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[54] **BATON STRUCTURE**
 8 Claims, 6 Drawing Figs.

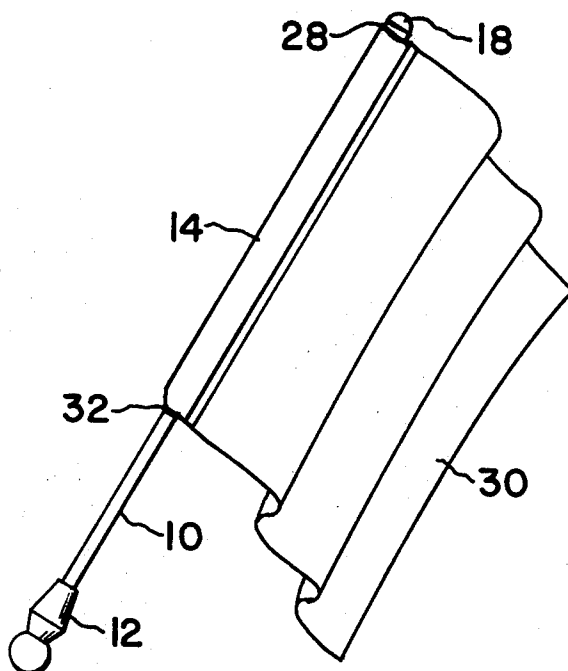
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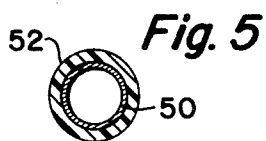
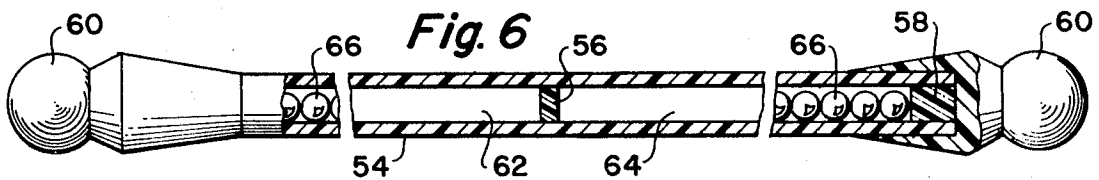
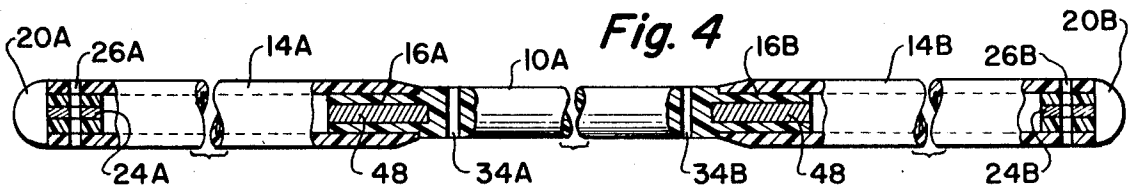
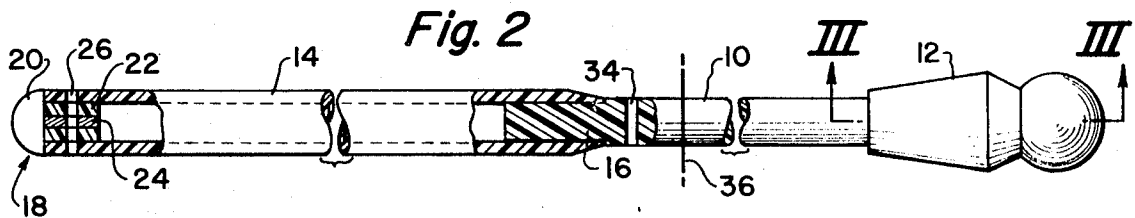
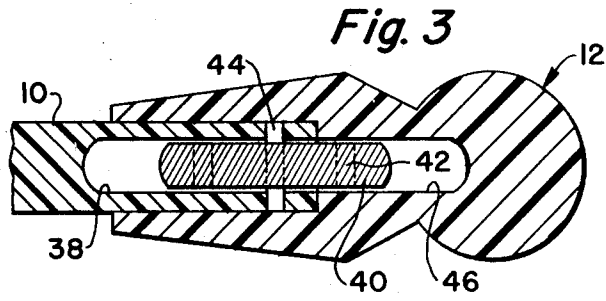
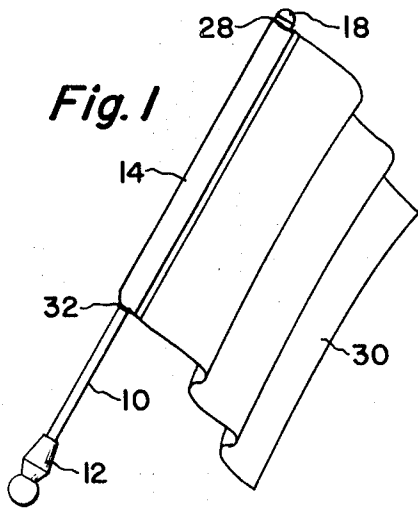
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ABSTRACT: Described are novel baton structures, of the type used by competitive twirlers, and particularly flag baton structures formed entirely or principally from plastic elements and incorporating adjustable weight means for varying the center of gravity of the baton.





