Feb. 16, 1926. 1,573,527

R. SIMONEK

FLYING TOP

Filed June 26, 1925

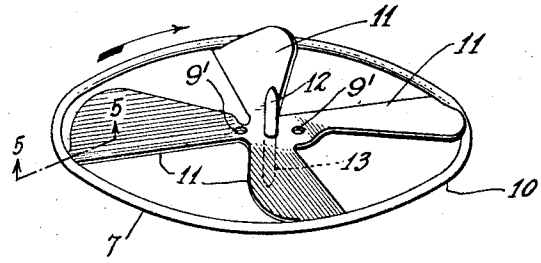


Fig. 2

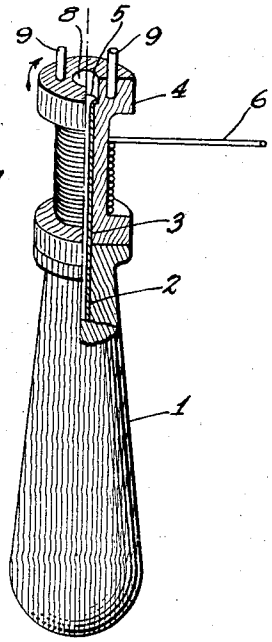


Fig. 1

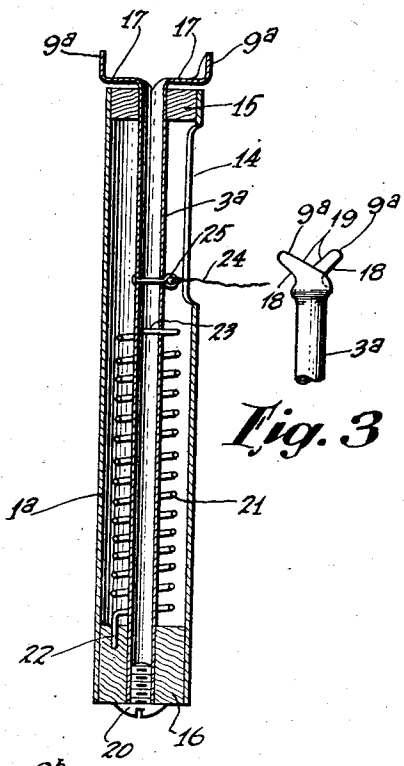


Fig. 3

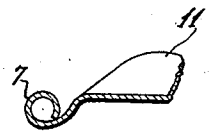


Fig. 5

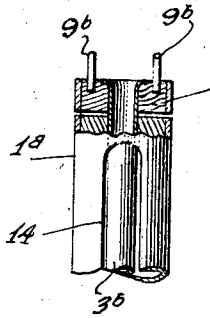


Fig. 4

INVENTOR.
Rudolph Simonek
BY Jas. H. Griffin
ATTORNEYS.

Patented Feb. 16, 1926. 1,573,527

UNITED STATES PATENT OFFICE.

RUDOLPH SIMONEK, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO MICHAEL PILNACEK, OF NEW YORK, N. Y.

FLYING TOP.

Application filed June 26, 1925. Serial No. 39,853.

To all whom it may concern:

Be it known that I, RUDOLPH SIMONEK, a citizen of Czechoslovakia, residing at New York city, county and State of New York, have invented a certain new and useful Flying Top, of which the following is a specification.

This invention is a flying top adapted to spin on both a floor and ceiling and embodies wings or vanes, whereby the top, when rotated rapidly, is caused to rise to and spin on the ceiling until its force is spent sufficiently to effect its slow descent, whereby it will continue to spin but on the floor.

The invention embodies numerous novel features. For example, the top is made in the form of a spinner embodying a plurality of radially extending vanes or wings, the outer ends of each of which are formed integral with or secured to a ring and coaxially with the ring the spinner is provided with two pegs, one of which extends above the plane of the spinner and the other one of which extends below said plane. The upper peg coacts with the ceiling when the top is in engagement therewith, while the lower one coacts with the floor to support the top thereon. These pegs are in the form of a pin having a sharp or rounded point so as to form an efficient spinning support. The utilization of both upper and lower pins constitutes one important feature of this invention, since, never before has a spinning top been provided adapted to be spun on the ceiling and provided with a peg for this purpose.

