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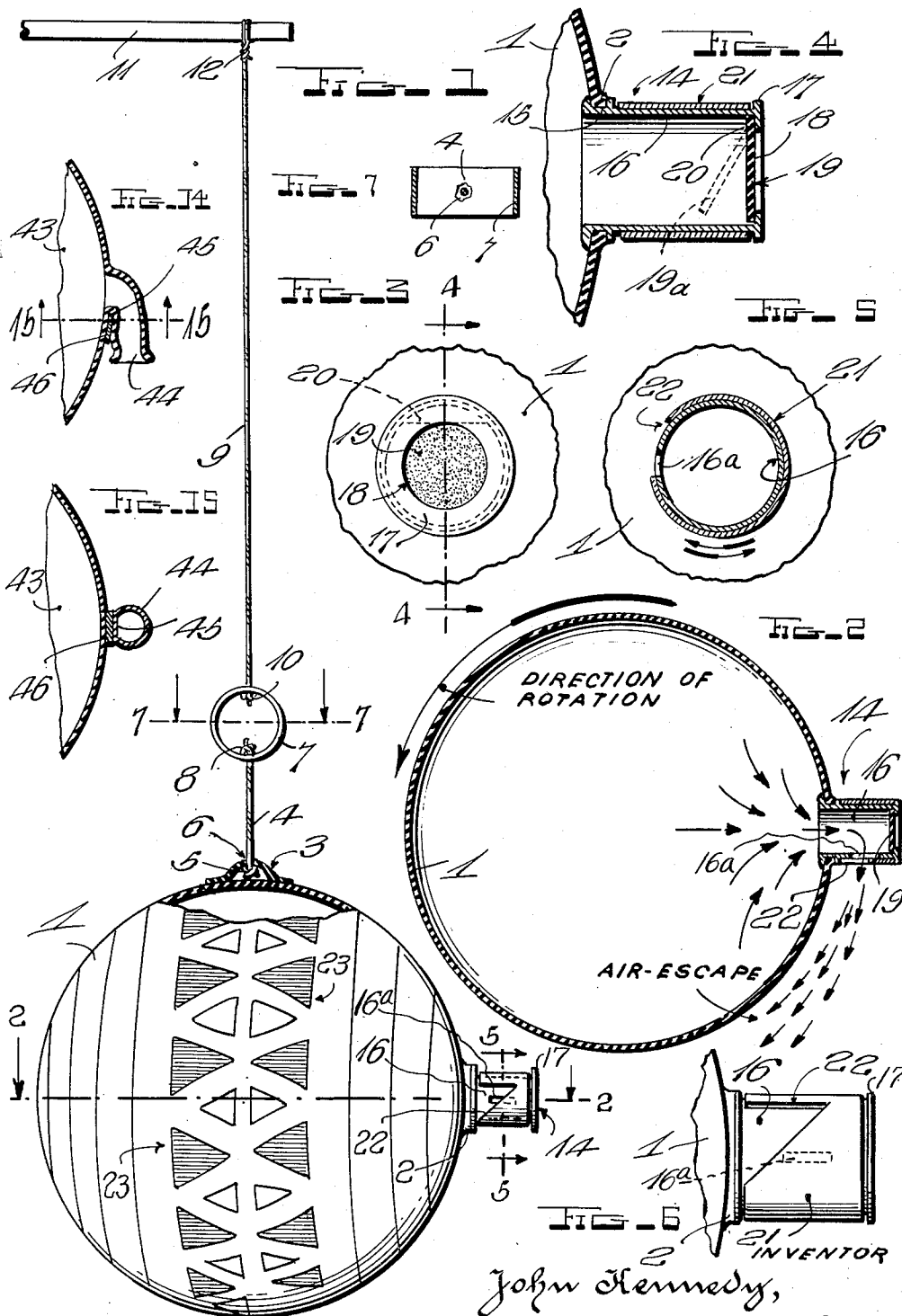
J. KENNEDY

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JET PROPELLED SPINNING BALLOON

