41. A pair of tapered catches 43 and 45 are integrally formed on the fingers 40 and 41 respectively. In this regard, note FIG. 12 as well. The slits 38 permit the tip of the tube 12 to be somewhat flexible. A hollow handle 42 is integrally connected to the tube 12 between the end portions, and an opening 44 is provided for introducing projectiles 20 into the handle for storage purposes. As shown more fully in FIG. 8, a flattened member 46 forms the top surface of part of the tube 12, and it includes a somewhat narrower end portion 48 which forms a shoulder 50 with the member 46. An opening 52 is formed in the member 46 and it is provided with a closure member 54 having a handle portion 56, which is slidably mounted within a pair of grooves 58 in the member 46.

A member designated generally by numeral 60 forms an integral part of the tube 12 and it is provided for supporting the target 18 and securing it to the tubular member 12. As illustrated in FIG. 8, the support member 60 is positioned rearwardly of the handle 42 and on the under surface of the tube 12, and it includes

ends 62 and 64. The support member 60 includes a pair of side walls 66 separated by a bottom wall 68, and a top wall 70 is positioned between the side walls 66 so that it is slightly lower than the top edges 72 of the walls. A pair of end pieces 74, separated by a rectangular opening 76, extend from the top wall 70 to the bottom wall 68, and they are inset slightly from the edge 69 of the bottom wall. Thus, as seen in FIG. 8, the side walls 66, the bottom wall 68, the top wall 70, and the end pieces 74 combine to form a relatively narrow edge portion designated generally by numeral 78. At this point it might be noted that the second end 64 of the support member 60 is formed so that it has substantially the same general configuration as the first end 62.

An opening 80 is formed in the top surface of the tube 12 (note FIGS. 3 and 9 as well) and it cooperates with a passage 82 formed between the bottom surface of end portion 48 and the top surface of wall 70. Thus, air which is introduced into the passage 26 at end 22, can escape through the opening 80 and the passage 82. An abutment member 84 is positioned at the top of the tube 12.

The target 18 includes a rectangularly shaped frame 90 which surrounds a transparent shield or pane 92 having a front surface 94 and a back surface 96. The pane 92 is provided with a plurality of marked areas 98 on its front surface having different point values affixed thereto. As shown in FIGS. 9 and 10, the bottom portion of the target 18 is provided with a cut-away portion 100, and the frame 90 is formed so that it has the same general configuration as the support member 60, member 48, and member 84. A pair of tabs or ears 102 are attached to the frame 90 at points 104. In assembled relationship, the target is positioned on the tube 12, and more particularly on the support member 60, so that the tabs 102 slide into the openings 76 and engage the under surface of the top wall 70, thus locking the target onto the tube 12. It might be pointed out that when assembled in this manner, both ends of the passage 82 are effectively blocked by the frame 90. Moreover, the width of the frame 90 is such that it fits within the edge portion 78, and the abutment 84 abuts against a portion of the frame 90.

The tubular element 14 likewise has a circular cross-sectional shape, and it includes a first end portion 104, a second end portion 106, and a passage 108. As shown more fully in FIGS. 1 and 2, the second end portion 106 is bent or curved in such a manner that it curves approximately 180° relative to the main portion of the tube 14.

As exemplified more fully in FIGS. 3, 4, 6 and 7, the first end of the tube 14 has somewhat enlarged, flared portions 110 and 112, separated by a slightly rounded portion 114 which forms a partial spherical cavity 116. A curved groove 118, having a prescribed width and length, is formed in the upper part of the portion 114 and it terminates with a shoulder 120. In this regard, note specifically FIGS. 3 and 6.

A ring-shaped, universal connector member or coupling 122 is provided for movably connecting the tubular members 12 and 14 together. The coupling 122 has the same general configuration and size as the cavity 116, and as shown in FIGS. 5 and 7 for example, it is positioned within the cavity. The inner surface of the ring-shaped coupling 122 is provided with a pair of

slots or grooves 124 and 126 which are partially tapered at 128 and 130, so as to form shoulders 132 and 134 respectively. The slots 124 and 126 have substantially the same width as the fingers 40 and 41 respectively. The exterior surface of the coupling 122 is provided with a curved projection 136 which forms a shoulder 138.