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BATON STRUCTURE

BACKGROUND OF THE INVENTION

In the past, a baton of the type used by competitive twirlers has usually been formed from a single metallic tubular shaft having a ball of rubber or the like fitted over one end and a tip fitted over the other end. This type of baton is the type most commonly used; however there is another type of baton, called a flag baton, which normally has a tubular handle connected at one end to a rod, usually of wood, to which a flag is secured.

In a baton of this type, the wooden rod has a tendency to split and bow; and it is usually difficult for the twirler to adjust to the variance in the center of gravity due to variations in the weight of the wooden rod from one baton to another. In the use of such a flag baton, it behooves the performer, in negotiating the more intricate maneuvers, to handle and manipulate the baton near or close to the center of gravity. That is, the center of gravity is the most critical consideration for maneuverability, both while the baton is in the hand of the user and while it is in aerial flight to assure a successful display of the flag and a favorable return so that the twirler does not fumble a catch. The problem is complicated by the fact that the various sizes and weights of the material used in flags will alter the balance point.

SUMMARY OF THE INVENTION

As one object, the present invention seeks to provide a new and improved twirling baton structure constructed almost entirely of plastic parts.

More specifically, an object of the invention is to provide a twirling flag baton constructed of plastic parts.

Still another object of the invention is to provide adjustable weight means at at least one end of a flag baton, whereby the center of gravity of the baton may be easily varied to suit the requirements of the user by means of a simple adjustment and without the necessity for varying the position of a rubber or the like ball at one end of the baton.

In accordance with the invention, a twirling baton structure is provided comprising a solid-handle portion of circular cross section and formed from plastic material, together with a tubular plastic member secured to one end of the handle portion and means for securing a flag element to the baton with a border of the flag extending along the tubular member. A plastic plug member is inserted into the end of the tubular member opposite the handle portion, while a ball member is fitted over the end of the handle portion opposite the tubular member. Weights are carried at opposite ends of the baton both for maneuverability and for locating the center of gravity of the baton at a point closely adjacent the connection of the solid handle to the tubular member.

Further, in accordance with the invention, the weight at one end of the baton, which is carried within the aforesaid ball member, is adjustable such that the center of gravity of the baton may be varied to suit the requirements of the user and to adjust for different weights of flag material. The ball member is provided with an elongated opening which permits adjustment of the weight such that it projects beyond the end of the handle without disturbing the position of the ball member. Thus, if the twirler finds that the baton is not reacting properly to her particular technique in twirling, she can simply adjust the weight at one end of the baton to suit her individual likes.

The above and other objects and features of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings which form a part of this specification, and in which:

FIG. 1 is a perspective view of the flag baton of the present invention showing the manner in which a flag is attached thereto;

FIG. 2 is a partially brokenaway elevational view of the baton of the invention;

FIG. 3 is a cross-sectional view taken substantially along line III—III of FIG. 2 showing the adjustable weight assembly and locking device of the invention;

FIG. 4 is a partially brokenaway cross-sectional view of an alternative form of the invention wherein flags are connected to opposite ends of the baton;

FIG. 5 is a cross-sectional view illustrating a type of baton structure wherein a metal tube is surrounded by an outer plastic tube; and

FIG. 6 illustrates a toy baton having a hollow, transparent tubular shaft containing a plurality of reciprocable balls.

With reference now to the drawings, and particularly to FIGS. 1 and 2, the flag baton shown includes a central, solid-handle portion 10 of circular cross section preferably formed from a plastic material such as Delrin (trademark) manufactured by the DuPont Company. The handle 10 receives, at its lower end, a ball 12 formed from rubber or some other elastomeric material. The details of the ball construction 12 and the weight carried therein will hereinafter be described in detail in connection with FIG. 3.

The end of the handle 10 opposite the ball 12 is fitted into a tubular member 14, also formed from plastic material which may or may not be transparent, depending upon requirements. The tubular member 14 is glued to a reduced diameter portion 16 of the handle 10 by means of an epoxy glue such as adhesive 3520B/A manufactured by the 3M Company. The opposite end of the tubular member 14 receives a plug 18 having an outer rounded portion 20 and a reduced diameter portion 22 which fits into the end of the tubular member 14 and is glued thereto, also by the aforesaid adhesive. The reduced diameter portion 22 is provided with a slot which receives a weight 24, preferably formed from lead or some other similar heavy material.