Filed July 12, 1946

2 Sheets-Sheet 1



INVENTOR
John Kennedy,
John B. Brady
ATTORNEY

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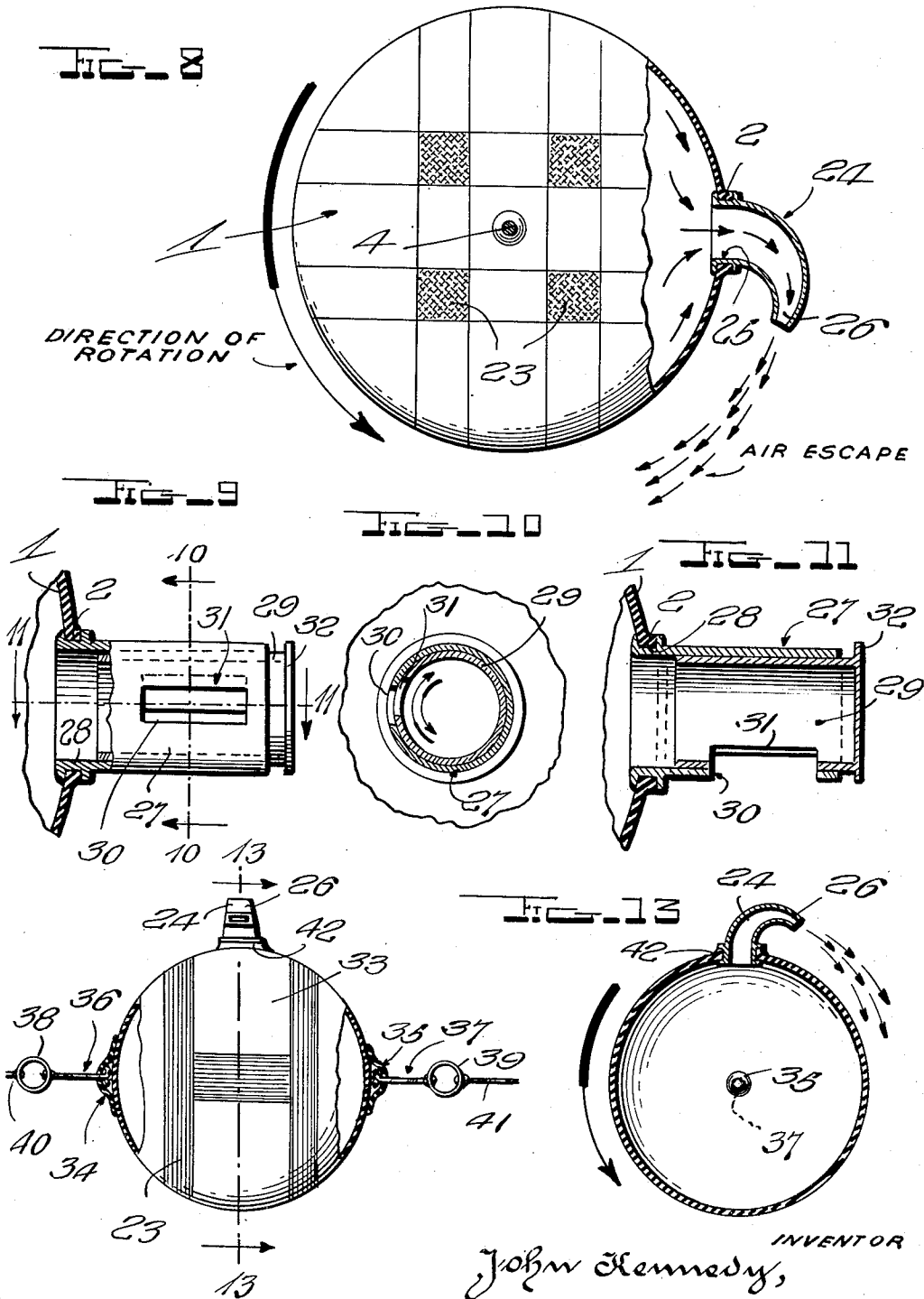
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INVENTOR
John Kennedy,

John Q. Brady
ATTORNEY

UNITED STATES PATENT OFFICE

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JET-PROPELLED SPINNING BALLOON

John Kennedy, Detroit, Mich.