In assembled relationship, the ring-shaped coupling 122 is positioned within the cavity 116 so that the curved projection 136 is positioned within the curved groove 118, and the shoulder 138 abuts against the shoulder 120, note FIGS. 5, 6 and 7. When assembled in this manner, the coupling is permanently retained within the tube 14. Since the groove 118 is wider than the thickness of the projection 136, the coupling 122 is free to partially rotate or pivot within the cavity 116 about the longitudinal axis of the blow gun. The end 24, and more particularly the fingers 39, 40 and 41 of the tube 12, are inserted into the member 122 by aligning the fingers 40 and 41 with the proper slots, i.e., slots 124 and 126 respectively. As the fingers of the tube 12 are inserted into the coupling 122, the tapered catches 43 and 45 engage the shoulders 132 and 134 respectively so that the tube 12 is attached or connected to the coupling 122, and more specifically the tube 14. Since the coupling 122 has a somewhat rounded outer configuration, and since the projection 136 is rounded, the coupling is movable within the cavity 116; thus the tubular members 12 and 14 are movable with respect to each other, within limits, in substantially all directions, and the tube 14 is movable relative to the target 18.

A plurality of holes or openings 140 are provided in the end portion 24 of the tube 12, as well as in the curved end portion 106 of the tube 14. In addition, a number of projections 142 are interposed between adjacent holes 140. As illustrated, the longitudinal axes of the projections are perpendicular to the longitudinal axis of the barrel. These holes and projections are included as a safety feature. In the event that a child sucks on the end 24 of tube 12 (before connecting it to the tube 14) or on the end 106 of tube 14, with a projectile in the passages 26 or 108, it is possible that the projectile might be inhaled or swallowed by the child. The holes 140 effectively prevent sufficient suction from being created within the tube passage to cause the projectile to be drawn into the mouth. The projections on the other hand, are included to minimize or prevent the child from covering the holes by placing his hand over them. It might be added that the holes 140 seem to help stabilize the projectile 20 as it leaves the curved end 106 of the gun.

The projectile 20 is preferably formed of a soft, flexible, lightweight material. As disclosed in FIG. 13, the projectile 20 has a first or rear end 144 and a second or front end 146. The end 144 has a generally flat, circular head, while the second end 146 has a generally concave configuration. The end 146 forms a suction cup which permits the projectile to stick or adhere to a surface when it strikes it properly. An enlarged portion 148 proximate the end 146, provides additional weight and better balance to the projectile. Moreover, it has been found that when a pressure is exerted on the rear of the projectile, i.e., against the flat head 144, better stability and flight patterns are obtained when the weight 148 is positioned proximate the front end 146.

As pointed out hereinbefore, the invention has a number of safety features which will be more fully explained in conjunction with the operation of the toy. Since the toy is relatively long, it might be preferable to market it in an unassembled condition. Thus, the structure readily lends itself to packaging in three parts, i.e., the tubular member 12, the tubular member 14 (along with the coupling 122), and the combined target and shield 18.

In use, the tubes 12 and 14 are connected together as disclosed hereinbefore. At this point, it might be mentioned that at this stage the gun is inoperative. In other words, in the event that a child removed a projectile 20 from the storage chamber 42 and placed it within the passage 26 through the opening 52, and then blew against the end 22, the air would escape through the opening 80 and the passage 82. As a result, the projectile 20 could not be expelled from the curved end 106 of the barrel, at least with sufficient velocity to cause any injury. Without this safety feature, a projectile might readily strike the user directly in the face if the shield was not attached. Furthermore, once the shield is attached to the tube 12, the tabs 102 engage the support member 60 in such manner that the shield cannot be removed.

A further safety feature concerns the cross piece 34 positioned proximate the mouth piece 32. This member 34 prevents a child from sucking against the end 22 and inadvertently drawing a projectile into his mouth, throat, and lungs, because the member partially blocks the passage 26. Moreover, as explained above, the holes 140 and the projections 142 aid in preventing a projectile from being sucked from the ends 24 and 126 into a child's mouth.

After properly assembling the toy, it is ready for use. After placing a projectile within the passage 26, the child places the mouthpiece 32 against his lips and blows into the blow gun. By moving the tubular member 14 relative to the tube 12 and target 18, it is possible to aim the end 106; thus, the flight of the projectile 20 can be controlled to a limited extent. As viewed in FIG. 2, the eyes of the user are generally aligned with the end 106 of the barrel, due at least partially, to the elbow 28. By practicing, the user can become quite adept and accurate in directing the projectile onto a desired area on the shield. FIG. 1 illustrates a number of areas having different point values assigned to each.

The relatively limited movement of the tube 14 with respect to the tube 12 and shield 18, results in a further safety feature. This movement limitation effectively prevents the tube 14 from being pivoted to such an extent that the projectile might miss the target and shield entirely. As viewed in FIGS. 2 and 7, pivotal movement about a horizontal axis, i.e., an axis normal to the plane of the paper, is limited by the shoulders 120 and 138, as well as the edge of the flared portion 112. Furthermore, lateral movement of the tube 14, about a vertical axis, i.e., an axis parallel to the plane of the paper, is limited by the groove 118 and the projection 136. Finally, rotational movement of the tube 14 about its longitudinal axis is limited by the relative widths of the groove 118 and the projection 136.