Another feature of the invention resides in means whereby the cord normally employed to impart rapid rotation to the top is automatically rewound upon the drum or spool with which it cooperates. Heretofore it has been the practice in aerial toys to wind up the string manually and, as a general rule, the winding of the string is so loose as to cause binding, when rapidly operated to release the spinner. In accordance with the present invention, the string is pulled to release the top and as soon as tension on the string is relieved, said string will be immediately rewound and made ready for subsequent spinning operation.

Additional features of the invention are found in the structural peculiarities of the respective parts of the device, which are constituted to render the operating parts efficient and at the same time economical to manufacture. For example, the top embodying the wings and peripheral ring may, in practice, be stamped up from sheet metal and a ring formed by rolling a portion of the blank so as to give a smooth sightly contour sufficiently heavy to prolong rotation of the top in accordance with gyroscopic principles, but, sufficiently light, so as not to seriously interfere with the function of the wings in lifting the top to the ceiling. Moreover, the means for operating the top may be of very simple construction as is more fully set forth hereinafter.

Features of the invention, other than those specified, will be apparent, from the hereinafter detailed description and claim, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate different practical embodiments of the invention, but the constructions shown therein are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a perspective view partly in section showing one form of the present invention. In this view, the device is shown in operation, the top having just left the operating means and in the act of ascending.

Figure 2 is a central section of a modified form of operating means.

Figure 3 is a fragmental side elevation of a part of the construction of Figure 2.

Figure 4 is a fragmental elevation partly in section of another modified form of operating means; and,

Figure 5 is a section on the line 5—5 of Figure 1.

Referring to the drawings and more particularly to the construction of Figures 1 and 5, 1 designates a suitable handle shown in this form of the invention as made of wood. One end of the handle is provided with a pocket 2 into which is forced one end of a tube 3 so as to be rigid with the handle. Over the projecting portion of the tube a spool or drum 4 is slipped and the free end of the sleeve flanged out, as shown at 5, to hold the drum in position while permitting rotation of the drum on the tube. A cord 6 is coiled about the drum and when

tension is applied to the cord to unwind the same, rotation is imparted to said drum for the purpose of actuating the top 7.

Positioned coaxially of and in the top of the drum is a pocket 8 and at diametrically opposite sides of the pocket, are two operating arms 9. These arms are shown in the form of pins driven into the end of the drum and substantially parallel to one another, although in practice, they may be bent out of parallel relation for reasons hereinafter more fully described.

The top 7 embodies a ring 10 formed integral with a plurality of vanes 11 which extend radially of the ring and are joined together at the center. These parts may, in practice, be stamped up from sheet metal and the ring formed by rolling in the periphery of the blank, as shown in Figure 5, so as to furnish a smooth surface. The vanes are each bent out of the true plane of the blank, so that each vane forms a portion of the helix in order that said vanes may function as propellor blades and thereby impart a lifting action to the top when the top is rapidly rotated.

Positioned coaxially of the top are two pegs 12 and 13, both of which are in alinement and may, in practice, be made in one piece passed through a perforation in the blank and rigidly secured in position. The peg 12 may be termed the upper peg since it extends in an upward direction to a point above the uppermost points of the blades. The peg 13 may be termed the lower peg as it extends downwardly to a point well below the lowermost point of the blades. The free ends of both pegs are rounded or pointed to provide efficient bearing surfaces on which the top is adapted to spin.

Formed in the blank from which the top is made and at opposite sides of the axis are two holes 9′ which are spaced from the axis the same distance as the arms 9 are spaced from the pocket 8, so that when the peg 13 is seated in the pocket, the arms 9 will extend through the perforations 9′. This is the preferred arrangement, although, if desired, the arms may be set further apart so as to engage with the edges of two of the blades 11 and in that case, the perforations 9^a will not be necessary. Moreover, four operating arms instead of two can be used.

When the top is seated on the drum in the manner described and the cord wound upon said drum, the handle may be held in an upstanding position and the cord pulled to impart rapid rotation to the drum. Such rotation will be communicated to the top, which, because of the lifting action of the blades will rise from the top of the drum and after disengaging itself from the operating arms in the pocket will ascend to the ceiling, with which the peg 12 will engage. The rapid rotation of the top will cause the top to remain in engagement with the ceiling and spin on the peg 12 until the force of such rotation is spent, whereupon the top will slowly gravitate to the floor, whereat the peg 13 will engage while the top continues to spin until its force is fully spent. During these operations, the momentum of the ring 10 will exert a gyroscopic action on the top so as to prolong its activity.

In Figure 2, I have illustrated a modified form of construction wherein the handle 1^a is in the form of a tube provided in one side with a slot 14 and closed at its opposite ends by plugs 15 and 16. A tube 3^a extends through the full length of the handle and beyond one end thereof is split to provide radially extending brackets 17, the free ends of which are turned up to provide operating arms 9^a as shown in Figures 2 and 3.

These operating arms are so shaped that both their forward and rear edges 18 and 19 slope in a direction in which the top leaves the operating means for reasons presently to be described.

The lower end of the tube 3^a has associated therewith a screw 20 to hold the tube against longitudinal movement in one direction, while the brackets 17 will preclude its movement in the other direction.

Positioned within the handle 1^a is a coiled spring 21, one end of which is anchored to the plug 16 at 22 and the other end of which is anchored to the tube 3^a at 23. A string 24 extends through the slot 14 and is secured to the tube at 25. The parts are so arranged that when the spring is de-energized, the cord will be wound upon the tube, the unwinding of the cord serving to energize the spring. Thus, in normal condition, the cord is wound on the tube and the spring de-energized. If the top shown in Figure 1 is seated on the brackets 17 with the lower peg 13 extending into the interior of the tube and the operating arms 9^a projecting between the blades, the spring will thus be in a position to operate the top and if quickly pulled will impart rapid rotation to the tube and top for the purpose of freeing the top and causing its ascending.

Simultaneously with the withdrawal of the string, the spring will be placed under tension so that as soon as the tension on the string is relieved the spring will immediately wind up the string. I have referred to the particular shaping of the operating arms 9^a. They are shaped so as to substantially conform to the helix of rising motion of the blades, so that as the top leaves the blades, there will be practically little if any friction between blades and the operating arms. This feature renders the device highly efficient in imparting prolonged rotation to the top.

In Figure 4, a further modified form of construction is shown. Here, instead of splitting the tube and bending it out to form brackets, the tube 3^b carries a head 26 which, in turn, carries the operating arms 9^b, similar to the operating arms 9. Otherwise, the construction is the same as shown in Figure 2.

It will be noted that in each of the several embodiments of the invention shown, the device embodies, generally stated, an aerial top provided with two pegs and a suitable drum adapted to be locked against rotation to the top for the purpose of operating said top. In Figure 1, the drum bears the reference character 5; in Figures 2 and 3, the tube 1^a and brackets 17 collectively form the drum, while in Figure 4, the tube 3^b and head 26 form the drum. In Figures 2 and 3, two brackets and two operating arms are shown, although it will be understood that three or more may be formed on the drum.

I am aware that aerial toys embodying spinners are old and well known, and I make no claim to these broadly. It will be apparent from the foregoing description, however, that the invention embodies certain novel features, certain of which produce new results and others of which produce old results in a greatly improved manner. For example, the use of both upper and lower pegs adapting the top to spin on a ceiling embodies pronounced novelty. Moreover, the employment of automatic means to rewind the cord is also highly novel in this art. Other features than those to which I have not now specifically referred have hereinbefore been described in detail. The drawings show preferred embodiments of the invention, and the invention is to be understood as fully commensurate with the appended claim.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

An aerial top embodying a plurality of radially extending lifting blades supported at their outer ends by an integral ring of hollow circular cross section, said top being provided with two coaxial pegs one of which extends upwardly and is adapted to cooperate with a ceiling and the other one of which extends downwardly and is adapted to cooperate with a floor, in combination with operating means for said top comprising a handle, a drum rotatably mounted on the handle and provided in its end with a hole into which the lower peg of the top is adapted to seat, a cord having one of its ends secured to the drum and the remainder of the cord being adapted to be wound on the drum, arms carried by the drum and projecting beyond the end thereof and into engagement with the blades to preclude relative rotation between the top and the drum when the peg of the top is in engagement with the hole of the drum.

In testimony whereof I have signed the foregoing specification.

RUDOLPH SIMONEK.