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3 Claims. (Cl. 46—56)

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My invention relates broadly to toys and more particularly to an inflatable balloon spinning toy.

One of the objects of my invention is to provide an improved construction of inflatable balloon spinning toy which is simple to manufacture and may be inexpensively produced on a mass production scale and which is attractive and entertaining in its use.

Another object of my invention is to provide a novel construction of inflatable balloon operative to spin about a suspension axis under control of a tangential jet of escaping air operating to rapidly revolve the balloon.

Another object of my invention is to provide a novel construction of nozzle for inflatable toy balloons for directing and controlling the discharge of air therefrom in a tangential direction for causing the spinning of the balloon about a suspension axis.

Other and further objects of my invention reside in the construction and arrangement of spinning inflatable balloon, as set forth more fully in the specification hereinafter following by reference to the accompanying drawings, in which:

Figure 1 is an elevational view of the spinning balloon with a portion thereof broken away and illustrated in section showing more clearly the manner of suspending the balloon; Fig. 2 is a transverse sectional view on line 2—2 of Fig. 1 showing the arrangement of the valve in the side of the inflatable balloon for directing the discharge of air therefrom in a tangential direction for spinning the balloon about the suspension axis; Fig. 3 is an elevational view looking at the front of the jet control valve; Fig. 4 is an enlarged sectional view through the jet control valve taken on line 4—4 of Fig. 3; Fig. 5 is a vertical sectional view taken on line 5—5 through the jet control valve illustrated in Fig. 1; Fig. 6 is a side elevational view of the jet control valve illustrated in closed position; Fig. 7 is a transverse sectional view taken on line 7—7 of Fig. 1 and showing the swivel ring through which the suspension axis of the spinning balloon passes; Fig. 8 illustrates a modified form of spinning balloon embodying my invention; Fig. 9 shows a further modified form of jet control valve which may be employed in the spinning balloon of my invention; Fig. 10 is a transverse sectional view taken on line 10—10 of Fig. 9; Fig. 11 is a longitudinal sectional view taken on line 11—11 of Fig. 9; Fig. 12 illustrates a further modified form of the spinning balloon of my invention in which the spinning of the balloon takes place about a horizontal axis; Fig. 13 is a transverse sectional view on line 13—13 of

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Fig. 12; Fig. 14 is a fragmentary view of a further modified form of spinning balloon embodying my invention, and Fig. 15 is a sectional view taken on line 15—15 of Fig. 14.

The inflatable spinning balloon of my invention comprises the rubber balloon bag 1 having an outlet 2 at one side thereof for receiving a special form of jet control valve. The inflatable rubber bag 1 has a thin rubber disc 3 arranged at the top thereof forming a connection means for the suspension cord 4 which passes through the thin rubber disc 3 as shown at 6 and is knotted at 5 beneath the disc 3. The disc 3 is cemented about its periphery to the balloon bag 1 and expands and contracts with the material of the balloon while confining the knotted end 5 of the cord 4. The suspension cord 4 extends through one side of the swivel ring 7 and is secured therein by knot 8. The swivel ring 7 has its diametrically opposite side apertured to receive suspension cord 9 which is knotted therein as represented at 10. Suspension cord 9 hangs from the suspension stick 11 to which it is suitably secured by appropriate knotting 12. The spinning balloon may be held by means of suspension stick 11 allowing the balloon to freely hang subject to rotation about the axis of suspension cords 4 and 9 under control of the jet control valve illustrated generally at 14 located at the side of the inflated balloon bag 1. The jet control valve may be formed in various constructions. The air must escape from this valve in order to spin the inflated balloon. In the form of valve illustrated in Figs. 1-6, the aperture 2 at the side of the balloon 1 is provided with an enlarged flange which engages within an annular groove 15 in the end of the tubular stem 16. The tubular stem 16 terminates in an annular end flange 17 centrally apertured at 18 to provide a port through which the rubber bag 1 may be inflated. The flange 17 forms a mouthpiece to facilitate the blowing up of the rubber bag 1 to form the balloon. A flexible diaphragm 19 is secured interiorly of the flange 17 at one side thereof, as represented at 20, by gluing or otherwise, so that the diaphragm 19 may be forced to the dotted line position 19a in Fig. 4, while the rubber bag 1 is being inflated and will be forced to the full line position as illustrated in Fig. 4 after the rubber bag 1 has been inflated into a balloon to prevent escape of the air from the balloon. The hollow tubular stem 16 provides mounting means for the adjustable sleeve-like or cylindrical valve 21 which surrounds the stem 16. The stem 16 has a longitudinally extending slot 17 therein forming an opening for the escape of

air from the inflated balloon. This opening 16a is normally closed by revolving sleeve 21 to a position covering slot 16a while the rubber bag 1 is being inflated by blowing up the rubber bag 1 through the mouthpiece formed by flange 16a. The sleeve 21 is shaped to provide a V-shaped recess 22 in one side thereof. The V-shaped recess 22 serves as a means for controlling the area of the discharge aperture 17 through which the air from the inflated balloon 1 may be discharged. The slot 17 is covered by the inclined edge of the V-shaped recess 22 in varying degrees for thus controlling the rate at which the air escapes from the side of the inflated balloon 1 as represented in Fig. 2. By variably covering or uncovering the escape slot 17 the quantity of air discharged from the inflated balloon 1 for a given time is controlled for correspondingly controlling the rate of rotation of the inflated balloon 1. The V-shaped contour of recess 22 permits a very accurate control of the effective escape area for the air through slot 17. The air, in discharging from the inflated balloon 1, is directed tangentially to the side of the inflated balloon 1, thereby developing a jet propulsion force tending to spin the balloon 1 about the suspension axis thereof. By providing ornamentation, as represented at 23, on the surface of the balloon, various esthetic and attractive effects may be produced by the spinning balloon.

In Fig. 8 I have illustrated a modified form of inflatable balloon 1 suspended by cord 4 and provided with a shaped orifice 24 projecting into the opening 2 in one side of the rubber bag 1. The orifice 24 is horn-shaped and is provided with an annular groove 25 on one end thereof into which the enlarged flange of the opening 2 of the rubber bag 1 is engaged. The horn-shaped orifice 24 is curved toward the inflatable rubber bag 1 terminating in a mouthpiece 26 through which the rubber bag 1 may be inflated and from which the air from the inflated balloon 1 may be discharged tangentially to the inflated balloon 1 for spinning the balloon about the suspension axis 4.

Figs. 9, 10, and 11 illustrate a further modified form of a jet control valve for the inflatable rubber balloon, in which a tubular sleeve 27 having a grooved end 28 is provided and the grooved end thereof engaged by the flange 2 of side opening of the balloon 1. The sleeve 27 constitutes a holder for the rotatable sleeve 29 which extends into the interior of sleeve 27. Sleeves 27 and 29 each include longitudinally extending apertures 30 and 31 therein which may be variably aligned by revolving the sleeve 29 within sleeve 27 by manually twisting flange 32 on sleeve 29. The rubber bag 1 is inflated by aligning apertures 30 and 31 to allow entry of air into the bag. When inflated, the sleeve 29 may be moved to a position in which the cylindrical wall thereof wholly closes the slot 30. When it is desired to spin the balloon, the sleeve 29 is twisted in that position which so registers slot 31 with slot 30 that a predetermined quantity of air may be discharged at a rate which governs the speed of rotation of the balloon.

The concentric tubes 27 and 29, while being rotatably adjustable one with respect to the other, fit each other so snugly that the frictional grip between the tubes prevents dislodgement thereof by the pressure of the escaping air from the balloon as the rubber bag 1 contracts to expel the enclosed air.

In Figs. 12 and 13 I have shown the principles

of my invention applied to a toy balloon which is suspended on a horizontal axis. The balloon in this arrangement is illustrated at 33, having thin rubber discs 34 and 35 arranged at diametrically opposite sides thereof through which horizontally extending cords or strings 36 and 37 extend. Both strings are knotted on their ends and the knots are confined by the discs 34 and 35. The discs 34 and 35 are cemented at their peripheries to the inflatable rubber bag 33. These rubber discs may be secured to rubber bag 33 by a vulcanizing process. The horizontally stretchable cords or strings 36 and 37 connect with swivel rings 38 and 39, respectively, which are in turn connected to suspension cords 40 and 41 which may be stretched horizontally and held in the opposite hands. The inflatable bag 33 is provided with an aperture 42 adjacent the top thereof through which a horn-type insert 24 of the construction similar to that illustrated in Fig. 8 is inserted. That is to say, the same type of orifice 24 is employed in the form of my invention illustrated in Figs. 12 and 13 as that shown in Fig. 8. The opening 26 in the horn-type orifice 24 is directed to a position in which air is discharged tangentially to the side of the inflated balloon 33, thereby spinning the balloon about a horizontal axis when the balloon is stretched between the horizontally extending cords or string 40-36 and 41-37.

In Figs. 14 and 15 I have shown a modified arrangement of tangentially directed discharge orifice in which the inflatable balloon bag shown at 43 has the tubular neck 44 thereof cemented at the inner side 45 thereof directly to the side wall of the bag 43 as represented by the cement 46. This maintains the neck 44 in a tangential position with respect to the side wall of the inflatable balloon 43 so that after inflation the balloon is forced to spin about the suspension axis by discharge of air in a tangential direction with respect to the spherical wall of the balloon.

While I have described my invention in certain of its preferred embodiments, I realize that modification may be made in the details of the construction of the jet control valve and other features of the toy, and I desire that it be understood that no limitations upon my invention are intended other than may be imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. A jet propelled spinning balloon comprising an inflatable collapsible resilient bag, a suspension means connected with the top of the bag, the bag being rotatably suspended thereby, an inflating and discharge connection at one side of the bag and an inflating valve insertable into said connection and operating to direct a jet of air tangentially and horizontally from the inflated balloon for rotatably driving it, said valve comprising a cylindrical stem having a slot in one side thereof and an encircling coacting cylindrical stem closed at one end thereof and having a slot in the side thereof variably and selectively alignable with the slot in the aforesaid cylindrical stem for variably and selectively controlling the discharge of air from said inflated balloon for spinning the balloon at selected velocities about the suspension means.

2. A jet propelled spinning balloon comprising an inflatable collapsible resilient bag, a suspension means connected with the top of the bag, the bag being rotatably suspended thereby, an inflating and discharge connection at one side

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of the bag and an inflating valve inserted into said connection and operating to direct a jet of air tangentially and horizontally from the inflated balloon for rotatably driving it, said valve including a cylindrical stem projecting from said connection, and closed at the outer extremity thereof, said stem having a laterally directed aperture in the cylindrical wall thereof and a sleeve rotatably encircling said stem, said sleeve having a portion shaped to variably close the aperture in said stem by rotation thereabout for selectively regulating the rate of discharge of air from said inflated balloon for correspondingly controlling the rate of rotation thereof about said suspension means.

3. A jet propelled spinning balloon comprising an inflatable collapsible resilient bag, a suspension means connected with the top of the bag, the bag being rotatably suspended thereby, an inflating and discharge connection at one side of the bag and an inflating valve inserted into said connection and operating to direct a jet of air tangentially and horizontally from the inflated balloon for rotatably driving it, said valve including a cylindrical stem projecting from said connection, and closed at the outer extremity thereof, said stem having a laterally directed aperture in the cylindrical wall thereof and a sleeve rotatably encircling said stem, said sleeve

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having a V shaped recess extending inwardly from an end of the wall thereof operative to variably and selectively cover and uncover the aperture in said stem in varying amounts as said sleeve is rotated about said stem for selectively controlling the size of the jet expelled from the balloon and correspondingly controlling the rate of rotation of the balloon about the suspension means.

JOHN KENNEDY.

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