As described above, the present invention results in a unique and different toy of the blow gun type. The toy incorporates a number of structural features which

make it vastly different from known blow guns, and it is provided with a number of safety features which overcome many of the objections and disadvantages of known prior devices.

In the above description and attached drawings, a disclosure of the principles of this invention is presented together with some of the embodiments by which the invention may be carried out.

Now, therefore we claim:

1. A pressure actuated blow gun toy for expelling a projectile therefrom against a target comprising an elongated tubular barrel having first and second ends and a continuous passage therein, one of the end portions being curved with respect to the other end, said tubular barrel being formed of a first tubular member having first and second ends, and a second tubular member having first and second ends, means for connecting a first end of said second member to one end of said first member in such a manner that said members are movable relative to each other and a continuous passage is formed between said tubular members, the second end of said second tubular member forming the curved end of the barrel, and target means affixed to said barrel proximate the other end thereof against which the projectile is caused to collide when expelled from the tubular barrel by air pressure exerted against said projectile by blowing against said other end, said curved end being curved in such a manner that it directs said projectile toward said target means.

2. The combination of claim 1 wherein the second end portion of said second member is curved approximately 180° relative to the second member.

3. The combination of claim 1 wherein said target means is attached to said first tubular member in such a manner that it is substantially perpendicular to the longitudinal axis of said first tubular member and it is in the flight path of a projectile expelled from the curved end of the barrel, the surface of said target means being divided into separate areas of varying point values.

4. The combination of claim 1 wherein the means for connecting the tubular members together includes a universal connector which permits said tubular members to be moved to a limited extent in substantially all directions relative to each other.

5. The combination of claim 1 wherein said first tubular member is provided with an opening therein for inserting a projectile into the passage, and closure means are provided for opening and closing said opening.

6. The combination of claim 5 wherein means are provided within said other end of the barrel for preventing said projectile from being removed from said end.

7. The combination of claim 1 wherein said first and second tubular members when movably connected together, are inseparable from each other.

8. The combination of claim 1 where at least one opening is provided in the barrel proximate the curved end.

9. The combination of claim 8 wherein at least one projection is provided proximate said opening, the longitudinal axis of said projection being perpendicular to the longitudinal axis of the barrel.

10. The combination of claim 1 wherein the projectile has a first end having a flattened head formed

thereon, and a second end having a concave member formed thereon, said concave member forming a suction cup adapted to stick to a surface against which it may collide.

11. The combination of claim 14 wherein said projectile includes an enlarged portion positioned proximate its second end.

12. The combination of claim 10 wherein said projectile is formed of a soft, flexible, lightweight material.

13. A blow gun toy for expelling a projectile therefrom against a target comprising an elongated tubular barrel having first and second ends and a continuous passage therein, one of the end portions being curved with respect to the other end, said tubular barrel being comprised of a first tubular member having first and second ends, and a second tubular member having first and second ends, means for connecting a first end of said second member to one end of said first member in such a manner that said members are movable relative to each other and a continuous passage is formed between said tubular members, said second tubular member being provided with handle means affixed thereto, said handle means including a chamber and an opening thereinto, for storing projectiles, and target means affixed to said barrel proximate said other end thereof against which the projectile is caused to collide when expelled from the tubular barrel, said

curved end being curved in such a manner that it directs said projectile toward said target means.

14. A blow gun toy for expelling a projectile therefrom against a target comprising an elongated tubular barrel having first and second ends and a continuous passage therein, one of the end portions being curved with respect to the other end, said tubular barrel being comprised of a first tubular member having first and second ends, and a second tubular member having first and second ends, means for connecting a first end of said second member to one end of said first member in such a manner that said members are movable relative to each other and a continuous passage is formed between said tubular members, target means affixed to said barrel proximate the other end thereof against which the projectile is caused to collide when expelled from the tubular barrel, said curved end being curved in such a manner that it directs said projectile toward said target means, and passage means in said first tubular member proximate the first end for permitting air to escape from the continuous passage when the target means is not attached to said first tubular member.

15. The combination of claim 14 wherein means are provided for permanently affixing said target to said first tubular member.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,685,828 Dated August 22, 1972
Inventor(s) William F. Getgey and Harry Meth

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 13, delete "and" and insert ----end----

Column 2, line 62, delete second "a" and insert ----support----

Column 7, line 5, delete "claim 14" and insert ---claim 10---

Delete assignee "Rainbow Crafts, Inc." and insert ---General Mills Fun Group, Inc.---

Signed and sealed this 17th day of April 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents