United States Patent [19]

Radovan

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[54] TETHERED AERIAL TOPS

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[52] **U.S. Cl.** **45/61**
[51] **Int. Cl.** **A63h 27/12**
[58] **Field of Search** 46/61

[56] **References Cited**

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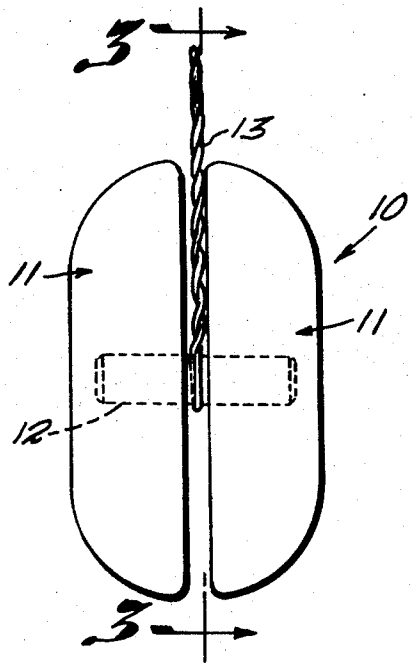
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Assistant Examiner—Robert F. Cutting
Attorney—Ernest H. Schmidt

[57] **ABSTRACT**

A yo-yo construction wherein the side disc members of the yo-yo spool are of integrally molded, substantially hollow construction is described. The spool disc members are formed with concave outer wall portions which are reinforced with a plurality of equidistantly peripherally spaced, diametrically extending web portions the converging inner ends of which merge to provide an axially extending cylindrical sleeve defining a cylindrical recess for the friction-fit reception of the interconnecting pin in the assembly of the yo-yo.

1 Claim, 4 Drawing Figures



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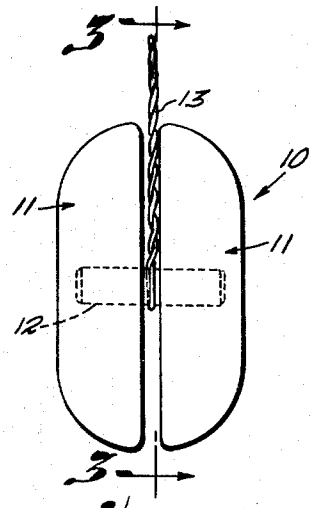


Fig. 1

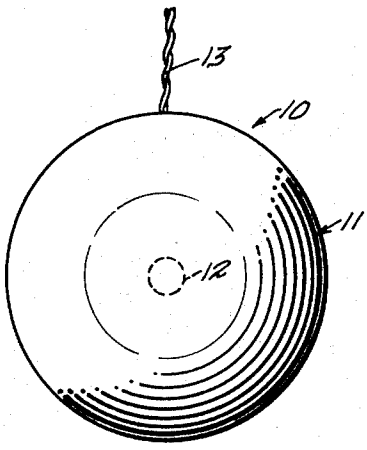


Fig. 2

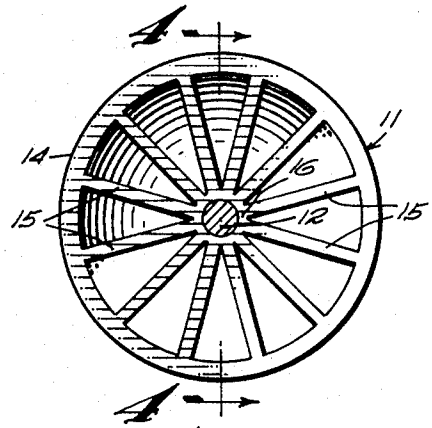


Fig. 3

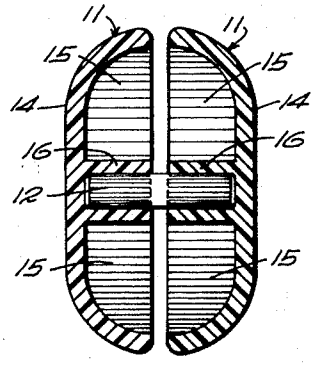


Fig. 4

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TETHERED AERIAL TOPS

This invention relates to Yo-Yos and is directed particularly to a novel and improved Yo-Yo construction resulting in more economical manufacture, while at the same time producing a humming sound during operation of the Yo-Yo.

Spool-shaped toys around which a string is wound and which is played by attaching the outer end of the string to the finger for spinning down and reeling up the spool by moving the hand, are well known and commonly called Yo-Yos. Such Yo-Yos are ordinarily fabricated by pinning together, in axially spaced relation, a pair of identical, circular side disc members to provide the Yo-Yo spool. Spacing between the side discs is made slightly wider than the width of the winding string, which passes there between at one end for fixed or slip-loop connection with the connecting pin or dowel. Because the axial thickness of the side disc members is substantial, in the order of one-fifth to one-fourth of the diameter, in the interest of economy of manufacture they are usually made of hollow construction. This is particularly true when the Yo-Yo side disc members are fabricated of injection molded synthetic plastic material. In such construction the disc members are fabricated by cementing or otherwise affixing together a concave outer disc shell portion and a flat circular disc portion enclosing the concavity defined by the inner disc portion. While thereby effecting substantial reduction in the quantity of synthetic plastic material needed in the manufacture of Yo-Yos, this construction nevertheless is comparatively costly in labor. Because of the necessity of handling in the assembly of the two parts in the production of each of the Yo-Yo spool side disc members, however, the economy effected in the saving of raw material is offset to a substantial degree by the increase in assembly costs.