Drilled through the outer end of the tubular member 14, the reduced diameter portion 22 and the lead weight 24 is a hole 26 which receives tie-strings 28 (FIG. 1) for one end of a flag 30. The tie-strings 32 at the other end of the flag 30 are passed through an opening 34 formed in the upper end of the solid handle 10. Normally, the flag 30 is formed from silk or some other lightweight cloth such that the drag which is produced upon rotation of the baton will be minimized.

Preferably, the center of gravity of the baton will be in the area of line 36 shown in FIG. 2. However, it may be desirable to vary the center of gravity, depending upon the weight and size of the flag 30, the desires of a particular user, and other factors. Accordingly, as shown in FIG. 3, the end of the handle 10 which receives the ball 12 is provided with a bore 38 which receives an elongated weight 40 having a plurality of transverse openings 42 spaced along its length. Received within one of the openings 42 is a pin 44 which passes through openings in the sides of the bore 38. The weight 40 is thus carried within the bore 38 and may or may not have a projecting portion which extends into an opening 46 formed within the ball 12. Thus, the ball 12 may be slipped over the end of the handle, thereby locking the pin 44 and weight 40 in place; and by virtue of the opening 46 in the ball, the weight may be moved inwardly or outwardly without at the same time causing the ball 12 to move inwardly or outwardly. It will be understood, of course, that instead of the pin 44, other and different types of fastening devices may be employed, such as a spring-loaded ball, a key or the like.

With reference now to FIG. 4, another embodiment of the invention is shown which again includes a handle 10A of solid plastic material having reduced diameter portions 16A and 16B at its opposite ends. The reduced diameter portions 16A and 16B, in turn, receive two plastic tubes 14A and 14B each of which is provided with a plug 20A or 20B at its end opposite the handle 10A. The plugs 20A and 20B again receive weights 24A and 24B; while the opposite ends of the baton are provided with openings 26A and 26B which receive tie-strings for two flags. The tie-strings at the opposite ends of the flags (not shown in FIG. 4) are passed through openings 34A and 34B at the opposite ends of the handle 10A. In the embodiment of the

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invention shown in FIG. 4, weights 48 may be inserted into bores in the reduced diameter portions 16A and 16B, depending upon requirements.

In FIG. 5, an alternative form of the handle 10 is shown wherein a metal tube 50 having a polished surface is inserted into the interior of a surrounding transparent plastic tube 52. With this arrangement, the weight of the device is reduced; however the overall appearance of the handle is that of a metal tube of high polish.

In FIG. 6, the embodiment of the invention shown comprises a tubular member 54 formed from clear plastic material and having a central plug 56 therein and plugs 58 inserted into its opposite ends. Elastomeric balls 60 are received over the outer peripheries of the ends of the tubular member 54. With this arrangement, the tubular member 54 is divided into two compartments 62 and 64 each containing a plurality of balls 66. This embodiment of the invention is intended primarily as a toy, arrangement being such that when the baton is manipulated, the balls 66 will reciprocate back and forth.

Although the invention has been shown in connection with certain specific embodiments, it will be readily apparent to those skilled in the art that various changes in form and arrangement of parts may be made to suit requirements without departing from the spirit and scope of the invention.

I claim as my invention:

1. In a twirling baton structure, the combination of a solid-handle portion of circular cross section and formed from plastic material, a tubular plastic member secured to at least one end of said handle portion, means for securing a flag element to said baton with a border of said flag element extending along said tubular member, a plug member in the end of

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said tubular member opposite said handle portion, a device received over the other end of said handle portion opposite said tubular member, and weights at opposite ends of said baton structure, the position of at least one of said weights being adjustable along the length of the baton.

2. The baton structure of claim 1 wherein said device fitted over the end of said handle portion opposite said tubular member comprises an elastomeric ball.

3. The baton structure of claim 2 wherein said adjustable weight at one end of the baton structure is carried within said elastomeric ball.

4. The baton structure of claim 3 wherein said elastomeric ball is provided with an opening which permits said weight to project into the elastomeric ball beyond the end of said handle without the necessity for moving the ball outwardly on the handle.

5. The baton structure of claim 1 wherein said plug member is also formed from plastic.

6. The baton structure of claim 1 including holes provided in said handle portion and at the end of said tubular member opposite said handle portion for receiving tie-strings for a flag.

7. The combination of claim 1 including tubular members secured to both ends of said handle member, and plug members in the ends of said tubular members opposite said handle portion.

8. The baton structure of claim 1 wherein said handle portion is provided with a reduced diameter portion at one end thereof which fits into said tubular member and is glued thereto.

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