It is, accordingly, the principal object of this invention to provide a novel and improved Yo-Yo construction wherein the side disc members are integrally formed while at the same time being of substantially hollow construction, thereby achieving the economic advantage of hollow disc construction without at the same time increasing assembly cost.

A more particular object of the invention is to provide, in a Yo-Yo construction, spool disc members integrally formed with concave outer wall portions the concavities of which are reinforced with a plurality of equidistantly peripherally spaced, diametrically extending web portions the inner ends of which merge to provide an axially extending sleeve defining a cylindrical recess for the reception of the interconnecting pin in the assembly of a Yo-Yo.

Still another object of the invention is to provide an improved Yo-Yo construction of the character described wherein the interior web construction of the disc members is such as will produce a pleasant humming sound while being played.

Other objects, features and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

FIG. 1 is a front-elevational view of a Yo-Yo embodying the invention;

FIG. 2 is a side view thereof;

FIG. 3 is a vertical cross sectional view taken along the line 3—3 of FIG. 1 in the direction of the arrows and illustrating construction details of one of the side disc members; and

FIG. 4 is a vertical cross sectional view taken along the line 4—4 of FIG. 3.

Referring now in detail to the drawings, reference numeral 10 in FIGS. 1 and 2 designates an improved Yo-Yo embodying the invention, the same being comprised, generally, of a pair of identical round side disc members 11, 11 secured in axially spaced relation by means of a connector pin or dowel 12 to which is attached one end of a string 13. As illustrated in FIG. 1, the string attachment is in the form of a loop allowing for rotary slippage of the Yo-Yo body at the end of the string in use, as is hereinbelow more particularly described.

The side disc members, which are preferably integrally molded of a tough synthetic plastic material, are formed with a circular, concave outer wall or shell portion 14 defining an interior concavity bridged by a plurality of radially extending peripherally equidistantly spaced web portions 15. The inner ends of the web portions 15 merge in the form of an axially extending sleeve portion 16 providing a cylindrical recess for the reception of one end portion of the connector pin 12. The integrally formed web portions 15 are of such thickness and so spaced as to provide substantial rigidity in the disc members 11 while at the same time defining, along their edges, together with the peripheral edge of the outer wall portion 14, a common plane between each of which in the Yo-Yo assemblage the string is constrained in its winding and unwinding upon the pin 12. The connecting pin 12, which may be of aluminum or wood, for example, is of such diameter as to permit press-fitting within the cylindrical recesses defined by the sleeve portions 16 of the opposed shell portions 14, as best illustrated in FIG. 4. The pin 12 will preferably be fluted or knurled along each end for improved friction fit interconnection, and will be of such length as to provide the desired string gap between the side disc members 11,11 when said side disc members are pressed home upon their respective pin ends.

In playing the Yo-Yo, the loop connection at the lower end of the string 13 permits free slippage when the Yo-Yo body is forcefully thrust to the outer end of the string until such time as the string is jerked or pulled upon to effect a clutching action for return of the Yo-Yo body up the string. While the Yo-Yo is thus manipulated so as to dwell temporarily at the outer extremity of the string, a high rotary speed thereof substantially exceeding that in its travel down the string is achieved which, in combination with the multiplicity of at least 12 web portions 15 of each of the side disc members, causes such disturbance of the air within and around the body of the Yo-Yo as to effect a pleasant and amusing humming or singing sound that, in any given Yo-Yo embodying the invention, can be varied in pitch over a discernible range depending upon the force with which the Yo-Yo body is projected to its string end position.

While I have illustrated and described herein only one form in which my invention can conveniently be embodied in practice, it is to be understood that this form is presented by way of example only and not in a limiting sense. The invention, in brief, comprises all the

embodiments and modifications coming within the scope and spirit of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a Yo-Yo, the combination comprising, a pair of circular side disc members, an interconnecting pin, means including said interconnecting pin for retaining said side disc members in coaxially spaced disc position to provide a Yo-Yo pool, said pin extending coaxially between said side disc members, a string connected at one end to said pin and extending outwardly between said side disc members, said string connection being in the form of a loop permitting free slippage of said pin therein, said side disc members each being integrally formed and comprising a concave outer wall portion, a central, inwardly extending sleeve portion, and a plurality of at least 12 reinforcing rib portions within the concavity of said outer wall portion and joining interior portions of said outer wall portion with said sleeve portion, the sleeve portions of said side disc members defining coaxially extending cylindrical recesses, the end of said pin being received within said cylindrical recesses, the diameter of said pin being such as to permit press-fitting of the ends thereof into said cylindrical recesses for friction fit retention therein, said plurality of reinforcing rib portions extend radially between said sleeve portion and the outer periphery of said concave outer wall portion in each of said side disc members, and being equidistantly peripherally spaced thereabout, the outer edges of said plurality of rib portions and the outer end of said sleeve portion lying in a plane in common with the peripheral edge of said side disc member.

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